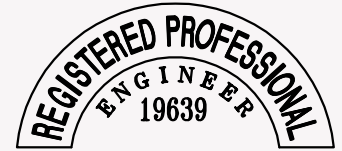


MACKENZIE.



EXPIRES: 12/31/24

TUX PROJECT TRANSPORTATION IMPACT ANALYSIS

To
City of Tualatin

For
Lam Research

Dated
July 8, 2024

Project Number
2240022.00



MACKENZIE
Since 1960
© 2024 Mackenzie Inc.

RiverEast Center | 1515 SE Water Avenue, Suite 100, Portland, OR 97214
PO Box 14310, Portland, OR 97293 | T 503.224.9560 | www.mackenzie.inc



TABLE OF CONTENTS

I.	Introduction	1
	Project Description	1
	Scope of Analysis	1
	Study Area.....	2
	Analysis Scenarios.....	2
II.	Existing Conditions	3
	Site Conditions	3
	Vehicular Transportation Facilities	3
	Pedestrian and Bicycle Facilities	3
	Transit Facilities	4
	Existing Traffic Counts	4
	Seasonal Adjustment	4
	Crash Analysis	4
	Crash Data Summary.....	6
	Intersection Crash Rates	6
III.	Pre-Development Conditions	7
	Planned Transportation Improvements	7
	Background Traffic Growth	7
	In-Process Traffic.....	7
	Pre-Development Traffic.....	8
IV.	Site Development	9
	Trip Generation	9
	West Access Reroutes.....	9
	Trip Distribution and Assignment	9
	Post-Development Traffic	10
V.	Site Access and Circulation	11
	Site Access	11
	Access Standards	11
	On-Site Circulation	11
	Sight Distance Evaluation.....	12
VI.	Operational Analysis.....	13
	Intersection Operation Analysis	13
	Performance Measures.....	13
	Methodology.....	13
	Findings	13
	Intersection Queuing Analysis.....	16
	Methodology.....	16
	Findings	16
VII.	Warrants	20



Traffic Signals	20
Turn Lanes.....	20
VIII. Recommendations	21
IX. Appendix.....	22

LIST OF FIGURES (SEE APPENDIX A)

- Figure 1 – Vicinity Map
- Figure 2 – Site Plan
- Figure 3 – Existing Traffic Control Devices + Lane Configurations
- Figure 4 – 2024 Existing Traffic Volumes
- Figure 5 – 2024 Seasonally Adjusted Traffic Volumes
- Figure 6 – Background Growth, 3 Years at 1% per Year
- Figure 7 –In-Process Traffic
- Figure 8 – Building G – New Trips
- Figure 9 – Building G – Rerouted Trips
- Figure 10 – 2027 Pre-Development Traffic Volumes
- Figure 11 – West Leveton Access Rerouted Traffic
- Figure 12 – Trip Distribution
- Figure 13 – Phase 1 Trip Assignment
- Figure 14 – Phase 1 2027 Post-Development Traffic Volumes
- Figure 15 – Background Growth, 3 Years at 1% per Year
- Figure 16 – Phase 2 Trip Assignment
- Figure 17 – Phase 2 2030 Post-Development Traffic Volumes

I. INTRODUCTION

This Transportation Impact Analysis (TIA) has been prepared in support of an Architectural Review for the proposed laboratory and office buildings 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 205,000-square-foot (SF) laboratory facility (Building X), 164,000 SF office building (Building T), and 55,000 SF utility building (Building U) are proposed in the southwest corner of the Lam campus. These buildings, referred to as TUX, will be occupied by up to 600 new employees. Much of this space is currently used as surface parking, which will be relocated to the north section of the campus. The net increase in parking is anticipated to be 430 spaces. The buildout year for the laboratory facility is assumed to be 2027 for Phase 1 and 2030 for Phase 2, as summarized below.

Phase 1 – 2027 Occupancy for up to 360 employees:

- Building T (office)
- Building X (147 KSF of lab)
- Building U (utility building)
- Expand north parking lot (new + replaced parking)
- New employee access to Tualatin Road opposite SW 115th Avenue

Phase 2 – 2030 occupancy for an additional 240 employees:

- Building X (lab expansion to 205 KSF)
- New parking lot at northwest corner of campus

The west access to SW Leveton Drive at the southwest corner of the site will be relocated to the east and repurposed as a truck access for deliveries to the existing and proposed buildings.

The parking areas along the north side of the campus will be expanded to offset the loss of the southwest lot and to accommodate additional need with the TUX project. The permanent access to the expanded employee parking lots is proposed at Tualatin Road opposite SW 115th Avenue. This access is currently used by JAE and a gated emergency access is provided to Lam. With the proposal, the driveway would primarily be used as access for Lam employees and will continue to provide access to JAE, especially for their loading dock area.

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 20, 2024, was submitted to City staff and discussed in a meeting on June 27, 2024. As noted in in the email string included in Appendix B, one additional study area intersection

was added to the study. 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 public intersections are included in the study area:

- SW Leveton Drive/SW 118th Avenue
- SW Leveton Drive/SW 108th Avenue
- SW Tualatin Road/SW Teton Avenue
- SW Tualatin Road/SW 108th Avenue
- SW Tualatin Road/SW 112th Avenue
- SW Tualatin Road/SW 115th Avenue
- SW 124th Avenue/SW Leveton Road
- SW 124th Avenue/SW Tualatin Road
- SW 124th Avenue/OR 99W
- SW Herman Road/SW 108th Avenue
- SW Hazelbrook Road/SW 115th Avenue
- SW Hazelbrook Road/OR 99W
- SW Herman Road/SW Teton Avenue

The following site driveways will also be studied (includes those opposite public streets listed above):

- SW Leveton Drive/West Access (to be relocated east)
- SW Leveton Drive/Center Access
- SW Leveton Drive/East Access
- SW 108th Avenue/North Access (currently gated)
- SW 108th Avenue/Center Access (approved with Building G)
- SW 108th Avenue/South Access (approved with Building G)
- SW Tualatin Road/SW 115th 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 TIA addresses AM and PM peak hour conditions for the following scenarios:

- 2024 Seasonally Adjusted
- 2027 Pre-Development without proposed office and laboratory
- 2027 Post-Development with Phase 1 proposed office and laboratory
- 2030 Post-Development with Phase 2 proposed office and laboratory

II. EXISTING CONDITIONS

The existing conditions analysis is based on a current year 2024 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 75.95 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 site plan for both phases of the TUX project, along with the entire campus, 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
SW 115th Avenue	Minor Collector	35 mph	2	No	None	Yes
SW Hazelbrook Road	Minor Collector	35 mph	2	No	None	South side

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 OR 99W (Pacific Highway W) 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 traffic counts were collected for the intersection of Tualatin Road and 112th Avenue on May 14, 2024, from 7 AM to 10 AM and from 4 PM to 6 PM. Counts for the intersections on SW Hazelbrook Road were collected on June 11, 2024, from 7 AM to 9 AM and 2 PM to 6 PM. All other traffic counts were collected on Tuesday, April 23, 2024, for the entirety of the day. Traffic counts from 2018 were used for the intersection of SW Teton Avenue/SW Herman Road. A summary of all 2024 traffic counts is presented in Figure 4.

The current campus driveway counts during the peak hours of the site (8-9 AM, 4:45-5:45 PM) are 371 and 378, respectively. A summary of the driveway volumes during these peak hours of the site is included in Appendix D.

Seasonal Adjustment

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 1.04 derived from data presented in ODOT’s 2022 Seasonal Trend Table for the “Commuter” trend was applied to 2024 existing through volumes on OR 99W. The 2022 seasonally adjusted traffic volumes are presented in Figure 5. The seasonal adjustment calculation is provided in Appendix E for reference.

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 2018 through 2022 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 2. The raw crash data are provided in Appendix F.

TABLE 2 – INTERSECTION CRASH RATES								
Intersection (Traffic Control Type)	Year					Total Crashes	ADT	Crash Rate
	2018	2019	2020	2021	2022			
OR 99W/ SW 124th Avenue (Signalized)	3	4	1	4	3	15	48,400	0.17
SW Tualatin Road/ SW 124th Avenue (Signalized)	1	3	1	4	5	14	26,900	0.29

TABLE 2 – INTERSECTION CRASH RATES								
Intersection (Traffic Control Type)	Year					Total Crashes	ADT	Crash Rate
	2018	2019	2020	2021	2022			
SW Tualatin Road/ SW 115th Avenue (TWSC)	1	0	0	0	0	1	15,500	0.04
SW Tualatin Road/ SW 112th Avenue (TWSC)	0	0	0	0	0	0	14,700	0.00
SW Tualatin Road/ SW 108th Avenue (TWSC)	0	0	1	1	1	3	15,300	0.13
SW Leveton Drive/ SW 124th Avenue (Signalized)	1	4	1	0	1	7	15,700	0.24
SW Leveton Drive/ SW 118th Avenue (AWSC)	0	0	0	0	0	0	4,200	0.00
SW Leveton Drive/ Center Site Access (TWSC)	0	0	0	0	2	2	3,500	0.31
SW Leveton Drive/ SW 108th Avenue (TWSC)	0	0	0	0	0	0	3,200	0.00
SW Herman Road/ SW 108th Avenue (Signalized)	0	0	1	0	0	1	11,700	0.05
SW Tualatin Road/ SW Teton Avenue (TWSC)	1	2	0	0	0	3	16,300	0.10
SW Hazelbrook Road/ SW 115th Avenue (TWSC)	0	0	0	0	0	0	5,000	0.00
SW Hazelbrook Road/ OR 99W (TWSC)	1	1	1	0	2	5	38,513	0.07
SW Herman Road/ SW Teton Avenue (Signalized)	0	1	0	1	1	3	19,700	0.11

Crash Data Summary

All study area intersections had low crash rates, and no fatal crashes have occurred at the study area intersections within the study period.

One crash involving a pedestrian occurred at the intersection of SW Tualatin Road and SW 124th Avenue in 2019, resulting in a suspected minor injury (Injury C). The most common crash type at this intersection is turning movement crashes; however, the crash volume is not high enough to warrant further investigation, and all left turn movements already have protected turning phases.

One crash involving a bicyclist occurred at the center Lam site access in 2022, resulting in a suspected serious injury (Injury A) to the cyclist. The crash was caused by a failure to yield.

At the intersection of OR 99W and SW 124th Avenue, the intersection with the highest crash volume, rear-end crashes were the most common crash type. These are largely due to inattention, and none resulted in serious injury being reported.

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 2022 traffic flow data on OR 99W just west of SW 124th Avenue.

All intersections have crash rates below 1.0/MEV. Additionally, none of the study area intersections appear on either the ODOT or Washington County Safety Priority Index System (SPIS) list. 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 2024 traffic volumes, a seasonal adjustment to traffic on OR 99W, a background growth to year 2027 and 2030, 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 2024-2028 (CIP) was reviewed for any planned transportation improvements in the area that may affect capacity. Herman Road will be improved near the site; however, none of these improvements will affect any of the study area intersections.

Tualatin Sherwood Road is currently under construction for a widening project, but this project is not in the study area and does not appear to have had a significant effect on existing volumes at study area roadways and intersections.

The City of Tualatin has planned for a future traffic signal at the intersection of Tualatin Road with SW 115th Avenue, but no funding or schedule has been determined.

To our knowledge, no mitigations or improvements have been required for development of the in-process projects at any study area intersections included in this analysis.

Background Traffic Growth

Background traffic growth was applied to adjusted year 2024 traffic volumes to forecast future traffic demand. A linear 1% annual growth rate over three years was applied to year 2024 traffic volumes to estimate 2027 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 6 presents the background growth from 2024 to 2027 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:

- Lam Building G
- 124th Business Park
- Tualatin Logistics Park
- Fujimi Expansion

Figure 7 presents the total trip assignment for the 124th Business Park, Tualatin Logistics Park, and Fujimi Expansion.

The Lam Building G project was approved with two new driveways on SW 108th Avenue and a change in use of the existing East Access on SW Leveton Drive to be exclusive for trucks. Figure 8 presents the Lam Building G trip assignment as approved for that project. Figure 9 presents an updated reroute of passenger vehicle traffic from the existing East Access on SW Leveton Drive to the new driveways on SW 108th Avenue, utilizing the new traffic counts at that access. Detailed copies of the respective project trip assignment sheets are included in Appendix G.

Pre-Development Traffic

The 2027 pre-development analysis scenario is a combination of existing year 2024 traffic volumes, a seasonal adjustment factor on OR 99W, background growth of 1% over three years, and in-process trips from nearby approved developments. Figure 10 presents the 2027 pre-development traffic volumes during the AM and PM peak hours.

Figure 15 presents the additional three years of background growth applied between the 2027 and 2030 scenarios, used to grow traffic volumes for the Phase 2 analysis.

IV. SITE DEVELOPMENT

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

Trip Generation

Trip generation estimates for the full occupancy of approximately 600 employees were prepared utilizing rates for a Research and Development Center from the Institute of Transportation Engineers’ (ITE) Trip Generation Manual, 11th Edition. This land use was found to best match the existing campus trip generation based on employees. Trip generation estimates for the planned expansion are presented in Table 3.

TABLE 3 – PROPOSED TRIP GENERATION									
Phase	ITE Land Use	Employees	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
1	Research and Development Center (LUC 860)	360	124	22	146	17	123	140	1222
2		240	83	15	98	11	82	93	814
Total		600	207	37	244	28	205	233	2036

As shown in Table 3, the planned campus expansion is estimated to generate an additional 244 AM peak hour, 233 PM peak hour, and 2036 daily trips with both phases of development. A proportionate number of trips was assigned to each phase, based on the number of employees.

West Access Reroutes

Going forward, the existing West Access on SW Leveton Drive will be relocated and restricted to trucks. Figure 11 presents a reroute of existing volumes to the Center Access on SW Leveton Drive and the proposed access on SW Tualatin Road.

Trip Distribution and Assignment

Site trip distribution has been modified slightly from the original master plan based on counts conducted in April 2024 at the three active site driveways on Leventon Drive and the surrounding intersections. The following percentages apply to both the AM and PM Peak hours.

- 30% to/from the north on OR 99W
- 15% to/from the south on OR 99W
- 5% to/from the east on SW Tualatin Road
- 5% to/from the south on SW 118th Avenue
- 10% to/from the south on SW 124th Avenue
- 20% to/from the west on SW Tualatin-Sherwood Road via SW 108th Avenue and SW Teton Avenue
- 15% to/from the west on SW Herman Road via SW 108th Avenue

The detailed site trip distribution is based on the following assumptions:

- 30% of the new trips are expected to utilize the one remaining employee driveway (middle access) on Leveton Drive. The remaining 70% would use the new driveway to Tualatin Road.
- Existing counts indicate some vehicles arriving from the southwest on OR 99W are traveling along the full length of Leveton Drive instead of turning at SW 124th Avenue.
- Vehicles leaving the site at the Tualatin Road driveway and traveling to the east on SW Herman Road may find it easier to travel west on Tualatin Road and turn Right on Teton Avenue instead of SW 108th Avenue.
- 10% of site trips will use SW 115th Avenue and Hazelbrook Road to access OR 99W, or approximately one-third of the 30% of site trips anticipated to travel north on OR 99W. This is consistent with current volumes traveling westbound on Tualatin Road and assumes no mitigation to discourage or prohibit this travel route.

Figure 12 presents the overall trip distribution at every study area intersection, used for both Phase 1 and Phase 2 trips. Figure 13 presents the trip assignment for Phase 1. Figure 16 presents the trip assignment for Phase 2.

Post-Development Traffic

Post-Development traffic volumes are the sum of the project trips and the pre-development traffic volumes. Figure 14 presents the 2027 Phase 1 post-development traffic volumes for the AM and PM peak hours. Figure 17 presents the 2030 Phase 2 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 proposed site driveways are presented below.

Site Access

To accommodate added TUX employee traffic to the new parking lots at the north side of the site, the existing emergency access on SW Tualatin Road opposite SW 115th Avenue is proposed to be expanded and opened for Lam employee access.

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 at 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 4 below presents a summary of required and proposed access spacing.

TABLE 4 – ACCESS SPACING SUMMARY					
Access	Roadway	Functional Classification	Spacing Standard	Access Spacing Measured Edge-to-Edge	
				To East	To West
SW 115th Avenue	SW Tualatin Road	Major Collector	150' from intersection with Arterial or Collector	>750'	>350'
East Access (relocated)	SW Leveton Drive	Minor Arterial	150' from intersection with Arterial or Collector	>600'	>600'

On-Site Circulation

With the proposed project, employee parking will be located along the north side of the campus and at the southeast corner of the campus. The north side parking area will primarily have access to Tualatin Road opposite SW 115th Avenue as well as continued use of the Center Access on Leveton Drive. The southeast parking area will have two driveways to SW 108th Avenue. An internal connection is provided between these main parking areas through the lot located between Buildings B and G. Truck access will be provided to Building G at the East Access and to the new TUX buildings as well as existing facilities at the relocated West Access. The existing north access to SW 108th Avenue will continue to be used for emergency access and may be utilized for truck egress from the bulk gas yard.

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.

Two driveways are currently under construction on SW 108th Avenue, which have been reviewed in previous studies. The West Access on SW Leveton Drive is proposed to relocate and the emergency access on SW Tualatin Road is proposed to be expanded and used for employee access.

The posted speed on SW Tualatin Road and SW Leveton Drive is 35 mph, for a design speed of 40 mph. There is no posted speed on SW 108th Avenue north of SW Herman Road. Therefore, the design speed on SW 108th Avenue is assumed to be 5 mph over the posted speed of 35 mph for other Minor Collectors in the area, or 40 mph. 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. 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 5.

TABLE 5 – 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/West	To South/East
SW 108th Avenue	40	Passenger Car	445	305	Already reviewed	
SW Leveton Drive	40	Passenger Car	445	305	500	500
SW Tualatin Road	40	Passenger Car	475	305	500	>500

As presented in Table 5, sight distances for the driveways along SW 108th Avenue are being reviewed and approved under Building G and will meet the standards with that project. At the proposed relocated West Driveway on Leveton Drive, sight distance can be made available in excess of 500 feet, meeting the standards for intersection sight distance, although some landscaping and street trees may need to be trimmed.

At the Tualatin Access, sight distance is available in excess of 500 feet to the east and approximately 500 feet to the west. Some landscaping and street trees may need to be trimmed to maintain the required 475 feet of intersection sight distance.

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 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 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 12 software, which utilizes the Transportation Research Board's *Highway Capacity Manual* (HCM) 2000, HCM 2010, and HCM 7 methodologies. Signalized study area intersections were reported using HCM 2000 reports for overall v/c ratio and HCM 7 reports for delay and LOS. Two-way, stop-controlled (TWSC) and AWSC intersections were reported using HCM 7 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

Table 6 below summarizes the AM and PM peak hour capacity results. For signalized intersections, the overall intersection performance (v/c ratio, LOS, delay) is reported along with the lane group with the maximum v/c ratio and the lane group with the maximum delay. For unsignalized sections, the lane group with the maximum v/c ratio and the lane group with the maximum delay are reported. The Synchro output reports and summary tables of all lane groups are provided in Appendix I.

TABLE 6 – PEAK HOUR INTERSECTION OPERATIONS

Intersection (Control)	Peak Hour	Analysis Results (v/c-LOS-Delay in seconds)			
		2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
OR 99W/ SW 124th Avenue (Signalized)	AM	0.78-C-26.7	0.83-C-31.2	0.85-C-31.7	0.88-D-36.2
	PM	0.70-C-26.6	0.70-C-26.0	0.71-C-26.1	0.74-C-26.9
SW Tualatin Road/ SW 124th Avenue (Signalized)	AM	0.73-A-10.0	0.77-B-11.0	0.93-C-21.6	0.98-C-29.0
	PM	0.60-B-16.2	0.65-B-19.2	0.72-C-22.2	0.77-C-24.4
SW Tualatin Road/ Site Access (TWSC)	AM	0.03-D-33.9 (NB)	0.04-E-36.7 (NB)	0.23-F-66.9 (NB)	0.83-F-127.1 (SB)
	PM	0.24-D-29.0 (SB)	0.26-D-31.4 (SB)	0.84-F-119.8 (NB)	1.11-F-201.7 (NB)
SW Tualatin Road/ SW 112th Avenue (TWSC)	AM	0.06-B-14.4 (SB)	0.07-B-14.8 (SB)	0.07-C-15.5 (SB)	0.08-C-16.1 (SB)
	PM	0.04-C-19.2 (SB)	0.04-C-19.9 (SB)	0.05-C-20.7 (SB)	0.05-C-21.4 (SB)
SW Tualatin Road/ SW 108th Avenue (TWSC)	AM	0.02-C-16.1 (NB)	0.03-C-16.7 (NB)	0.23-C-20.4 (NB)	0.30-C-22.5 (NB)
	PM	0.15-C-16.3 (NB)	0.21-C-17.2 (NB)	0.24-C-19.8 (NB)	0.27-C-21.1 (NB)
SW 108th Avenue/ Center Access (TWSC)	AM	N/A	0.01-B-10.8 (EBL)	0.01-B-11.3 (EBL)	0.01-B-11.5 (EBL)
	PM	N/A	0.11-A-8.8 (EBL)	0.01-A-9.4 (EBL)	0.01-A-9.6 (EBL)
SW 108th Avenue/ South Access (TWSC)	AM	N/A	0.01-B-10.7 (EBL)	0.01-B-11.2 (EBL)	0.01-B-11.4 (EBL)
	PM	N/A	0.01-B-10.0 (EBL)	0.01-B-10.2 (EBL)	0.01-B-10.4 (EBL)
SW 124th Avenue/ SW Leveton Drive (Signalized)	AM	0.43-A-8.8	0.50-A-9.5	0.45-A-9.3	0.46-A-9.6
	PM	0.35-B-13.3	0.56-C-22.7	0.38-B-13.7	0.40-B-14.3
SW Leveton Drive/ SW 118th Avenue (AWSC)	AM	0.40-A-9.8 (EB)	0.57-B-12.4 (EB)	0.42-B-10.1 (EB)	0.45-B-10.4 (EB)
	PM	0.43-B-10.2 (WB)	0.63-B-14.3 (WB)	0.49-B-11.1 (WB)	0.52-B-11.6 (WB)
SW Leveton Drive/ West Access (TWSC)	AM	0.02-B-14.6 (SBL)	0.03-C-17.8 (SBL)	0.01-B-11.5 (SBL)	0.01-B-11.7 (SBL)
	PM	0.14-B-10.9 (SBL)	0.18-B-12.9 (SBL)	0.01-B-11.8 (SBL)	0.01-B-12.0 (SBL)
SW Leveton Drive/ Center Access (TWSC)	AM	0.01-B-10.7 (SBL)	0.01-B-12.6 (SBL)	0.02-B-13.6 (SBL)	0.03-B-14.4 (SBL)
	PM	0.05-B-11.0 (SBL)	0.06-B-12.7 (SBL)	0.17-B-12.8 (SBL)	0.20-B-13.3 (SBL)
SW Leveton Drive/ East Access (TWSC)	AM	0.01-B-10.5 (SB)	0.03-B-11.1 (NB)	0.03-B-10.9 (NB)	0.03-B-11.0 (NB)
	PM	0.12-B-10.3 (SB)	0.10-B-12.0 (NB)	0.09-B-11.6 (NB)	0.09-B-11.9 (NB)

TABLE 6 – PEAK HOUR INTERSECTION OPERATIONS					
Intersection (Control)	Peak Hour	Analysis Results (v/c-LOS-Delay in seconds)			
		2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
SW Leveton Drive/ SW 108th Avenue (TWSC)	AM	0.12-B-10.2 (SB)	0.44-C-16.2 (EB)	0.45-C-16.9 (EB)	0.50-C-18.9 (EB)
	PM	0.24-A-9.8 (EB)	0.32-B-12.0 (EB)	0.29-B-12.0 (EB)	0.34-B-12.7 (EB)
SW Herman Road/ SW 108th Avenue (Signalized)	AM	0.40-A-3.9	0.45-A-4.5	0.54-A-5.2	0.53-A-6.0
	PM	0.56-B-11.0	0.58-A-7.7	0.59-A-8.1	0.63-A-9.1
SW Tualatin Road/ SW Teton Avenue (TWSC)	AM	0.25-C-20.3 (NBL)	0.27-C-21.3 (NBL)	0.48-E-44.5 (NBL)	0.52-F-50.1 (NBL)
	PM	0.95-F-110.4 (NBL)	1.05-F-142.7 (NBL)	1.09-F-155.5 (NBL)	1.19-F-95.5 (NBL)
SW Hazelbrook Road/ SW 115th Avenue (TWSC)	AM	0.36-B-11.2 (NB)	0.37-B-11.3 (NB)	0.38-B-11.4 (NB)	0.39-B-11.6 (NB)
	PM	0.38-B-11.4 (NB)	0.39-B-11.5 (NB)	0.44-B-12.1 (NB)	0.47-B-12.4 (NB)
SW Hazelbrook Road/ OR 99W (TWSC)	AM	0.56-D-29.2 (WBR)	0.60-D-32.7 (WBR)	0.61-D-33.4 (WBR)	0.66-E-37.7 (WBR)
	PM	1.16-F-140.0 (WBR)	1.33-F-207.6 (WBR)	1.46-F-260.7 (WBR)	1.60-F-319.3 (WBR)
SW Herman Road/ SW Teton Avenue (Signalized)	AM	0.79-C-28.6	0.86-C-34.5	0.89-D-36.8	0.94-D-43.8
	PM	0.77-C-24.5	0.85-C-30.9	0.88-C-33.7	0.93-D-39.8

The proposed site access on SW Tualatin Road opposite SW 115th Avenue is projected to operate at a level of service “F” with the added site trips, compared to an “E” pre-development. This is under the existing stop control condition on the SW 115th Avenue and driveway approaches. It also assumes two lanes on the driveway approach to separate left and right turns. The need for a traffic signal is addressed in the following section.

The high delay reported at the intersection of SW Tualatin Road/SW Teton Avenue is likely due to the raised pedestrian median to the east of the intersection. This median prevents a two-stage left turn movement that would otherwise allow drivers to choose smaller gaps in traffic, thus increasing capacity of the minor street left turn movement.

The SW Hazelbrook Road approach at OR 99W appears to be over capacity in the PM peak hour based on the synchro analysis due to the high volume of right turns, many related to cut-through trips traveling between Tualatin Road and OR 99W northbound. Observation of the traffic count video does not show overcapacity conditions or long delays, as many drivers treat the stop approach as a yield.

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 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 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 at signalized locations, we note 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 7. The detailed SimTraffic reports are provided in Appendix J for reference. Queue lengths in **bold** type show movements which exceed the effective storage length.

TABLE 7 – 95TH PERCENTILE QUEUING ANALYSIS						
Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)			
			2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
OR 99W/ SW 124th Avenue (Signalized)	EBT	>1000	500/300	575/325	725/325	975/325
	EBT	>1000	475/275	600/300	725/328	1,025/300
	EBR	225/305	350/100	450/125	475/100	500/125
	WBL	550/770	875/275	975/275	1,025/275	900/325
	WBL	550/690	800/250	1,100/250	1,200/250	1,100/275
	WBT	>1,000	675/250	1,125/250	1,275/250	1,200/225
	WBT	>1,000	600/250	1,000/225	1,150/225	1,150/225
	NBL	315/475	100/275	100/300	100/275	100/275
	NBL	315/475	100/275	100/300	100/275	100/275
	NBR	295/330	25/175	25/225	25/200	50/225
	NBR	295/315	25/225	25/250	50/250	50/250

TABLE 7 – 95TH PERCENTILE QUEUING ANALYSIS

Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)			
			2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
SW 124th Avenue/ SW Tualatin Road (Signalized)	WBL	310/350	75/75	75/225	25/ 475	75/ 575
	WBR	300/350	75/350	75/ 450	50/ 1,125	75/ 1,325
	NBT	995	50/225	50/150	25/125	50/125
	NBT	995	100/325	100/250	75/225	125/225
	NBR	145/230	50/150	50/75	25/75	75/75
	SBL	200/300	250/250	250/200	175/200	300/200
	SBT	450	100/125	125/50	25/50	175/50
	SBT	450	50/100	50/50	50/50	50/75
SW Tualatin Road/ SW 115th Avenue (TWSC)	EBL	60	50/50	50/50	50/50	50/50
	WBL	60	25/25	25/25	50/25	75/25
	NBL	TBD	N/A	N/A	50/100	50/225
	NB	TBD	50/25	25/50	50/200	50/300
	SB	630	75/50	75/50	75/100	100/75
SW Tualatin Road/ SW 112th Avenue (TWSC)	EBL	750	25/25	25/25	25/25	25/25
	SBL+R	95	50/25	50/25	50/25	50/25
SW Tualatin Road/ SW 108 th Avenue (TWSC)	WBL	140	50/25	50/25	50/25	50/25
	NB	330	25/50	25/75	75/75	75/75
SW 108th Avenue/ Center Access (TWSC)	EBL	60	N/A	25/25	25/25	25/25
	EBR	60	N/A	25/75	25/50	50/50
SW 108th Avenue/ South Access (TWSC)	EBL	60	N/A	25/25	25/25	25/25
	EBR	60	N/A	25/50	25/50	25/50
SW 124th Avenue/ SW Leveton Drive (Signalized)	EBL	100/130	25/25	25/50	25/25	25/50
	EBT+R	580	75/50	100/50	75/50	75/50
	WBL	145/185	50/50	50/50	50/50	50/50
	WBT+R	>1,000	50/100	50/100	50/75	50/75
	NBL	155/230	50/25	50/25	50/25	50/25
	NBT	>1,000	50/100	50/75	50/75	50/75

TABLE 7 – 95TH PERCENTILE QUEUING ANALYSIS

Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)			
			2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
	NBT+R	>1,000	100/125	125/125	125/125	125/125
	SBL	165/245	75/50	100/50	75/50	75/50
	SBT	>1,000	75/100	75/75	75/50	75/50
	SBT+R	995	75/125	75/75	75/75	75/75
SW Leveton Drive/ SW 118th Avenue (AWSC)	EB	>1,000	75/50	75/50	75/50	75/50
	WB	+1,000	50/75	50/100	50/75	50/75
	NB	>1,000	50/50	50/50	50/50	50/50
	SB	650	25/25	25/25	25/25	25/25
SW Leveton Drive/ West Access (TWSC)	SBL	135	25/50	25/75	25/25	25/25
	SBR	135	50/75	50/75	25/25	25/25
SW Leveton Drive/ Center Access (TWSC)	SBL	125	25/50	25/50	25/50	25/25
	SBR	125	25/50	25/50	25/50	25/75
SW Leveton Drive/ East Access (TWSC)	SB	105	25/50	25/25	25/25	25/25
SW Leveton Drive/ SW 108th Avenue (TWSC)	EB	270	50/50	100/75	100/75	100/75
SW Herman Road/ SW 108th Avenue (Signalized)	EBL	100/390	25/25	25/50	50/25	50/25
	EB	>1,000	75/100	100/125	100/125	125/125
	WB	435	100/150	150/175	125/175	150/225
	SBL	135/165	75/100	75/100	75/125	75/125
	SBR	115/790	25/50	25/50	25/25	25/25
SW Tualatin Road/ SW Teton Avenue (TWSC)	WBL	260	75/50	50/50	50/50	50/25
	NBL	95/170	100/125	100/125	100/125	100/150
	NBR	30/>1,000	75/175	75/125	100/100	100/125
SW 115th Avenue/SW Hazelbrook Road (TWSC)	NB	215	75/75	75/75	75/150	75/125

TABLE 7 – 95TH PERCENTILE QUEUING ANALYSIS

Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)			
			2024 Existing	2027 Pre-Development	2027 Post-Development	2030 Post-Development
OR 99W/ SW Hazelbrook Road	WBR	325	150/ 375	150/ 875	150/ 1,075	150/ 1,225
SW Teton Avenue/ SW Herman Road (Signalized)	EBL	>1000	50/50	75/75	75/100	100/100
	EB T+R	>1000	350/350	475/600	400/700	575/800
	WBL	100/150	75/50	75/75	75/72	100/50
	WB T+R	500	150/175	175/175	200/175	225/200
	NBL	>1000	125/150	150/150	150/150	150/150
	NB T+R	800	125/200	175/200	200/200	250/250
	SBL	50/100	50/50	50/50	50/50	50/50
	SB T+R	>1,000	150/125	175/100	150/100	175/125

At the intersection of OR 99W with SW 124th Avenue, the westbound left turn lanes on OR 99W are expected to have queues that exceed the existing storage lengths.

With the increase in stie trips added to the Tualatin Road approach to SW 124th Avenue, queues are expected to exceed the storage for both the left and right turn lanes. Queues will then back into the through lane and the existing center left turn lane.

During analysis, it was found that the queuing calculation for the SW Hazelbrook Road/OR 99W intersection was unreliable, showing the westbound right turn onto the highway as over capacity even in existing conditions. A review of the traffic count video recording shows driver behavior at the right turn currently operates similar to a Yield sign, with multiple vehicles entering without stopping at the stop sign when a long gap is available. Therefore, the intersection was modeled with a Yield control to more accurately mimic current operation for purposes of estimating queues. The reported queues still exceed the observed condition in the afternoon peak hour.

VII. WARRANTS

The City of Tualatin has plans to signalize the SW Tualatin Road/SW 115th Avenue intersection. We reviewed signal warrant criteria established by the Federal Highway Administration's (FHWA) and published in the Manual on Uniform Traffic Control Devices (MUTCD) for this intersection. 2027 volumes were developed using the same methodologies used to calculate future year peak hour volumes. The warrant analysis calculations are provided in Appendix K for reference.

Traffic Signals

Peak hour signal warrants were reviewed for the intersection of Tualatin Road with SW 115th Avenue using the AM and PM peak hour volumes for both Phase 1 and 2 post development conditions.

Based on the volumes anticipated at the site driveway, traffic signal warrants are met in the PM peak hour for both Phases.

The 2027 and 2030 Post-Development volumes were analyzed at the proposed SW Tualatin Road access with a traffic signal, consistent with the City of Tualatin's plans to install one. In both scenarios, the traffic signal operates at about 75% capacity with an overall LOS of B. Synchro reports for the traffic signal mitigation are included in Appendix I.

Turn Lanes

Turn-lane criteria were reviewed for the proposed driveway on SW Tualatin Road using the right-turn lane criteria established by the Texas Transportation Institute (TTI) for unsignalized intersections.

SW Tualatin Road is currently a two-lane roadway with no existing turn lanes into the site. Based on 2027 and 2030 Post-Development volumes, right-turn lane criterion are met for the eastbound direction in the AM peak hour, and for the westbound direction in both the AM and PM peak hours. Note the intersection operation is at acceptable levels without right turn lanes when a traffic signal is installed.

VIII. RECOMMENDATIONS

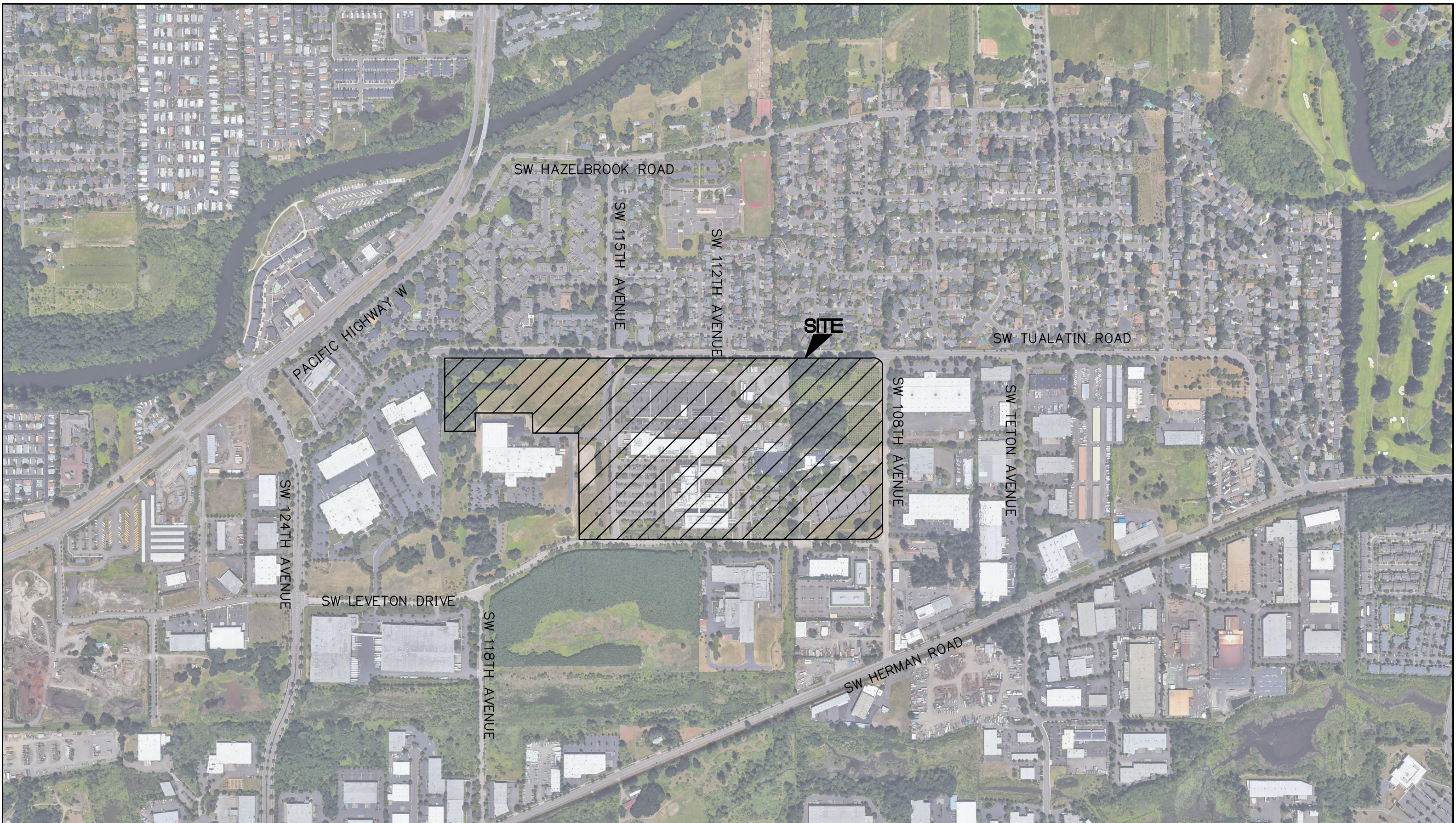
The following recommendations for mitigation are made to address impacts of the project on the transportation system:

- Install a traffic signal at the site access on Tualatin Road opposite SW 115th Avenue with Phase 1. The signal can operate with a common green phase for the driveway and SW 115th Avenue.
- Provide separate left and right turn lanes on the driveway approach to Tualatin Road opposite SW 115th Avenue.
- Trim vegetation at the site access locations as needed to provide the recommended intersection sight distances.

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



M **Portland** **Vancouver** **Seattle**
 503.224.9560 360.695.7879 206.749.9993
www.mcknzie.com
Architecture - Interiors
Planning - Engineering

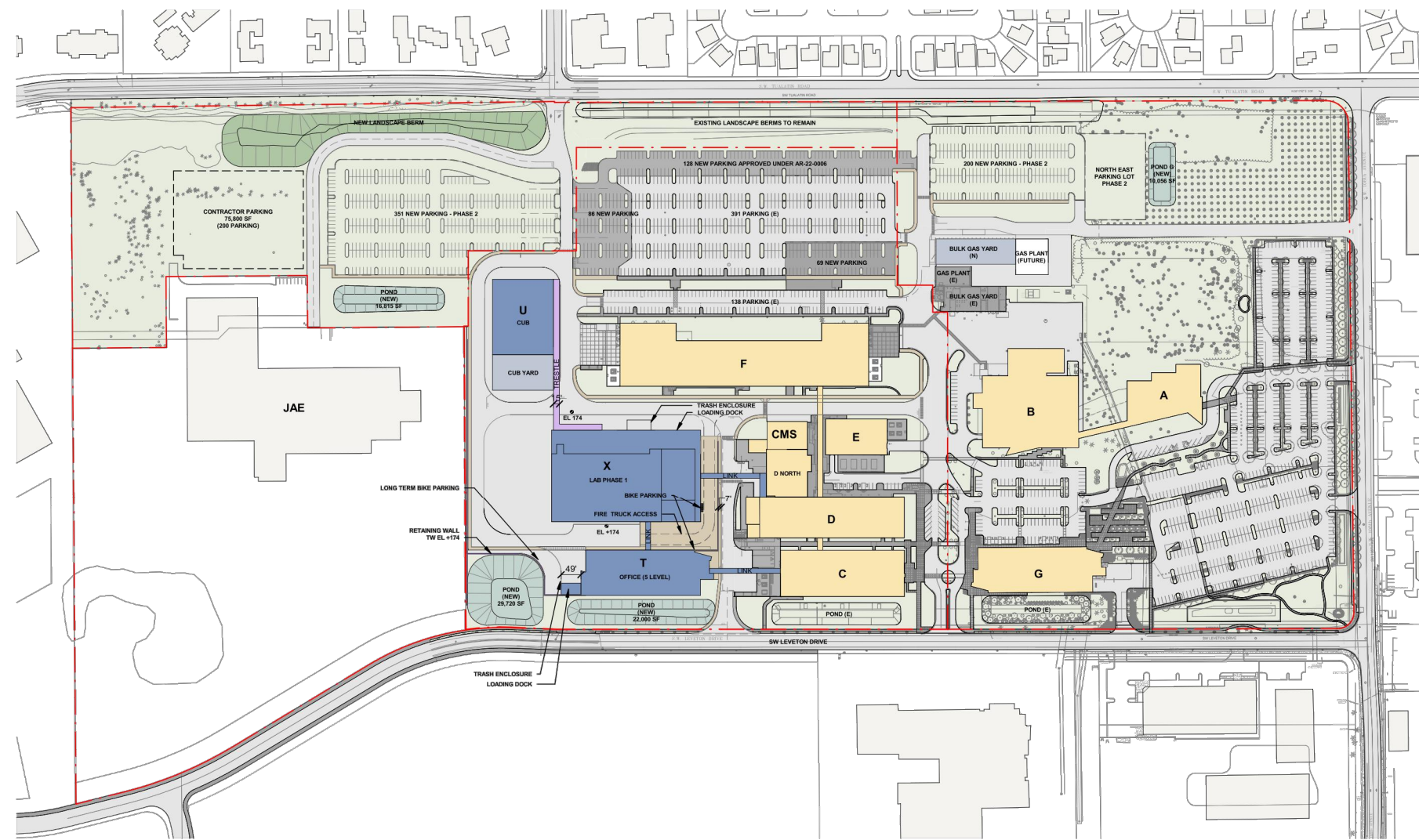
MACKENZIE
 DATE: 7.8.2024
 DRAWN BY: LCB
 CHECKED BY: BTA
 JOB NO:
 224002200

VICINITY MAP
LAM RESEARCH TUX
TUALATIN, OR

FIGURE
1

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

**PRELIMINARY
NOT FOR
CONSTRUCTION**



LEGEND

- EXISTING BUILDINGS
- NEW BUILDINGS (143,100 SF FLOOR PLATE)
- NEW BUILDINGS PHASE 2 (32,500 SF FP)
- NEW YARDS
- NEW TRESTLE
- NEW PEDESTRIAN
- ROADS
- DETENTION POND
- RETAINING WALL
- PROPERTY LINES
- PARKING (TOTAL: 1,635 STALLS)
- EXISTING: 1,352
- NEW: 283

TOTAL LAM CAMPUS SITE AREA: 73.17 ACRES

**ARCHITECTURAL
REVIEW
(NOT FOR CONSTRUCTION)**



Lam Research Corporation
4400 CUSHING PARKWAY
FREMONT, CA 94538

TITLE:
SITE MASTER PLAN - PHASE I

DATE ISSUED: 07.08.2024 DRAWING SCALE: 1" = 100'-0"

REVIT FILE: BUILDING DESIGNATOR:

DRAWING NUMBER:

ZA0-0001

M

Portland 503.224.9560
Vancouver 360.695.7879
Seattle 206.748.9885
www.mckinze.com

**Architecture • Interiors
Planning • Engineering**

MACKENZIE

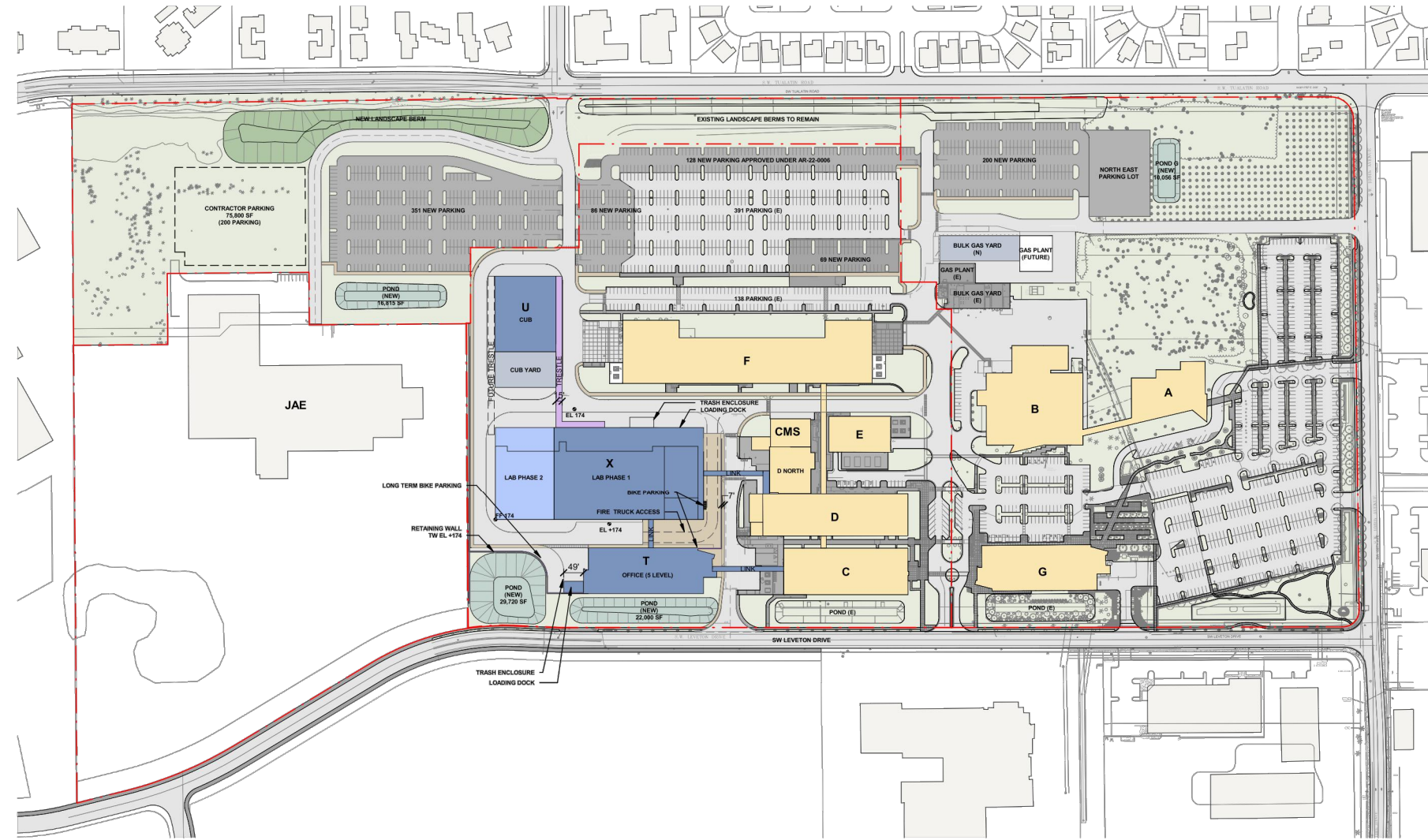
DATE: 7.8.2024
DRAWN BY: CNL
CHECKED BY: BTA
JOB NO:
224002200

SITE PLAN - PHASE 1

**LAM RESEARCH TUX
TUALATIN, OR**

**FIGURE
2A**

**PRELIMINARY
NOT FOR
CONSTRUCTION**



LEGEND

- EXISTING BUILDINGS
- NEW BUILDINGS (143,100 SF FLOOR PLATE)
- NEW BUILDINGS PHASE 2 (32,500 SF FP)
- NEW YARDS
- NEW TRESTLE
- NEW PEDESTRIAN
- ROADS
- DETENTION POND
- RETAINING WALL
- PROPERTY LINES
- PARKING (TOTAL: 2,186 STALLS)
- EXISTING: 1,352
- NEW: 834

TOTAL LAM CAMPUS SITE AREA: 73.17 ACRES

**ARCHITECTURAL
REVIEW
(NOT FOR CONSTRUCTION)**



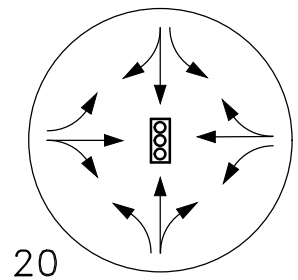
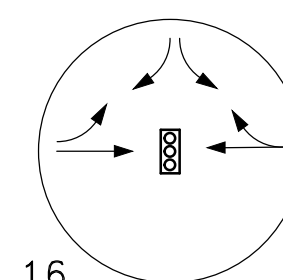
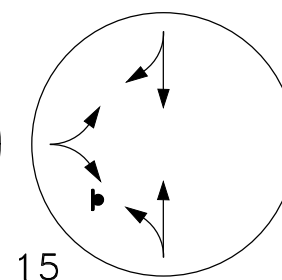
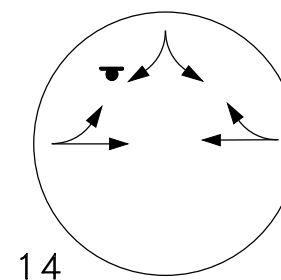
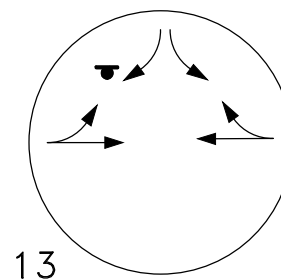
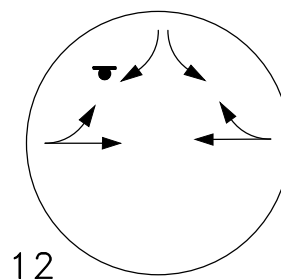
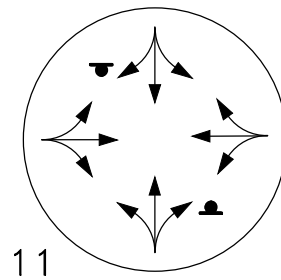
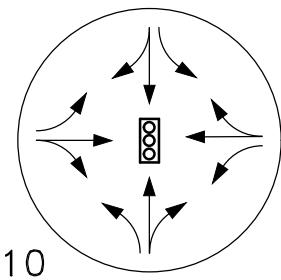
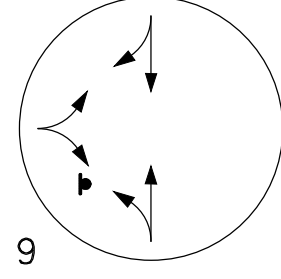
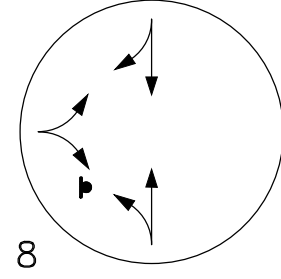
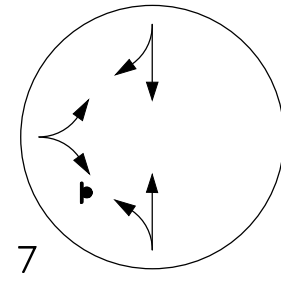
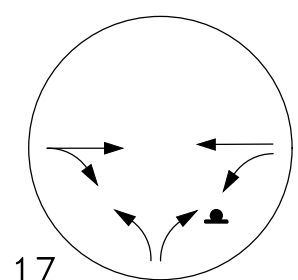
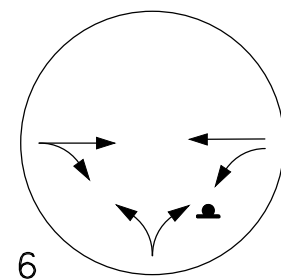
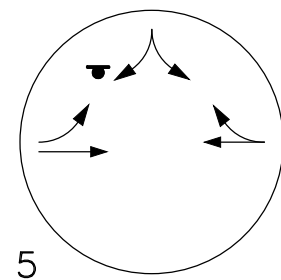
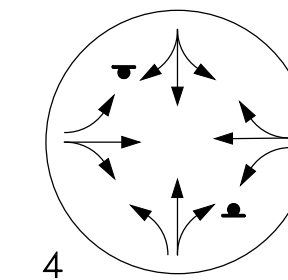
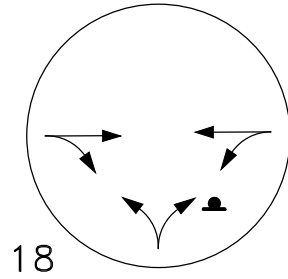
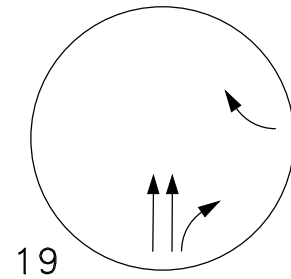
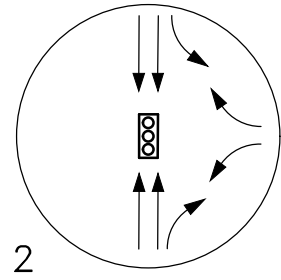
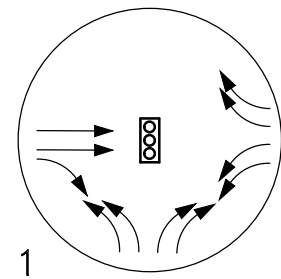
TITLE:
SITE MASTER PLAN - PHASE II

DATE ISSUED: 07.08.2024 DRAWING SCALE: 1" = 100'-0"

REVIT FILE: BUILDING DESIGNATOR:

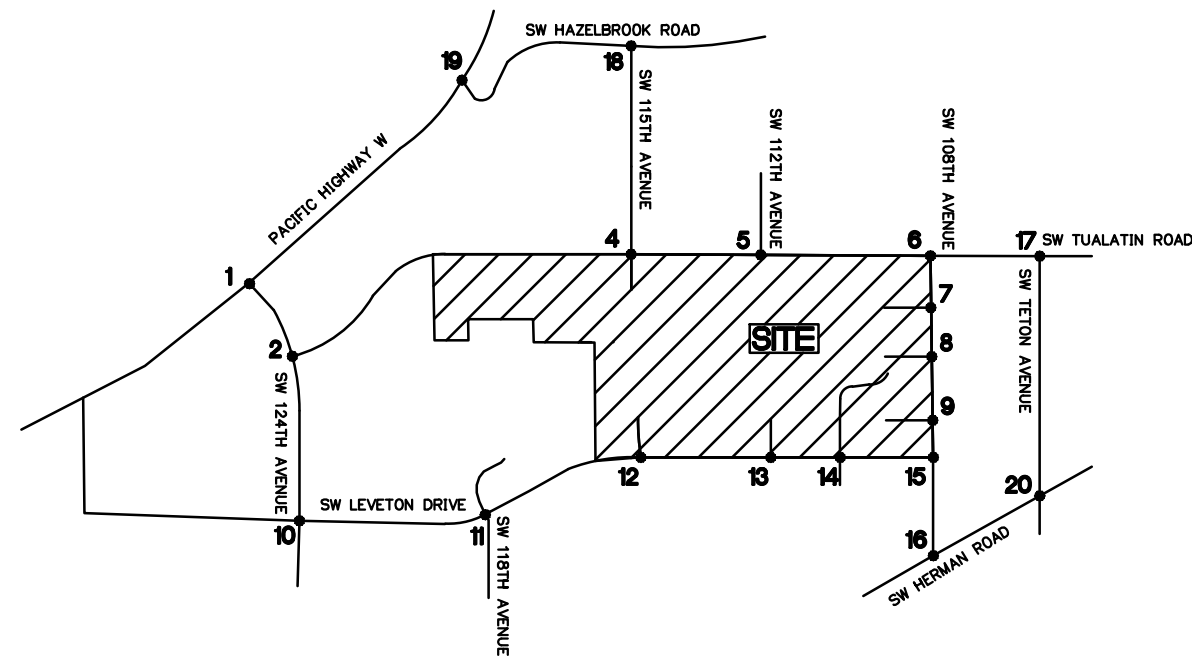
DRAWING NUMBER:

ZA0-0002



LEGEND

- EXISTING
- PLANNED
- STOP SIGN
- SIGNAL



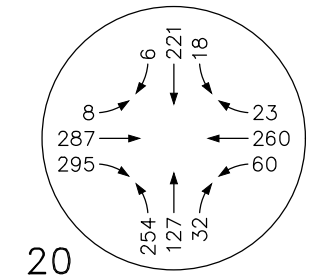
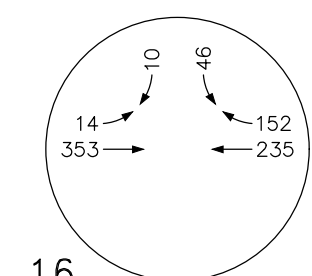
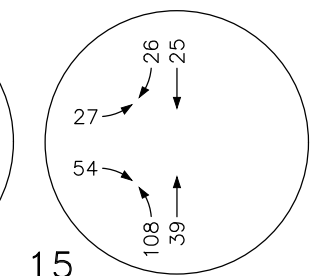
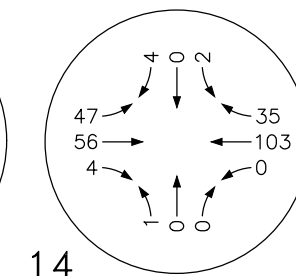
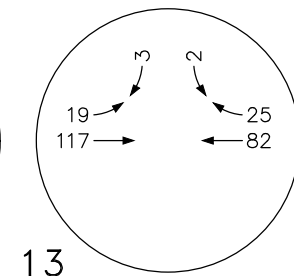
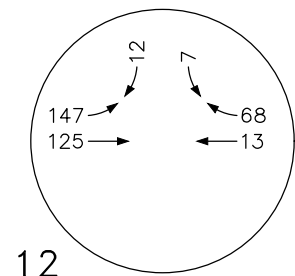
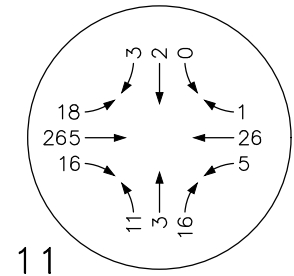
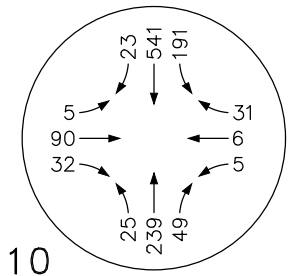
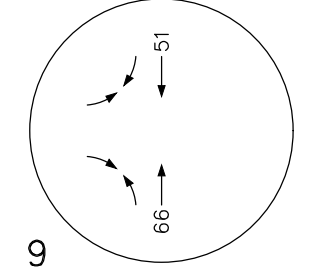
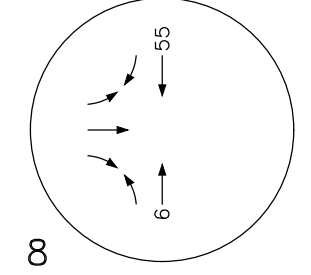
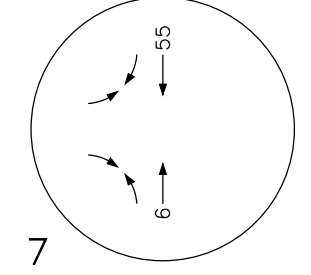
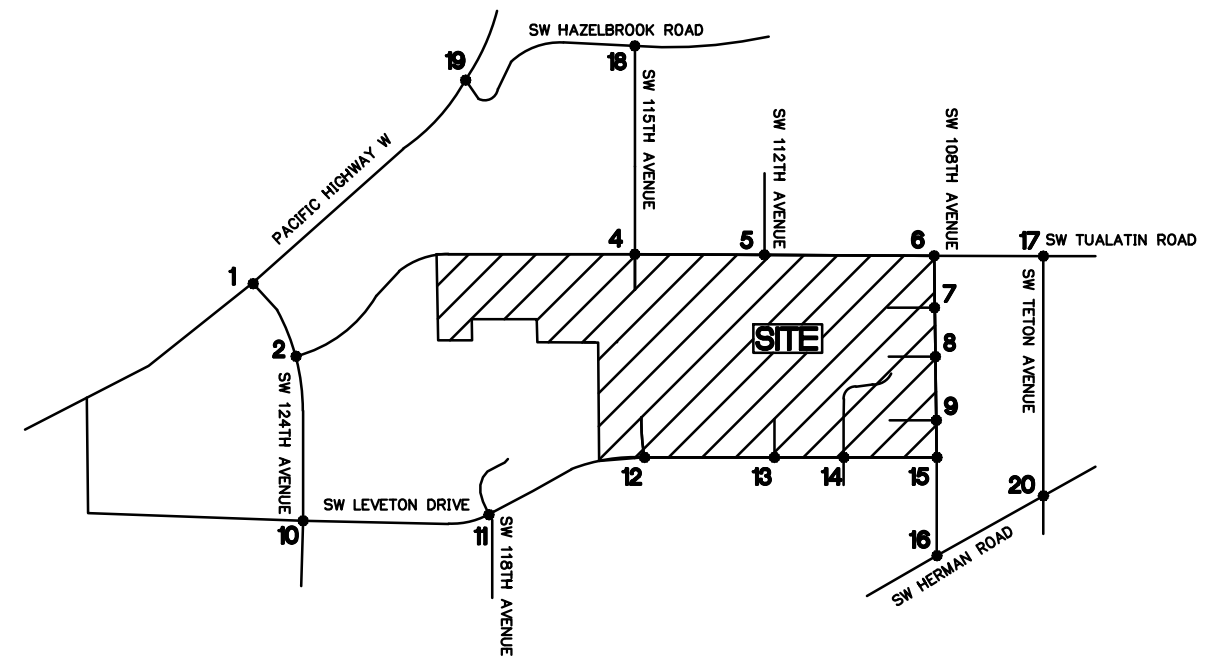
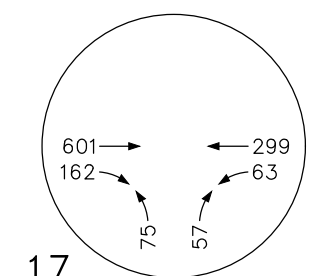
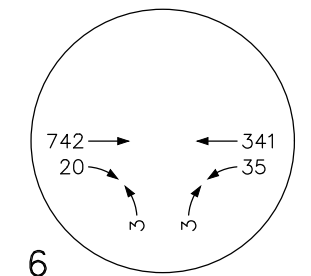
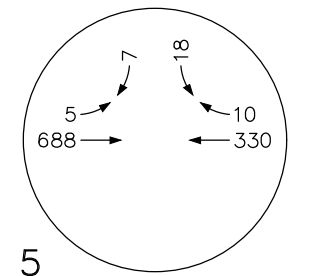
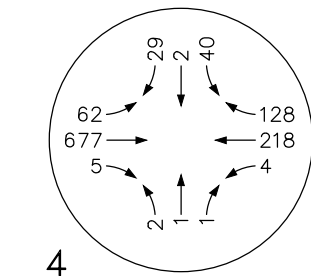
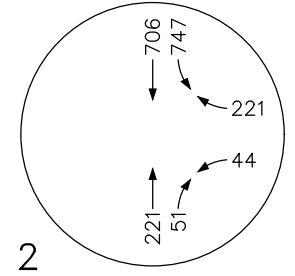
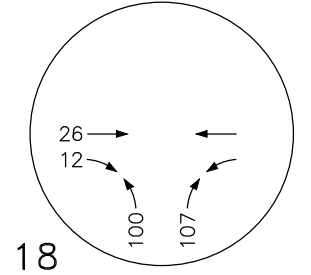
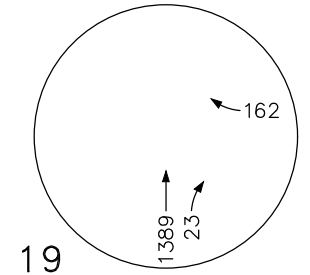
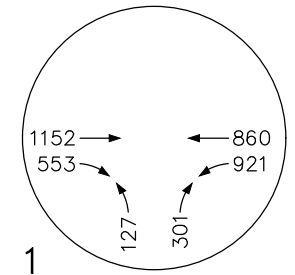
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.748.9885
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

DATE: 7.8.2024
 DRAWN BY: CNL
 CHECKED BY: BTA
 JOB NO:
 224002200

**EXISTING + PLANNED
 TRAFFIC CONTROL DEVICES
 + LANE CONFIGURATIONS**
 LAM RESEARCH TUX
 TUALATIN, OR

**FIGURE
 3**

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION



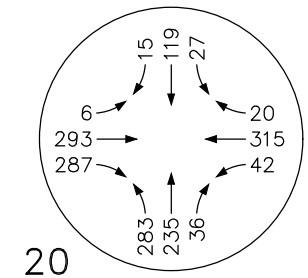
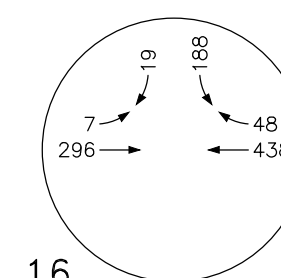
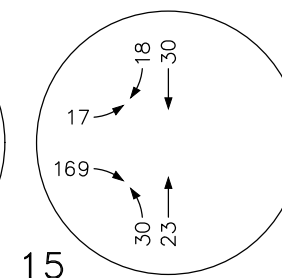
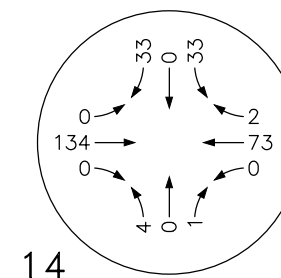
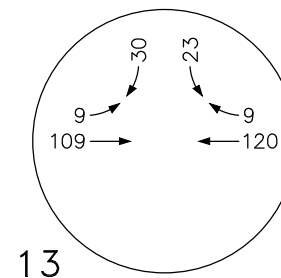
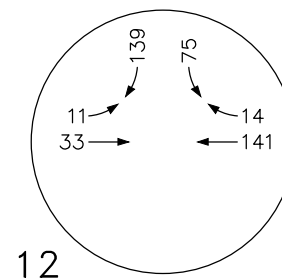
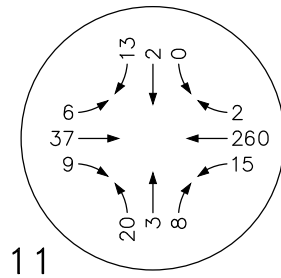
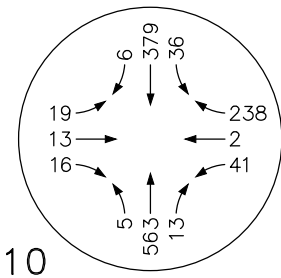
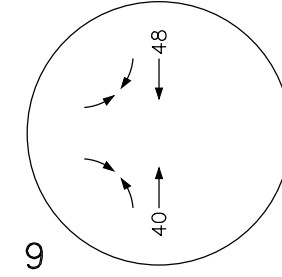
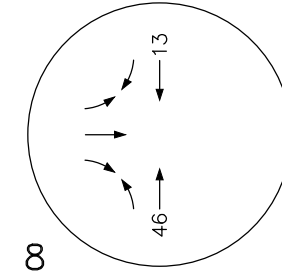
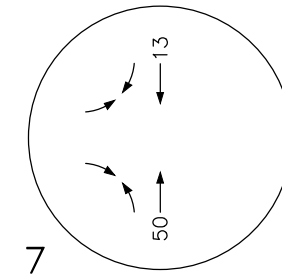
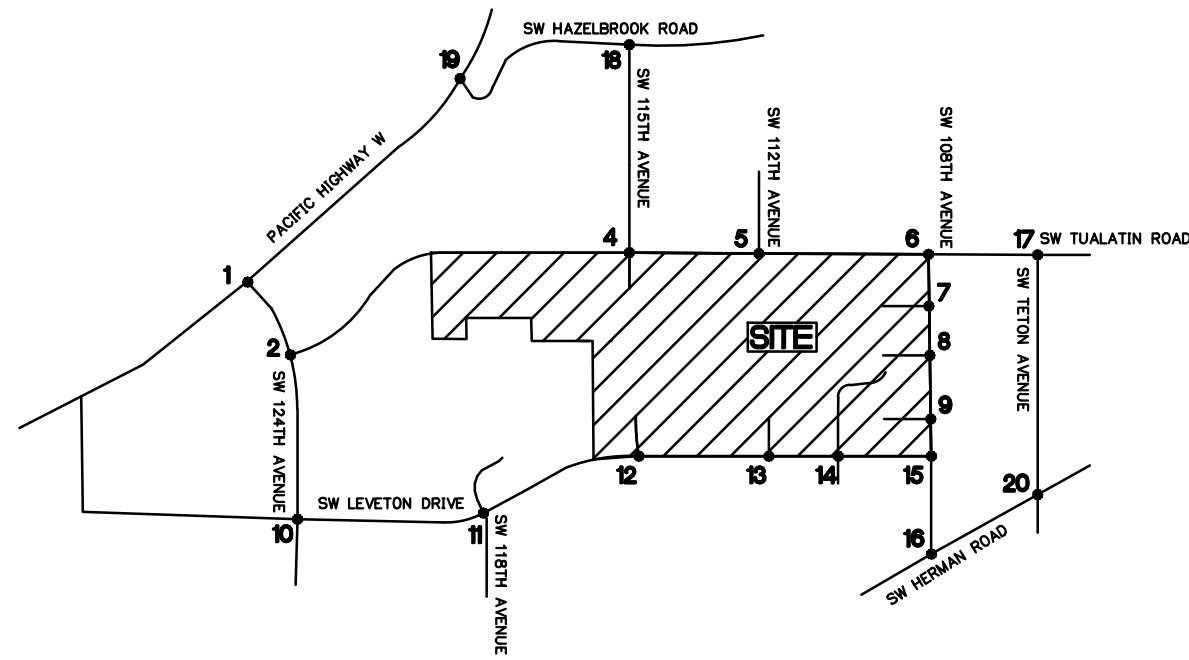
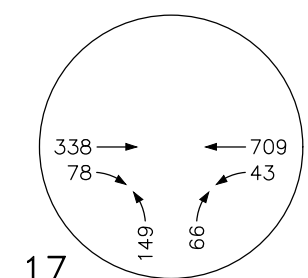
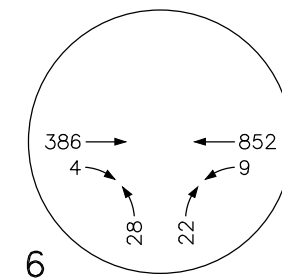
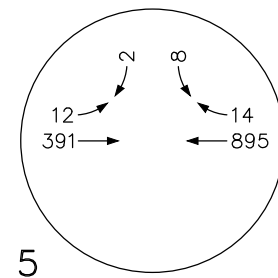
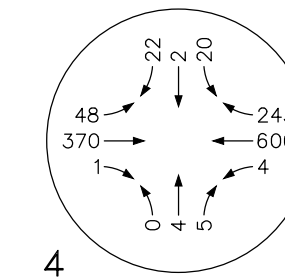
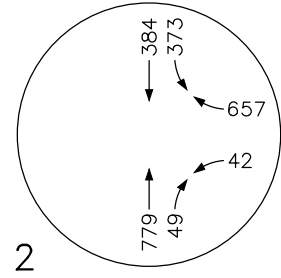
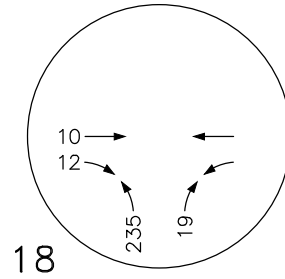
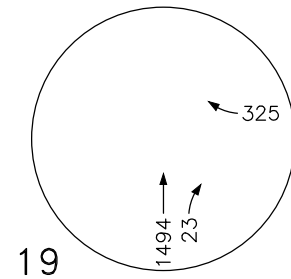
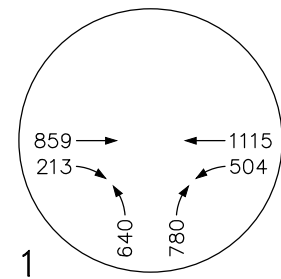
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

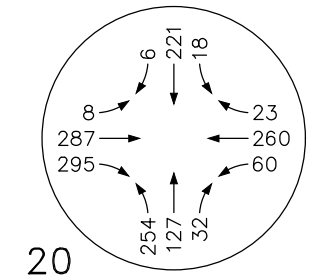
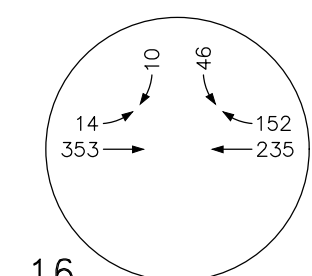
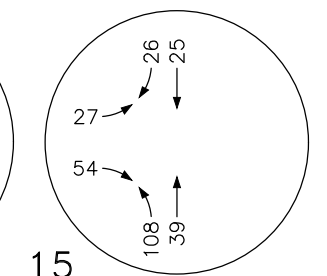
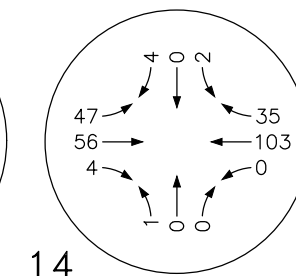
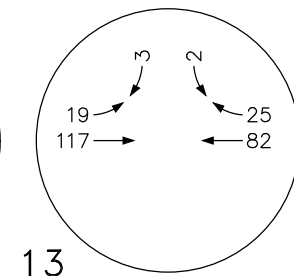
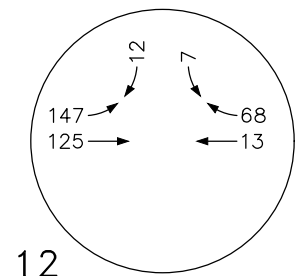
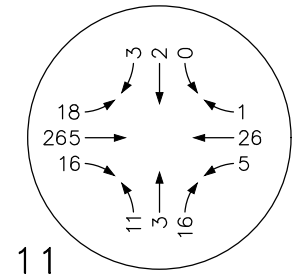
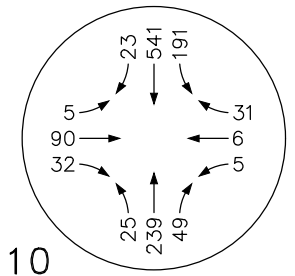
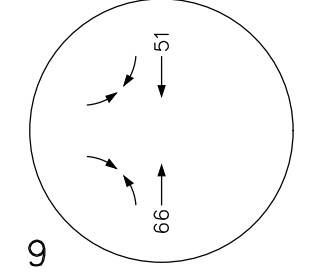
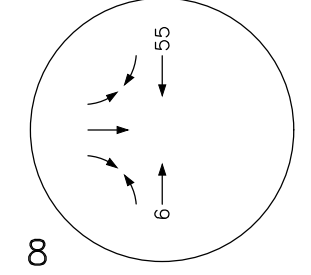
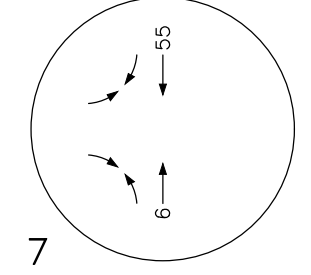
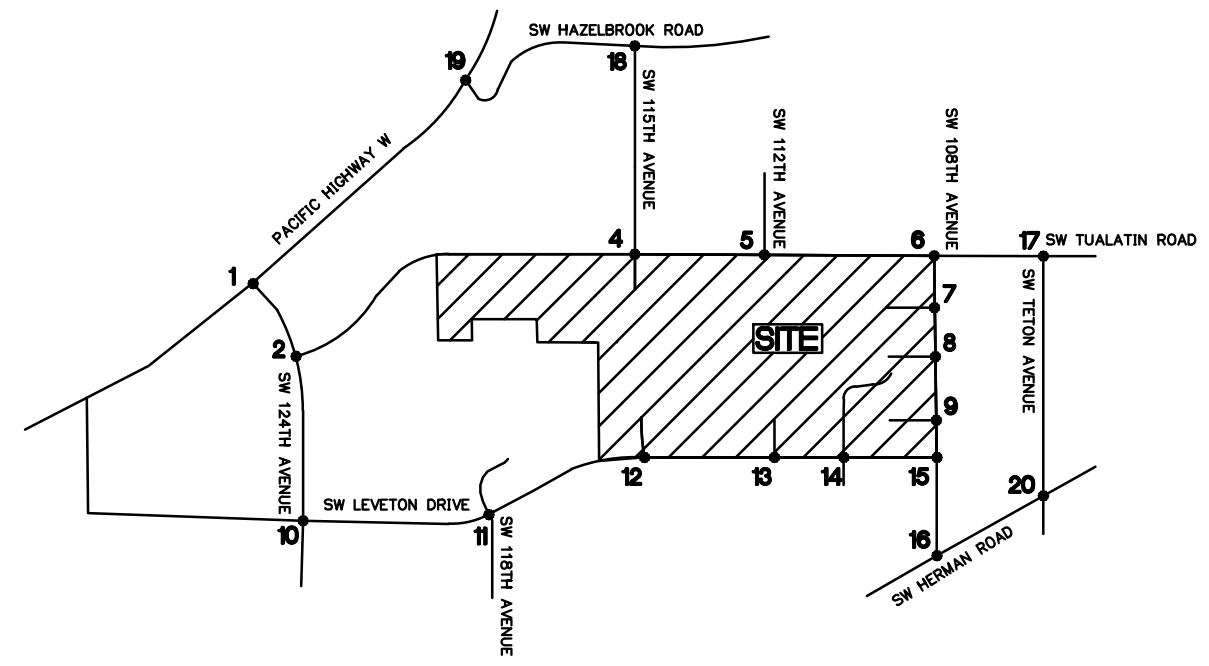
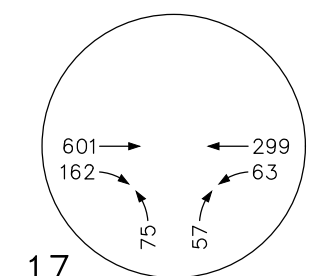
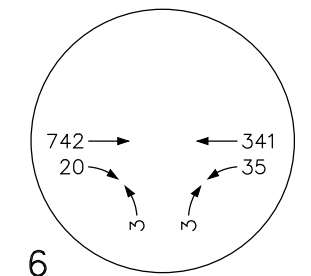
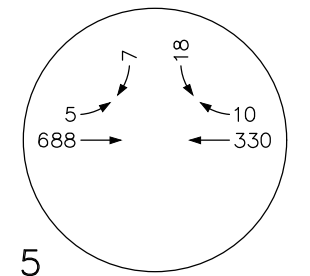
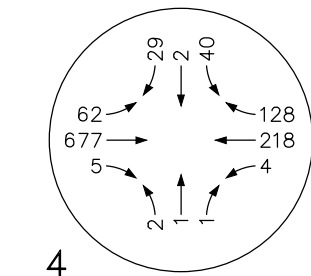
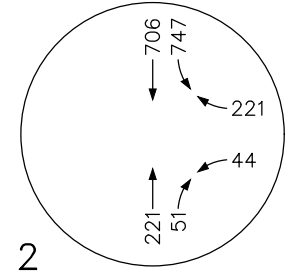
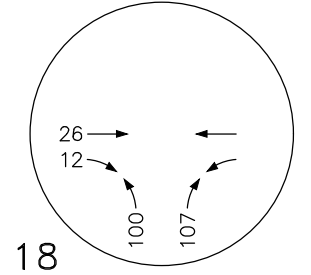
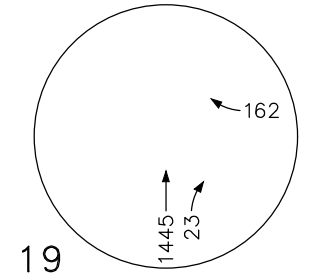
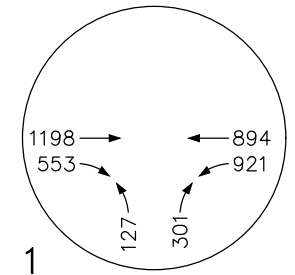
DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

2024 EXISTING TRAFFIC VOLUMES - AM PEAK HOUR
LAM RESEARCH TUX TUALATIN, OR

FIGURE 4A

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION





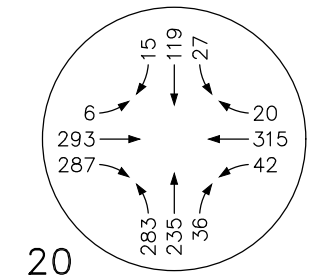
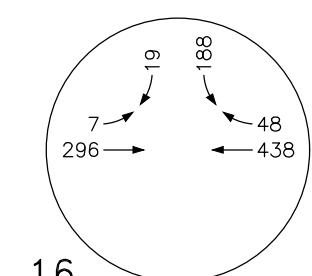
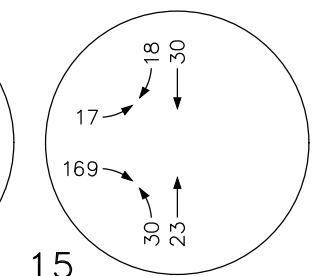
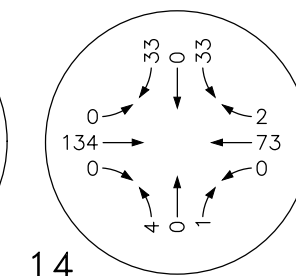
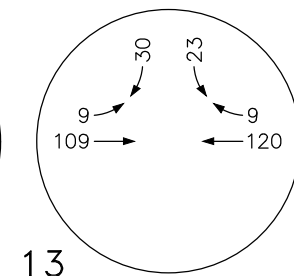
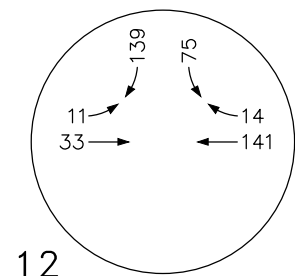
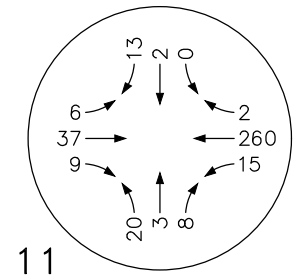
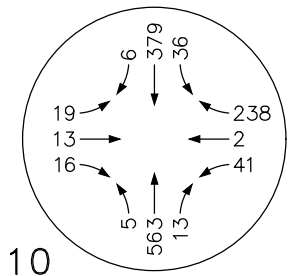
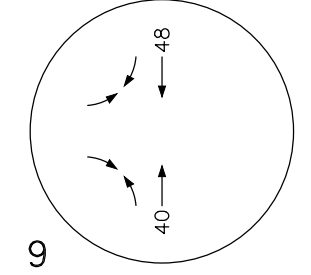
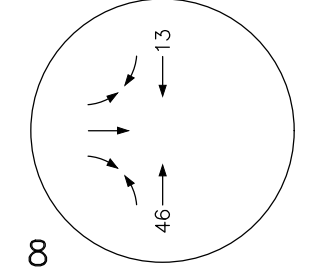
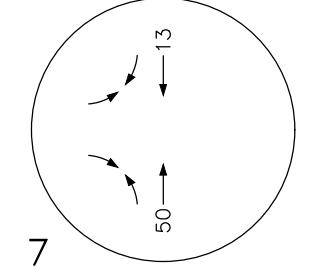
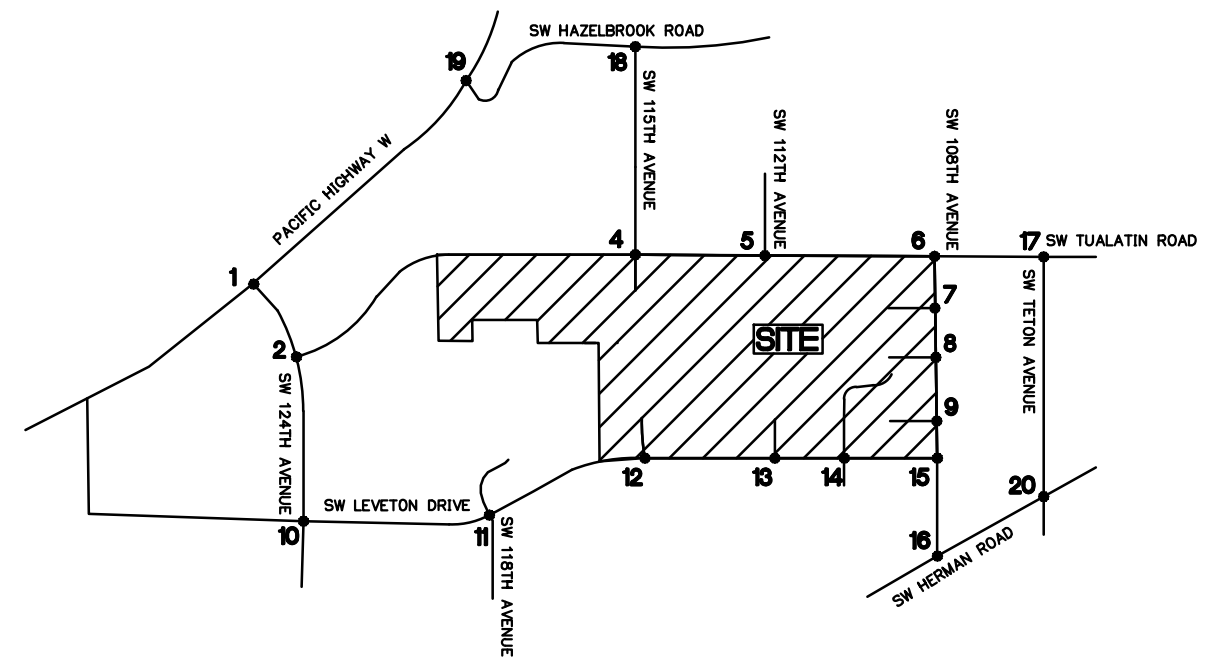
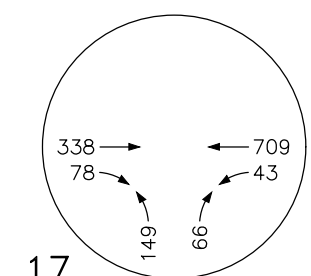
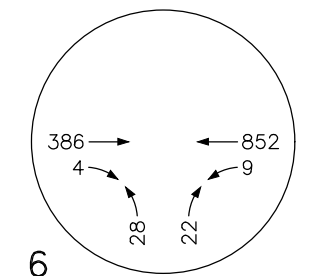
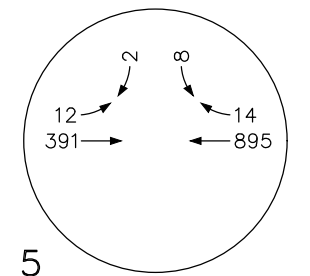
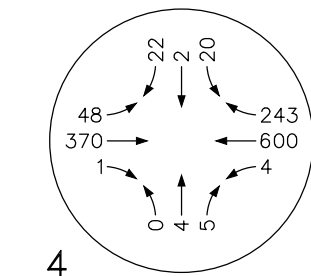
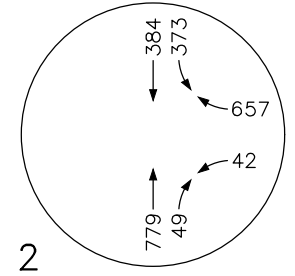
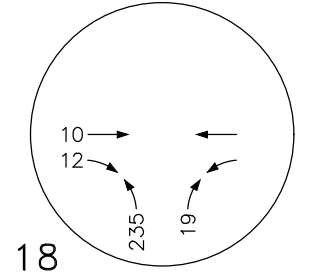
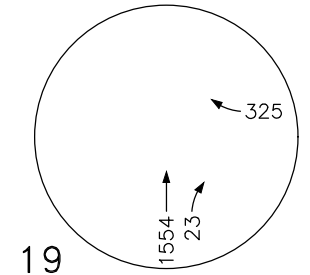
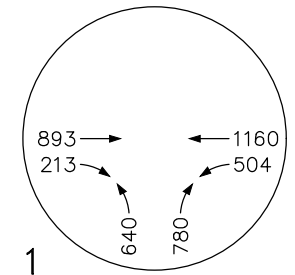
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

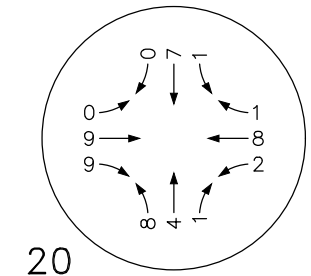
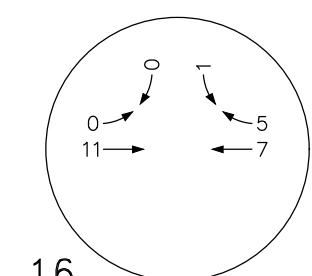
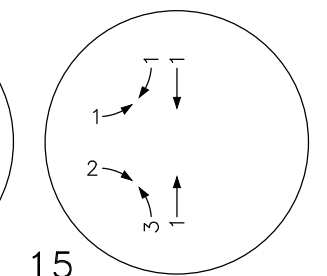
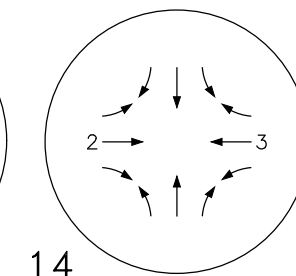
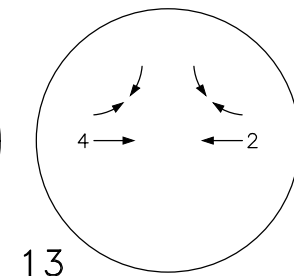
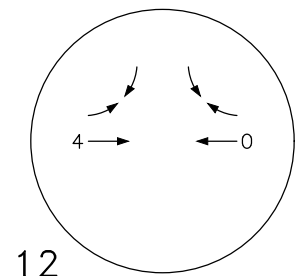
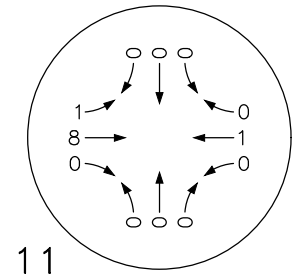
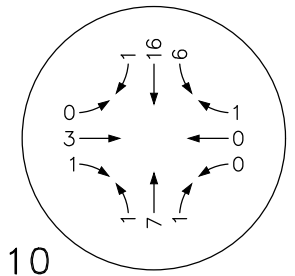
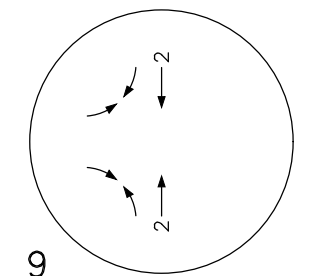
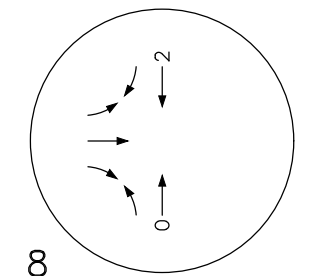
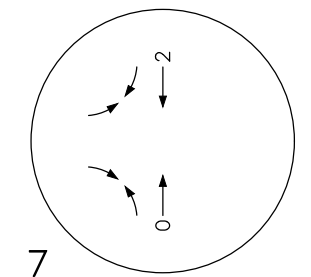
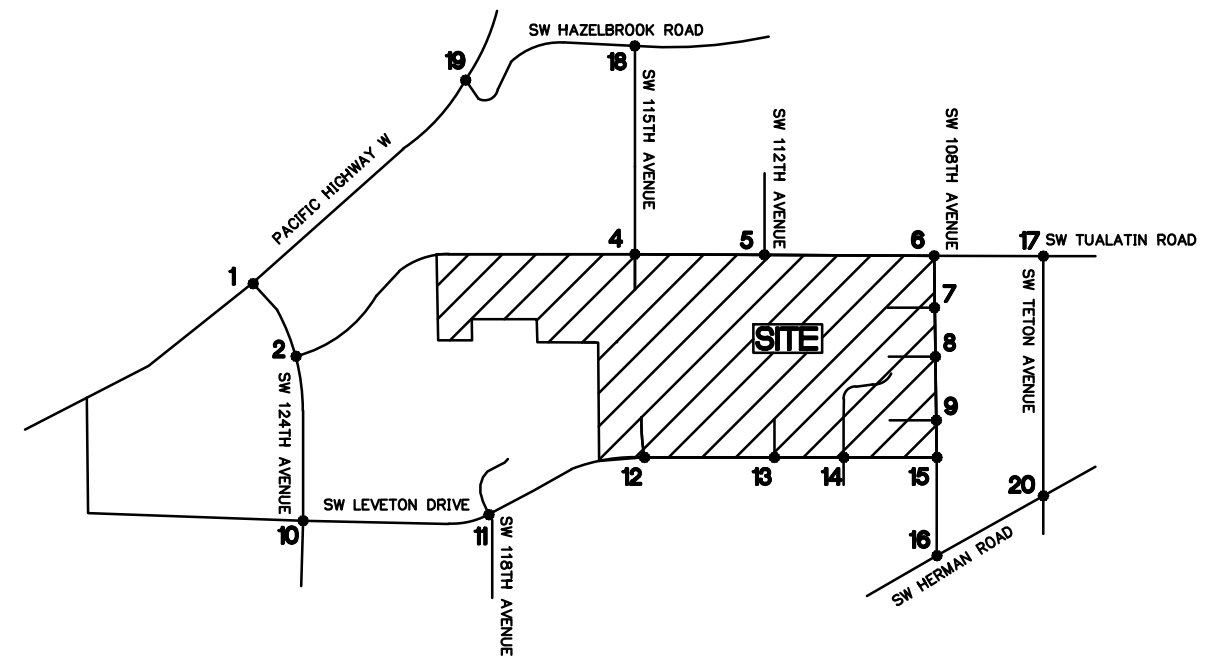
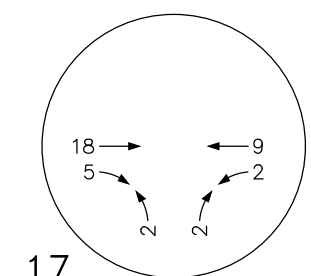
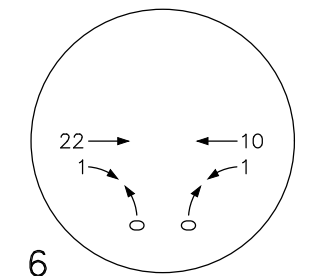
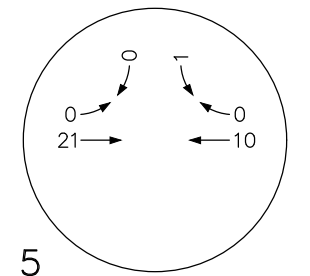
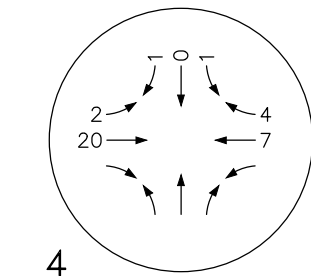
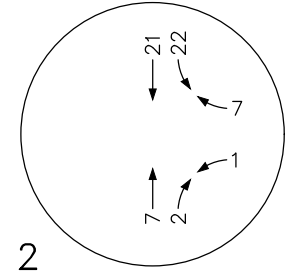
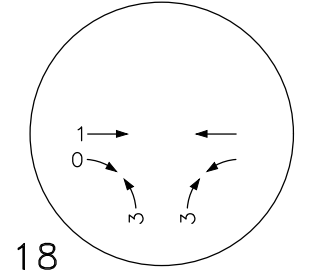
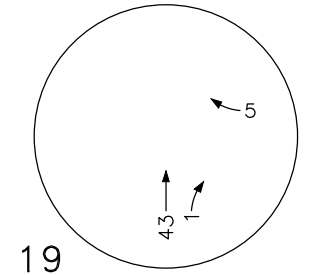
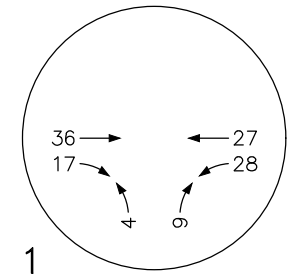
DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

2024 SEASONAL ADJUSTED
 TRAFFIC VOLUMES -
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

FIGURE
5A

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION





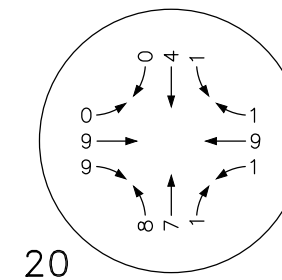
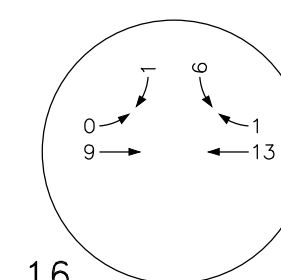
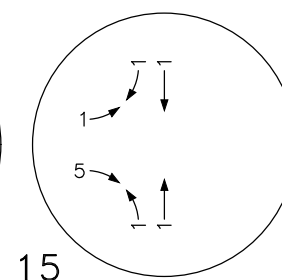
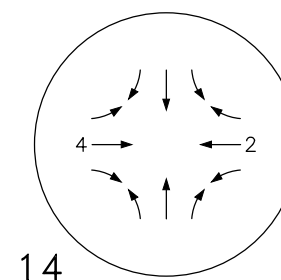
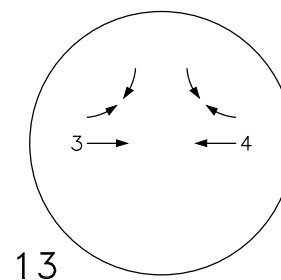
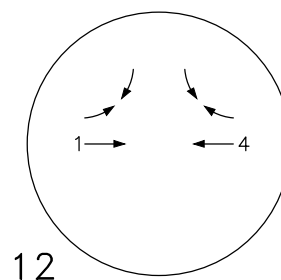
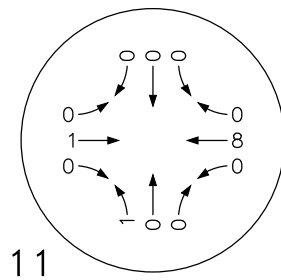
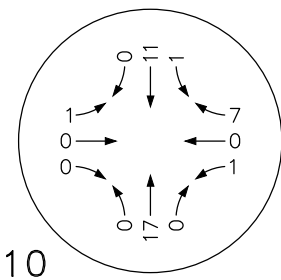
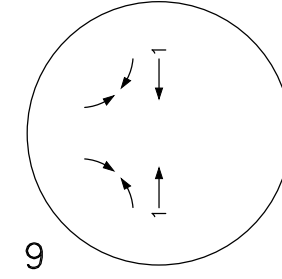
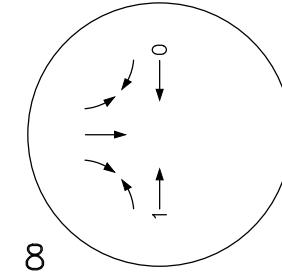
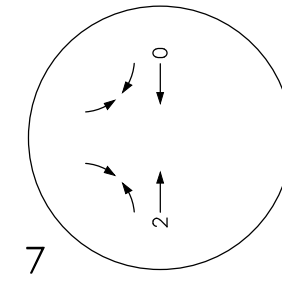
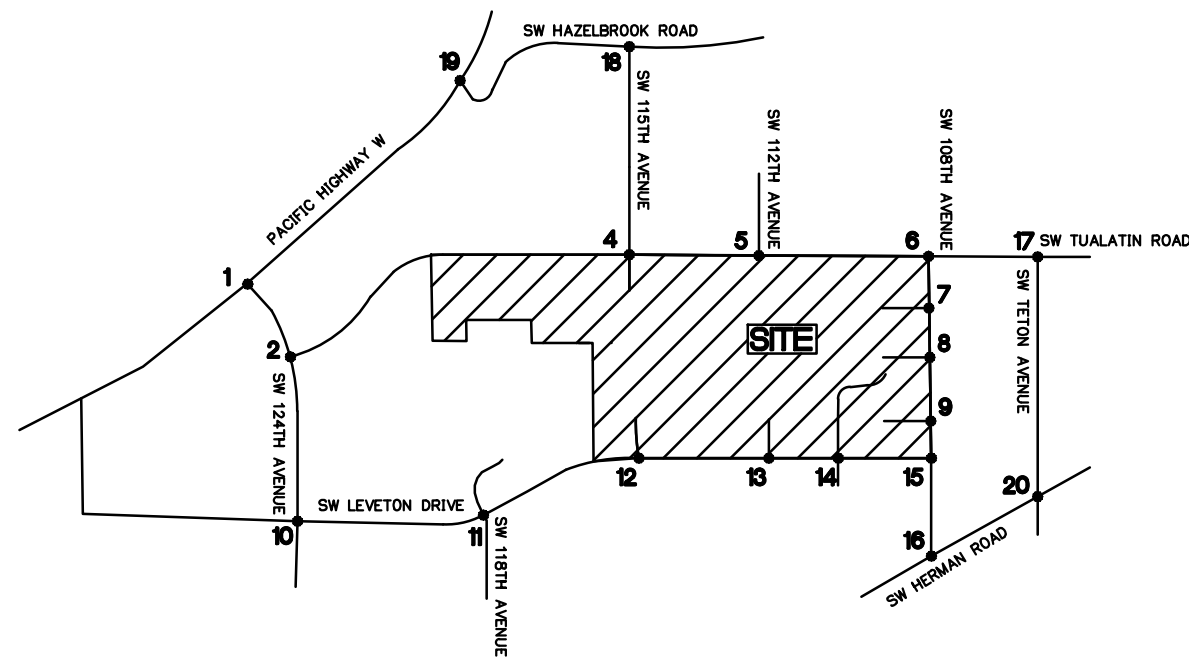
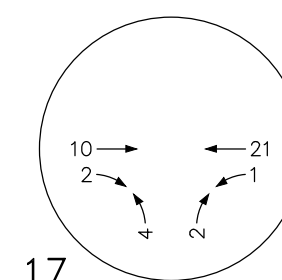
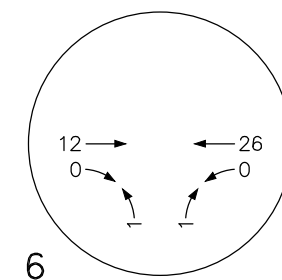
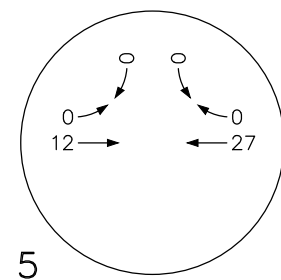
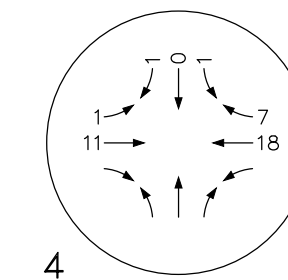
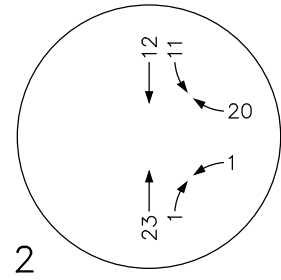
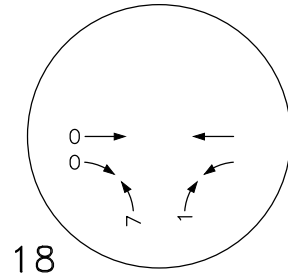
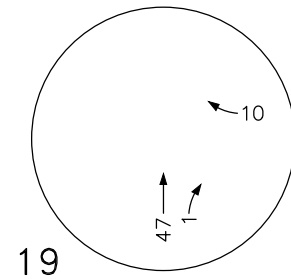
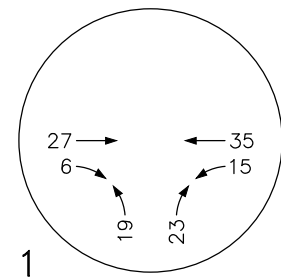
M Mackenzie
 Architecture • Interiors
 Planning • Engineering

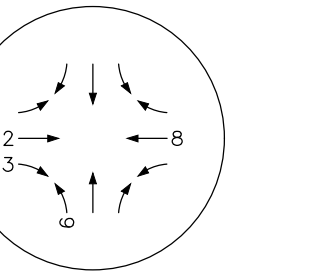
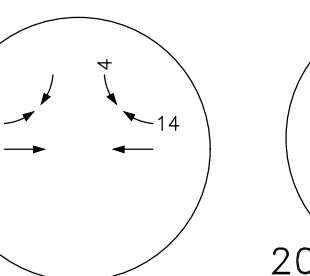
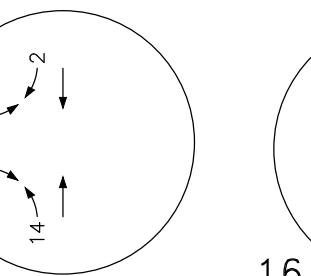
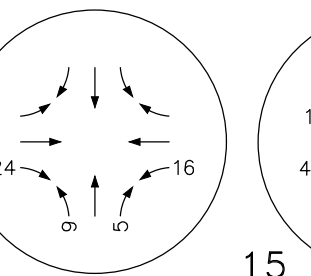
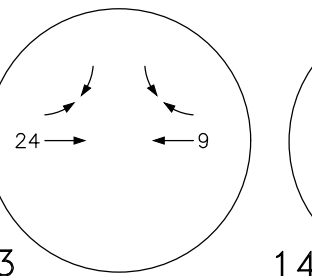
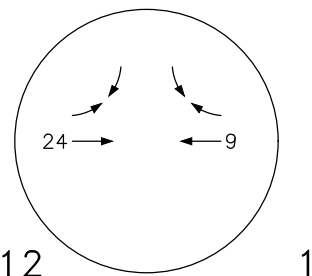
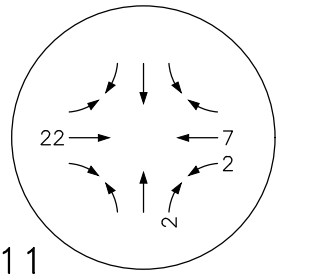
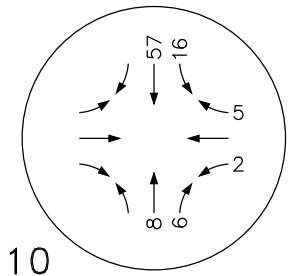
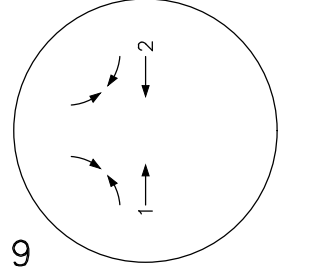
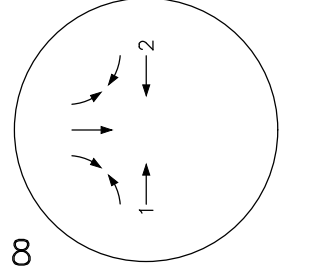
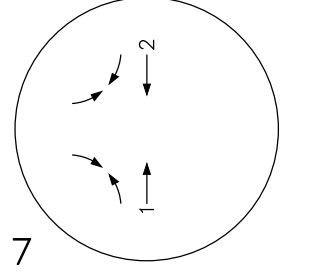
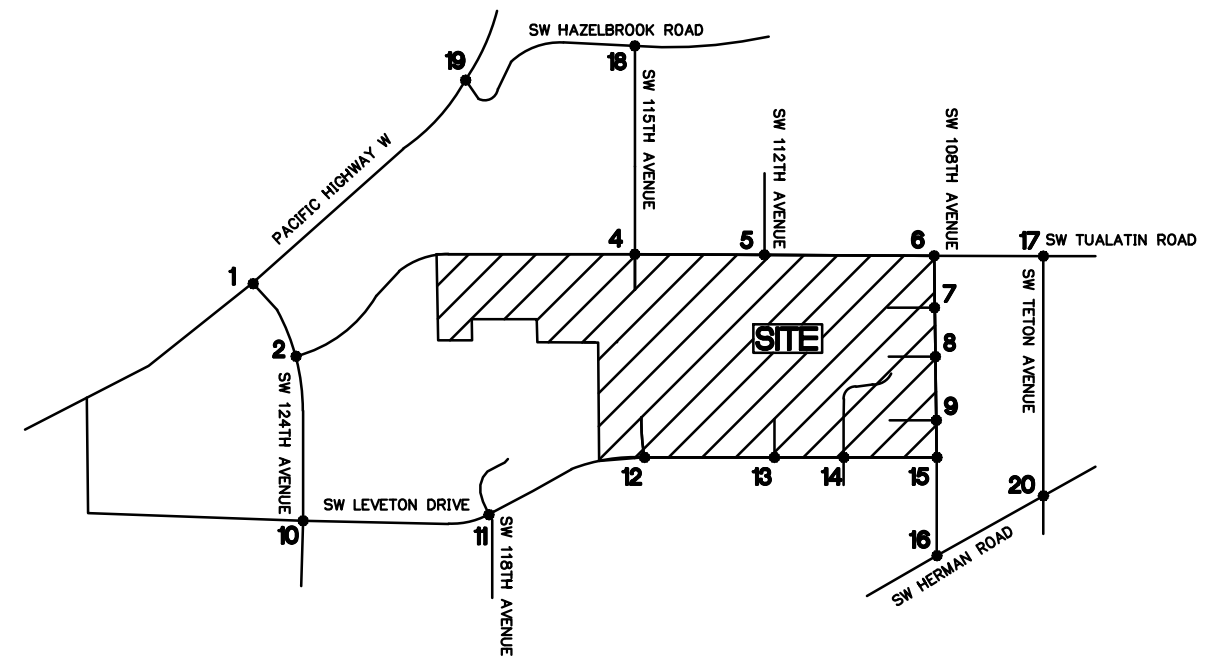
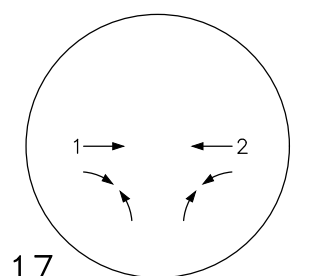
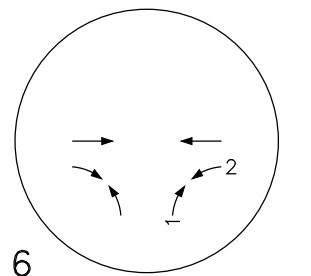
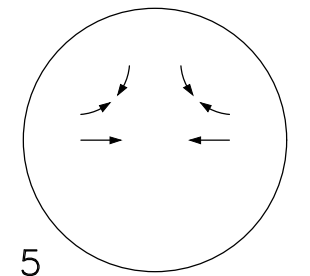
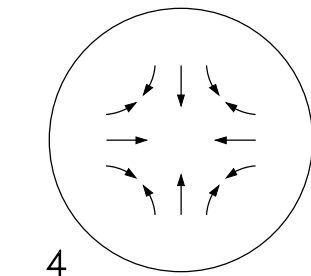
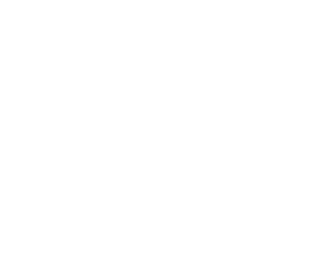
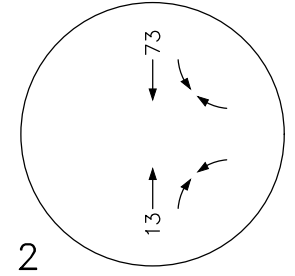
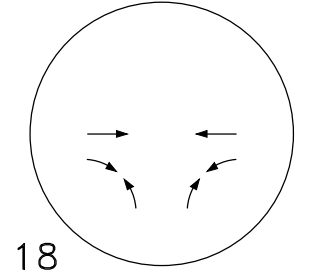
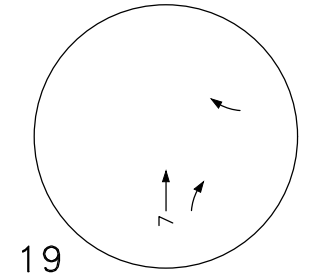
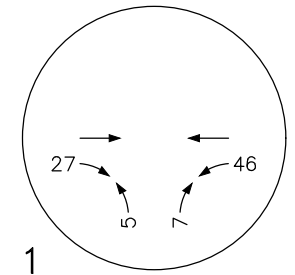
© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

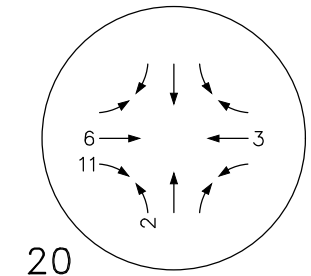
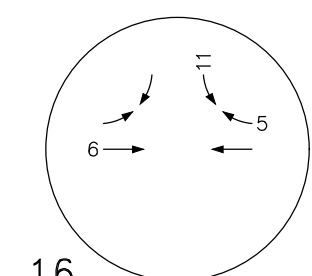
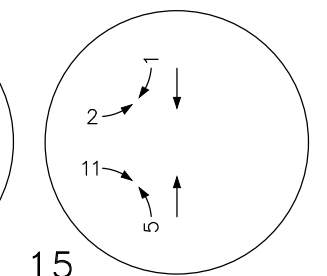
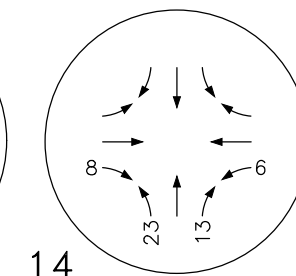
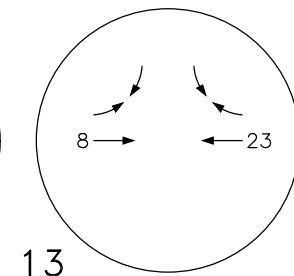
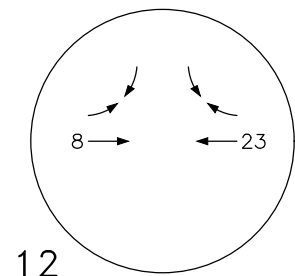
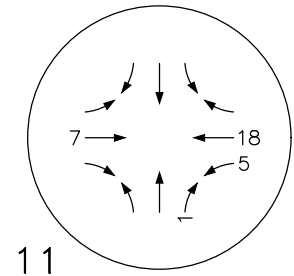
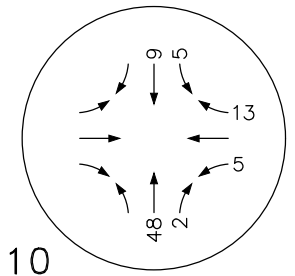
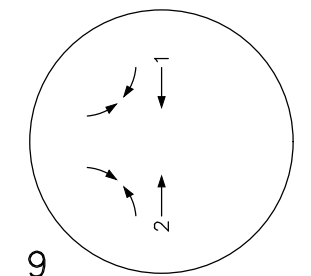
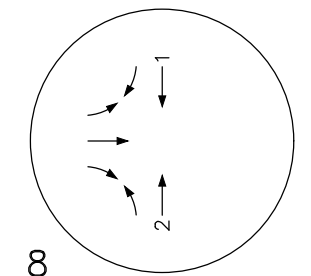
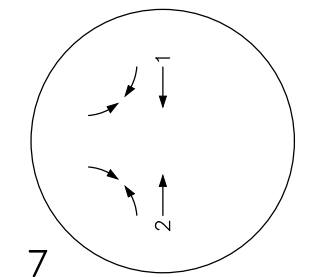
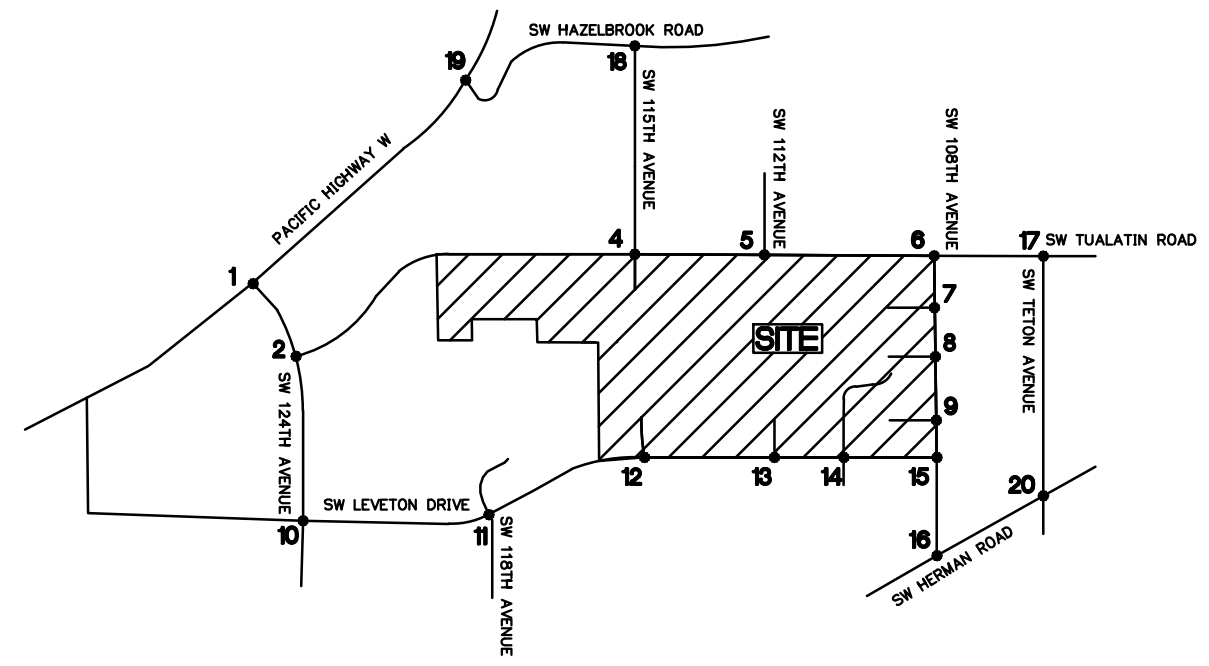
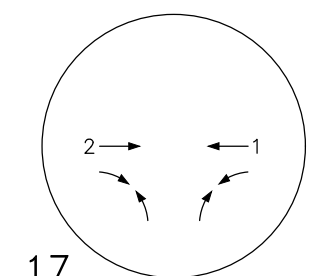
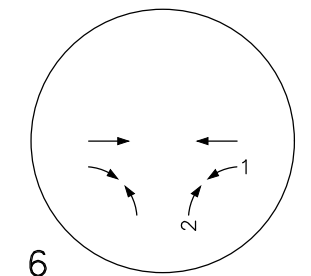
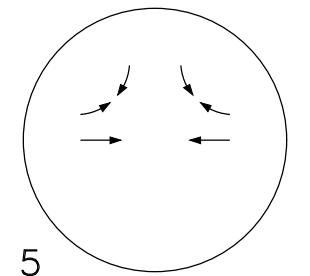
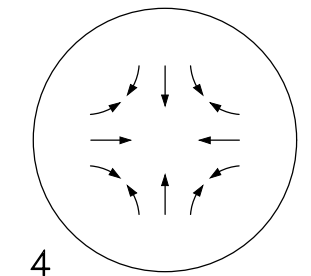
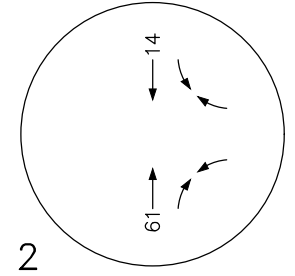
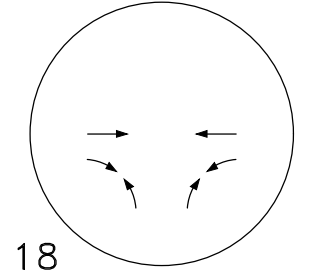
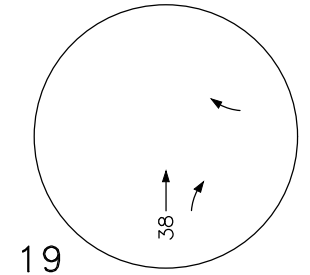
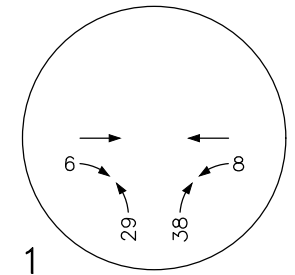
DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

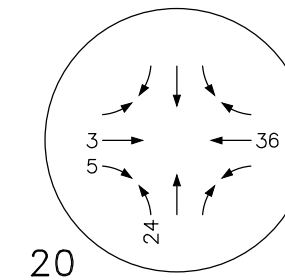
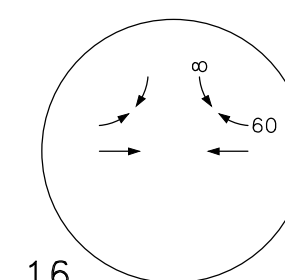
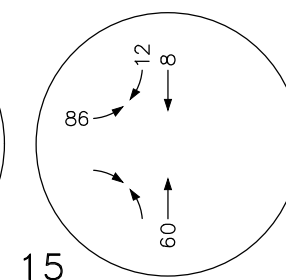
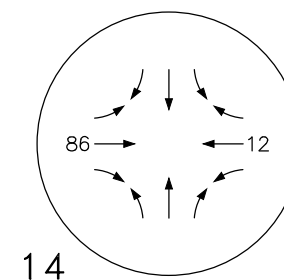
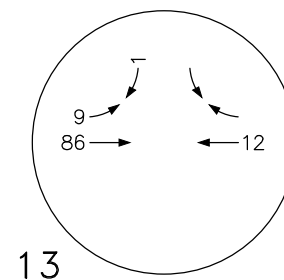
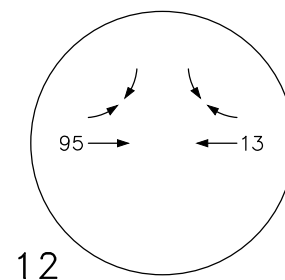
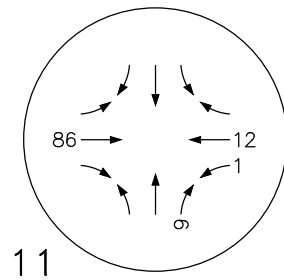
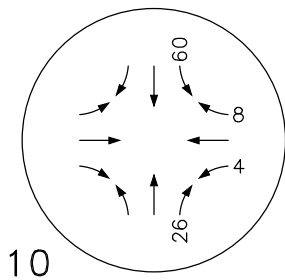
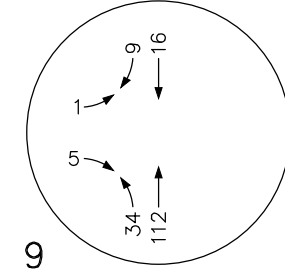
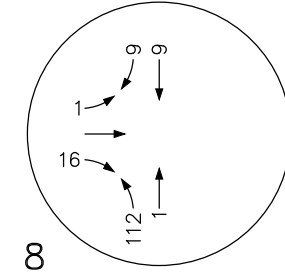
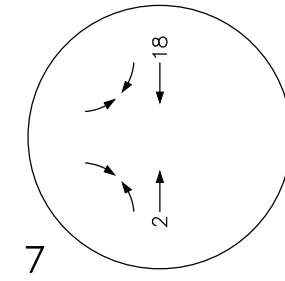
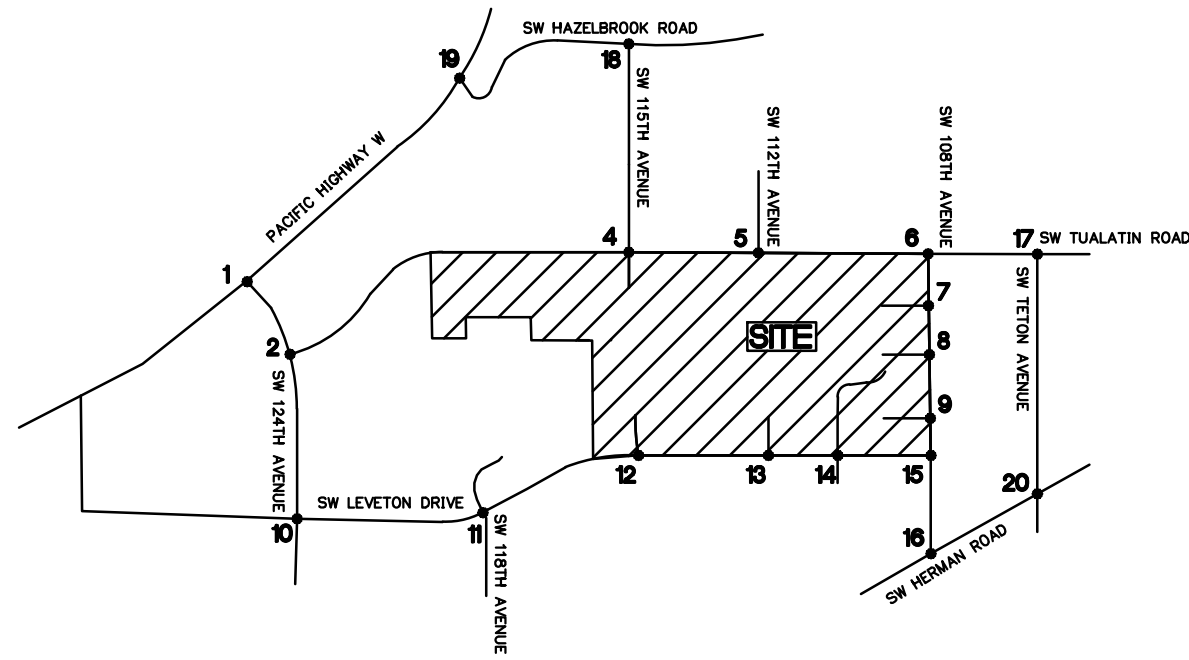
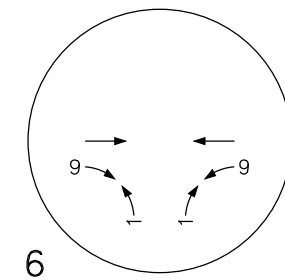
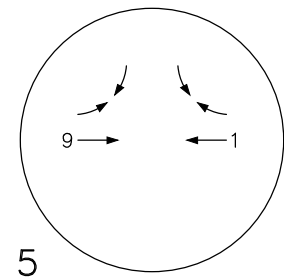
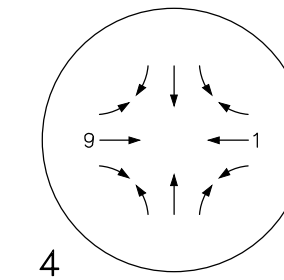
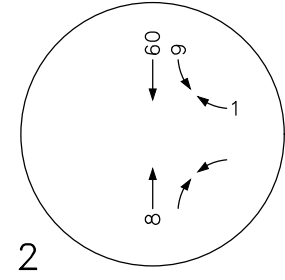
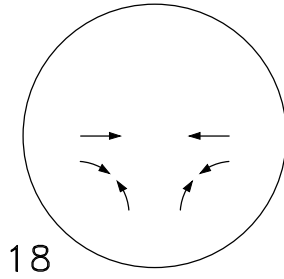
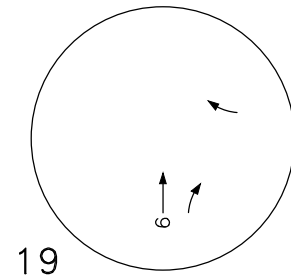
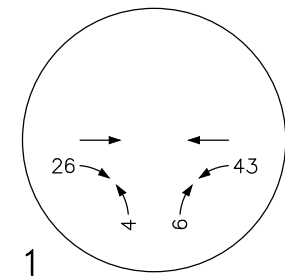
**BACKGROUND GROWTH
 3 YEARS AT 1% PER YEAR
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR**

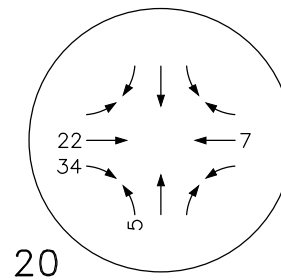
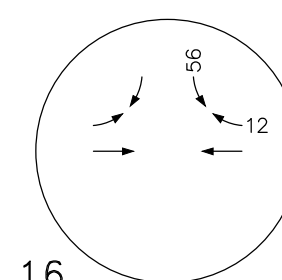
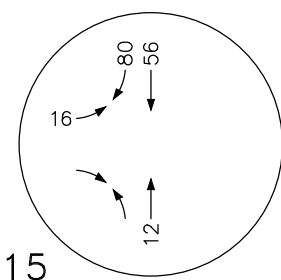
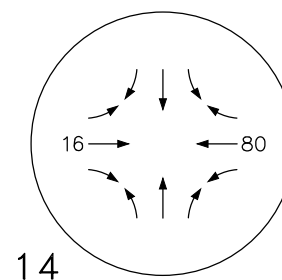
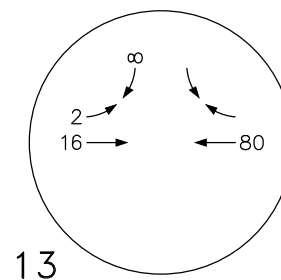
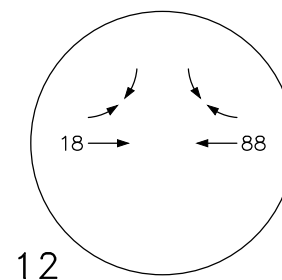
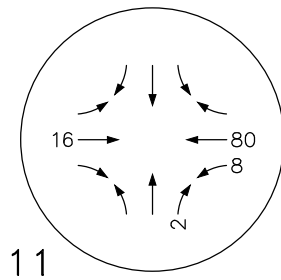
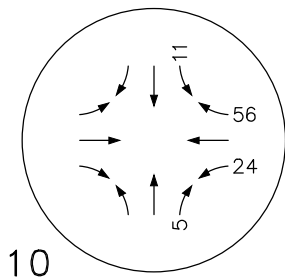
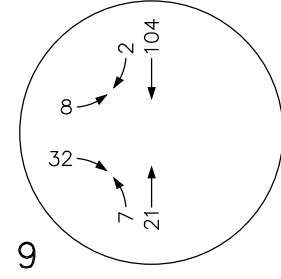
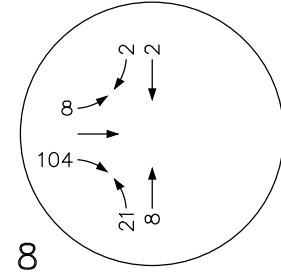
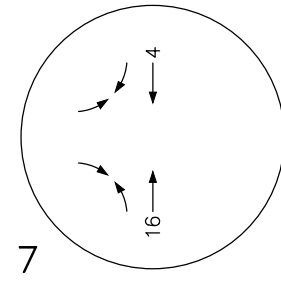
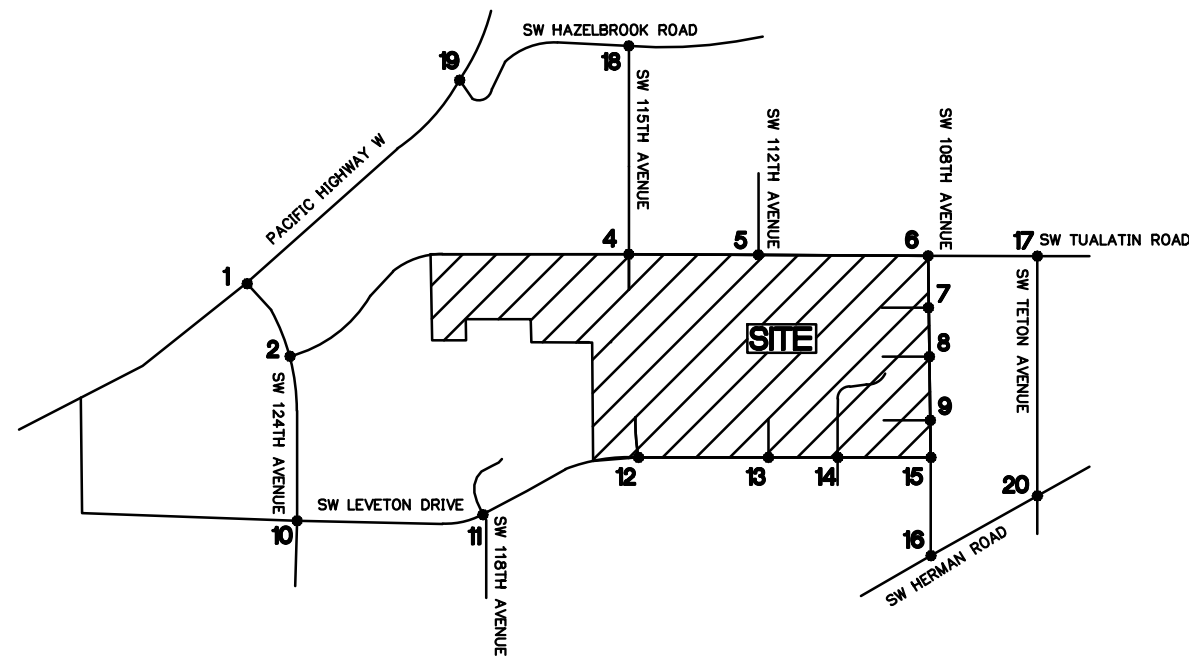
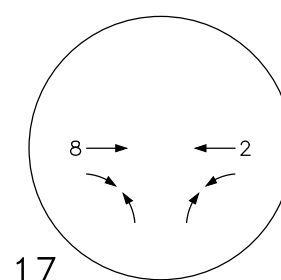
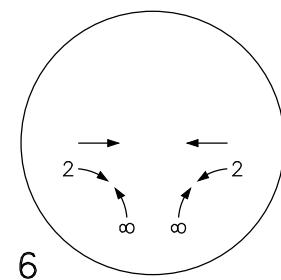
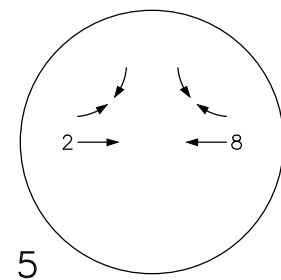
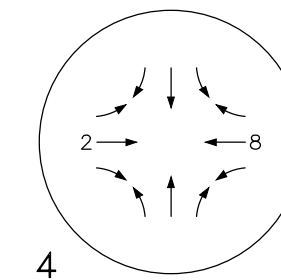
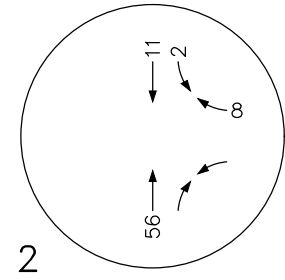
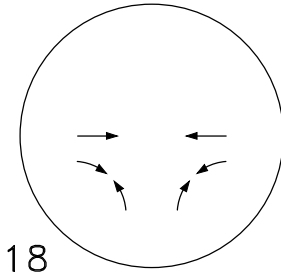
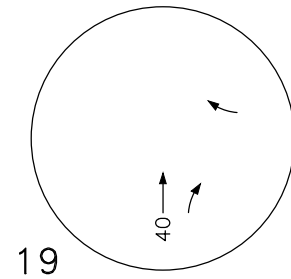
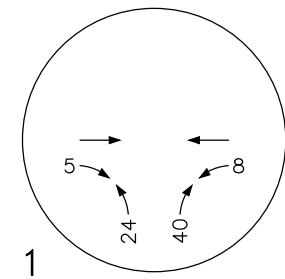
**FIGURE
 6A**

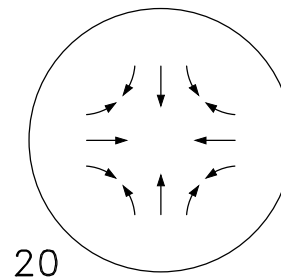
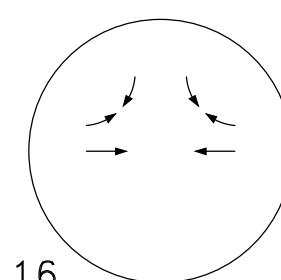
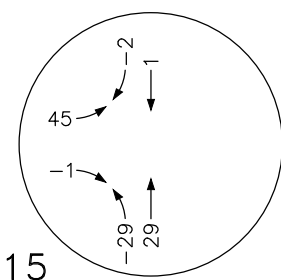
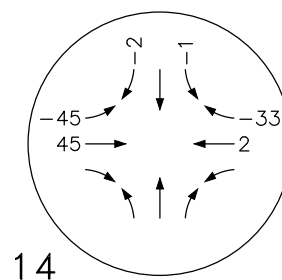
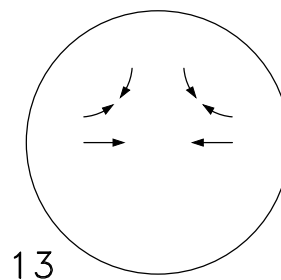
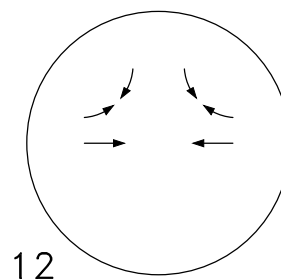
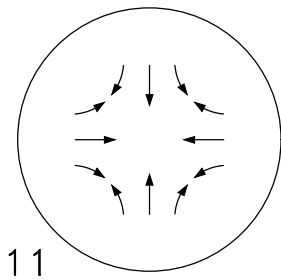
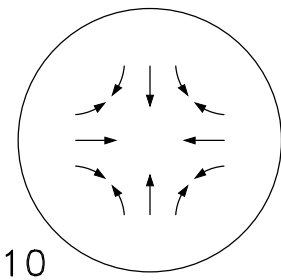
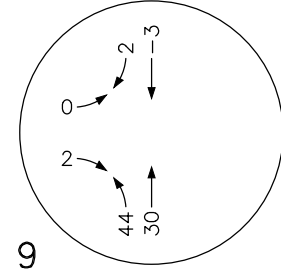
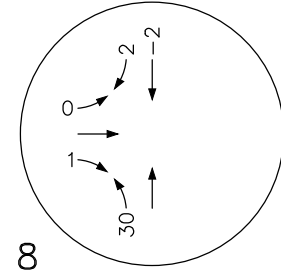
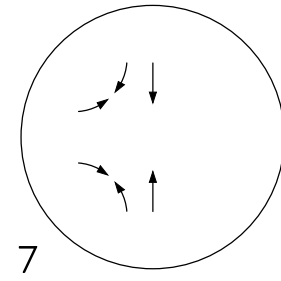
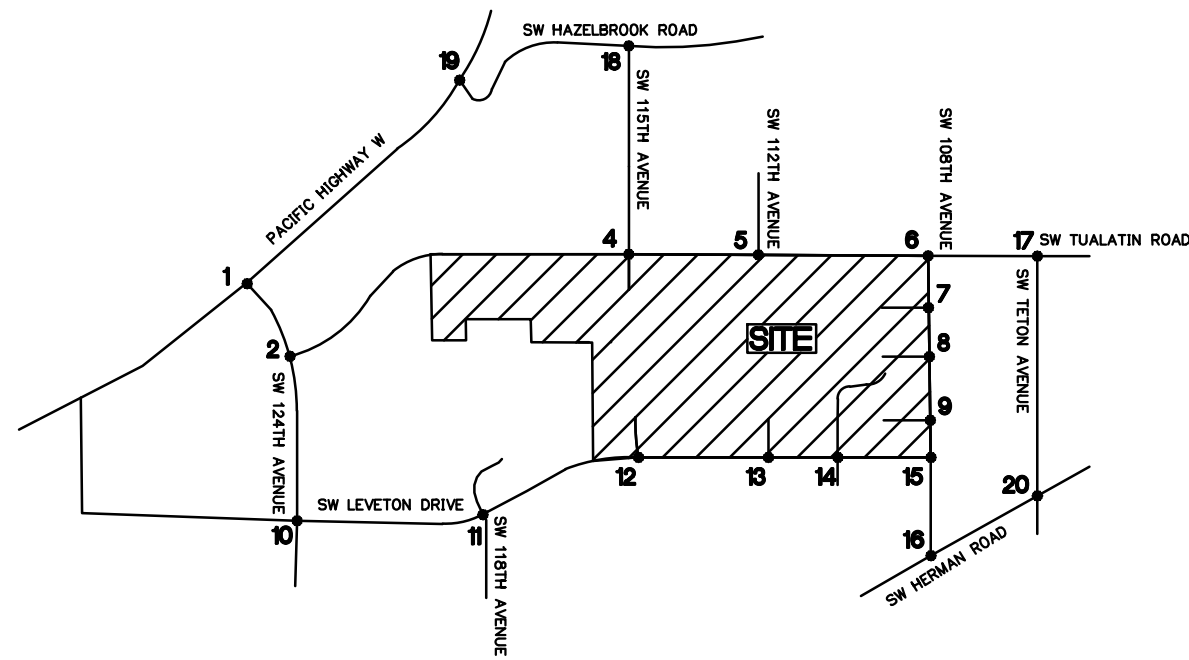
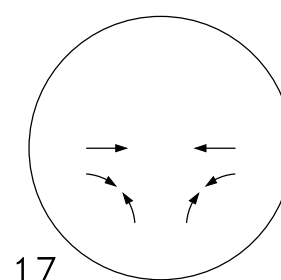
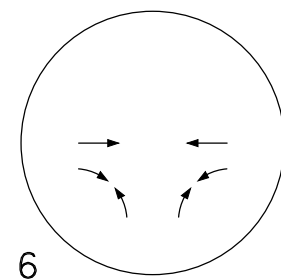
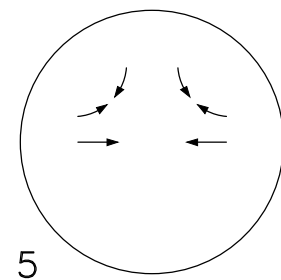
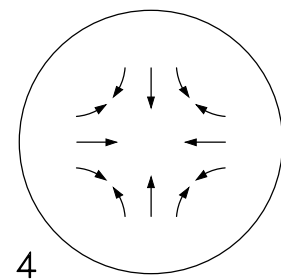
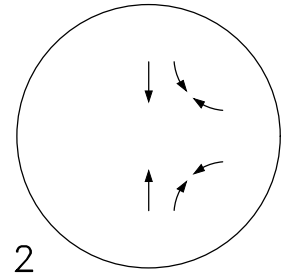
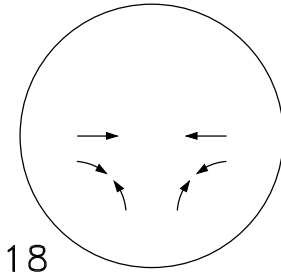
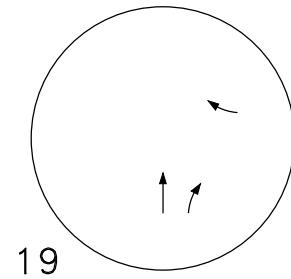
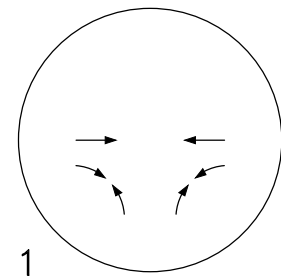


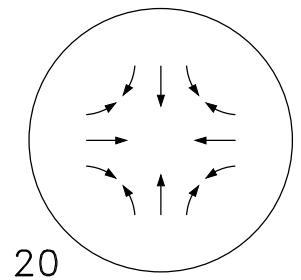
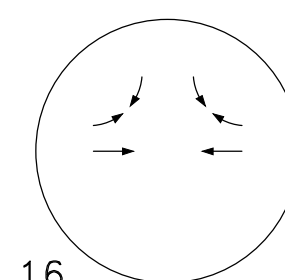
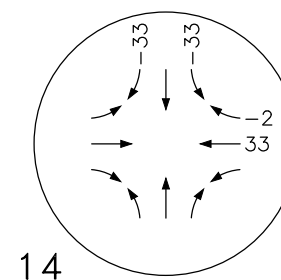
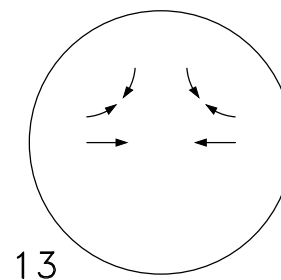
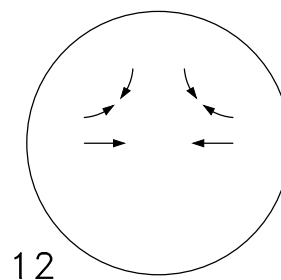
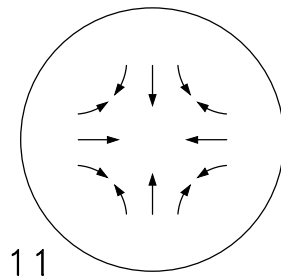
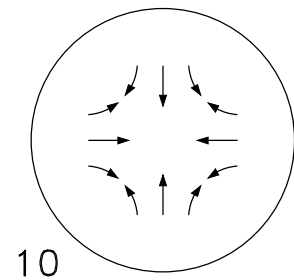
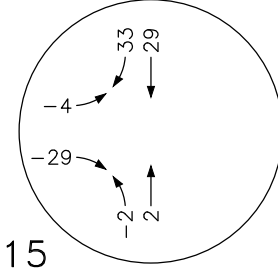
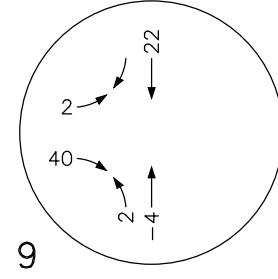
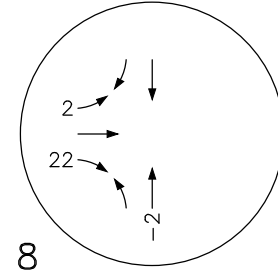
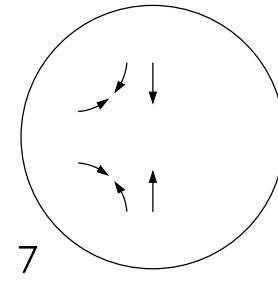
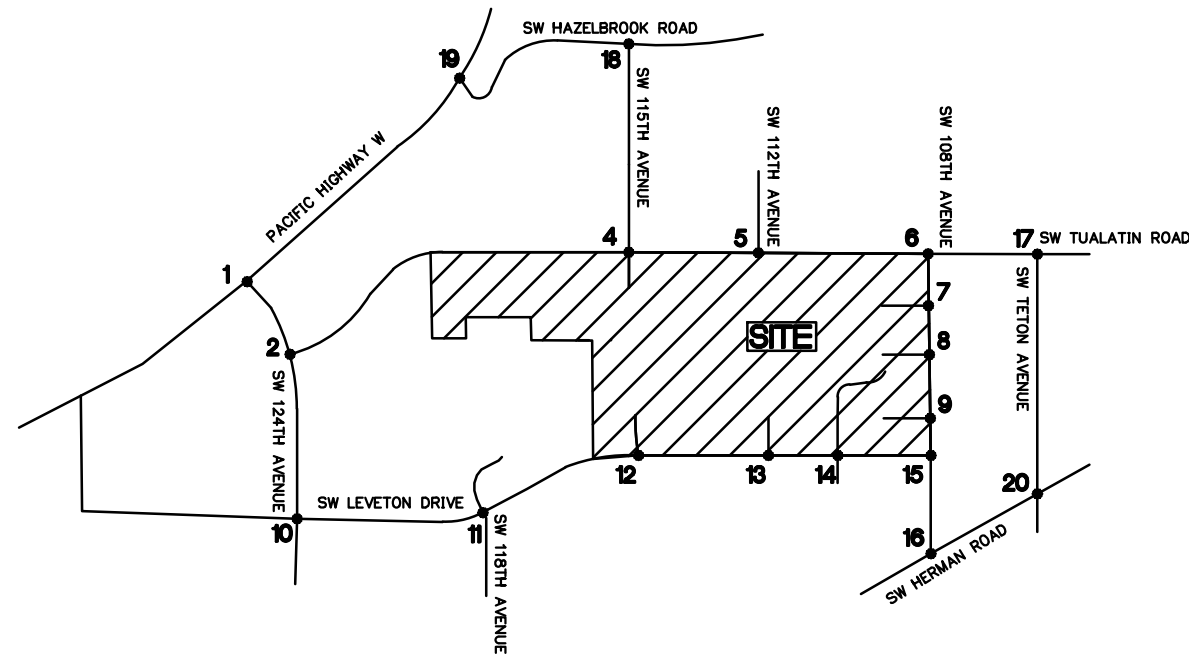
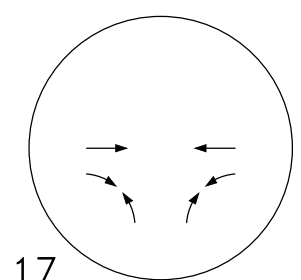
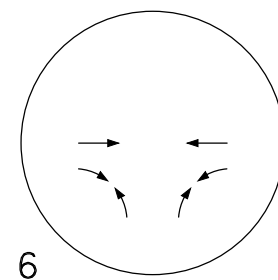
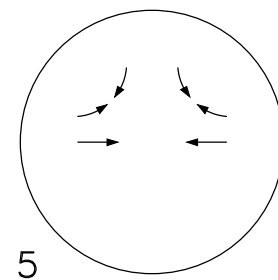
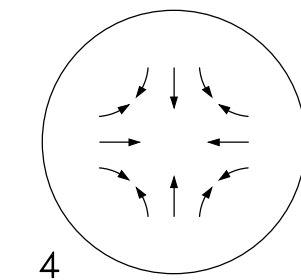
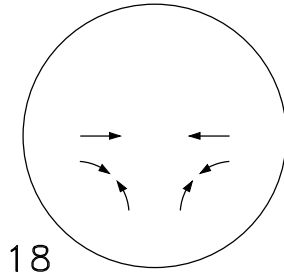
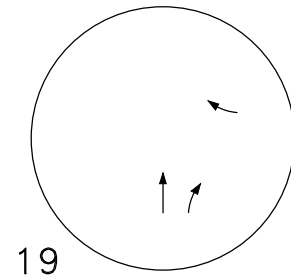
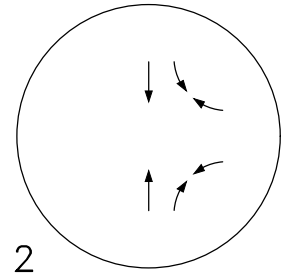
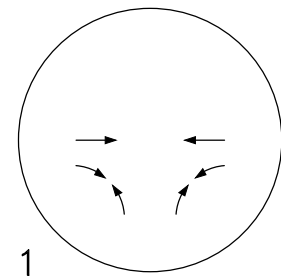


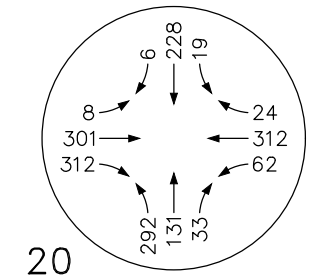
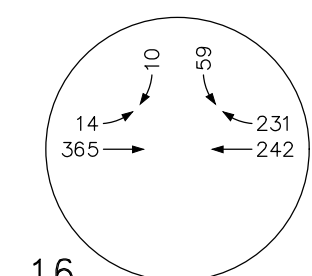
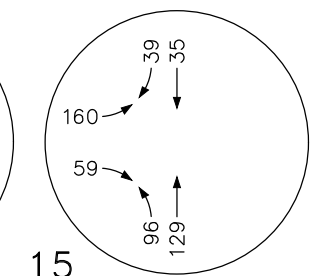
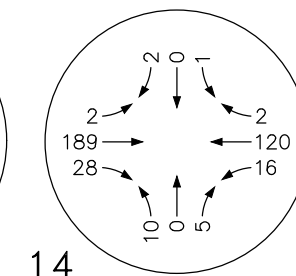
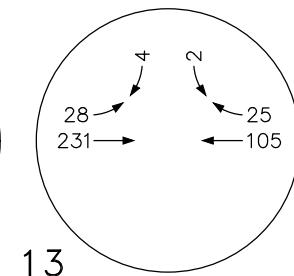
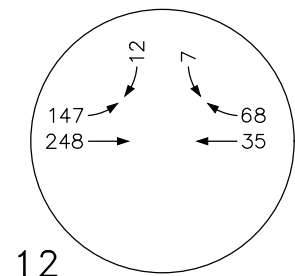
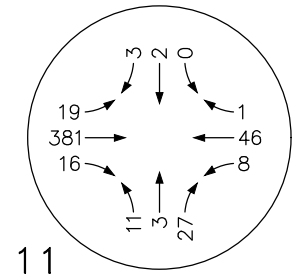
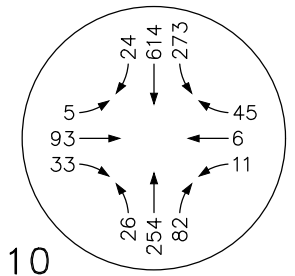
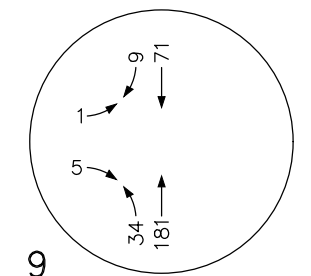
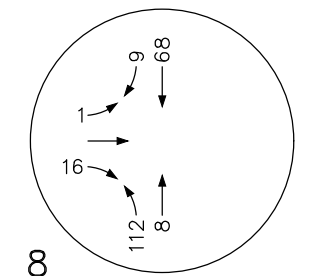
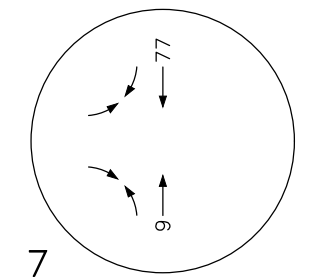
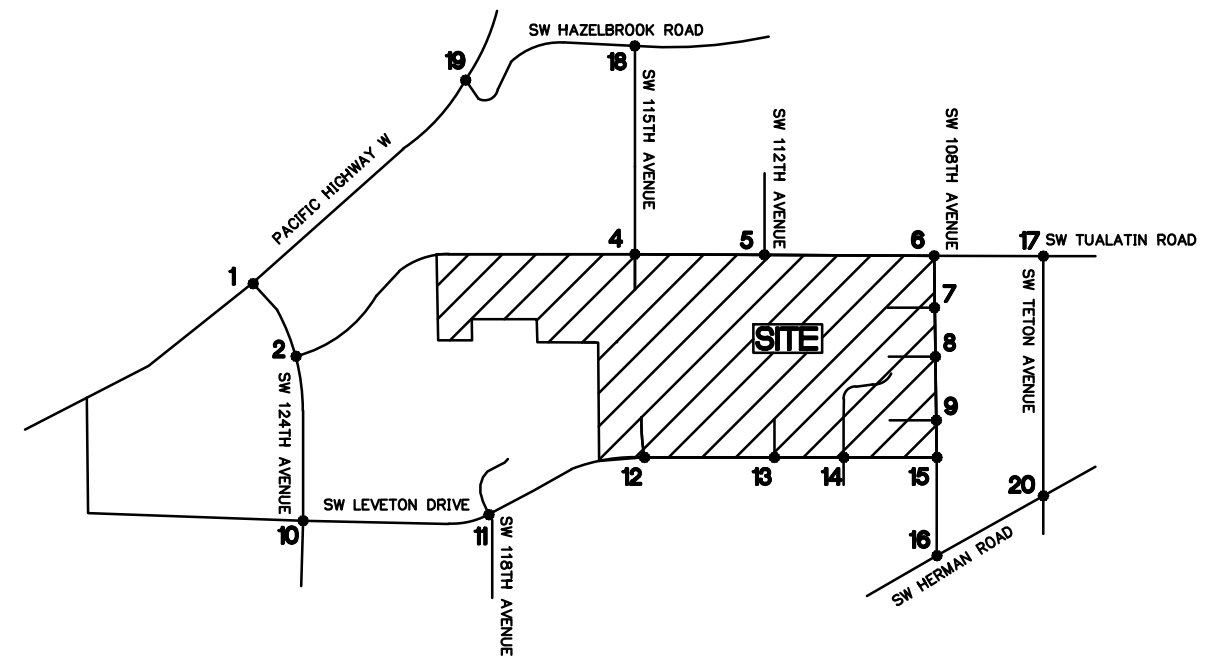
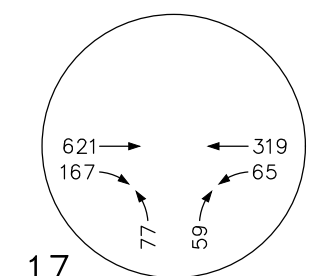
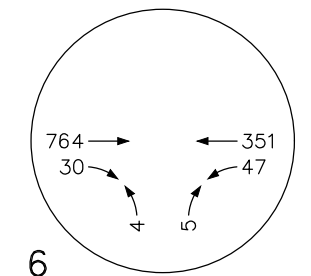
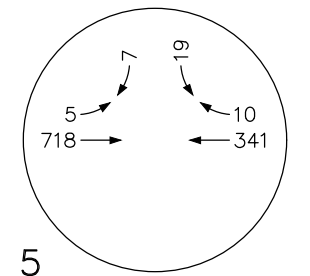
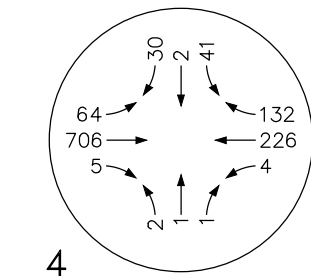
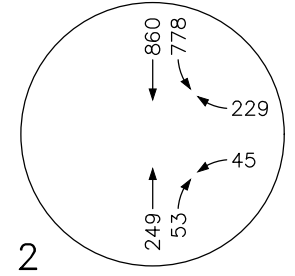
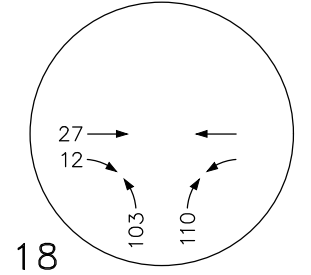
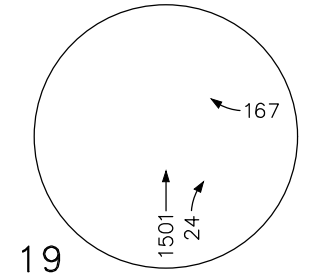
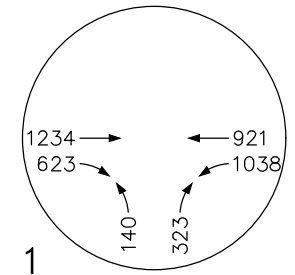












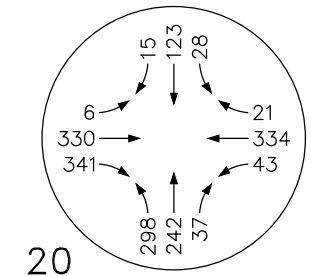
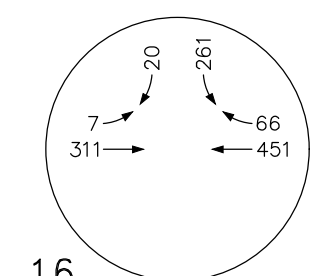
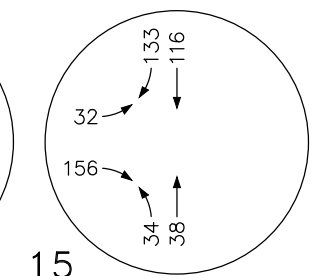
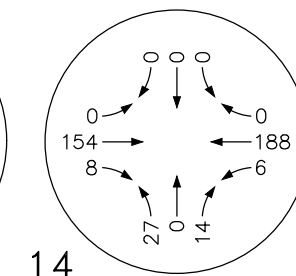
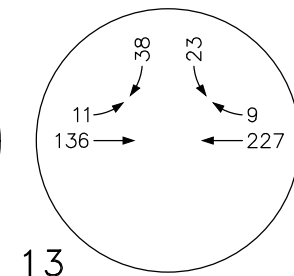
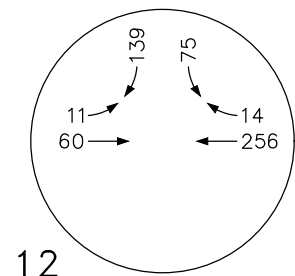
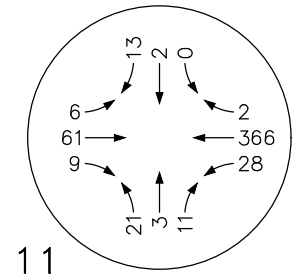
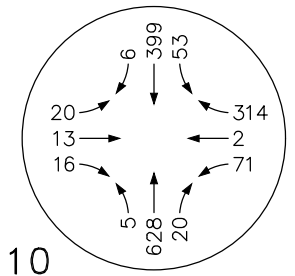
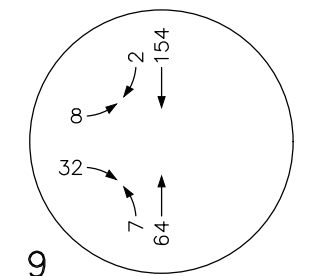
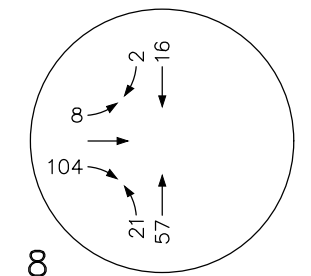
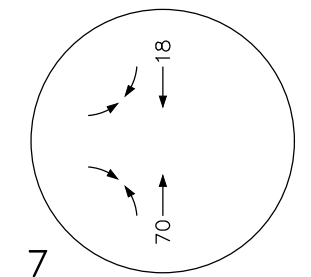
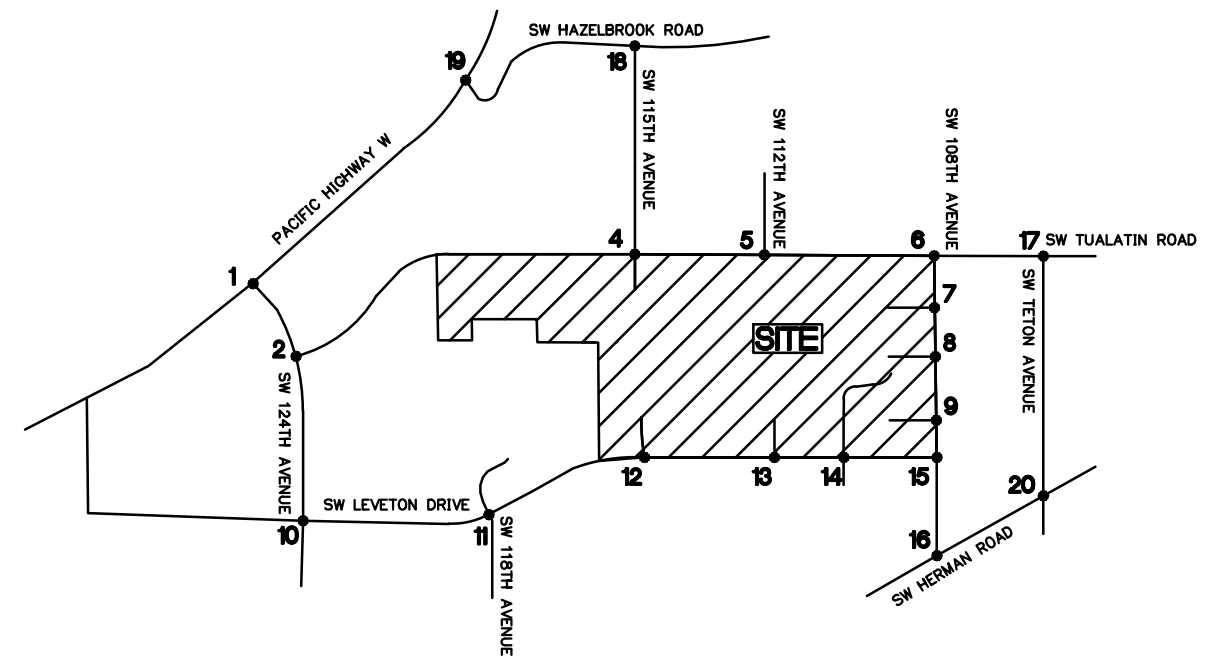
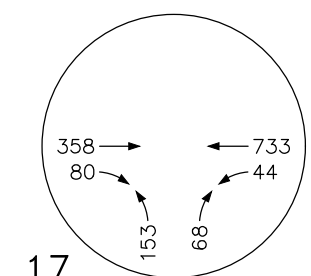
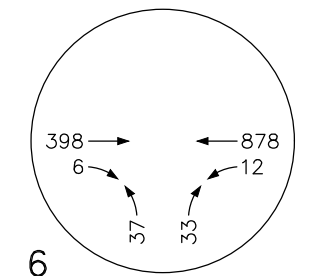
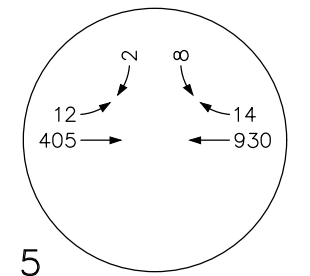
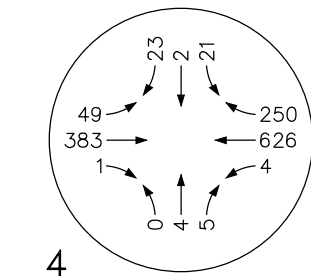
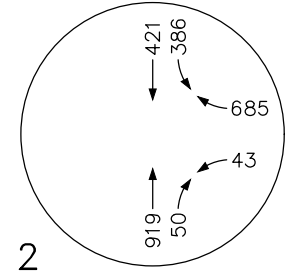
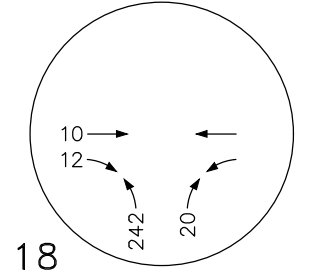
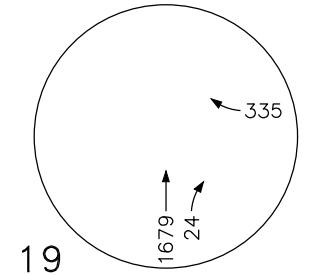
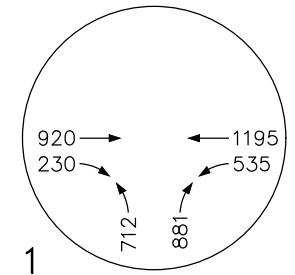
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

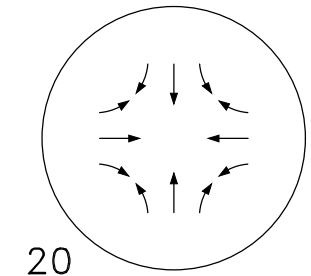
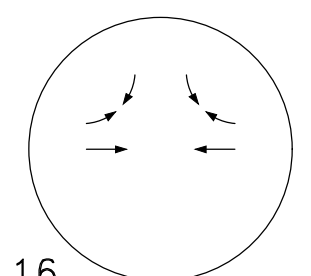
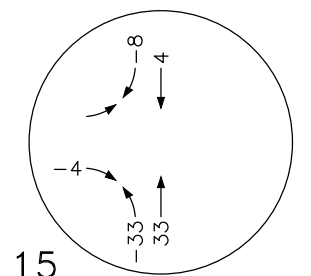
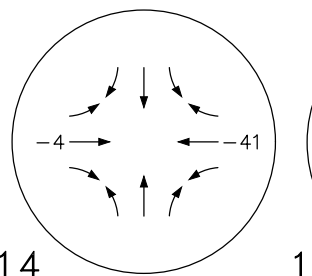
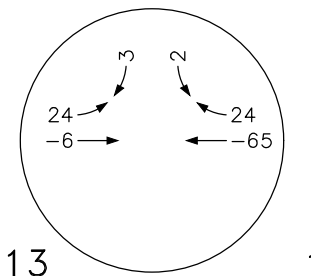
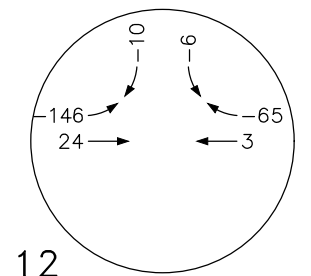
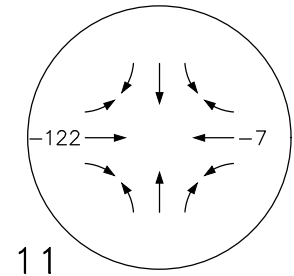
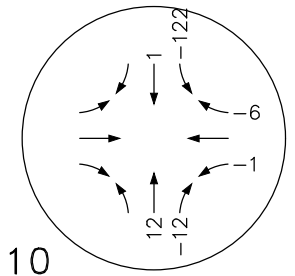
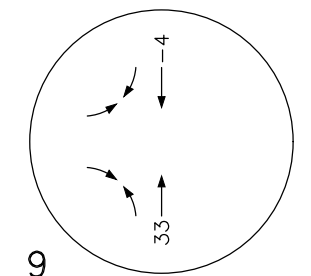
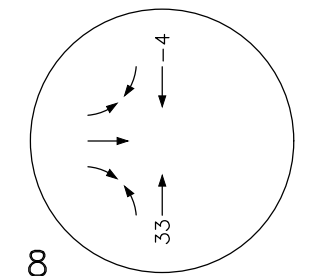
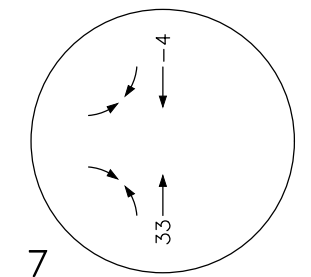
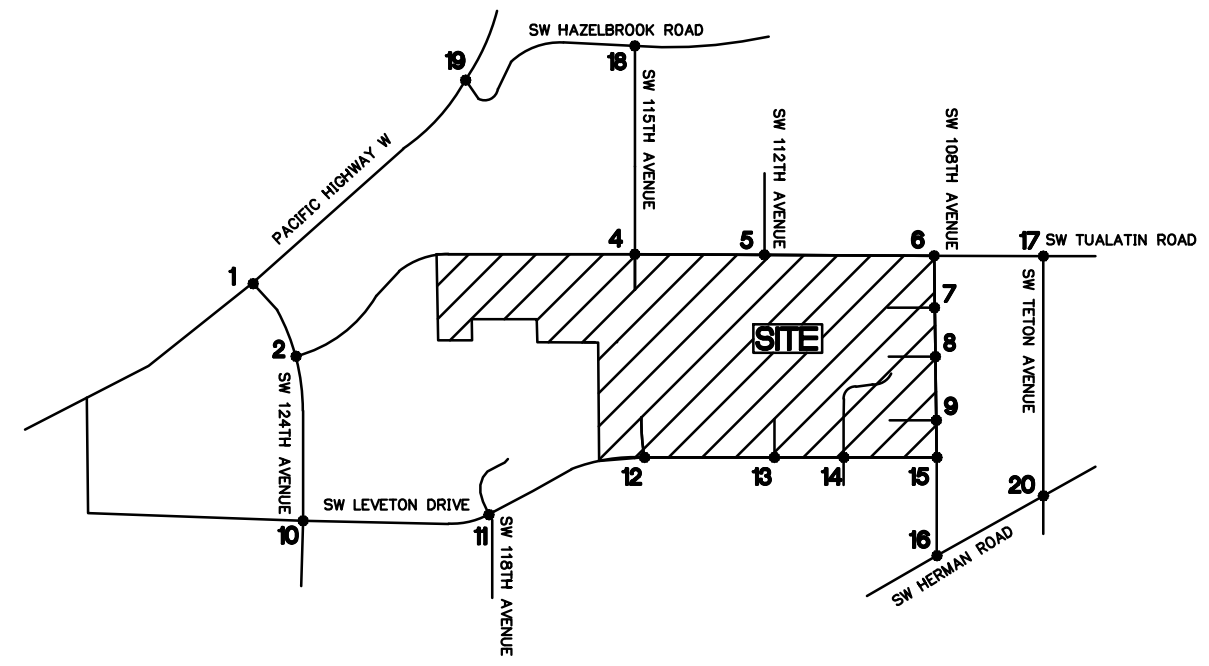
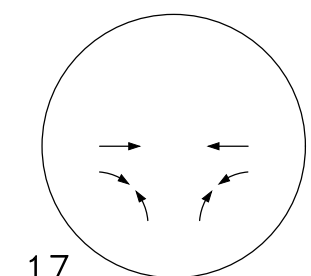
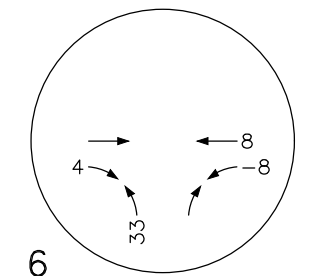
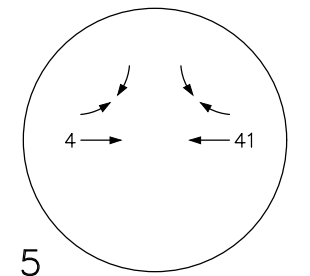
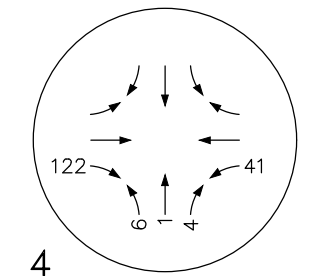
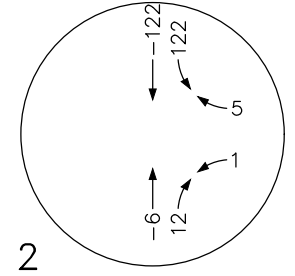
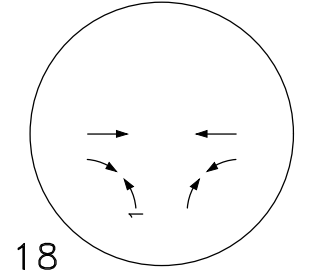
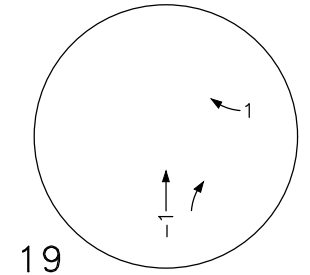
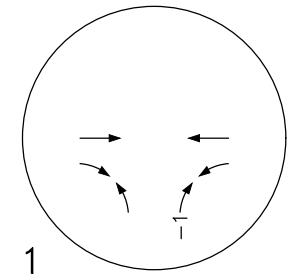
DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

2027 PRE-DEVELOPMENT
 TRAFFIC VOLUMES -
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

FIGURE
 10A

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION





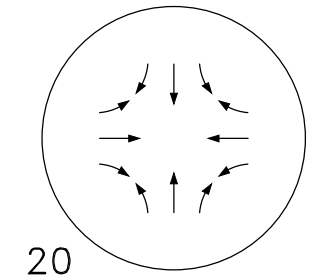
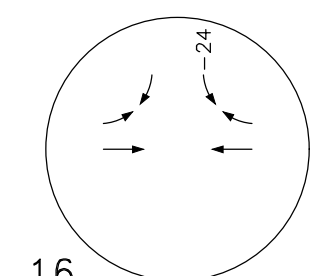
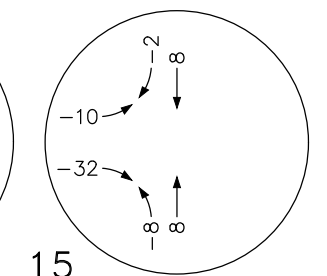
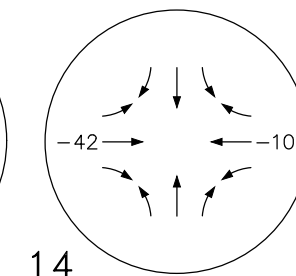
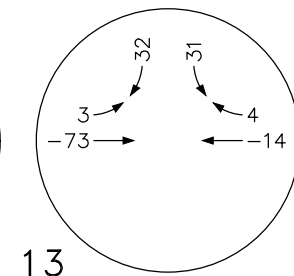
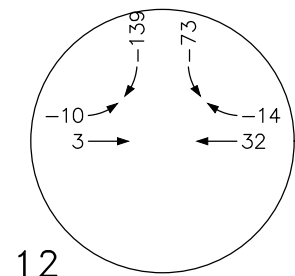
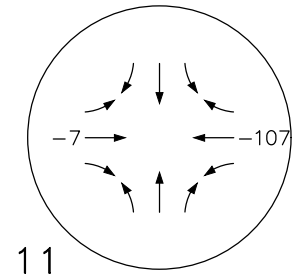
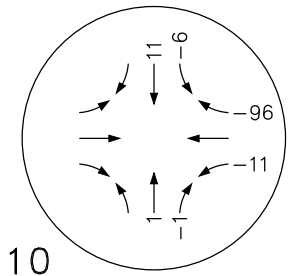
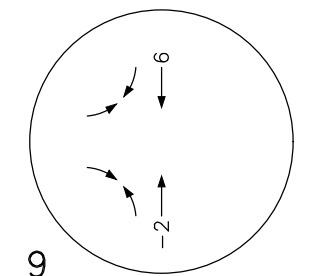
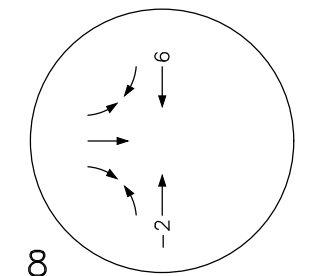
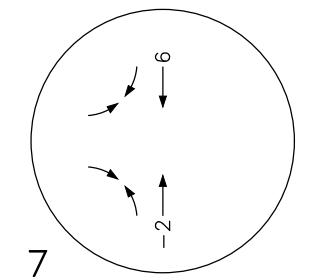
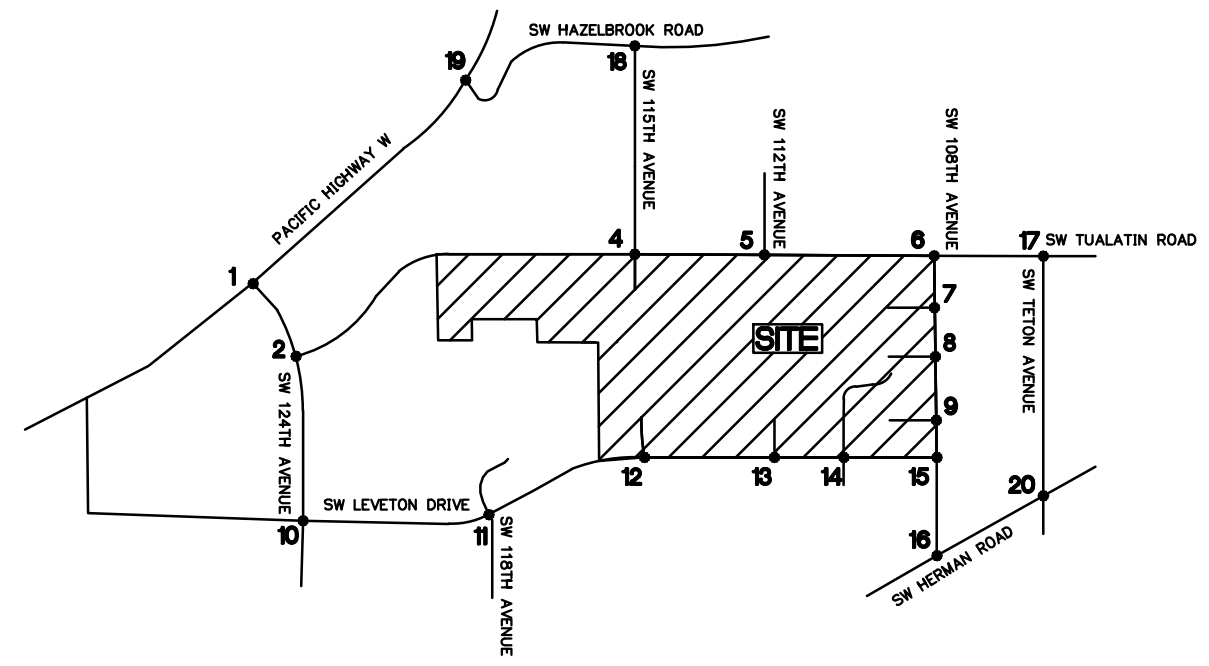
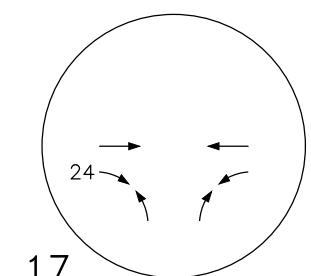
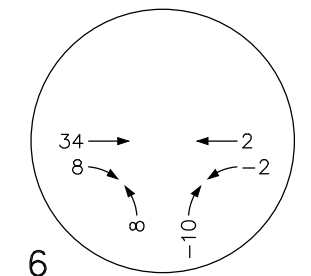
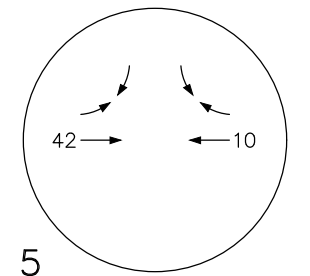
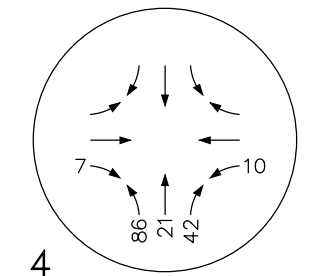
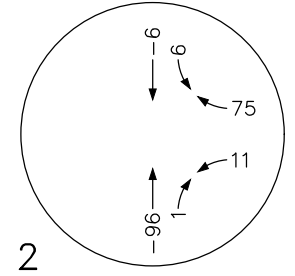
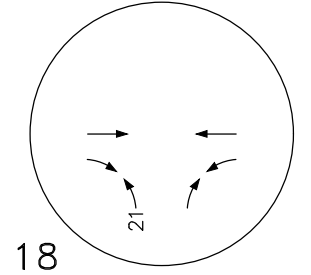
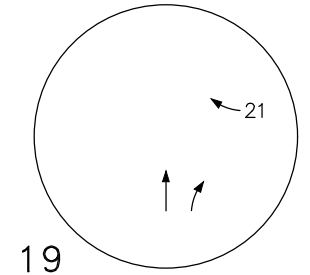
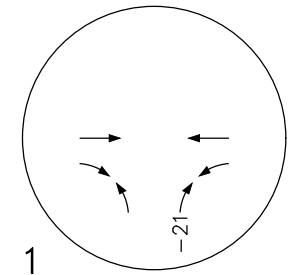
M Mackenzie
 Architecture • Interiors
 Planning • Engineering

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

**WEST LEVETON ACCESS
 REROUTED TRAFFIC -
 AM PEAK HOUR**
 LAM RESEARCH TUX
 TUALATIN, OR

**FIGURE
 11A**



M Mackenzie
 Architecture • Interiors
 Planning • Engineering

Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com

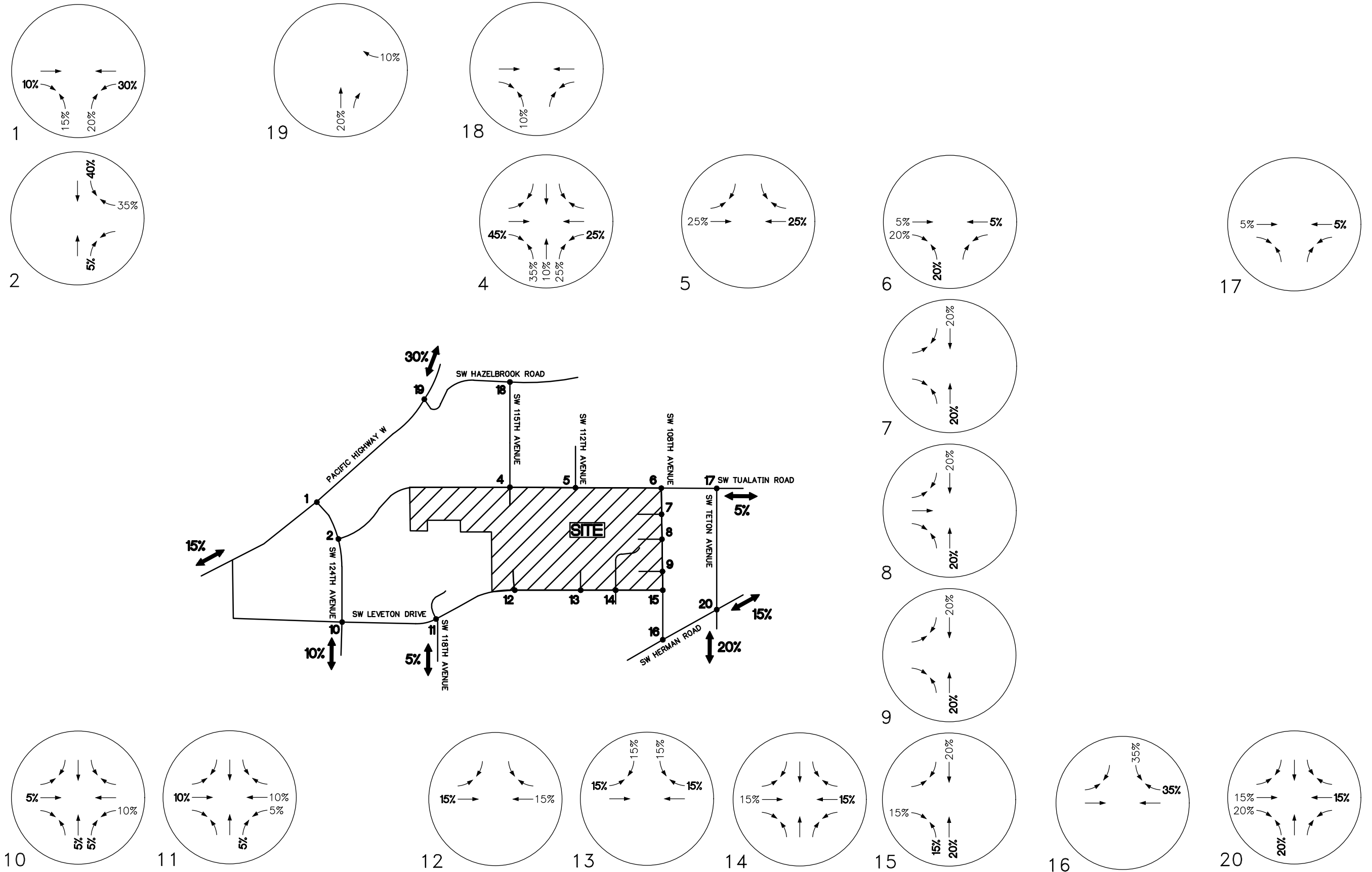
DATE: 7.8.2024
 DRAWN BY: LCB
 CHECKED BY: BTA
 JOB NO:
 224002200

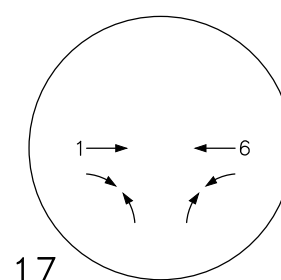
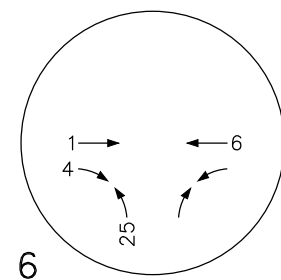
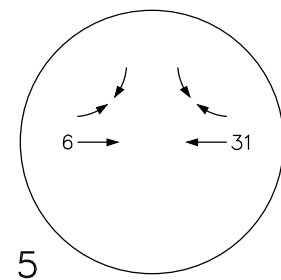
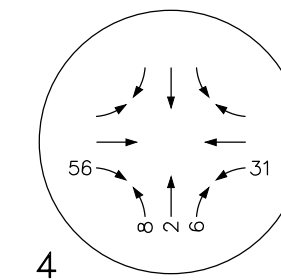
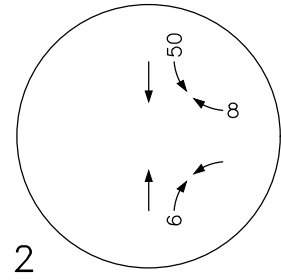
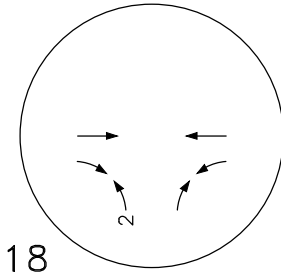
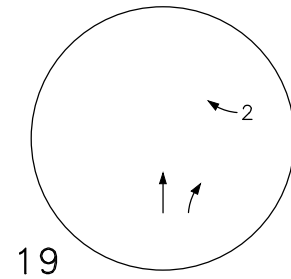
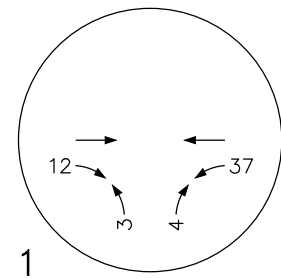
**WEST LEVEON ACCESS
 REROUTED TRAFFIC -
 PM PEAK HOUR**

**LAM RESEARCH TUX
 TUALATIN, OR**

**FIGURE
 11B**

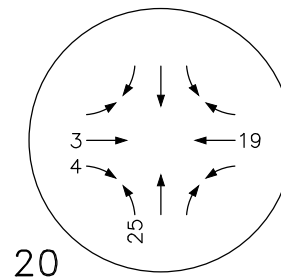
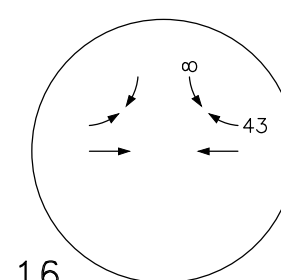
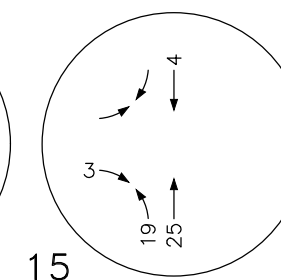
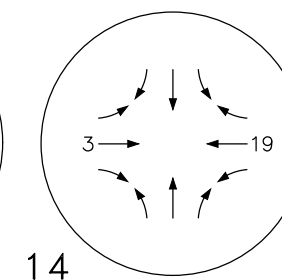
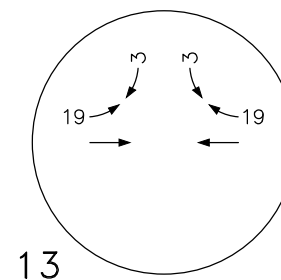
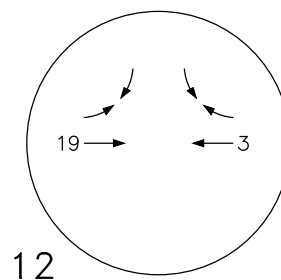
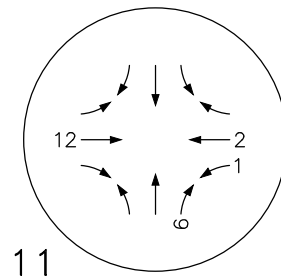
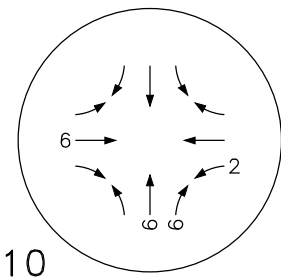
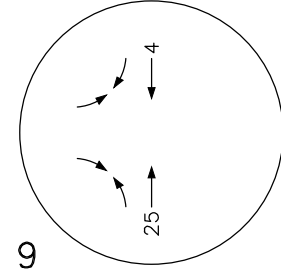
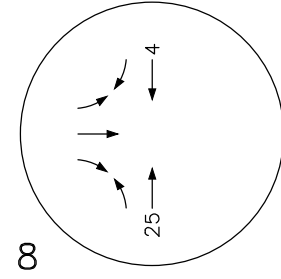
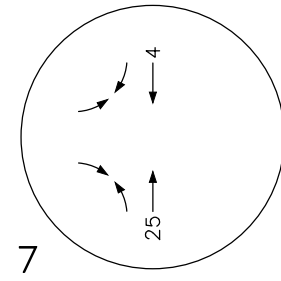
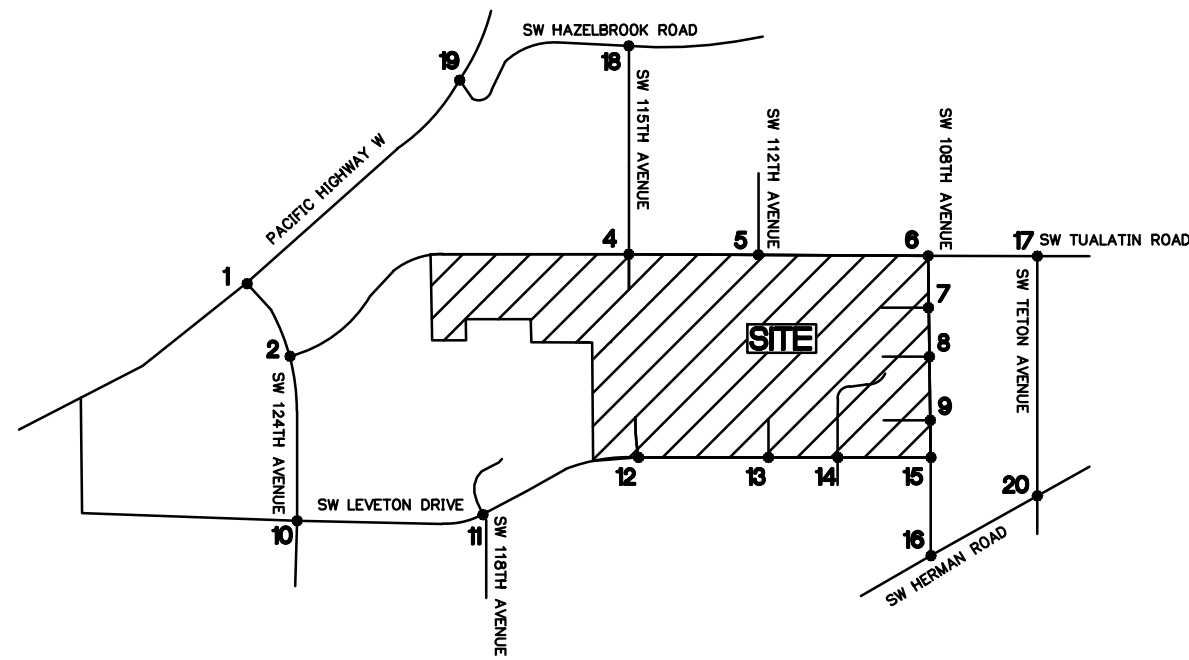
© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

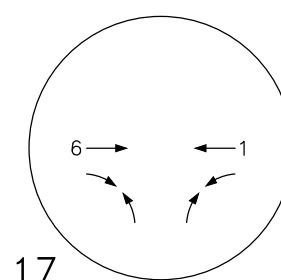
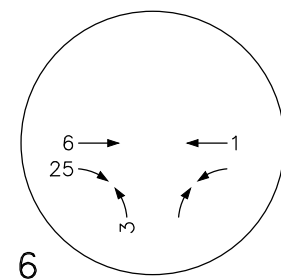
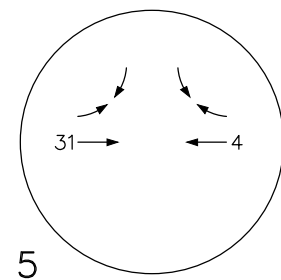
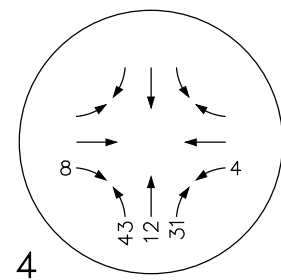
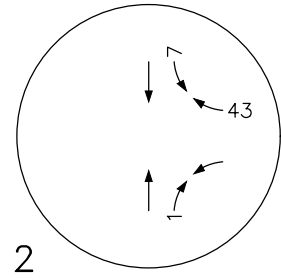
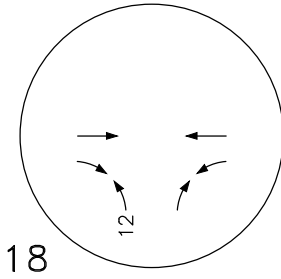
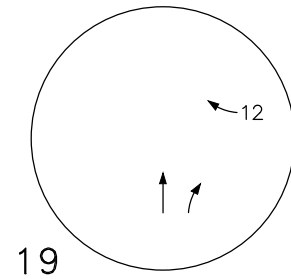
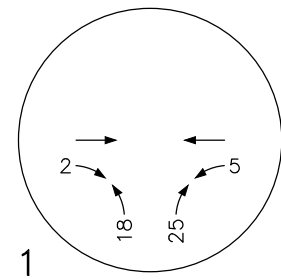




AM Peak Hour

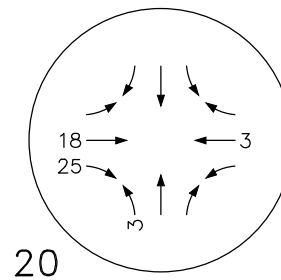
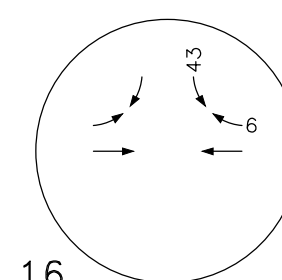
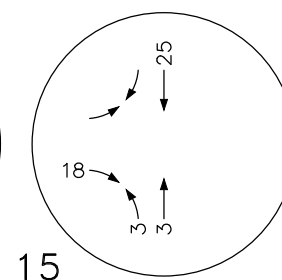
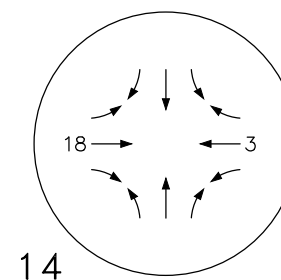
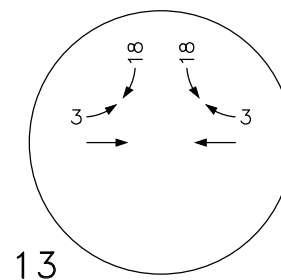
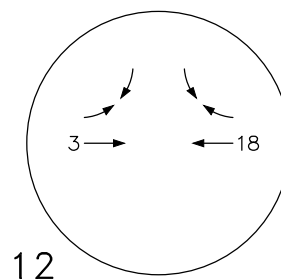
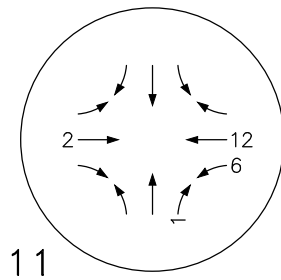
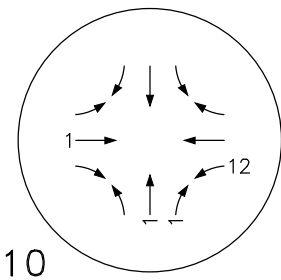
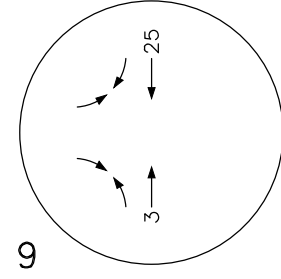
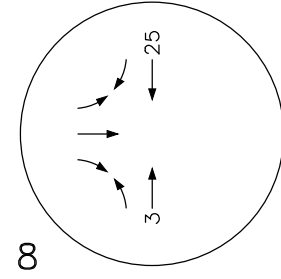
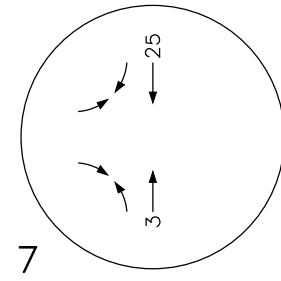
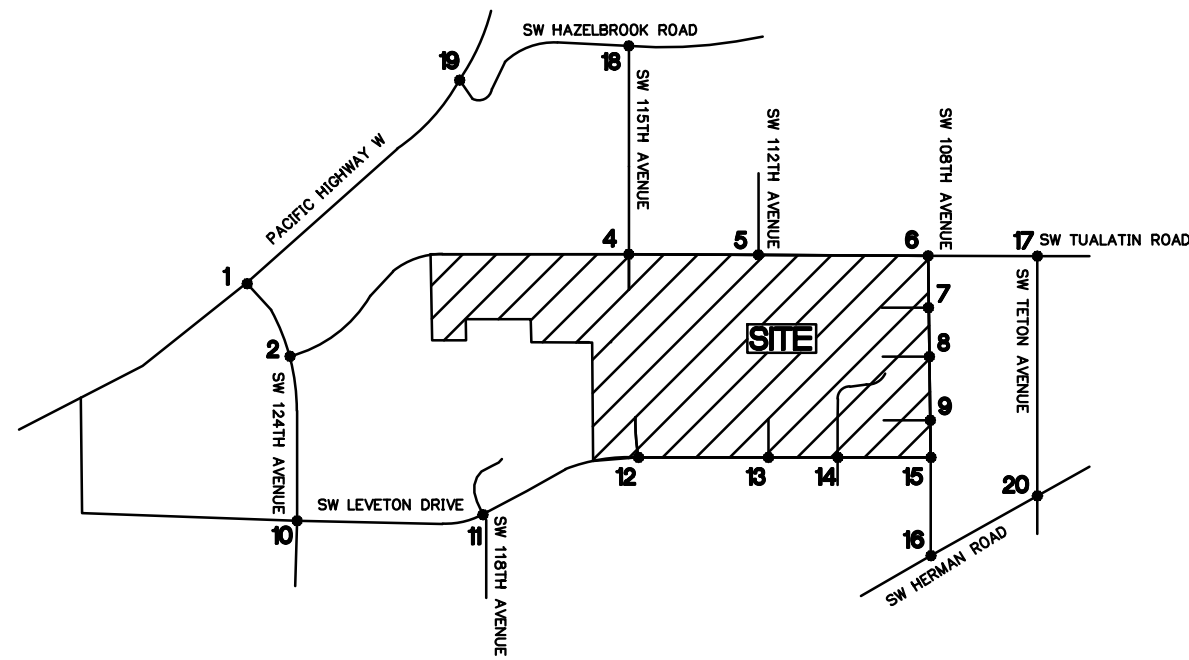
Enter - 124
Exit - 22
Total - 146

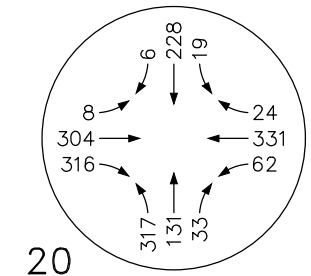
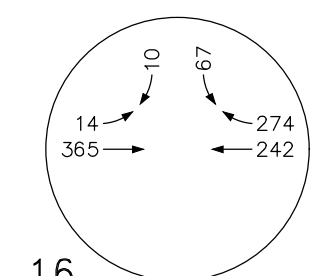
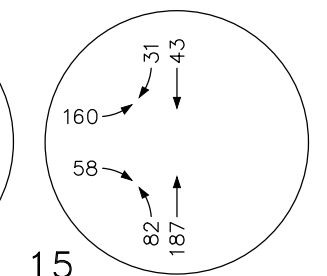
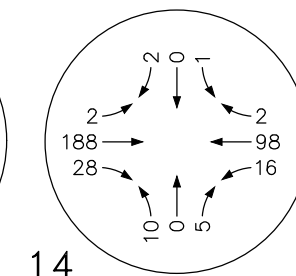
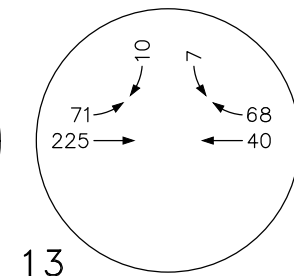
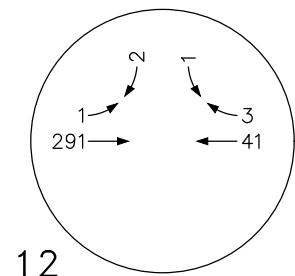
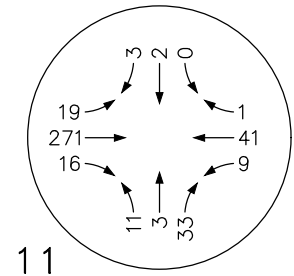
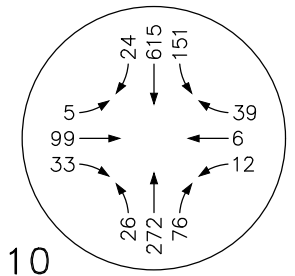
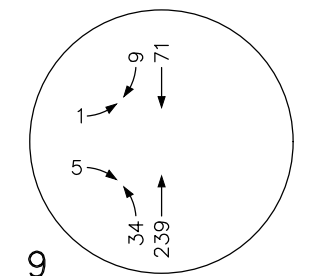
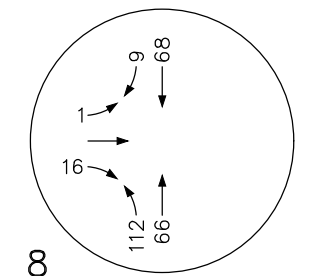
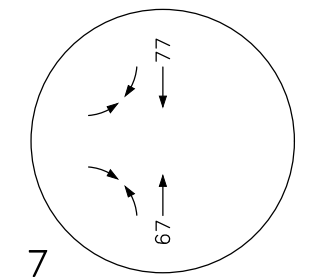
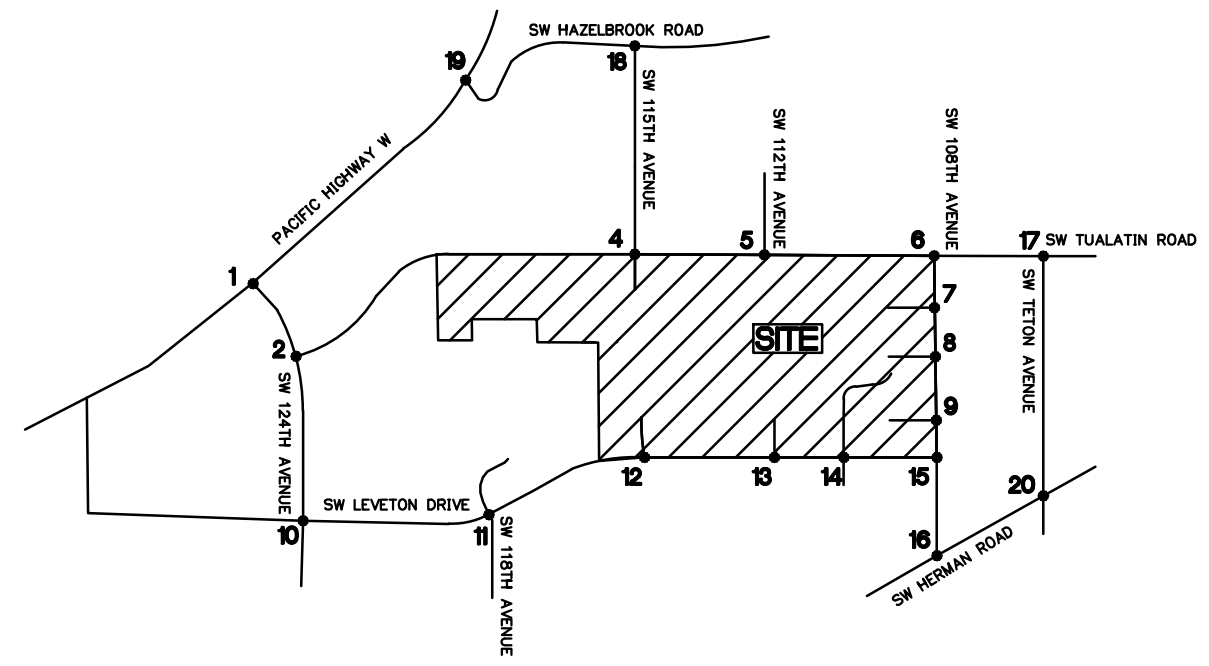
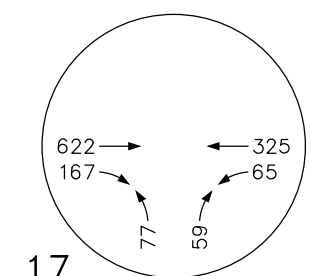
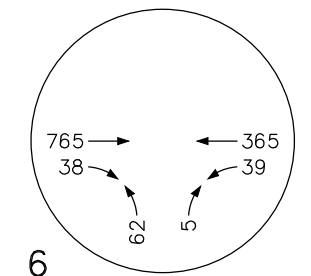
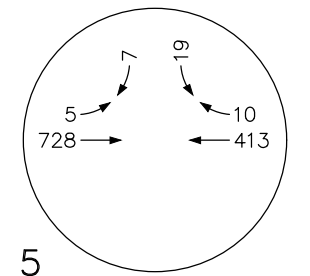
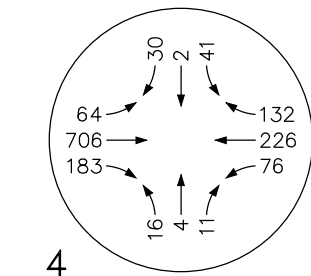
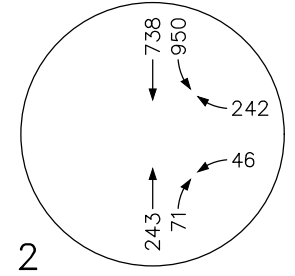
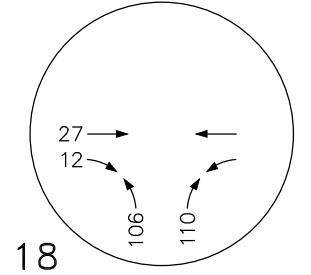
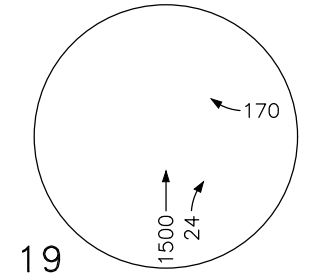
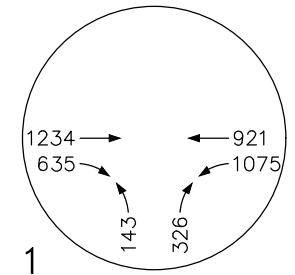




PM Peak Hour

Enter - 17
 Exit - 123
 Total - 140





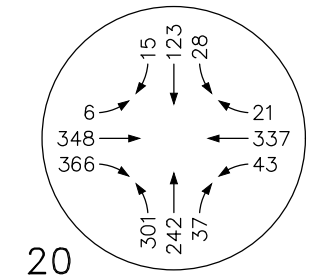
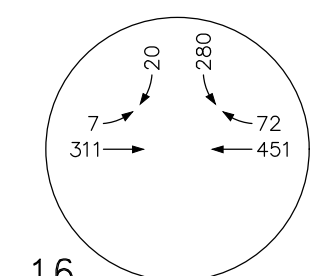
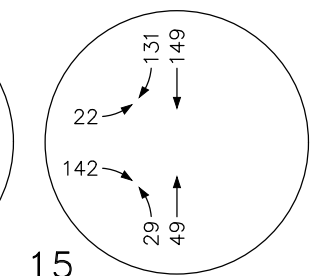
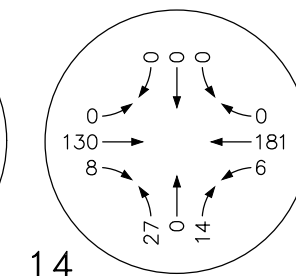
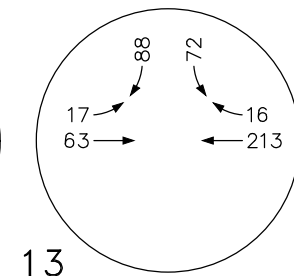
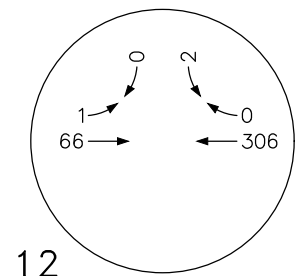
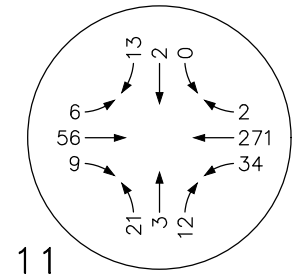
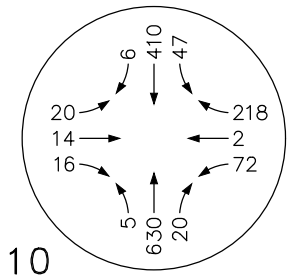
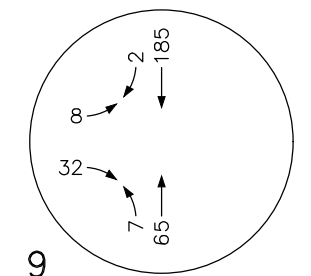
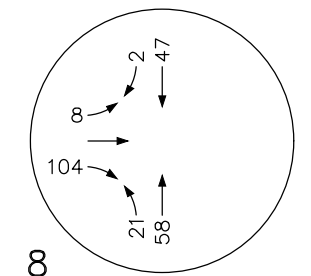
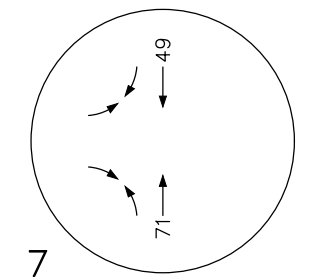
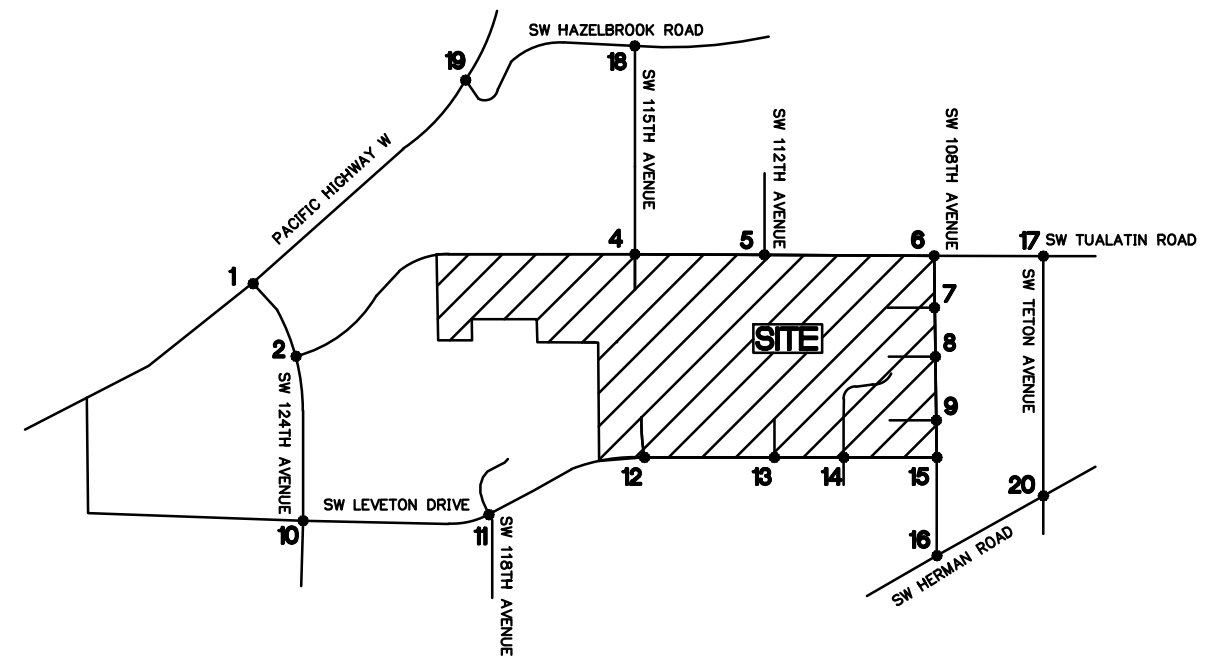
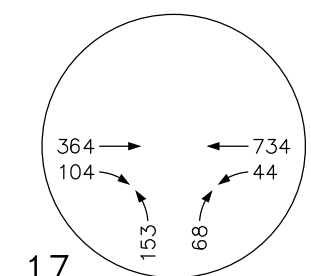
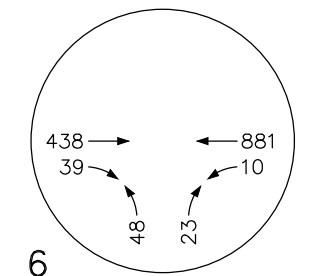
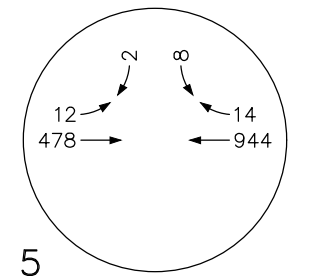
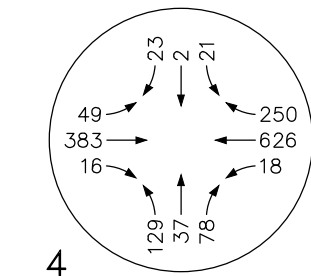
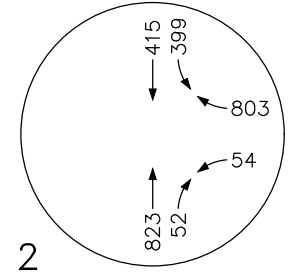
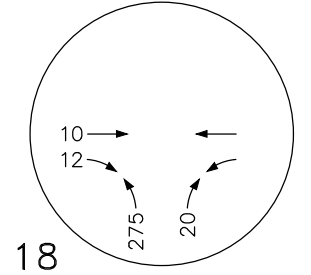
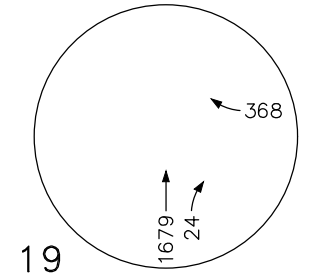
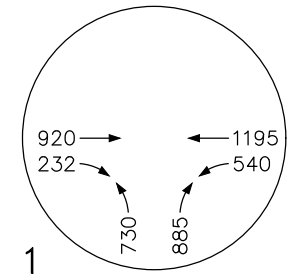
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

DATE: 7.8.2024
 DRAWN BY: LCB
 CHECKED BY: BTA
 JOB NO: 224002200

2027 POST-DEVELOPMENT
 PHASE 1 TRAFFIC VOLUMES -
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

FIGURE
14A

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION



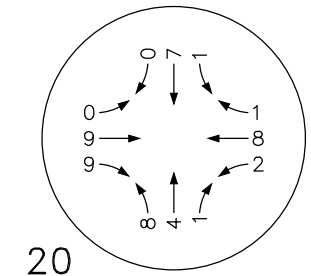
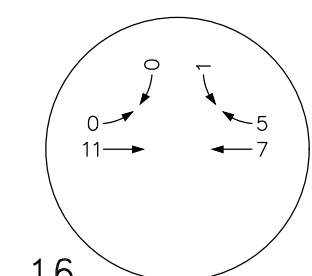
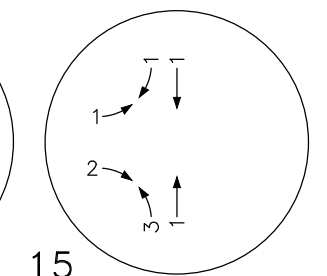
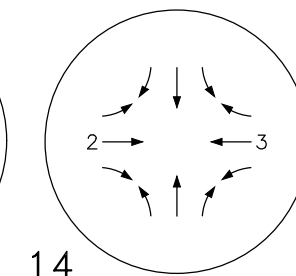
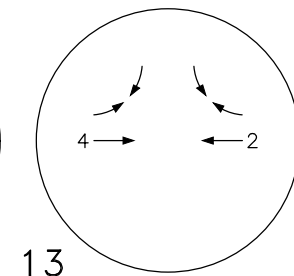
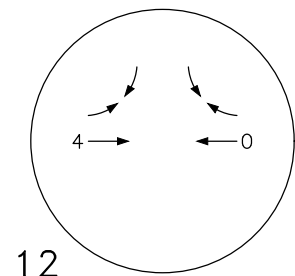
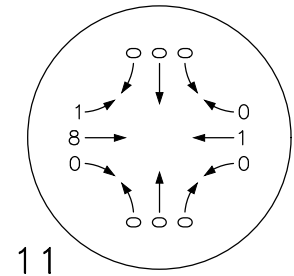
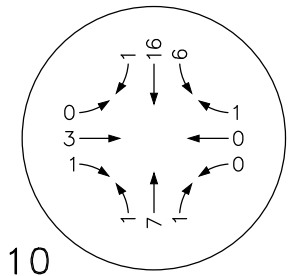
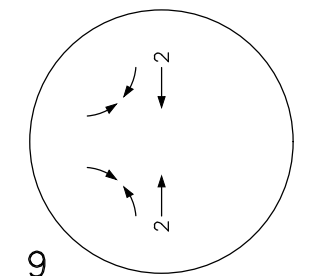
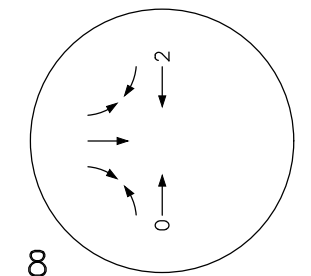
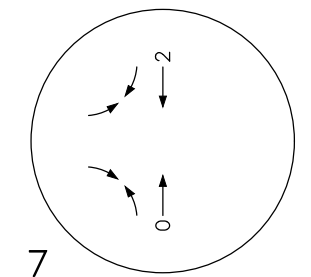
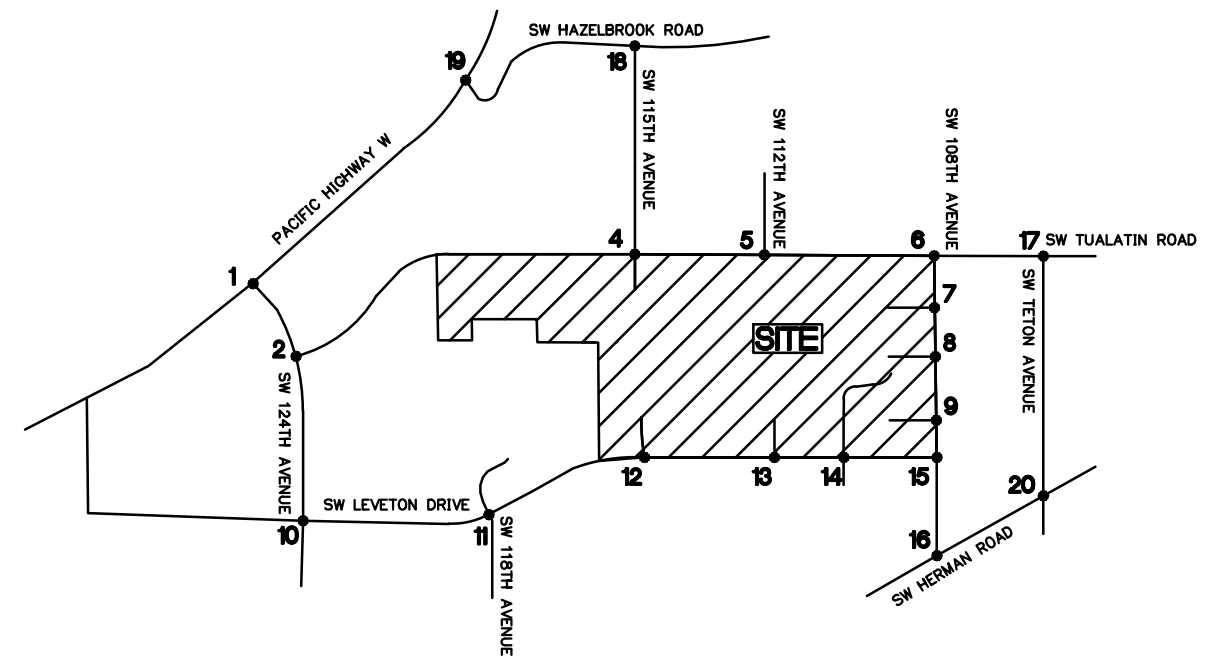
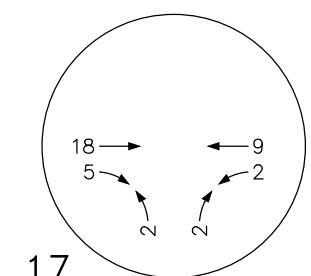
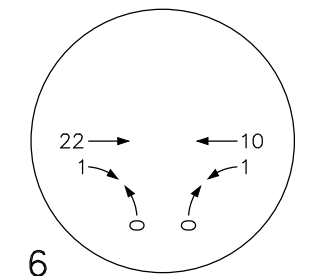
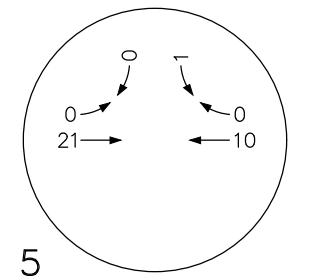
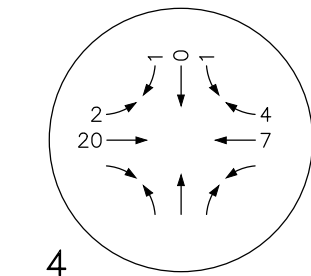
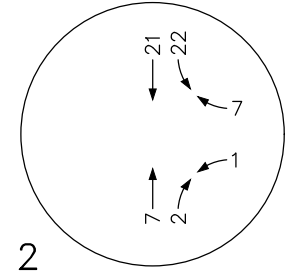
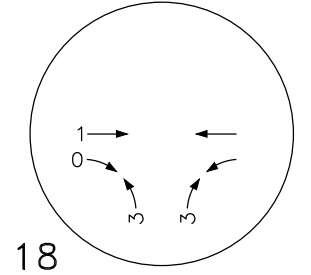
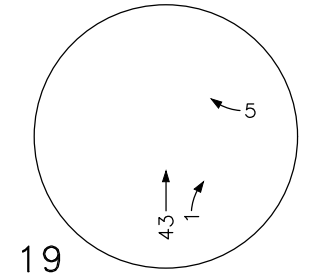
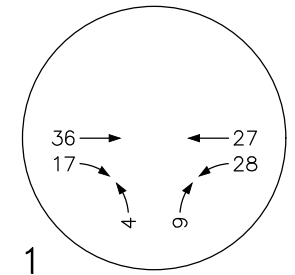
M Mackenzie
 Architecture • Interiors
 Planning • Engineering

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

**2027 POST-DEVELOPMENT
 PHASE 1 TRAFFIC VOLUMES -
 PM PEAK HOUR**
 LAM RESEARCH TUX
 TUALATIN, OR

**FIGURE
 14B**



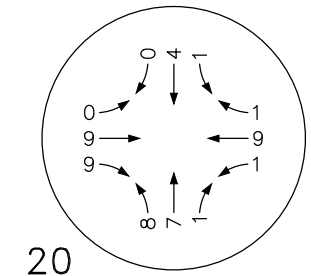
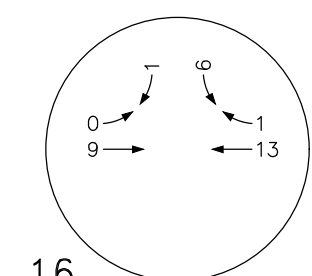
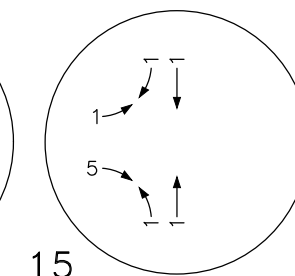
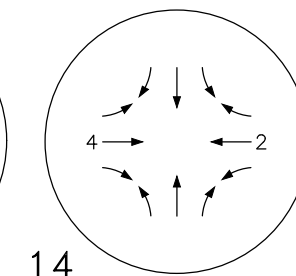
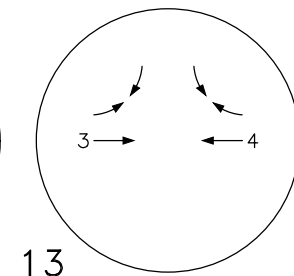
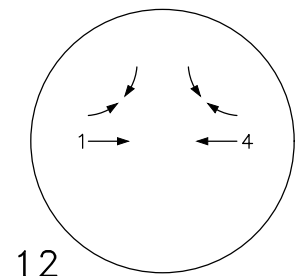
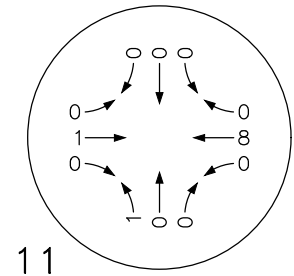
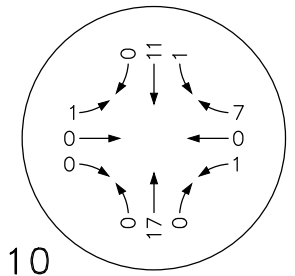
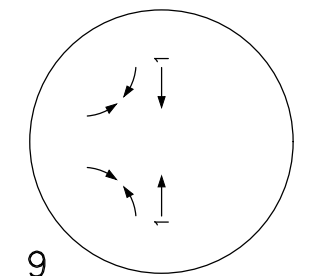
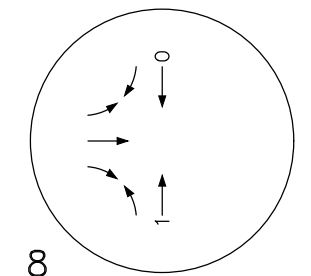
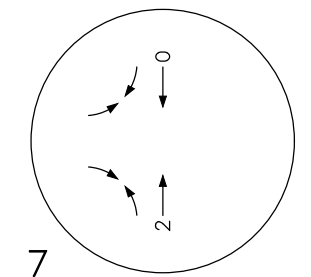
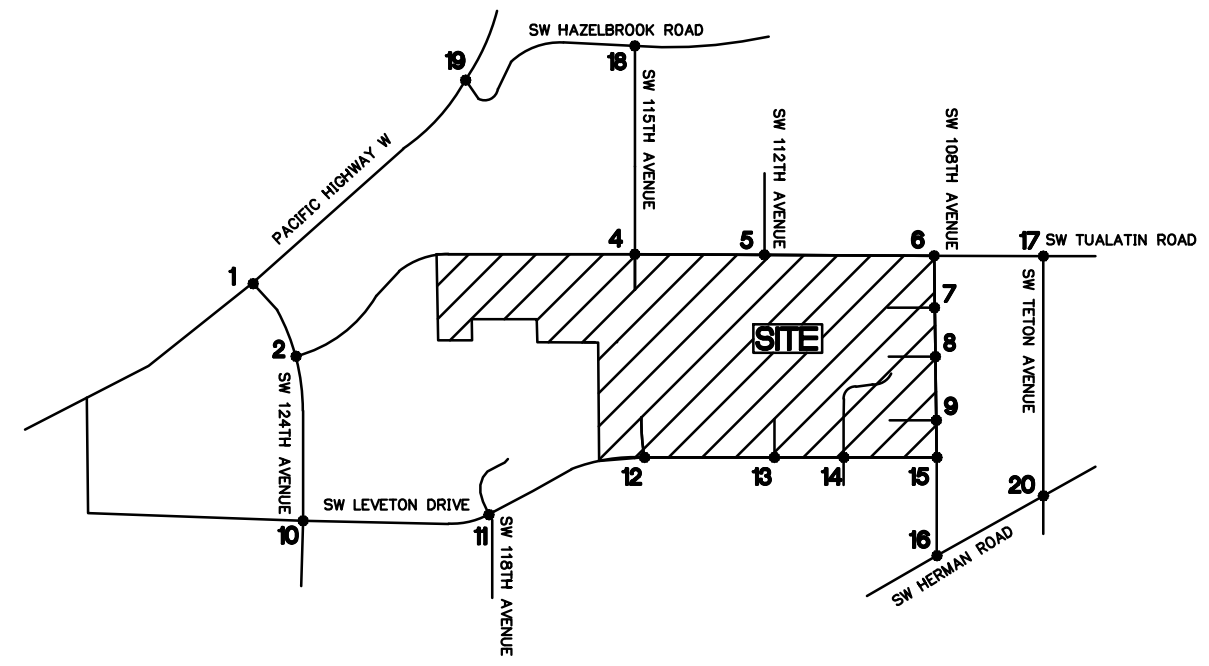
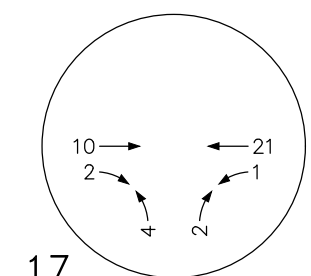
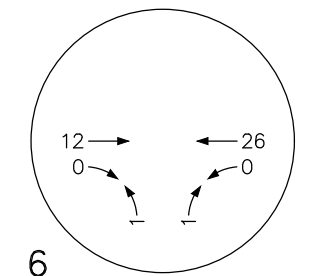
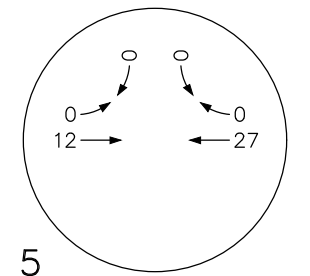
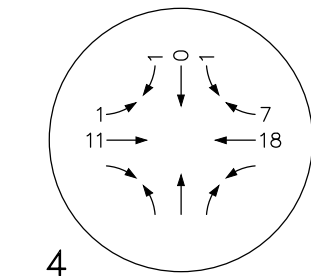
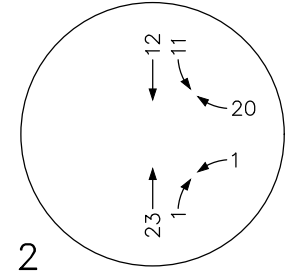
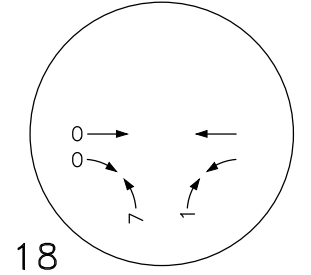
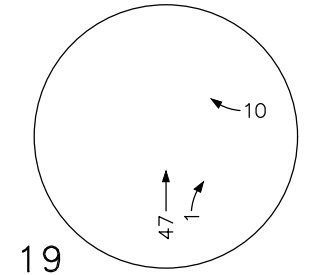
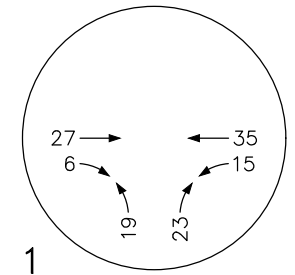
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

BACKGROUND GROWTH
 3 YEARS AT 1% PER YEAR -
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

FIGURE
15A

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION



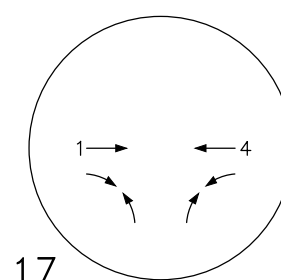
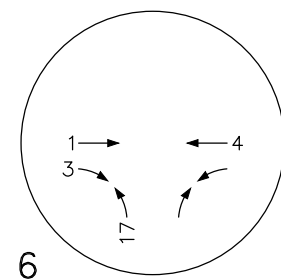
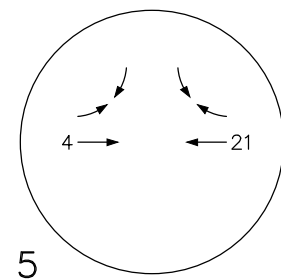
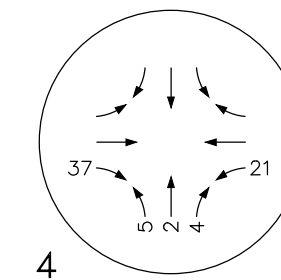
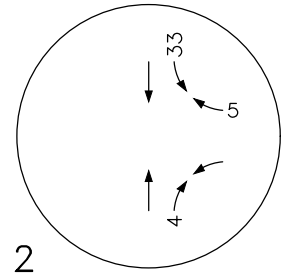
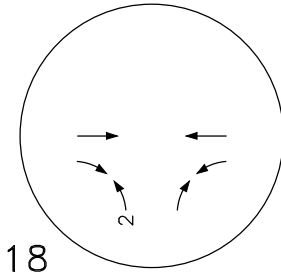
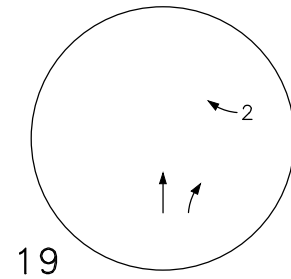
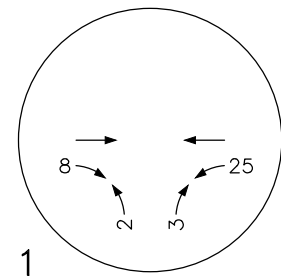
M Mackenzie
 Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9985
 www.mackenzie.com
 Architecture • Interiors
 Planning • Engineering

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO: 224002200

BACKGROUND GROWTH
 3 YEARS AT 1% PER YEAR -
 PM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

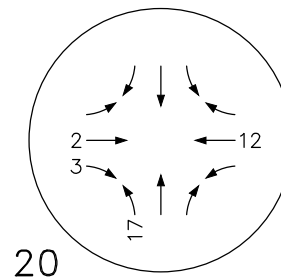
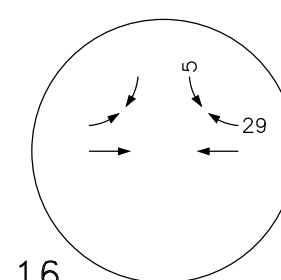
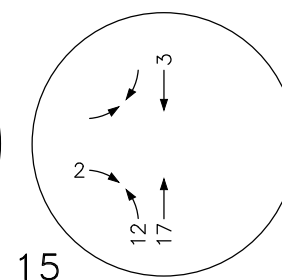
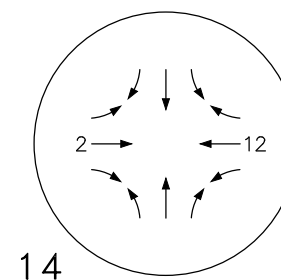
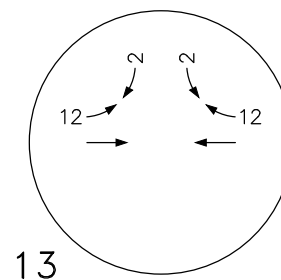
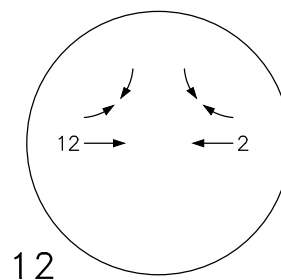
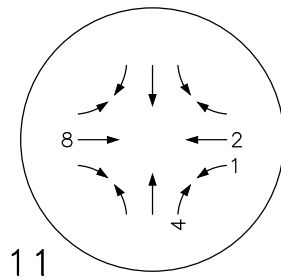
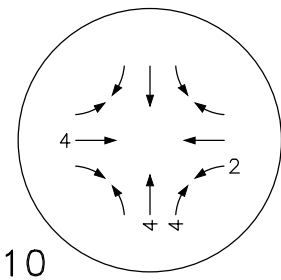
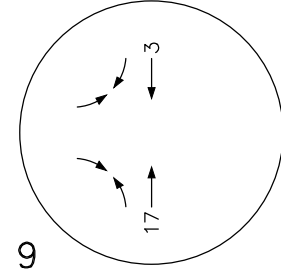
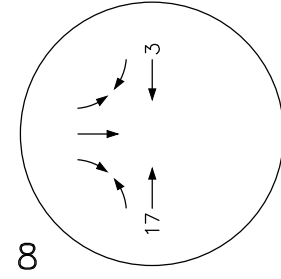
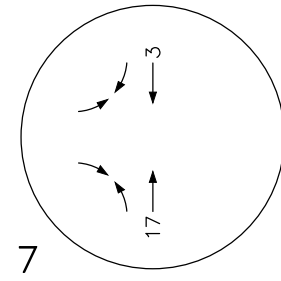
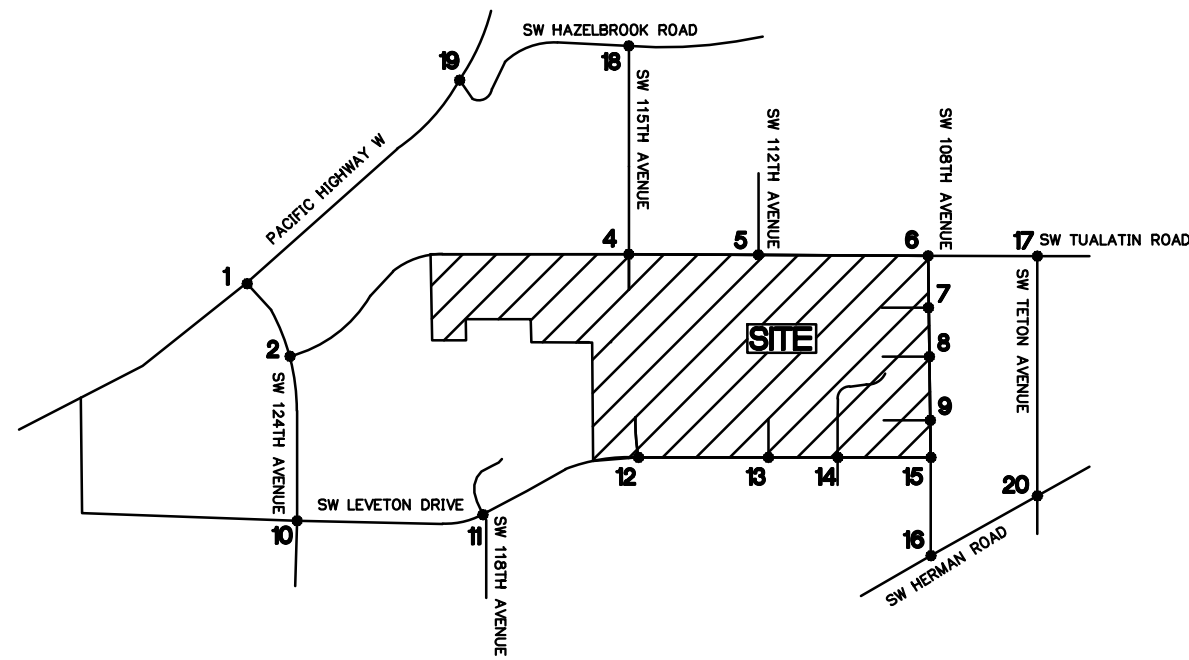
FIGURE
15B

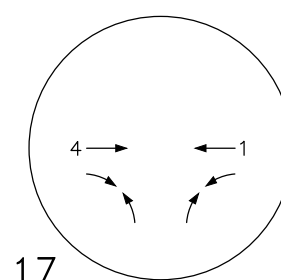
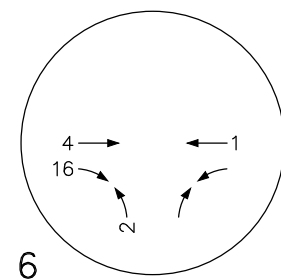
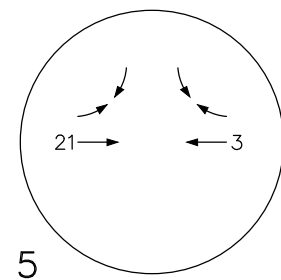
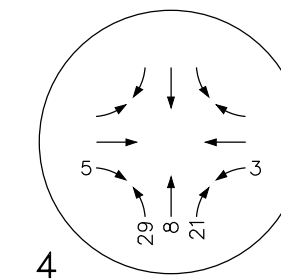
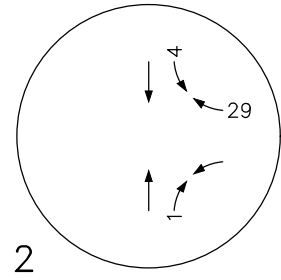
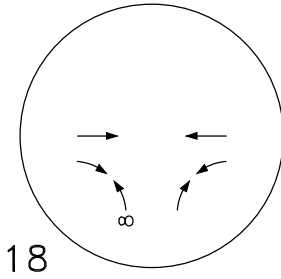
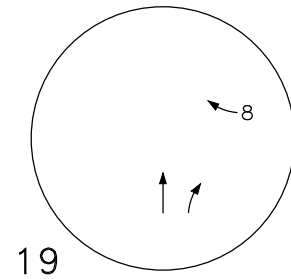
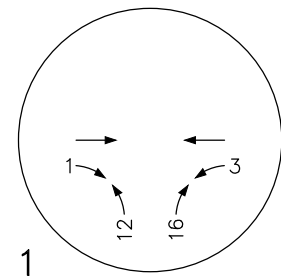
© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION



AM Peak Hour

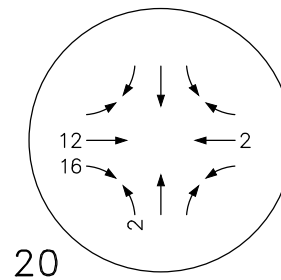
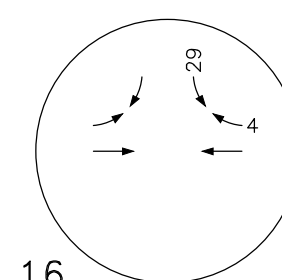
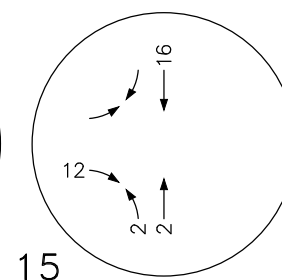
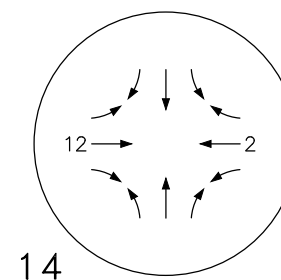
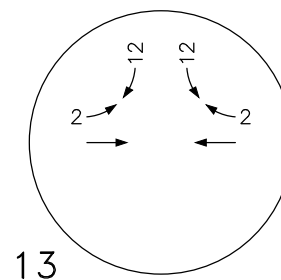
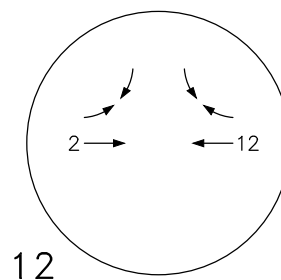
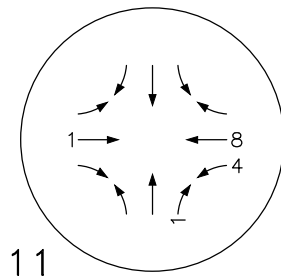
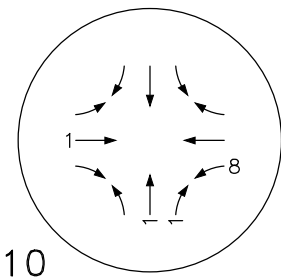
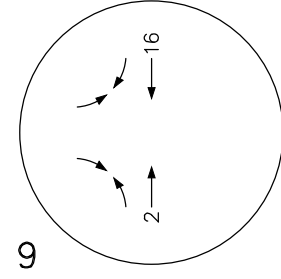
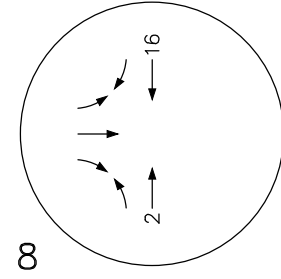
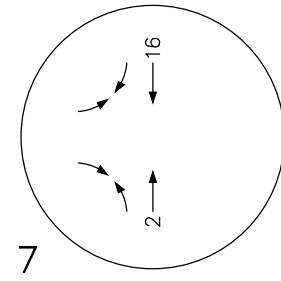
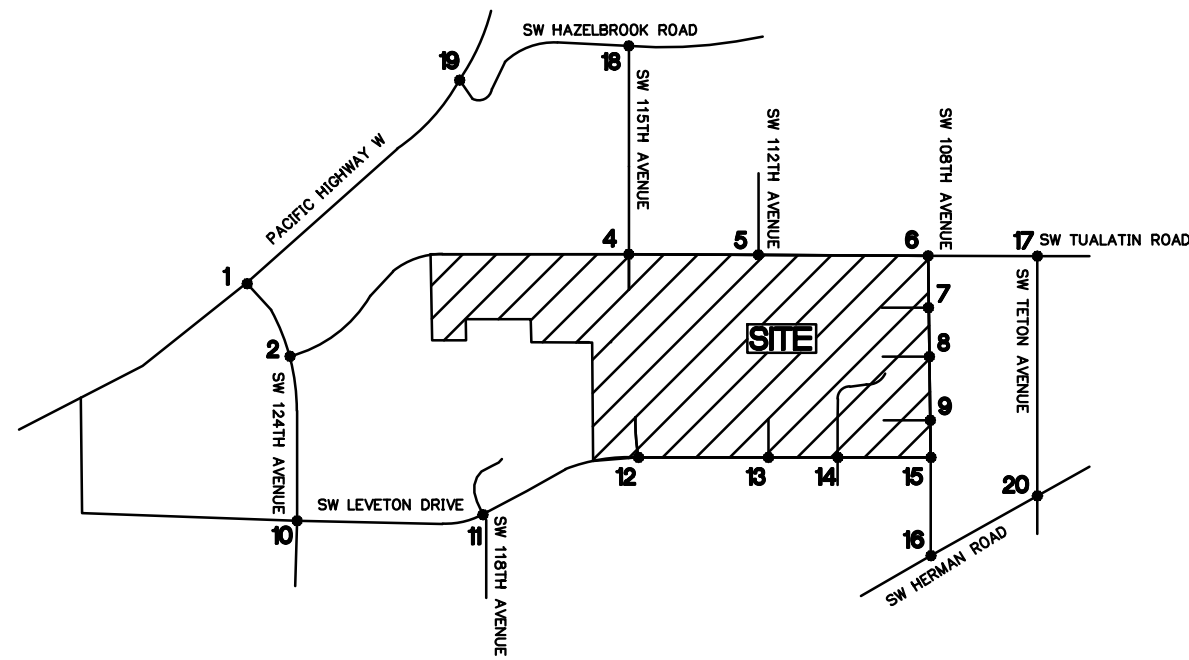
Enter - 83
Exit - 15
Total - 98

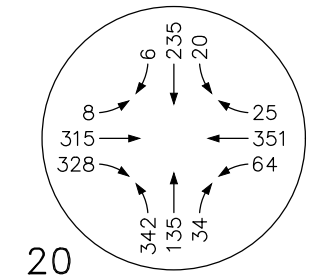
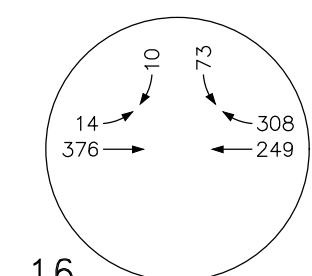
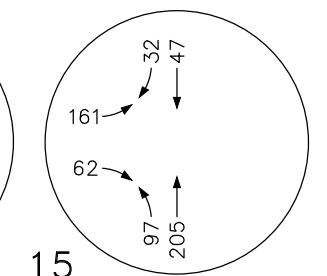
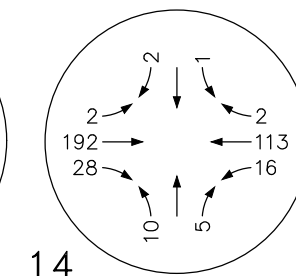
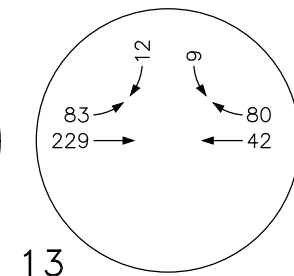
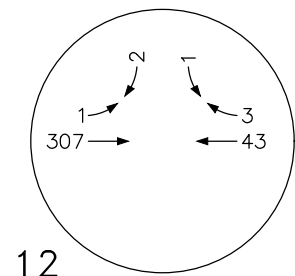
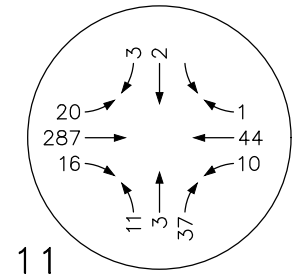
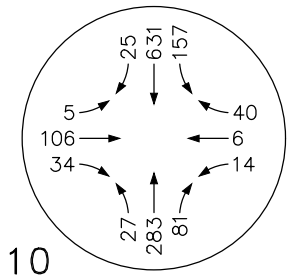
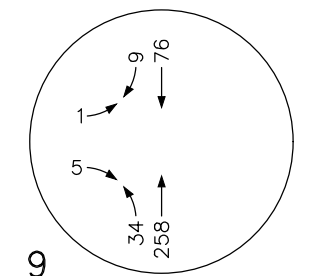
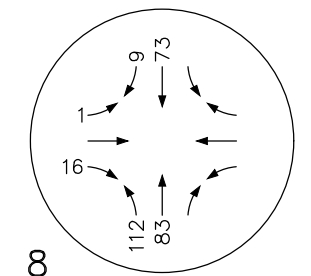
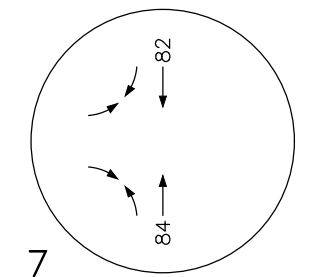
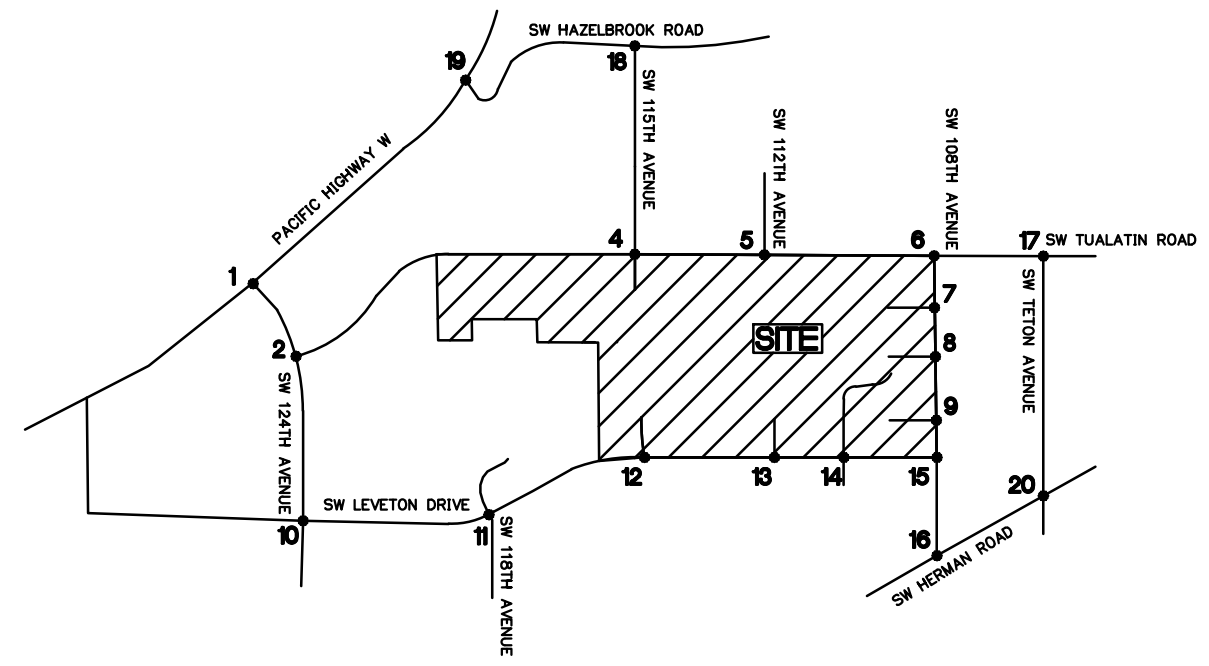
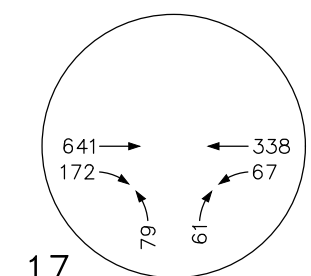
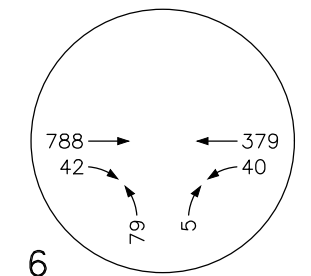
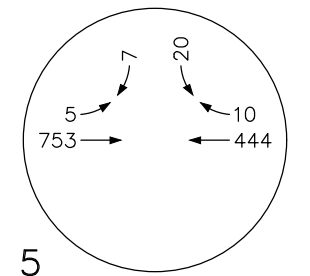
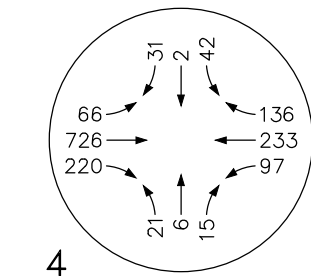
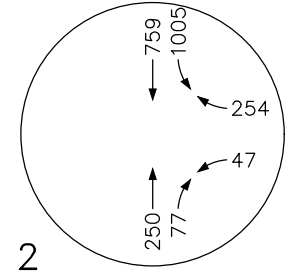
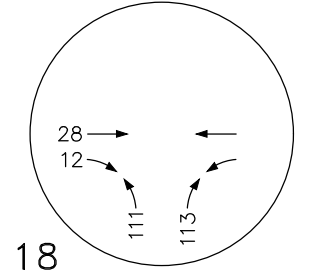
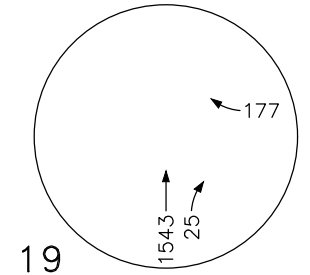
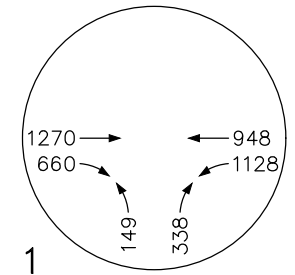




PM Peak Hour

Enter - 11
Exit - 82
Total - 93





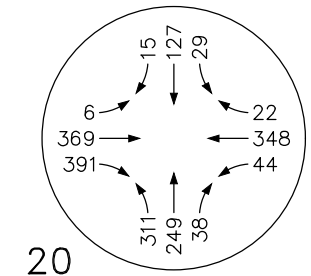
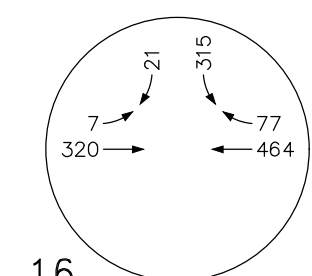
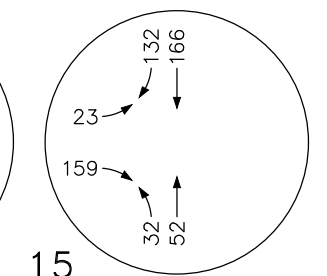
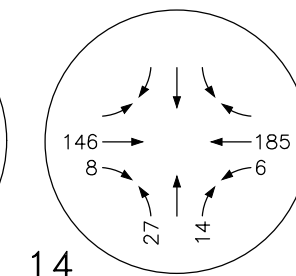
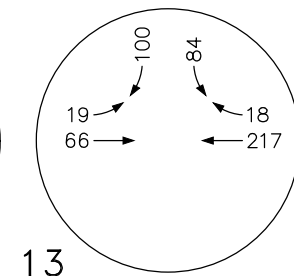
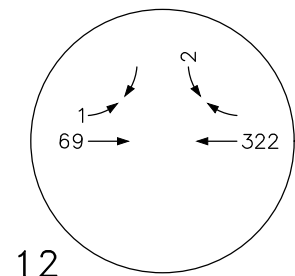
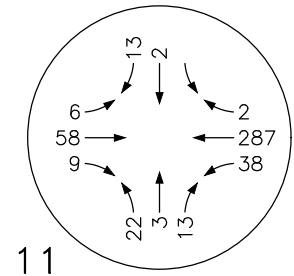
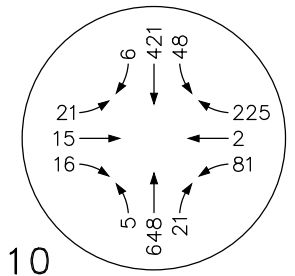
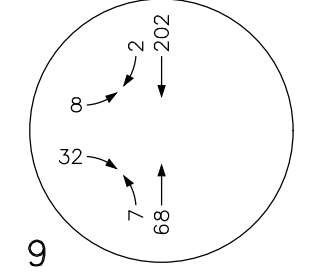
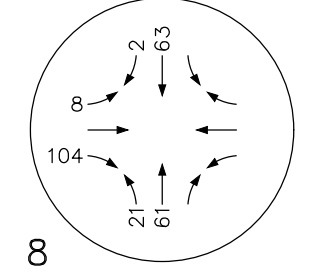
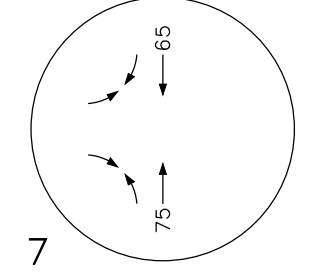
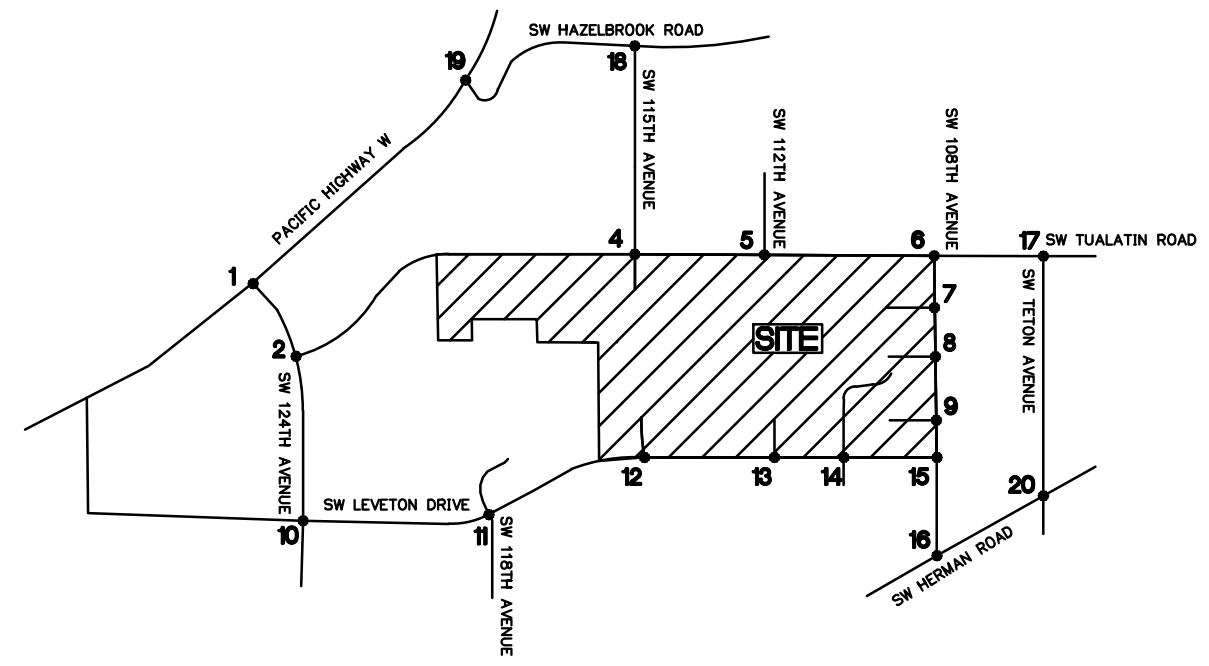
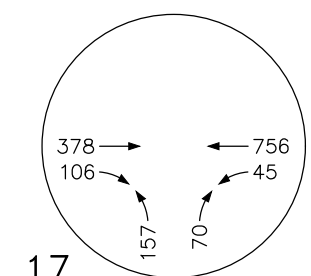
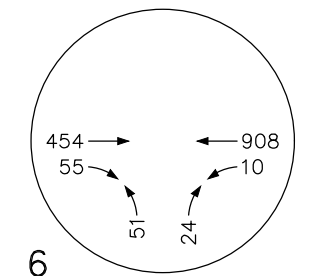
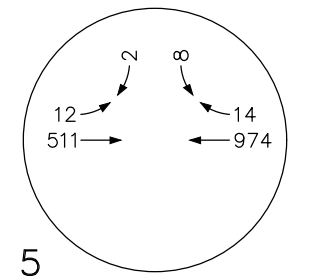
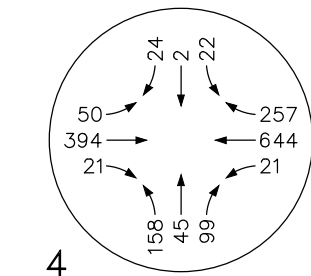
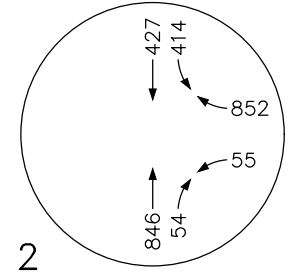
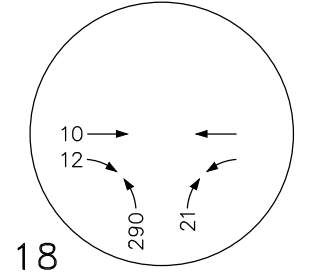
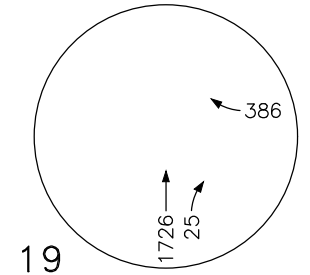
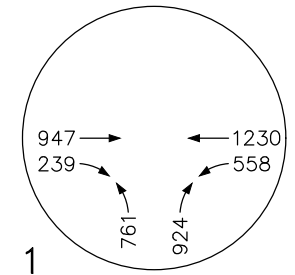
M Mackenzie
 Architecture • Interiors
 Planning • Engineering

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

**2030 POST-DEVELOPMENT
 PHASE 2 TRAFFIC VOLUMES -
 AM PEAK HOUR**
 LAM RESEARCH TUX
 TUALATIN, OR

**FIGURE
 17A**



M Mackenzie
 Architecture • Interiors
 Planning • Engineering

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 7.8.2024
 DRAWN BY: FMS
 CHECKED BY: BTA
 JOB NO:
 224002200

2030 POST-DEVELOPMENT
 PHASE 2 TRAFFIC VOLUMES -
 AM PEAK HOUR
 LAM RESEARCH TUX
 TUALATIN, OR

FIGURE
 17B

APPENDIX B.
SCOPING MATERIAL

MACKENZIE.

June 7, 2024 (*Revised June 20, 2024*)

City of Tualatin
Attention: Mike McCarthy
18880 SW Martinazzi Avenue
Tualatin, OR 97062

Re: **Lam TUX- Site**
Transportation Impact Analysis Scoping
Project Number 2240022.00

Dear Mike:

Mackenzie has prepared this scoping letter in advance of preparing the required Transportation Impact Analysis (TIA) for the proposed laboratory/research and development building, office building, and utility building at 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 buildings include office, laboratory, manufacturing, and utility uses, totaling approximately 560,040 square feet (SF).

Approved

The campus was approved for Building G and associated parking improvements (AR 22-0006) in January 2023, and the project is currently under construction. With this project, the total building area increases by 120,000 SF to 680,040 SF, parking is expanded at the southeast corner of the site and two new driveways are provided to SW 108th Avenue.

TUX Proposal

The TUX project includes the addition of three buildings. Building T is an office building with an area of up to 164,000 SF, Building U is a utility building with an area of approximately 55,000 SF, and Building X is a laboratory building with an area of approximately 200,000 SF for a total of approximately 419,000 SF. Initially, only the first phase of the laboratory building will be constructed, with a potential expansion in the future to the full 200,000 SF size. An estimated 600 employees will work in the new buildings at full occupancy. Phase 1 will provide capacity for 360 employees (60%) and Phase 2 will add the remaining 240 employees (40%).

The new buildings will be located at the southwest corner of the site, replacing the existing surface parking lot. The west access to SW Leveton Drive at the southwest corner of the site will be relocated to the east and repurposed as a truck access for deliveries to the existing and proposed buildings.



The parking areas along the north side of the campus will be expanded to offset the loss of the southwest lot and to accommodate additional need with the TUX project. The permanent access to the expanded employee parking lots is proposed at Tualatin Road opposite SW 115th Avenue. This access is currently used by JAE and a gated emergency access is provided to Lam. With the proposal, the driveway would primarily be used as access for Lam employees and will continue to provide access to JAE, especially for their loading dock area.

We propose to analyze the following two phases:

Phase 1 – 2027 Occupancy for up to 360 employees:

- Building T (office)
- Building X (145 KSF of lab)
- Building U (utility building)
- Expand north parking lot (new + replaced parking)
- New employee access to Tualatin Road opposite SW 115th Avenue

Phase 2 – 2030 occupancy for an additional 240 employees:

- Building X (lab expansion to 200 KSF)
- Add parking lot at northwest corner of campus

TRIP GENERATION

The three buildings operate in conjunction with each other and best match the description of a “Research and Development Center” (LUC 760) from the Institute of Transportation Engineers’ (ITE) Trip Generation Manual, 11th Edition.

The appropriateness of this land use was confirmed by comparing with the current campus conditions. The campus has approximately 1,160 office and lab employees assigned and working a day shift (generally 8-5) plus 400 manufacturing staff who work 12-hour shifts with changes outside the peak hours (7-7 shift schedule). The current campus driveway counts during the peak hours of the site (8-9 AM, 4:45-5:45 PM) are 371 and 378, respectively. Applying the R&D trip rate to the 1160 employees working a typical day shift results in an estimate of 418 AM, 402 PM and 3609 daily trips, indicating actual trip generation is about 10% lower than predicted using this approach.

The proposed trip generation for the TUX project is presented in Table 1 below. We utilized the trip generation equations for each time period based on the full occupancy of 600 employees. Each phase trip estimate was made by applying the percentage of employees in that phase to the full occupancy estimates.

TABLE 1 – PROPOSED TRIP GENERATION									
Phase	ITE Land Use	Employees	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
1	Research and Development Center LUC 860	360	124	22	146	17	123	140	1222
2		240	83	15	98	11	82	93	814
Total		600	207	37	244	28	205	233	2036

As shown in Table 1, the planned campus expansion is estimated to generate an additional 244 AM peak hour, 233 PM peak hour, and 2036 daily trips with both phases of development.

TRIP DISTRIBUTION

Site trip distribution has been modified slightly from the original master plan based on counts conducted in April 2024 at the three active site driveways on Leveton Drive and the surrounding intersections. The following percentages apply to both the AM and PM Peak hours.

- 30% 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
- 10% to/from the south on SW 124th Avenue
- 35% to/from the west on SW Herman Road via SW 108th Avenue

The attached Distribution Figure presents the percentage of trips at each study area intersection, based on the following assumptions:

- 30% of the new trips are expected to utilize the one remaining employee driveway (middle access) on Leveton Drive. The remaining 70% would use the new driveway to Tualatin Road.
- Existing counts indicate some vehicles arriving from the southwest on Highway 99W are traveling along the full length of Leveton Drive instead of turning at SW 124th Avenue.
- Vehicles leaving the site at the Tualatin Road driveway and traveling to the east on SW Herman Road may find it easier to travel west on Tualatin Road and turn Right on Teton Avenue instead of SW 108th Avenue.
- 10% of site trips will use SW 115th Avenue and Hazelbrook Road to access Highway 99W, or approximately one-third of the 30% of site trips anticipated to travel north on Highway 99W. This is consistent with current volumes traveling westbound on Tualatin Road and assumes no mitigation to discourage or prohibit this travel route.

STUDY AREA

Based on previous studies, as well as the City's *Traffic Study Requirements* document requiring that all intersections within a 1/4-mile radius of the project site be included as part of the study area and City and neighborhood concerns, the following public intersections are included in the study area:

- SW Leveton Drive/SW 118th Avenue
- SW Leveton Drive/SW 108th Avenue
- SW Tualatin Road/SW Teton Road
- SW Tualatin Road/SW 108th Avenue
- SW Tualatin Road/SW 112th Avenue
- SW Tualatin Road/SW 115th Avenue
- SW 124th Avenue/SW Leveton Road
- SW 124th Avenue/SW Tualatin Road
- SW 124th Avenue/OR 99W
- SW Herman Road/SW 108th Avenue
- SW Hazelbrook Road/SW 115th Avenue
- SW Hazelbrook Road/OR 99W

The following site driveways will also be studied (includes those opposite public streets listed above):

- SW Leveton Drive/West Access (to be relocated east)
- SW Leveton Drive/Center Access
- SW Leveton Drive/East Access
- SW 108th Avenue/North Access (currently gated)
- SW 108th Avenue/Center Access (approved with Building G)
- SW 108th Avenue/South Access (approved with Building G)
- SW Tualatin Road/SW 115th Avenue

No additional 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).

TRAFFIC COUNTS

Traffic counts were conducted at the above listed intersections for standard peak periods of 7:00-9:00 AM and 4:00-6:00 PM. An extended time period was counted at the three existing driveways on SW Leveton Drive. Most of the intersections were counted on Tuesday, April 23rd, 2024. The intersection of SW Tualatin Road/SW 112th Avenue was counted on Tuesday, May 14th, 2024. The remaining two intersections on SW Hazelbrook Road were counted on June 11, 2024. At the intersections of SW 115th Avenue with SW Tualatin Road and SW Hazelbrook Road, an extended PM period from 2:00-6:00 PM was counted to capture afternoon traffic to the nearby middle school.

Based on our review of the counts in comparison with those conducted in 2022, it does not appear that construction activity on SW Tualatin-Sherwood Road has had a significant impact on volumes at these study area intersections and roadways.

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:

- 2024 Existing
- 2027 Pre-Development without project
- 2027 Post-Development with Phase 1
- 2030 Post-Development with Phase 2

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.
- Seasonal adjustment factor of 1.04 applied to through volumes on OR 99W per ODOT's Seasonal Trend Table.
- Intersection capacity analyses will be conducted at the study area intersections using Synchro software which implements the methodologies of the *Highway Capacity Manual* (HCM).
- Trips from the approved Lam Building G project will be included as in-process volumes.
- Additional in-process project trips will be included for the following projects:
 - Tualatin Logistics Park
 - Fujimi property
 - 124th Business Park
- 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, TIA analysis components, and in-process project list are acceptable for the required TIA.

Please contact me at bahrend@mcknze.com or 971-346-3781 if you have any questions or comments regarding the information presented in this scoping letter.

Sincerely,



Brent Ahrend, PE
Associate Principal | Traffic Engineer

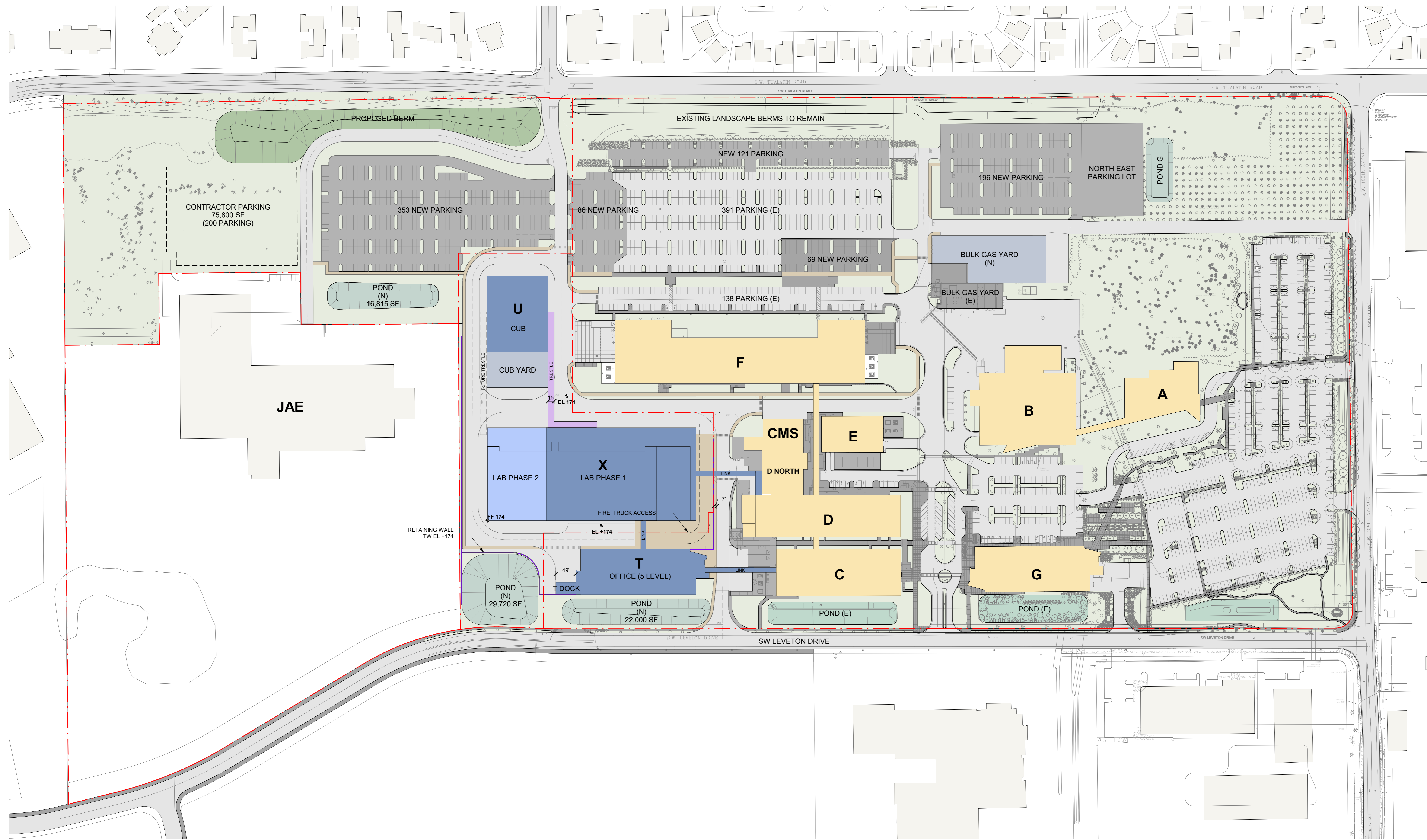
Enclosure(s): Attachment A – Site Plan
Attachment B – 2024 Turning Movement Counts
Attachment C – Trip Distribution Figure



EXPIRES: 12/31/25

c: Steve Koper, Kim McMillan, Abby McFetridge, Tony Doran, Hayden Ausland – City of Tualatin
Liatt Braun, Todd Chittenden, David Mustonen – Jacobs

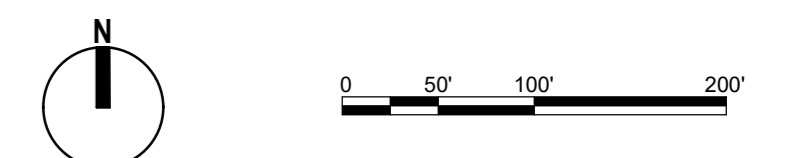
Jennifer Otterness, Stefanie McEvers, Paul Roessler, Todd Fosler – Lam Research
Suzannah Stanley, Bill Bezio, Megan Diaz, Clara Layton – Mackenzie

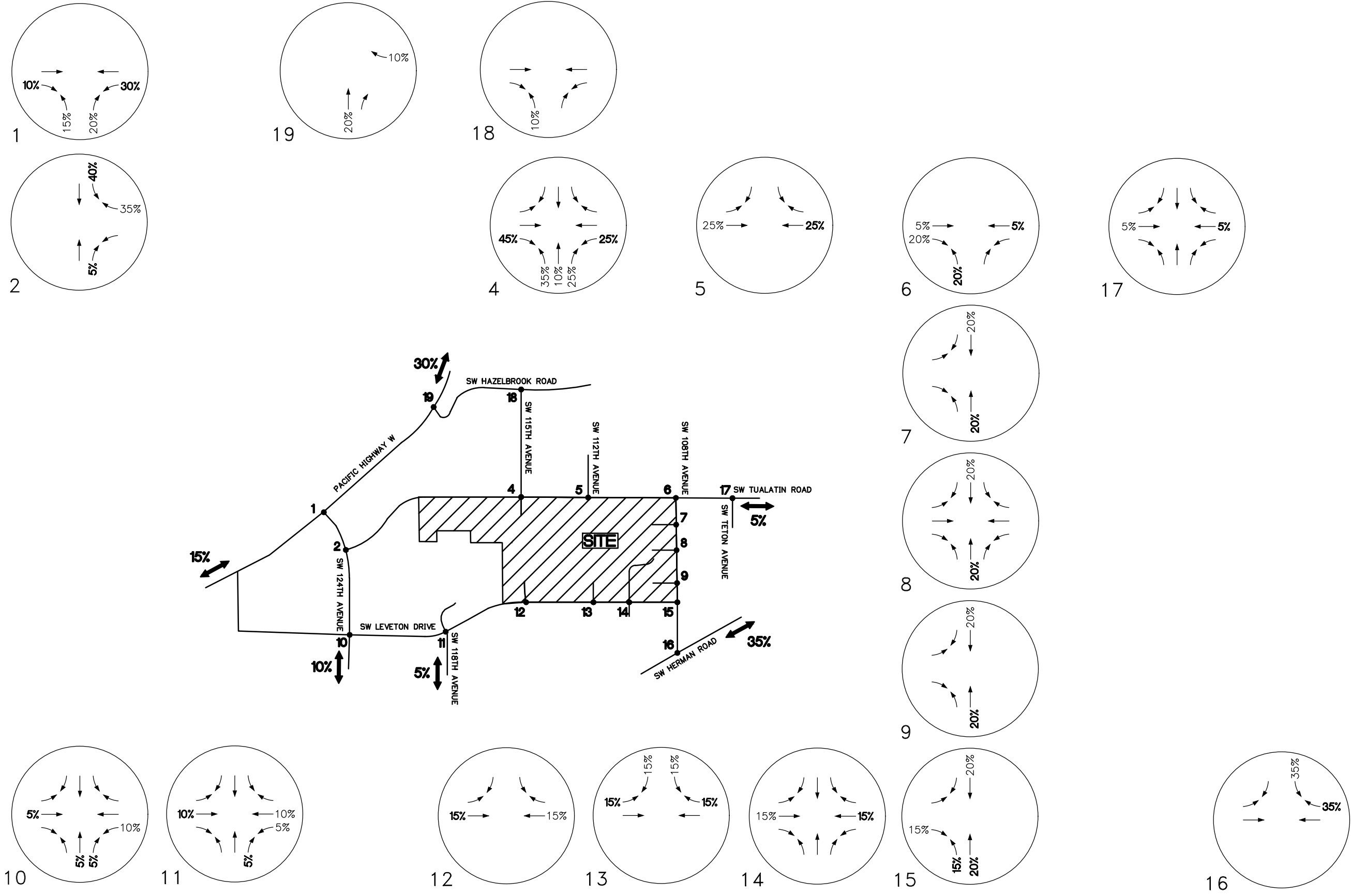


LEGEND

- EXISTING BUILDINGS
- NEW BUILDINGS (143,100 SF FLOOR PLATE)
- NEW BUILDINGS PHASE 2 (32,500 SF FP)
- NEW YARDS
- NEW TRESTLE
- NEW PEDESTRIAN
- ROADS
- DETENTION POND
- RETAINING WALL
- SITE BOUNDARY
- PARKING (TOTAL: 2,177 STALLS)
 - EXISTING: 1,352
 - NEW: 825

TOTAL LAM CAMPUS SITE AREA: 76 ACRES





M **Portland Vancouver Seattle**
 503.224.9560 360.685.7879 206.749.9935
 www.mcknzie.com

Architecture - Interiors
Planning - Engineering

MACKENZIE
 DATE: 6.19.2024
 DRAWN BY: CNL
 CHECKED BY: BTA
 JOB NO:
 224002200

TRIP DISTRIBUTION
LAM RESEARCH TUX- SITE
TUALATIN, OR

FIGURE
1

© MACKENZIE 2024 ALL RIGHTS RESERVED
 THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
 USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

Re: Lam TIA

Joel Rabinovitz <joel.rabinovitz@dksassociates.com>

Tue 7/2/2024 9:52 AM

To: Brent Ahrend <BAhrend@mcknze.com>

Cc: Kim McMillan <kcmillan@tualatin.gov>; Garth Appanaitis <gaa@dksassociates.com>; Hayden Ausland <hausland@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>; Abby McFetridge <Amcfetridge@tualatin.gov>; Suzannah Stanley <SStanley@mcknze.com>; Bill Bezio <WBezio@mcknze.com>; rsj@dksassociates.com <rsj@dksassociates.com>; brian.copeland@dksassociates.com <brian.copeland@dksassociates.com>; Clara Layton <CLayton@mcknze.com>

I concur with the items noted.

Joel

Joel Rabinovitz, PE (OR, TX, WA) | Senior Transportation EngineerDirect: 503.972.1209 | Cell: 925.285.6574 | joel.rabinovitz@dksassociates.comOn Mon, Jul 1, 2024 at 12:48 PM Brent Ahrend <BAhrend@mcknze.com> wrote:

All,

Thanks for the review of our revised TIA scoping letter and discussion at the meeting on June 27. This email summarizes the discussion and agreement to add an intersection to the study area.

- The intersection of Herman Road with Teton Avenue will be added to the study area based on the number of trips (up to 85 peak hour) added to the intersection. Joel confirmed it is a signalized intersection.
- In order to meet the current schedule, we will utilize counts from 2019, which Joel noted are likely higher than current volumes.
- We will not be adding the intersection of Tualatin-Sherwood Road/Teton Avenue because the increase is below the 10% threshold, with about half of the trips from the Herman/Teton intersection traveling to/from the south.
- The three buildings of the TUX project will have 600 employees working a typical day shift schedule. No manufacturing employees will be added. Therefore no additional daily trips would be generated beyond the 2036 estimated in the letter.

Let us know if you have any questions or comments on the summary,

Brent Ahrend PE Transportation Planning
D 971-346-3781 C 503-705-7554 Associate Principal
 Professional Licenses & Certifications

Mackenzie.

ARCHITECTURE ▪ INTERIORS ▪ STRUCTURAL, CIVIL, AND TRAFFIC ENGINEERING
LAND USE AND TRANSPORTATION PLANNING ▪ LANDSCAPE ARCHITECTURE

Disclaimer

PORTLAND, OR | VANCOUVER, WA | SEATTLE, WA

www.MACKENZIE.inc

Our offices will be closed Thursday, July 4th through Friday, July 5th. We will reopen on Monday, July 8th, 2024. If you need immediate assistance, please leave a message at 503.224.9560, which will be monitored closely. Happy Independence Day!

From: Kim McMillan <kmcmillan@tualatin.gov>
Sent: Wednesday, June 26, 2024 3:15 PM
To: Bill Bezio <WBezio@mcknze.com>
Subject: FW: Lam TIA

Hi Bill,

Garth with DKS will be attending our meeting tomorrow. I'm forwarding you his email with questions and comments that Brent may want to see ahead of tomorrow's meeting. I also think that a transportation focused meeting with DKS, Mackenzie, and city staff may need to be scheduled in the very near future.

Kim McMillan, P.E.

Community Development Director

City of Tualatin

Phone: 503-691-3036 | Cell: 503-866-5784

www.tualatinoregon.gov

kmcmillan@tualatin.gov

From: Joel Rabinovitz <joel.rabinovitz@dksassociates.com>
Sent: Wednesday, June 26, 2024 2:45 PM
To: Kim McMillan <kmcmillan@tualatin.gov>
Cc: Garth Appanaitis <gaa@dksassociates.com>; Hayden Ausland <hausland@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>; Abby McFetridge <Amcfetridge@tualatin.gov>; Randy Johnson <rsj@dksassociates.com>; Brian Copeland <brian.copeland@dksassociates.com>; Joel Rabinovitz <JAR@dksassociates.com>
Subject: Re: Lam TIA

Kim,

The conflict I had for tomorrow's meeting has been cancelled, so I will be able to attend instead of Garth.

It looks like they addressed most of the questions I had previously. However, with this new approach, I have a few comments:

- The memo shows 35% distribution east on Herman Rd. The next intersection (Teton Ave) is only ~1000' to the east of the Herman Rd/108th Ave intersection. Should this intersection not also be added as a study intersection?
- Would the distribution east of Herman Rd/108th Ave intersection at Teton Ave be all to/from the east on Herman or would some turn down/come from Teton Ave to/from Tualatin-Sherwood Rd?
- The memo states that no other WA County intersections were assumed as the added volume does not exceed the 10% ADT threshold. However, there is no table or graphic showing that this is the case. If they are proposing 35% to/from Herman Rd, and a good portion of that would actually be coming/going to/from Teton Ave, that could very easily exceed the 10% on Teton Ave.
- The existing campus has 1160 office/lab employees plus 400 manufacturing staff. For the proposed TUX site, it is not clear if the 600 employees are inclusive or exclusive of any manufacturing staff (if there are any). While this would not change the AM and PM peak hour trips, it would increase the daily trips beyond just the 600 employees. This in turn could result in additional intersections needing to be analyzed, as the percent increase could exceed 10%,

Cheers,

Joel

Joel Rabinovitz, PE (OR, TX, WA) | Senior Transportation Engineer
Direct: 503.972.1209 | Cell: 925.285.6574 | joel.rabinovitz@dksassociates.com

On Mon, Jun 24, 2024 at 1:23 PM Kim McMillan <kmcmillan@tualatin.gov> wrote:

I couldn't find where I had sent this latest TIA Scoping email to you for review and comment ahead of Thursday's meeting. Call me if you have questions.

Kim McMillan, P.E.

Community Development Director

City of Tualatin

Phone: 503-691-3036 | Cell: 503-866-5784

www.tualatinoregon.gov

kmcmillan@tualatin.gov

From: Garth Appanaitis <gaa@dksassociates.com>

Sent: Friday, June 21, 2024 12:11 PM

To: Kim McMillan <kmcmillan@tualatin.gov>

Cc: Hayden Ausland <hausland@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>; Abby McFetridge <Amcfetridge@tualatin.gov>; Randy Johnson <rsj@dksassociates.com>; Brian Copeland <brian.copeland@dksassociates.com>; Joel Rabinovitz <JAR@dksassociates.com>

Subject: Re: Lam TIA

Hi Kim,

Yes, we'll take a look and provide comments to cover this while Randy is out. I know Joel Rabinovitz has been involved in this one and I've chatted with him and we will coordinate comments early next week.

When are you seeking comments on the updated letter?

We can also plan to attend the weekly Thursday morning meetings. Joel has a conflict next week so I or someone else that is up to speed may need to cover in his place for the initial meeting. In the meantime can you please forward the invite to Joel and me?

Thanks,
Garth

Garth Appanaitis, PE (OR) (he/him) | Project Manager, Portland Planning Group Manager
Direct: 503.972.1212 | Cell: 971.570.4709 | gaa@dksassociates.com



1050 SW 6th Avenue, Suite 600
Portland, OR 97204 | 503.243.3500
dksassociates.com

DKS Associates is an employee-owned company.



This message contains information which may be confidential and privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy, distribute or disclose to anyone this message or any information contained in or attached to this message. If you have received this message in error, please advise the sender and delete this message along with any attachments or links from your system.

On Thu, Jun 20, 2024 at 3:15 PM Brian Copeland <brian.copeland@dksassociates.com> wrote:

Hi Kim -

I will be out next week, but I will reach out to someone in our planning group and find someone to help with this. We will be back in touch once we figure out a plan.

Thanks!

Brian

Brian K. Copeland, PE (he/him) | Principal, Sr. Project Manager
Direct: 503.972.1240 | Cell: 503.753.8992 | bkc@dksassociates.com



1050 SW 6th Avenue, Suite 600 | Portland, OR,97204 | 503.243.3500
dksassociates.com

DKS Associates is an employee-owned company.



This message contains information which may be confidential and privileged. Unless you are the addressee (or authorized to receive for the addressee), you may not use, copy, distribute or disclose to anyone this message or any information contained in or attached to this message. If you have received this message in error, please advise the sender and delete this message along with any attachments or links from your system.

On Thu, Jun 20, 2024 at 2:29 PM Kim McMillan <kmcmillan@tualatin.gov> wrote:

Good afternoon,

I understand Randy is out of the office and will not be back until July 1. We received this TIA Scoping for the Lam project and would like someone to take a look to provide any feedback prior to Randy's return. The timeline is a bit tight due to the applicant's desire to submit on July 8. Are either of you available to review/comment? If there is someone else that has been involved with this, please pass it along.

Also, we have a weekly coordination meeting on Thursdays at 11 am. The Lam team has asked if DKS, as the City's traffic consultant, can attend the next 6-8 meetings. Is that workable – the meetings are on Teams?

Kim McMillan, P.E.

Community Development Director

City of Tualatin

Phone: 503-691-3036 | Cell: 503-866-5784

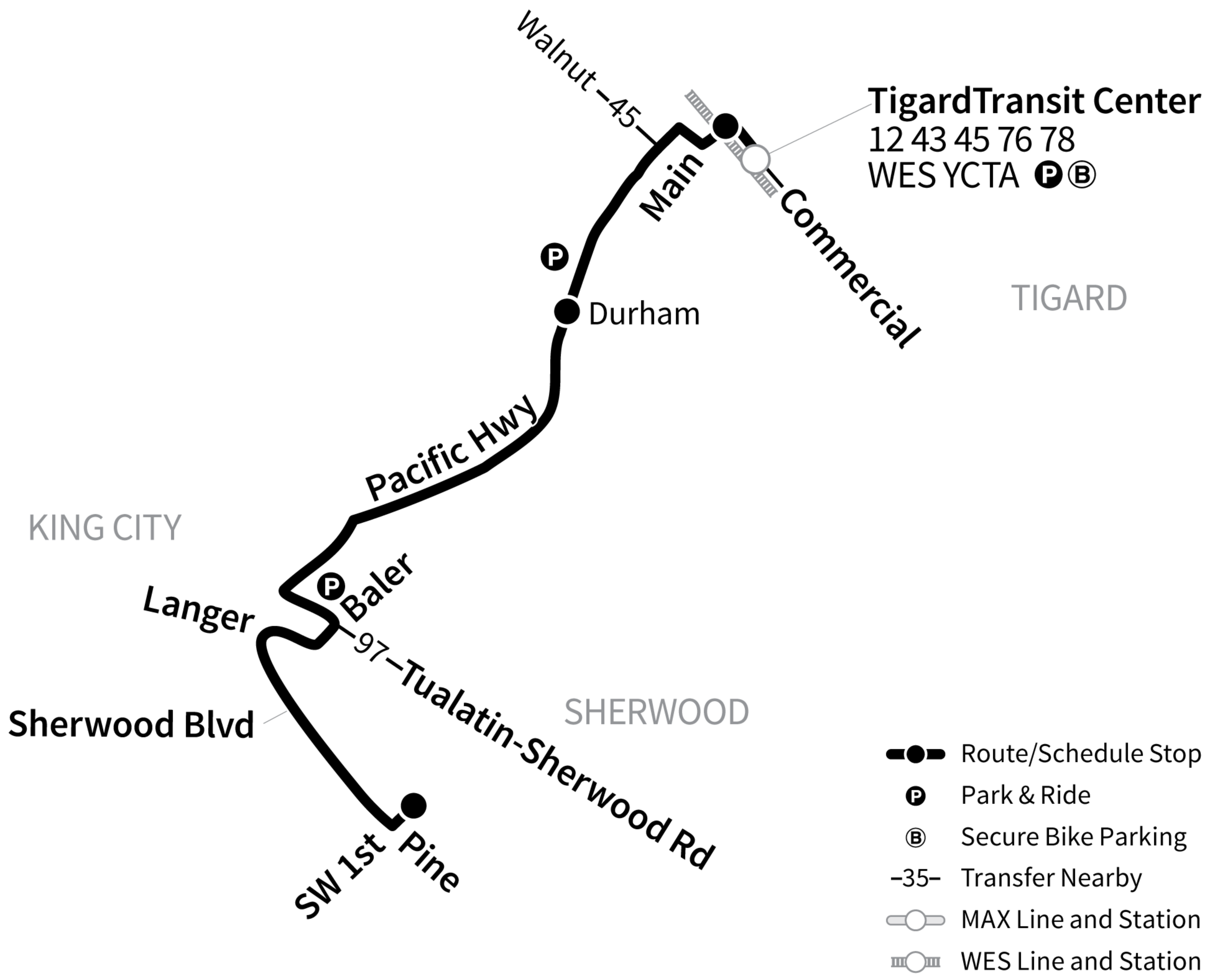
www.tualatinoregon.gov

kmcmillan@tualatin.gov




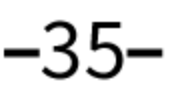


APPENDIX C.
**TRANSIT
INFORMATION**

94-Tigard/Sherwood

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



Tigard Transit Center
12 43 45 76 78
WES YCTA **P** **B**

-  Route/Schedule Stop
-  Park & Ride
-  Secure Bike Parking
-  Transfer Nearby
-  MAX Line and Station
-  WES Line and Station



94-Tigard/Sherwood

Weekday	To Sherwood		
	Tigard Transit Center Stop ID 10180	SW Pacific Hwy & Durham Stop ID 8644	SW 1st & Pine Stop ID 14108
	6:04	6:12	6:27
	6:23	6:31	6:47
	6:43	6:51	7:07
	7:02	7:10	7:27
	7:21	7:29	7:47
	7:40	7:49	8:07
	8:00	8:09	8:27
	8:20	8:29	8:47
	8:40	8:49	9:07
	8:59	9:09	9:27
	9:19	9:29	9:47
	9:39	9:49	10:07
	9:59	10:09	10:27
	10:18	10:29	10:47
	10:38	10:49	11:07
	10:58	11:09	11:27
	11:18	11:29	11:47
	11:38	11:49	12:07
	11:58	12:09	12:27
	12:18	12:29	12:47
	12:38	12:49	1:07
	12:58	1:09	1:27
	1:18	1:29	1:47
	1:38	1:49	2:07
	1:58	2:09	2:27
	2:18	2:29	2:47
	2:38	2:49	3:07
	2:58	3:09	3:27
	3:18	3:29	3:47
	3:38	3:49	4:07
	3:58	4:09	4:27
	4:18	4:29	4:47
	4:38	4:49	5:07
	4:57	5:08	5:27
	5:17	5:28	5:47
	5:38	5:49	6:07
	5:59	6:10	6:27
	6:19	6:30	6:47
	6:39	6:50	7:07
	7:09	7:20	7:37
	7:40	7:51	8:07
	8:11	8:21	8:36
	8:42	8:52	9:07
	9:14	9:23	9:37
	9:47	9:56	10:09
	10:19	10:27	10:40
	11:01	11:09	11:22
	11:47	11:54	12:07
	12:18	12:25	—
	1:04	1:11	—

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.



94-Tigard/Sherwood

Weekday		To Tigard Transit Center	
SW 1st & Pine Stop ID 14108	SW Pacific Hwy & Durham Stop ID 8792		Tigard Transit Center
4:32	4:46		4:53
5:12	5:26		5:33
5:47	6:01		—
6:08	6:23		—
6:27	6:43		—
6:47	7:03		—
7:07	7:23		—
7:27	7:43		—
7:47	8:03		—
8:07	8:23		—
8:27	8:43		—
8:47	9:03		—
9:07	9:23		—
9:27	9:43		—
9:47	10:03		—
10:07	10:23		—
10:27	10:43		—
10:47	11:03		—
11:07	11:23		—
11:27	11:44		—
11:47	12:04		—
12:07	12:24		—
12:27	12:44		—
12:47	1:04		—
1:07	1:24		—
1:27	1:44		—
1:47	2:04		—
2:07	2:24		—
2:27	2:44		—
2:47	3:05		—
3:07	3:25		—
3:27	3:45		—
3:47	4:05		—
4:07	4:25		—
4:27	4:45		—
4:47	5:05		—
5:07	5:25		—
5:27	5:45		—
5:47	6:05		—
6:07	6:25		—
6:27	6:44		—
6:47	7:03		—
7:07	7:23		—
7:37	7:53		—
8:07	8:23		—
8:36	8:51		—
9:07	9:22		—
9:37	9:52	10:00	—
10:09	10:22		—
11:22	11:35		—

Times in darker print are p.m.

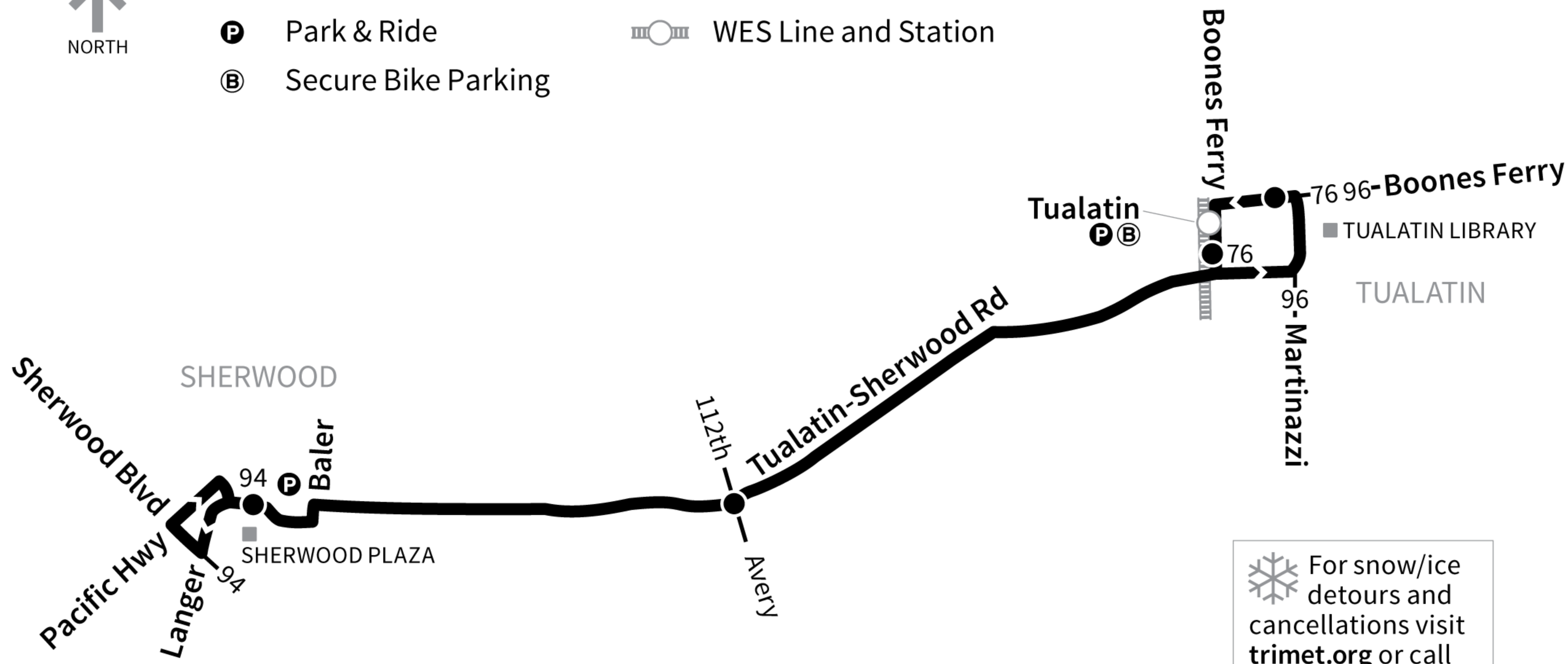
Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE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

97-Tualatin-Sherwood Rd



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

- 35- Transfer Nearby
- WES Line and Station





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 & Martinez 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

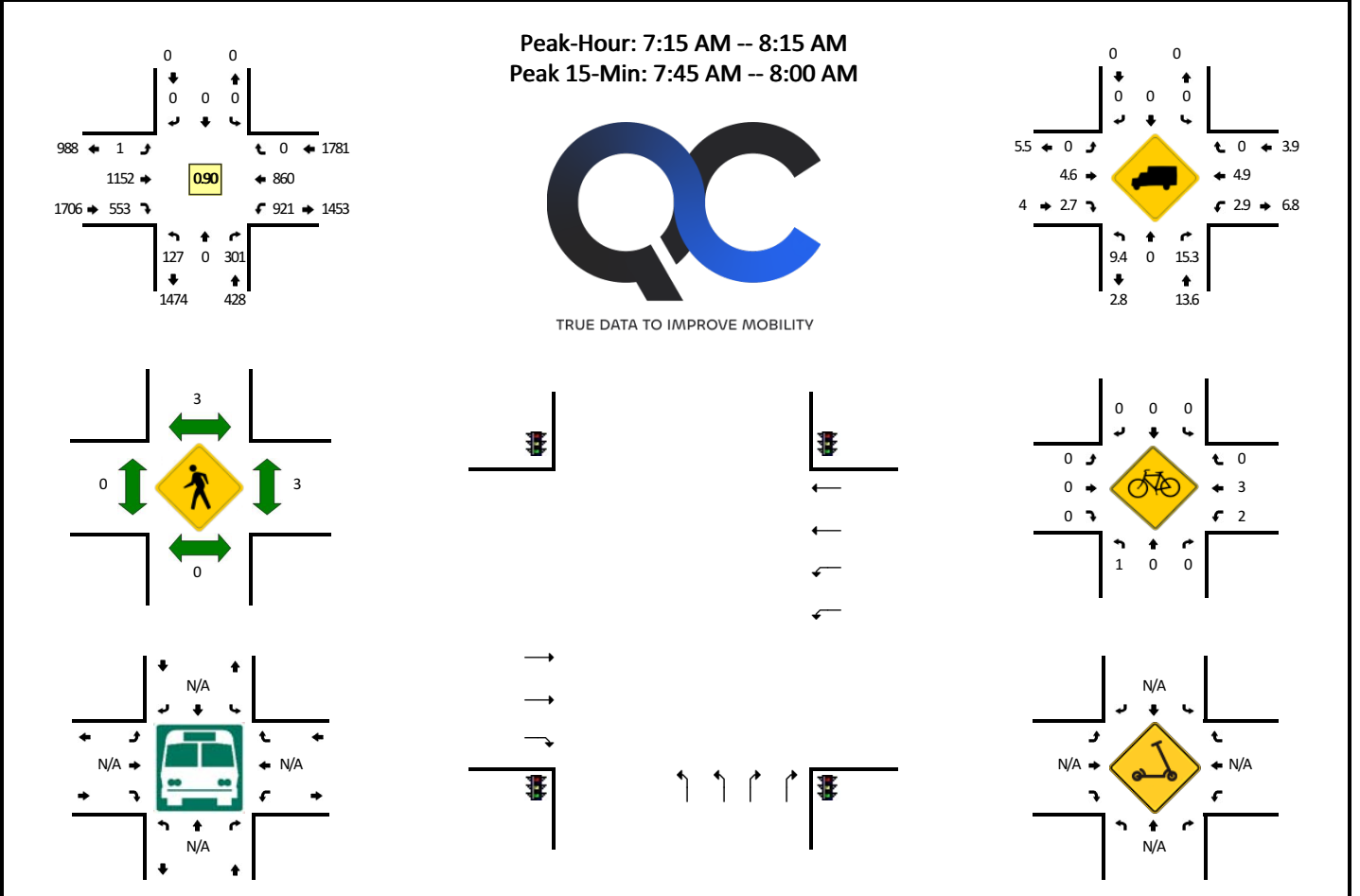
Times in darker print are p.m.

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: SW 124th Ave -- SW Pacific Hwy
CITY/STATE: Tualatin, OR

QC JOB #: 16573201
DATE: Tue, Apr 23 2024

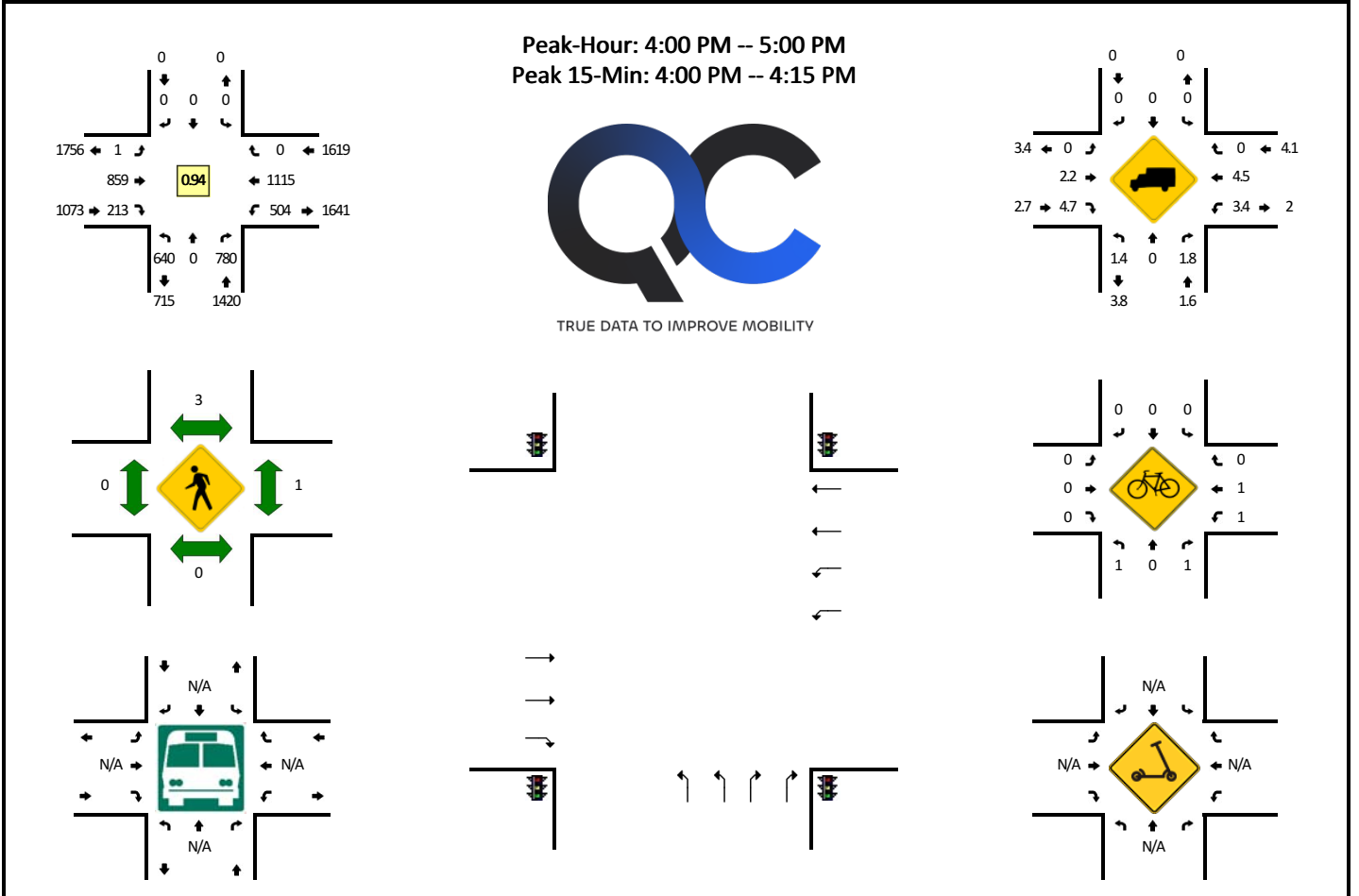


15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Pacific Hwy (Eastbound)				SW Pacific Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	21	0	58	0	0	0	0	0	0	324	78	1	143	161	0	1	787	
7:15 AM	16	0	63	0	0	0	0	0	0	324	127	0	211	181	0	0	922	
7:30 AM	31	0	69	0	0	0	0	0	0	296	130	0	209	236	0	0	971	
7:45 AM	41	0	78	0	0	0	0	0	0	276	167	1	272	248	0	0	1083	3763
8:00 AM	39	0	91	0	0	0	0	0	0	256	129	0	229	195	0	0	939	3915
8:15 AM	40	0	61	0	0	0	0	0	0	272	114	0	198	159	0	0	844	3837
8:30 AM	28	0	70	0	0	0	0	0	0	244	72	0	253	184	0	0	851	3717
8:45 AM	19	0	81	0	0	0	0	0	0	254	86	0	189	173	0	1	803	3437
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	164	0	312	0	0	0	0	0	0	1104	668	4	1088	992	0	0	4332	
Heavy Trucks	20	0	44		0	0	0		0	48	24		20	44	0		200	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scoters																		

Comments:

LOCATION: SW 124th Ave -- SW Pacific Hwy
CITY/STATE: Tualatin, OR

QC JOB #: 16573202
DATE: Tue, Apr 23 2024

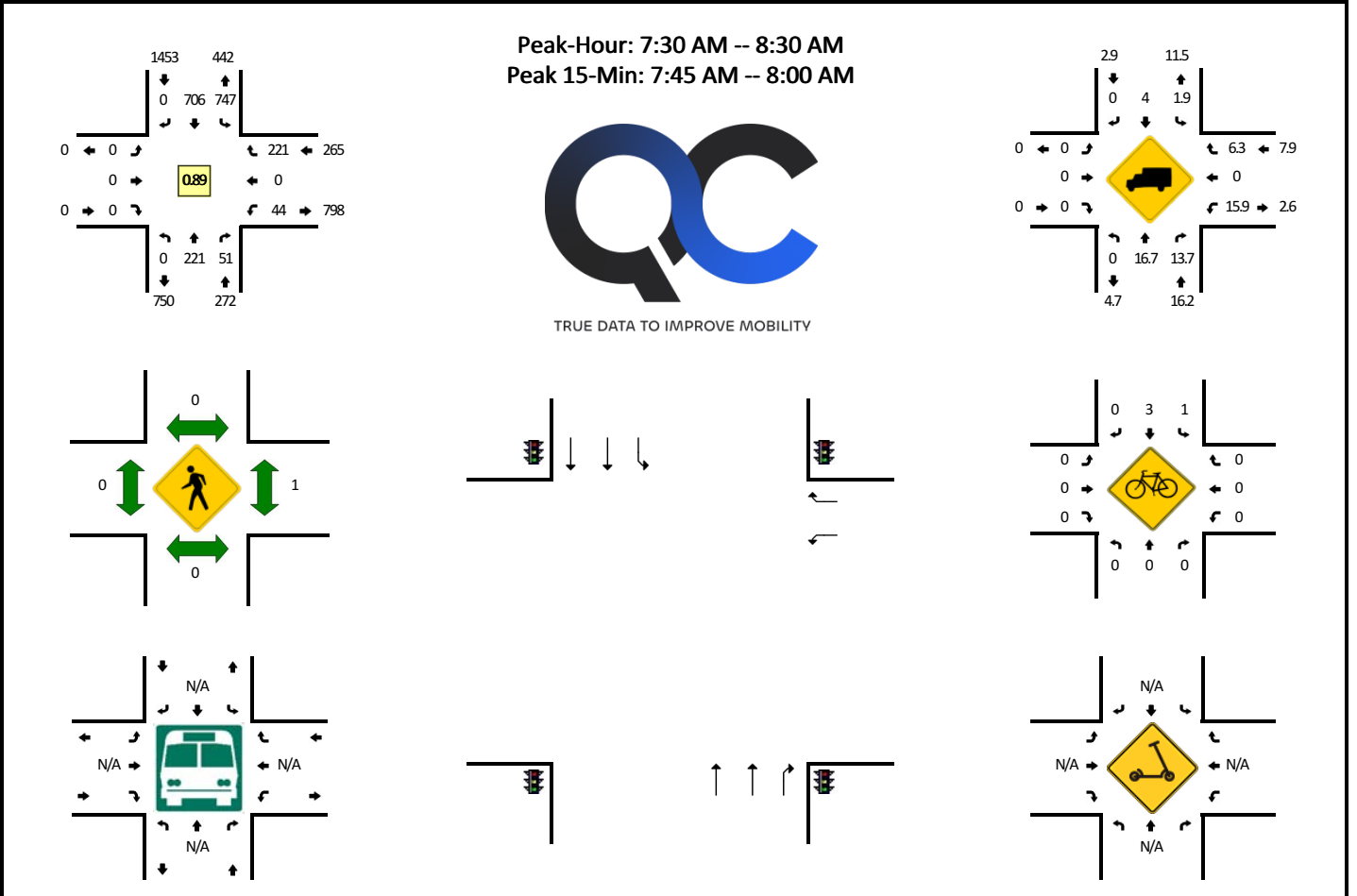


15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Pacific Hwy (Eastbound)				SW Pacific Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	167	0	216	0	0	0	0	0	0	262	42	0	105	297	0	1	1090	
4:15 PM	156	0	181	0	0	0	0	0	0	207	63	0	116	285	0	0	1008	
4:30 PM	184	0	190	0	0	0	0	0	0	178	50	0	159	299	0	0	1060	
4:45 PM	133	0	193	0	0	0	0	0	0	212	58	1	122	234	0	1	954	4112
5:00 PM	157	0	189	0	0	0	0	0	0	209	55	0	132	198	0	0	940	3962
5:15 PM	201	0	206	0	0	0	0	0	0	135	48	0	129	247	0	0	966	3920
5:30 PM	166	0	179	0	0	0	0	0	0	181	45	0	110	262	0	1	944	3804
5:45 PM	109	0	166	0	0	0	0	0	0	203	47	0	121	244	0	2	892	3742
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	668	0	864	0	0	0	0	0	0	1048	168	0	420	1188	0	4	4360	
Heavy Trucks	8	0	32		0	0	0		0	40	8		12	80	0		180	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	4		0	0	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: SW 124th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573203
DATE: Tue, Apr 23 2024

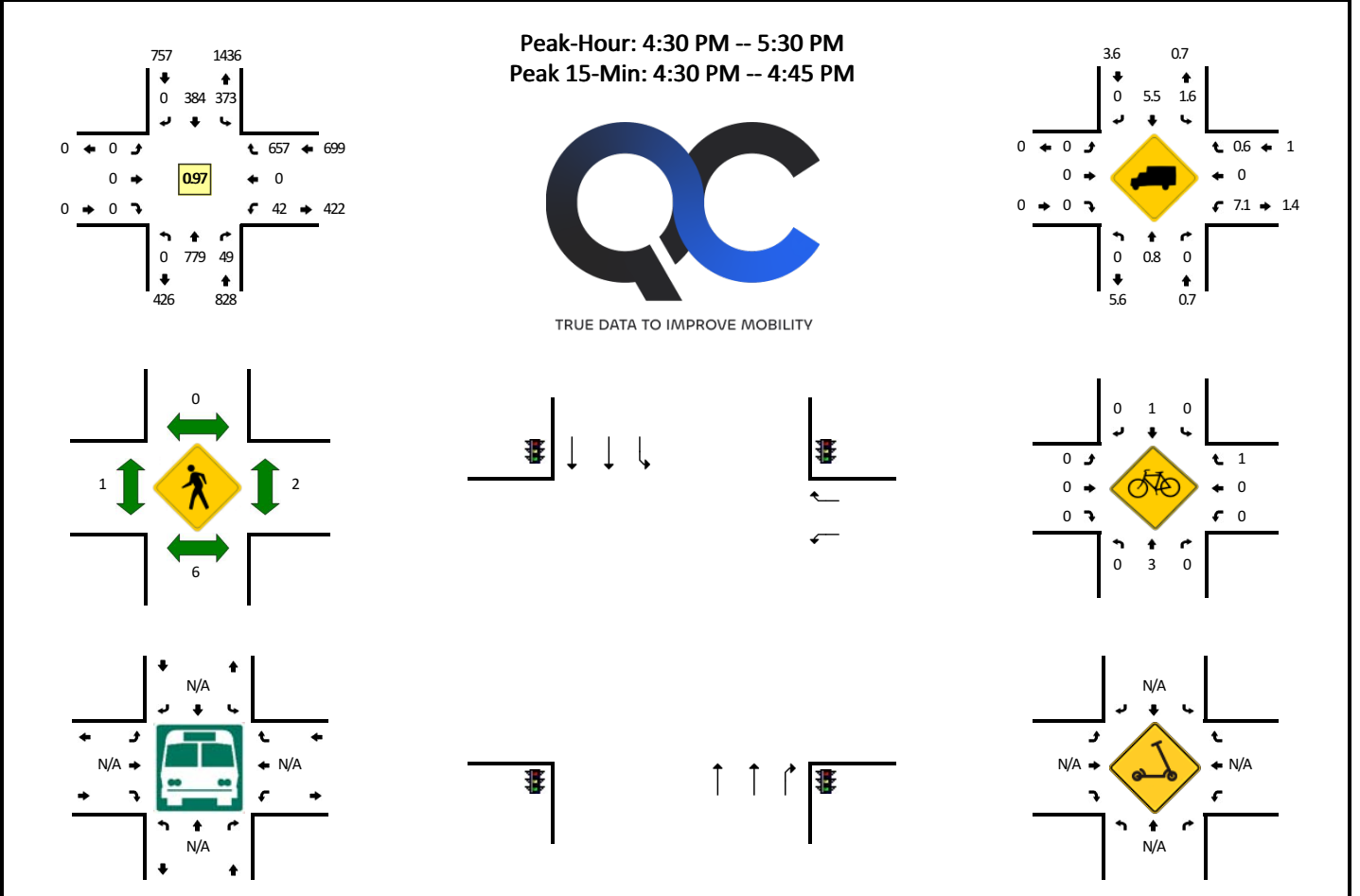


15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	51	3	0	114	112	0	0	0	0	0	0	8	0	31	0	319	
7:15 AM	0	52	7	0	156	174	0	0	0	0	0	0	8	0	28	0	425	
7:30 AM	0	58	12	0	191	148	0	0	0	0	0	0	15	0	50	0	474	
7:45 AM	0	53	13	0	195	231	0	0	0	0	0	0	8	0	62	0	562	1780
8:00 AM	0	63	14	0	183	170	0	0	0	0	0	0	11	0	56	0	497	1958
8:15 AM	0	47	12	0	178	157	0	0	0	0	0	0	10	0	53	0	457	1990
8:30 AM	0	50	8	0	135	196	0	0	0	0	0	0	5	0	51	0	445	1961
8:45 AM	0	54	10	0	113	162	0	0	0	0	0	0	7	0	41	0	387	1786
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	212	52	0	780	924	0	0	0	0	0	0	32	0	248	0	2248	
Heavy Trucks	0	40	12		8	40	0		0	0	0		0	0	24		124	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scooters																		

Comments:

LOCATION: SW 124th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573204
DATE: Tue, Apr 23 2024

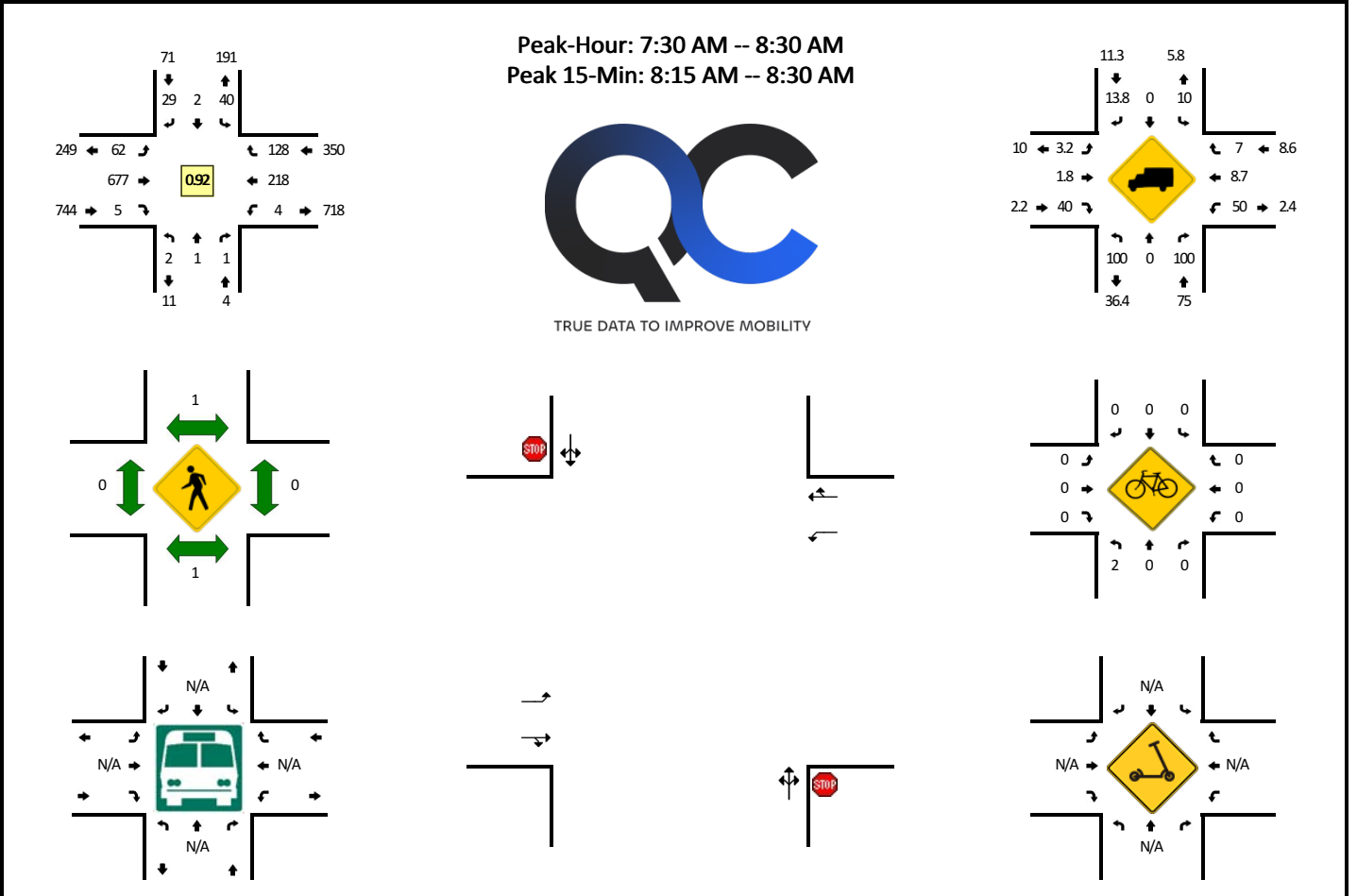


15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	240	12	0	85	64	0	0	0	0	0	0	10	0	157	0	568	
4:15 PM	0	164	10	0	96	84	0	0	0	0	0	0	10	0	153	0	517	
4:30 PM	0	190	14	0	97	101	0	0	0	0	0	0	9	0	179	0	590	
4:45 PM	0	187	11	0	102	93	0	0	0	0	0	0	7	0	139	0	539	2214
5:00 PM	0	206	11	0	86	100	0	0	0	0	0	0	15	0	152	0	570	2216
5:15 PM	0	196	13	0	88	90	0	0	0	0	0	0	11	0	187	0	585	2284
5:30 PM	0	169	10	0	110	57	0	0	0	0	0	0	2	0	150	0	498	2192
5:45 PM	0	138	13	0	87	81	0	0	0	0	0	0	14	0	107	0	440	2093
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	760	56	0	388	404	0	0	0	0	0	0	36	0	716	0	2360	
Heavy Trucks	0	12	0		12	24	0		0	0	0		4	0	4		56	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	4	0		0	0	0		0	0	0		0	0	4		8	
Scooters																		

Comments:

LOCATION: SW 115th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573223
DATE: Tue, Apr 23 2024



15-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	3	0	8	110	0	0	3	21	16	0	163	
7:15 AM	0	0	0	0	6	1	5	0	10	142	0	0	0	27	13	0	204	
7:30 AM	0	1	0	0	10	0	5	0	3	181	1	0	1	53	21	0	276	
7:45 AM	1	0	0	0	11	1	4	0	11	184	2	0	0	60	28	0	302	945
8:00 AM	0	0	0	0	7	1	8	0	19	151	2	0	2	59	26	0	275	1057
8:15 AM	1	0	1	0	12	0	12	0	29	161	0	0	1	46	53	0	316	1169
8:30 AM	0	0	1	0	8	0	3	0	10	127	1	0	1	47	26	0	224	1117
8:45 AM	1	0	0	0	7	0	1	0	6	93	1	0	1	47	19	0	176	991
9:00 AM	0	0	0	0	1	0	1	0	3	78	0	0	1	34	33	0	151	867
9:15 AM	0	0	0	0	2	0	1	0	2	73	0	0	1	54	18	0	151	702
9:30 AM	0	1	0	0	2	0	4	0	2	68	1	0	0	57	18	0	153	631
9:45 AM	1	0	0	0	3	0	3	0	6	58	0	0	0	33	12	0	116	571
10:00 AM	0	0	2	0	2	0	2	0	7	78	1	0	0	29	19	0	140	560
10:15 AM	0	0	0	0	6	0	4	0	6	49	0	0	1	30	17	0	113	522
10:30 AM	0	0	0	0	2	0	4	0	10	58	0	0	1	44	16	0	135	504
10:45 AM	1	1	0	0	2	0	3	0	5	63	1	0	0	57	31	0	164	552
11:00 AM	1	0	0	0	7	1	4	0	5	57	1	0	0	43	26	0	145	557
11:15 AM	0	0	1	0	2	0	2	0	3	56	1	0	0	59	28	0	152	596
11:30 AM	0	2	1	0	5	0	7	0	10	68	0	0	1	65	22	0	181	642
11:45 AM	0	0	1	0	4	0	3	0	4	75	1	0	1	52	15	0	156	634
12:00 PM	1	0	2	0	0	0	7	0	13	66	2	0	1	59	15	0	166	655
12:15 PM	1	0	1	0	4	0	2	0	7	82	0	0	0	62	28	0	187	690
12:30 PM	0	0	3	0	4	0	6	0	4	78	1	0	2	67	17	0	182	691
12:45 PM	1	0	0	0	1	0	6	0	8	76	1	0	0	56	22	0	171	706
1:00 PM	1	1	1	0	2	1	7	0	5	66	0	0	1	64	30	0	179	719
1:15 PM	0	0	2	0	1	0	7	0	10	79	1	0	0	65	26	0	191	723
1:30 PM	0	0	0	0	6	0	4	0	5	71	0	0	0	77	24	0	187	728
1:45 PM	0	0	0	0	6	0	1	0	7	68	0	0	0	54	33	0	169	726
2:00 PM	1	0	0	0	3	0	3	0	4	76	1	0	0	56	30	0	174	721
2:15 PM	0	0	1	0	4	0	5	0	5	76	0	0	0	64	37	0	192	722
2:30 PM	0	1	2	0	8	0	5	0	11	85	4	0	2	77	68	0	263	798
2:45 PM	0	0	4	0	2	0	4	0	11	89	0	0	0	98	52	0	260	889
3:00 PM	0	0	0	0	6	0	2	0	23	63	0	0	0	84	45	0	223	938
3:15 PM	0	0	0	0	19	0	24	0	8	89	0	0	3	107	44	0	294	1040
3:30 PM	1	1	2	0	5	0	3	0	7	94	1	0	0	128	59	0	301	1078
3:45 PM	0	0	1	0	6	0	4	0	8	88	0	0	1	101	68	0	277	1095
4:00 PM	0	0	4	0	2	1	7	0	10	81	0	0	1	160	80	0	346	1218
4:15 PM	0	1	2	0	4	2	7	0	12	85	0	0	2	142	58	0	315	1239

15-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th 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	0	1	1	0	4	0	3	0	8	94	0	0	0	164	68	0	343	1281
4:45 PM	0	0	0	0	9	0	7	0	19	97	1	0	0	129	49	0	311	1315
5:00 PM	0	1	1	0	2	0	5	0	9	90	0	0	2	159	66	0	335	1304
5:15 PM	0	1	2	0	4	0	4	0	17	71	1	0	1	165	58	0	324	1313
5:30 PM	0	0	0	0	4	0	3	0	9	103	1	0	0	139	54	0	313	1283
5:45 PM	0	1	1	0	3	0	4	0	10	85	2	0	0	98	47	0	251	1223
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	4	0	4	0	48	0	48	0	116	644	0	0	4	184	212	0	1264	
Heavy Trucks	4	0	4		12	0	4		4	12	0		4	12	20		76	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4	
Scoters																		
<i>Comments:</i>																		

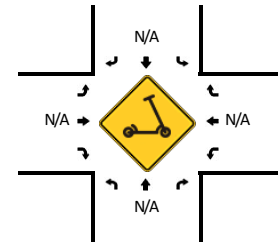
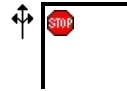
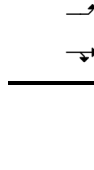
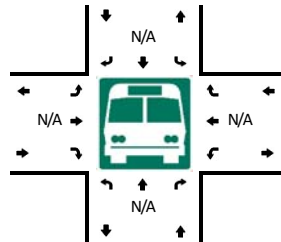
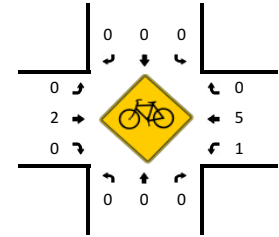
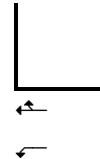
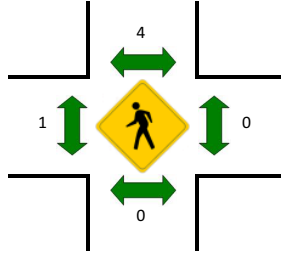
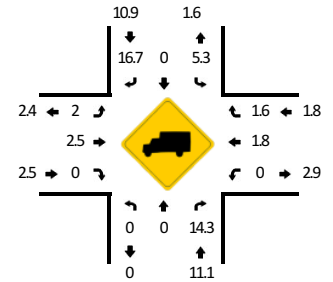
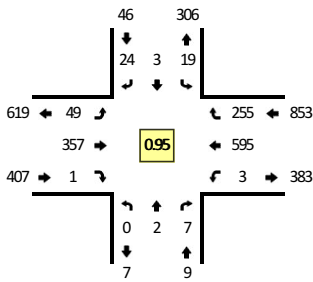
Report generated on 6/20/2024 10:17 AM

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

LOCATION: SW 115th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573223
DATE: Tue, Apr 23 2024

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



15-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	3	0	8	110	0	0	3	21	16	0	163	
7:15 AM	0	0	0	0	6	1	5	0	10	142	0	0	0	27	13	0	204	
7:30 AM	0	1	0	0	10	0	5	0	3	181	1	0	1	53	21	0	276	
7:45 AM	1	0	0	0	11	1	4	0	11	184	2	0	0	60	28	0	302	945
8:00 AM	0	0	0	0	7	1	8	0	19	151	2	0	2	59	26	0	275	1057
8:15 AM	1	0	1	0	12	0	12	0	29	161	0	0	1	46	53	0	316	1169
8:30 AM	0	0	1	0	8	0	3	0	10	127	1	0	1	47	26	0	224	1117
8:45 AM	1	0	0	0	7	0	1	0	6	93	1	0	1	47	19	0	176	991
9:00 AM	0	0	0	0	1	0	1	0	3	78	0	0	1	34	33	0	151	867
9:15 AM	0	0	0	0	2	0	1	0	2	73	0	0	1	54	18	0	151	702
9:30 AM	0	1	0	0	2	0	4	0	2	68	1	0	0	57	18	0	153	631
9:45 AM	1	0	0	0	3	0	3	0	6	58	0	0	0	33	12	0	116	571
10:00 AM	0	0	2	0	2	0	2	0	7	78	1	0	0	29	19	0	140	560
10:15 AM	0	0	0	0	6	0	4	0	6	49	0	0	1	30	17	0	113	522
10:30 AM	0	0	0	0	2	0	4	0	10	58	0	0	1	44	16	0	135	504
10:45 AM	1	1	0	0	2	0	3	0	5	63	1	0	0	57	31	0	164	552
11:00 AM	1	0	0	0	7	1	4	0	5	57	1	0	0	43	26	0	145	557
11:15 AM	0	0	1	0	2	0	2	0	3	56	1	0	0	59	28	0	152	596
11:30 AM	0	2	1	0	5	0	7	0	10	68	0	0	1	65	22	0	181	642
11:45 AM	0	0	1	0	4	0	3	0	4	75	1	0	1	52	15	0	156	634
12:00 PM	1	0	2	0	0	0	7	0	13	66	2	0	1	59	15	0	166	655
12:15 PM	1	0	1	0	4	0	2	0	7	82	0	0	0	62	28	0	187	690
12:30 PM	0	0	3	0	4	0	6	0	4	78	1	0	2	67	17	0	182	691
12:45 PM	1	0	0	0	1	0	6	0	8	76	1	0	0	56	22	0	171	706
1:00 PM	1	1	1	0	2	1	7	0	5	66	0	0	1	64	30	0	179	719
1:15 PM	0	0	2	0	1	0	7	0	10	79	1	0	0	65	26	0	191	723
1:30 PM	0	0	0	0	6	0	4	0	5	71	0	0	0	77	24	0	187	728
1:45 PM	0	0	0	0	6	0	1	0	7	68	0	0	0	54	33	0	169	726
2:00 PM	1	0	0	0	3	0	3	0	4	76	1	0	0	56	30	0	174	721
2:15 PM	0	0	1	0	4	0	5	0	5	76	0	0	0	64	37	0	192	722
2:30 PM	0	1	2	0	8	0	5	0	11	85	4	0	2	77	68	0	263	798
2:45 PM	0	0	4	0	2	0	4	0	11	89	0	0	0	98	52	0	260	889
3:00 PM	0	0	0	0	6	0	2	0	23	63	0	0	0	84	45	0	223	938
3:15 PM	0	0	0	0	19	0	24	0	8	89	0	0	3	107	44	0	294	1040
3:30 PM	1	1	2	0	5	0	3	0	7	94	1	0	0	128	59	0	301	1078
3:45 PM	0	0	1	0	6	0	4	0	8	88	0	0	1	101	68	0	277	1095
4:00 PM	0	0	4	0	2	1	7	0	10	81	0	0	1	160	80	0	346	1218
4:15 PM	0	1	2	0	4	2	7	0	12	85	0	0	2	142	58	0	315	1239

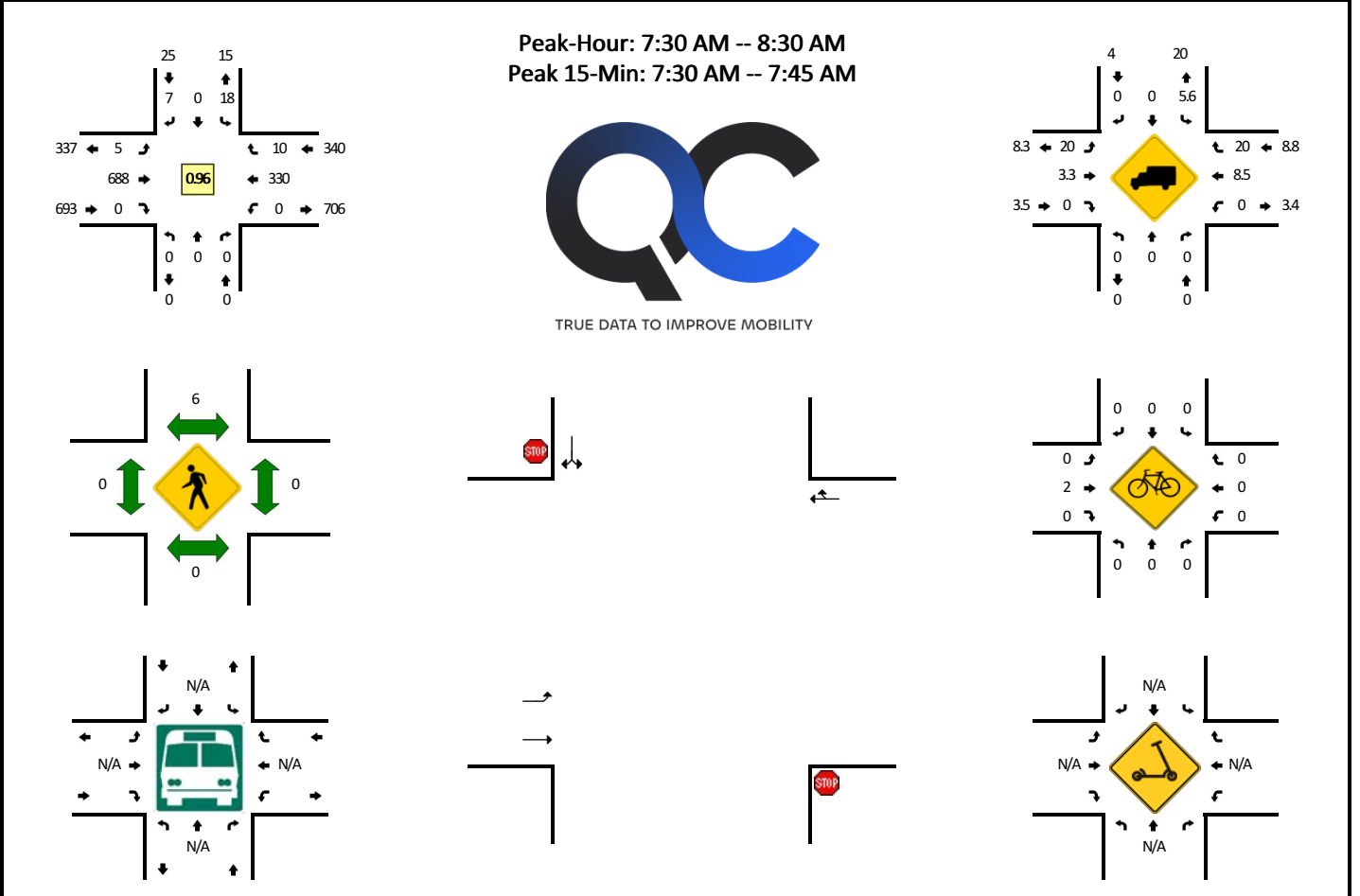
15-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	1	1	0	4	0	3	0	8	94	0	0	0	164	68	0	343	1281
4:45 PM	0	0	0	0	9	0	7	0	19	97	1	0	0	129	49	0	311	1315
5:00 PM	0	1	1	0	2	0	5	0	9	90	0	0	2	159	66	0	335	1304
5:15 PM	0	1	2	0	4	0	4	0	17	71	1	0	1	165	58	0	324	1313
5:30 PM	0	0	0	0	4	0	3	0	9	103	1	0	0	139	54	0	313	1283
5:45 PM	0	1	1	0	3	0	4	0	10	85	2	0	0	98	47	0	251	1223
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	16	0	8	4	28	0	40	324	0	0	4	640	320	0	1384	
Heavy Trucks	0	0	0		0	0	4		0	4	0		0	20	12		40	
Buses																		
Pedestrians		0				12				0				0			12	
Bicycles	0	0	0		0	0	0		0	4	0		4	8	0		16	
Scooters																		
<i>Comments:</i>																		

Report generated on 6/20/2024 10:15 AM

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

LOCATION: SW 112th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16614101
DATE: Tue, May 14 2024

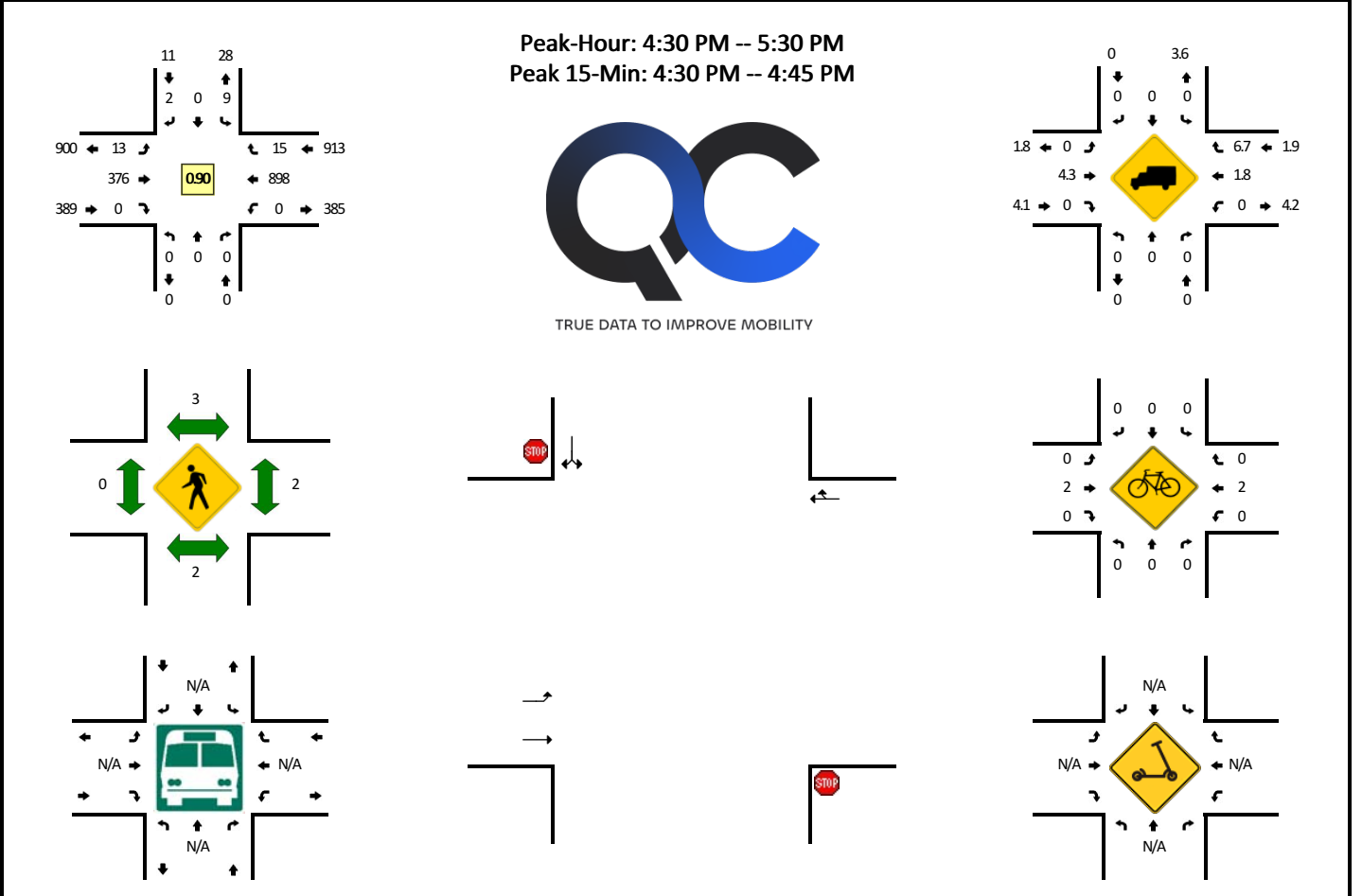


15-Min Count Period Beginning At	SW 112th Ave (Northbound)				SW 112th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	0	1	0	1	105	0	0	0	35	1	0	146	
7:15 AM	0	0	0	0	8	0	1	0	0	149	0	0	0	42	0	0	200	
7:30 AM	0	0	0	0	11	0	1	0	0	190	0	0	0	71	2	0	275	
7:45 AM	0	0	0	0	1	0	1	0	1	191	0	0	0	76	5	0	275	896
8:00 AM	0	0	0	0	1	0	3	0	3	158	0	0	0	87	0	0	252	1002
8:15 AM	0	0	0	0	5	0	2	0	1	149	0	0	0	96	3	0	256	1058
8:30 AM	0	0	0	0	6	0	1	0	3	164	0	0	0	64	1	0	239	1022
8:45 AM	0	0	0	0	1	0	2	0	2	131	0	0	0	78	1	0	215	962
9:00 AM	0	0	0	0	3	0	1	0	1	97	0	0	0	78	3	0	183	893
9:15 AM	0	0	0	0	6	0	0	0	2	74	0	0	0	67	2	0	151	788
9:30 AM	0	0	0	0	2	0	0	0	0	69	0	0	0	58	0	0	129	678
9:45 AM	0	0	0	0	1	0	2	0	0	59	0	0	0	72	3	0	137	600
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	44	0	4	0	0	760	0	0	0	284	8	0	1100	
Heavy Trucks	0	0	0	0	0	0	0	0	0	32	0	0	0	36	0	0	68	
Buses																		
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scoters																		

Comments:

LOCATION: SW 112th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16614102
DATE: Tue, May 14 2024

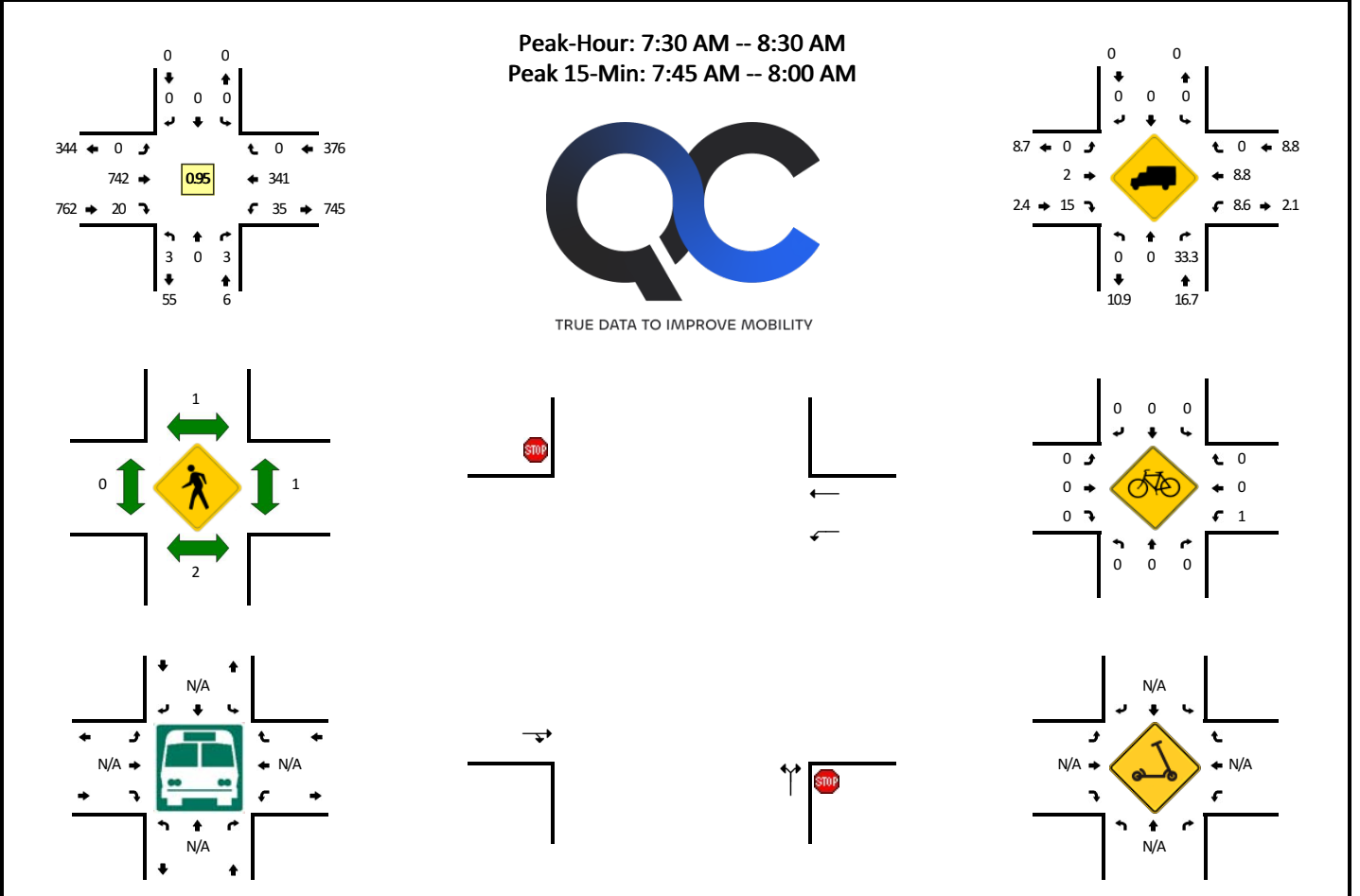


15-Min Count Period Beginning At	SW 112th Ave (Northbound)				SW 112th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	1	0	3	102	0	0	0	219	6	0	332	
4:15 PM	0	0	0	0	0	0	0	0	2	101	0	0	0	192	2	0	297	
4:30 PM	0	0	0	0	2	0	1	0	3	101	0	0	0	251	5	0	363	
4:45 PM	0	0	0	0	4	0	0	0	4	86	0	0	0	204	2	0	300	1292
5:00 PM	0	0	0	0	2	0	0	0	3	95	0	0	0	238	2	0	340	1300
5:15 PM	0	0	0	0	1	0	1	0	3	94	0	0	0	205	6	0	310	1313
5:30 PM	0	0	0	0	2	0	0	0	7	87	0	0	0	200	3	0	299	1249
5:45 PM	0	0	0	0	3	0	1	0	2	70	0	0	0	149	5	0	230	1179
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	8	0	4	0	12	404	0	0	0	1004	20	0	1452	
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	12	4		28	
Buses																		
Pedestrians		0				4				0				4			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4	
Scoters																		

Comments:

LOCATION: SW 108th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573205
DATE: Tue, Apr 23 2024

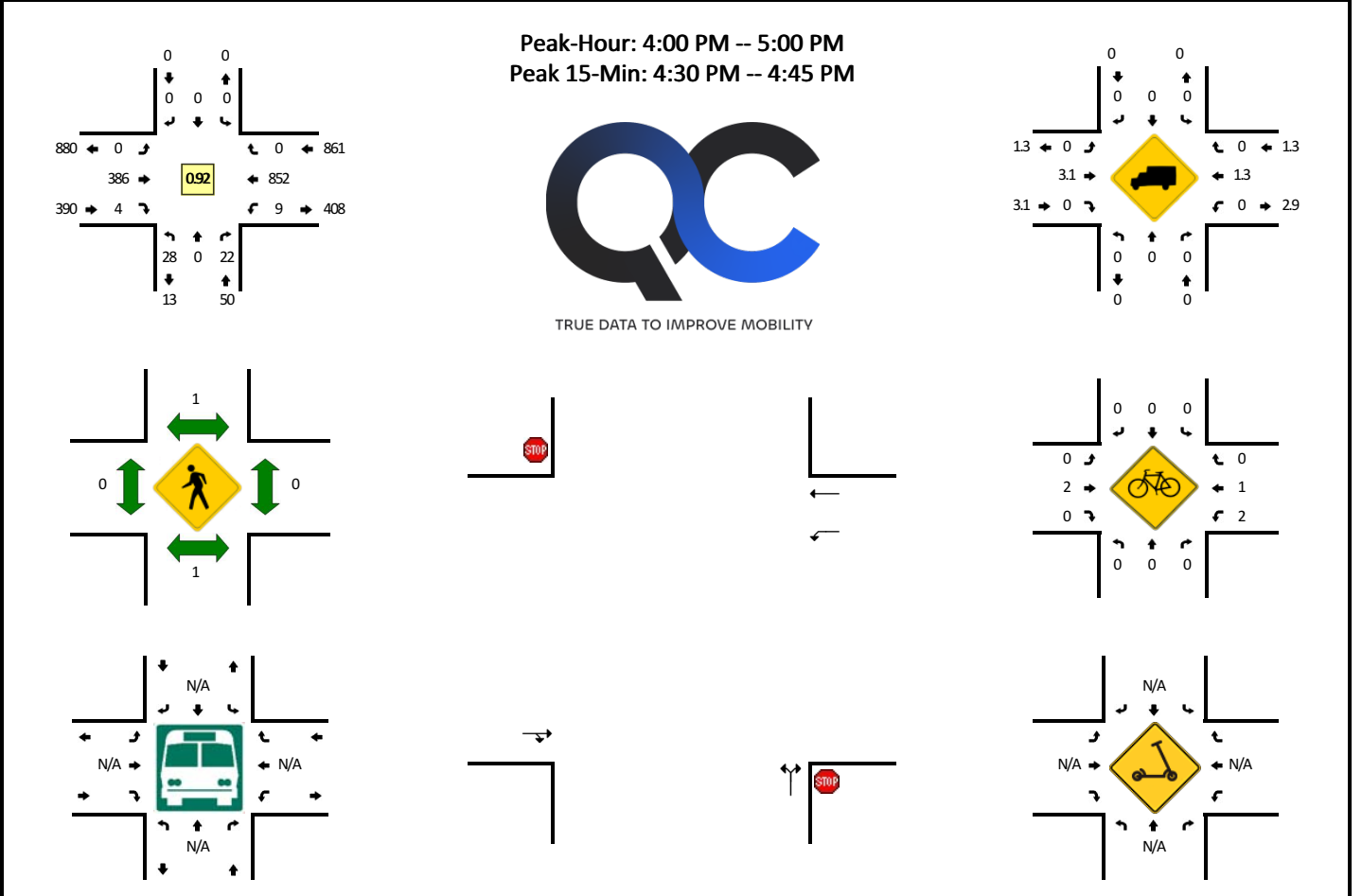


15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	1	0	0	0	0	0	0	117	3	0	5	36	0	0	163	
7:15 AM	3	0	2	0	0	0	0	0	0	152	5	0	5	39	0	0	206	
7:30 AM	0	0	1	0	0	0	0	0	0	205	3	0	7	74	0	0	290	
7:45 AM	1	0	0	0	0	0	0	0	0	196	4	0	13	86	0	0	300	959
8:00 AM	1	0	1	0	0	0	0	0	0	166	4	0	10	87	0	0	269	1065
8:15 AM	1	0	1	0	0	0	0	0	0	175	9	0	5	94	0	0	285	1144
8:30 AM	0	0	1	0	0	0	0	0	0	133	2	0	8	71	0	0	215	1069
8:45 AM	1	0	4	0	0	0	0	0	0	111	2	0	8	71	0	0	197	966
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	4	0	0	0	0	0	0	0	0	784	16	0	52	344	0	0	1200	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	24	0	0	32	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SW 108th Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573206
DATE: Tue, Apr 23 2024



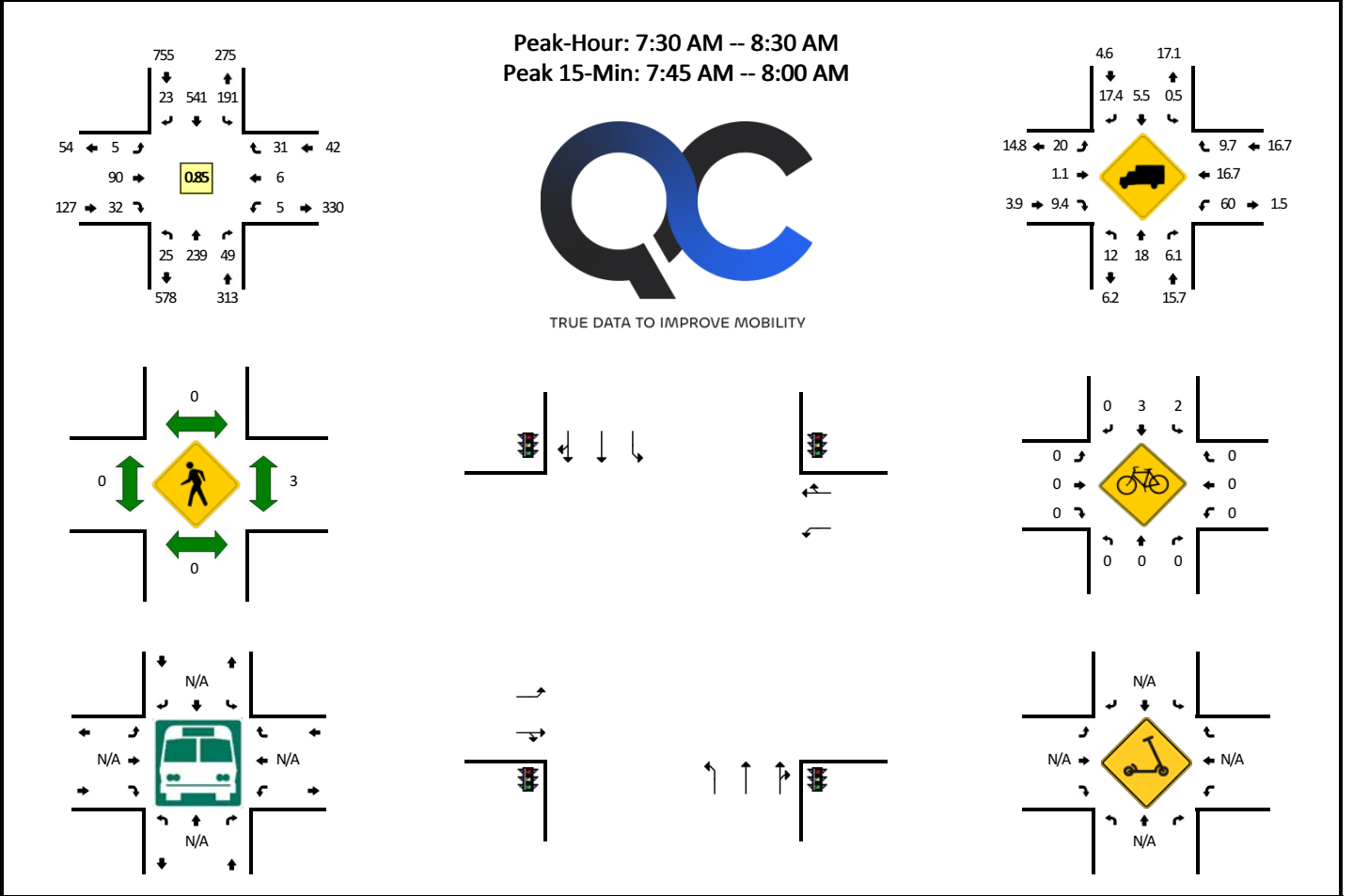
15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	0	4	0	0	0	0	0	0	80	2	0	3	248	0	0	344	
4:15 PM	5	0	3	0	0	0	0	0	0	99	0	0	2	200	0	0	309	
4:30 PM	12	0	11	0	0	0	0	0	0	103	1	0	0	225	0	0	352	
4:45 PM	4	0	4	0	0	0	0	0	0	104	1	0	4	179	0	0	296	1301
5:00 PM	14	0	9	0	0	0	0	0	0	83	1	0	0	220	0	0	327	1284
5:15 PM	4	0	2	0	0	0	0	0	0	72	2	0	2	230	0	0	312	1287
5:30 PM	5	0	5	0	0	0	0	0	0	98	2	0	1	199	0	0	310	1245
5:45 PM	7	0	4	0	0	0	0	0	0	88	3	0	0	132	0	0	234	1183

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	48	0	44	0	0	0	0	0	0	412	4	0	0	900	0	0	1408
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	12	0		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4
Scoters																	

Comments:

LOCATION: SW 124th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573207
DATE: Tue, Apr 23 2024

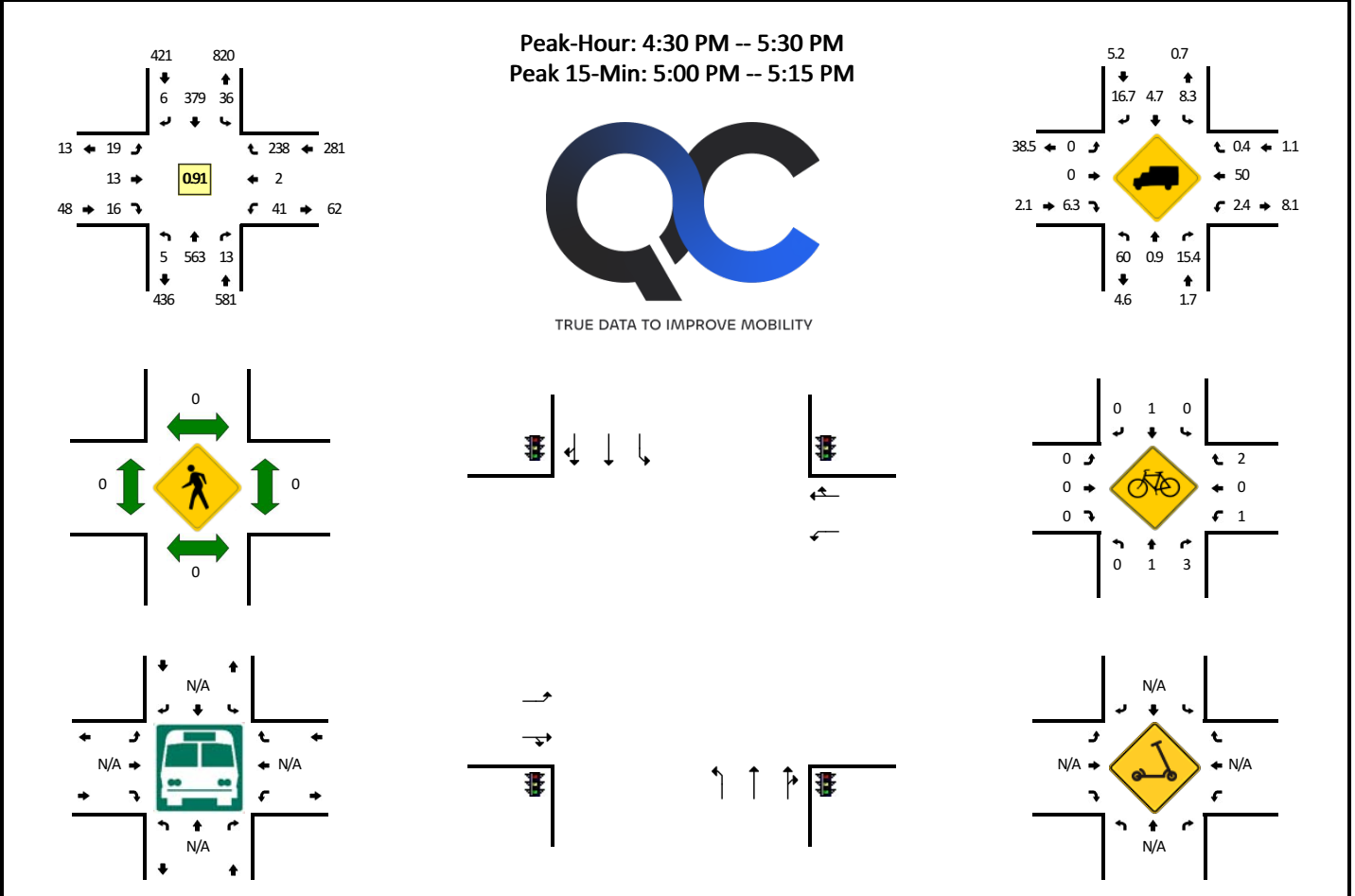


15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	38	9	0	29	83	5	0	6	7	3	0	2	0	7	0	199	
7:15 AM	6	50	4	0	33	125	9	0	4	10	10	0	1	2	5	0	259	
7:30 AM	4	55	6	0	42	130	5	0	4	27	9	0	2	1	10	0	295	
7:45 AM	9	61	14	0	54	175	5	0	0	27	9	0	1	2	6	0	363	1116
8:00 AM	9	66	18	0	51	119	8	0	1	25	6	0	2	2	12	0	319	1236
8:15 AM	3	57	11	0	44	117	5	0	0	11	8	0	0	1	3	0	260	1237
8:30 AM	4	53	8	0	41	138	6	0	2	9	6	0	3	2	2	0	274	1216
8:45 AM	6	67	9	0	57	111	10	0	1	10	7	0	2	1	1	0	282	1135
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	244	56	0	216	700	20	0	0	108	36	0	4	8	24	0	1452	
Heavy Trucks	0	52	4		0	28	4		0	0	4		4	0	4		100	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		4	0	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: SW 124th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573208
DATE: Tue, Apr 23 2024



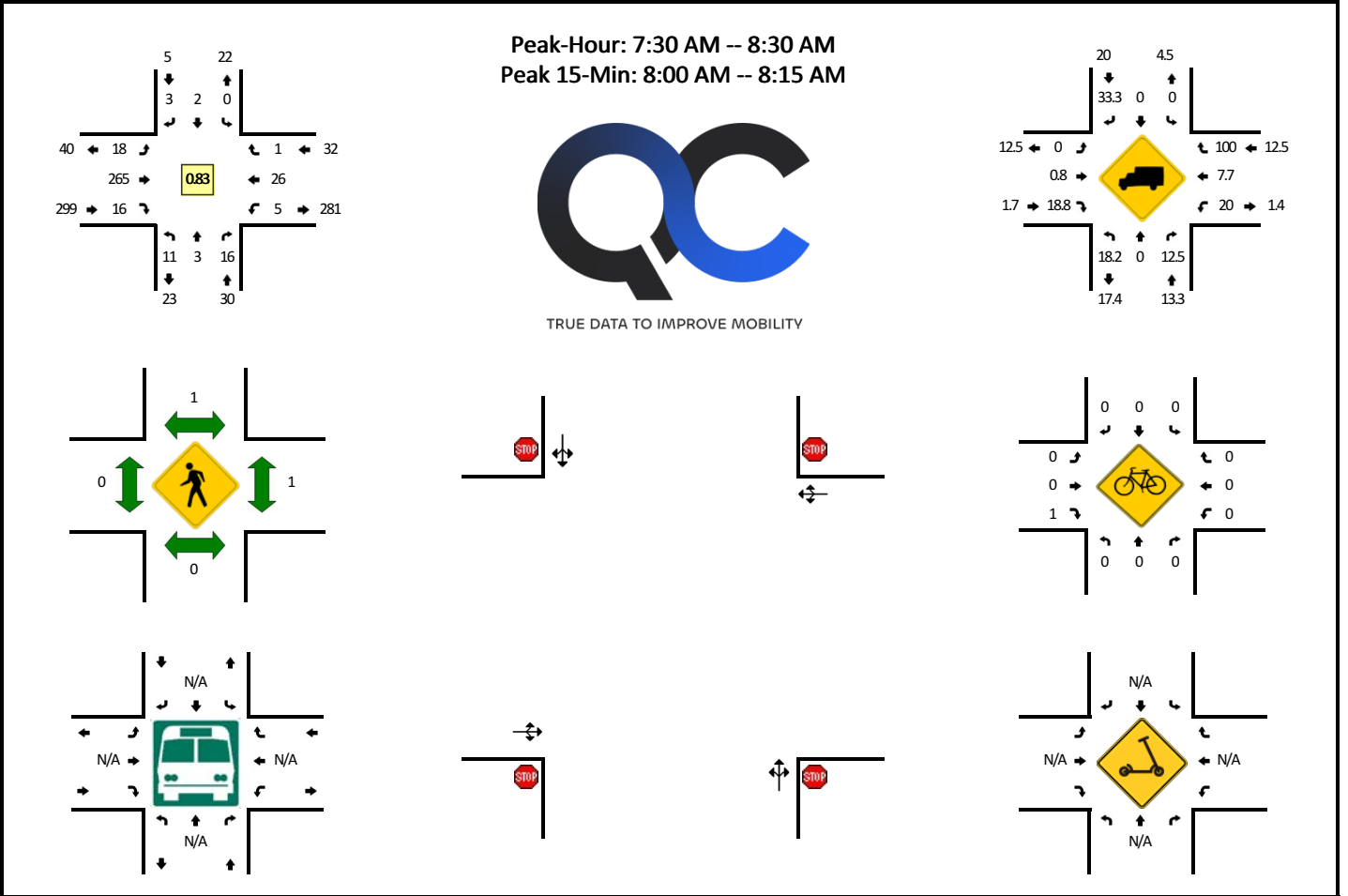
15-Min Count Period Beginning At	SW 124th Ave (Northbound)				SW 124th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	195	3	0	4	61	3	0	7	4	12	0	8	1	54	0	354	
4:15 PM	4	120	4	0	5	87	6	0	5	4	6	0	5	0	41	0	287	
4:30 PM	2	161	4	0	10	94	1	0	4	4	6	0	8	0	45	0	339	
4:45 PM	1	133	5	0	10	84	2	0	7	1	3	0	9	1	43	0	299	1279
5:00 PM	1	131	2	0	9	112	2	0	4	5	1	0	13	1	84	0	365	1290
5:15 PM	1	138	2	0	7	89	1	0	4	3	6	0	11	0	66	0	328	1331
5:30 PM	0	120	0	0	7	53	1	0	5	1	3	0	11	0	59	0	260	1252
5:45 PM	0	108	1	0	5	84	2	0	3	2	2	0	4	0	38	0	249	1202

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	4	524	8	0	36	448	8	0	16	20	4	0	52	4	336	0	1460	
Heavy Trucks	0	4	0		4	16	0		0	0	0		0	0	0		24	
Buses																		
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scoters																		

Comments:

LOCATION: SW 118th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573209
DATE: Tue, Apr 23 2024

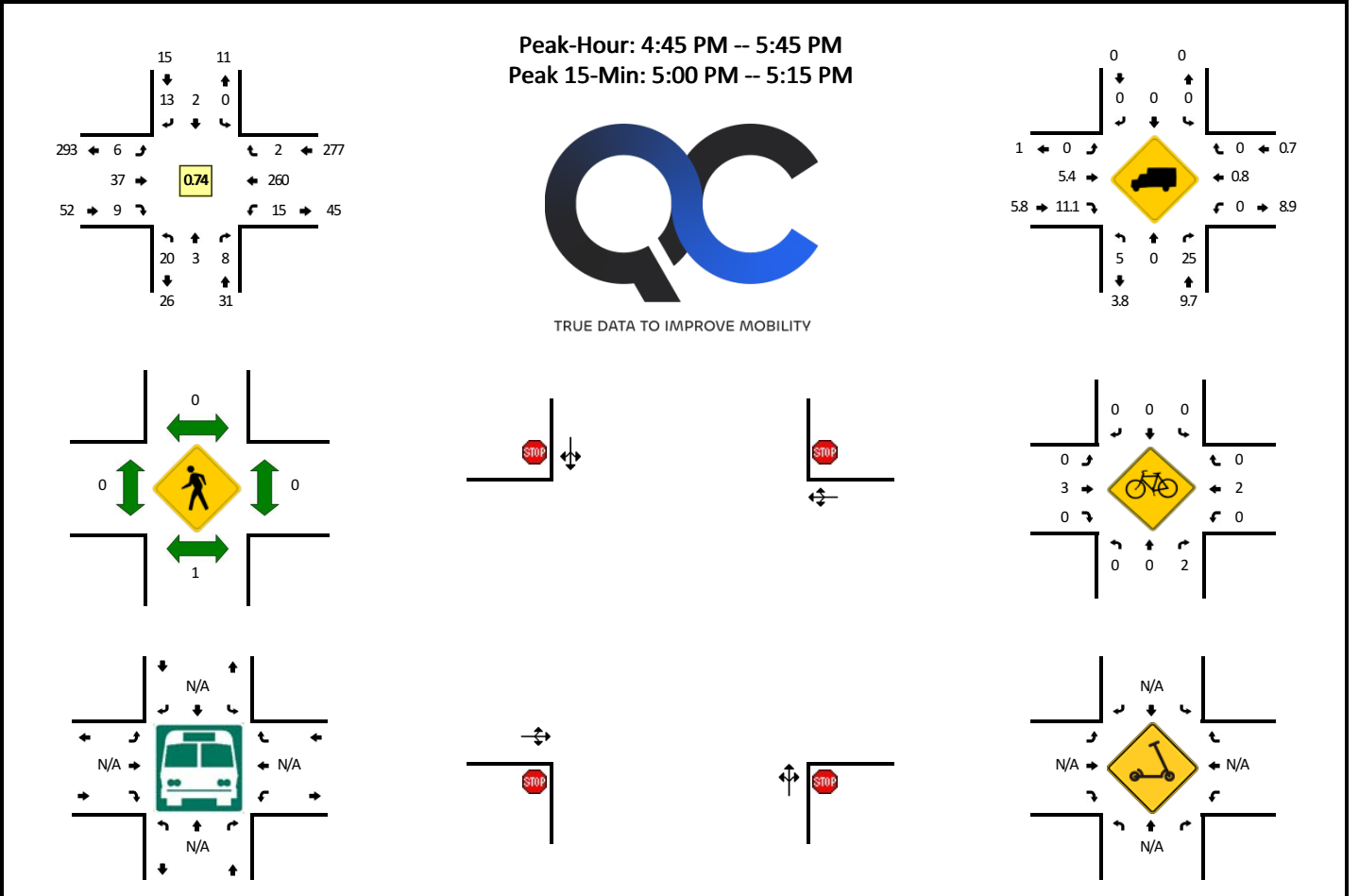


15-Min Count Period Beginning At	SW 118th Ave (Northbound)				SW 118th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	2	0	0	0	0	0	2	34	6	0	4	8	1	0	58	
7:15 AM	1	2	5	0	0	1	2	0	2	37	6	0	0	5	4	0	65	
7:30 AM	3	2	2	0	0	1	0	0	7	47	7	0	2	11	0	0	82	
7:45 AM	2	1	3	0	0	0	0	0	4	75	3	0	1	6	1	0	96	301
8:00 AM	5	0	3	0	0	1	1	0	2	85	4	0	1	8	0	0	110	353
8:15 AM	1	0	8	0	0	0	2	0	5	58	2	0	1	1	0	0	78	366
8:30 AM	0	0	1	0	0	0	0	0	2	52	3	0	1	6	0	0	65	349
8:45 AM	1	0	1	0	0	0	0	0	2	68	1	0	0	5	1	0	79	332
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	0	12	0	0	4	4	0	8	340	16	0	4	32	0	0	440	
Heavy Trucks	4	0	4	0	0	0	0	0	0	8	4	0	0	4	0	0	24	
Buses																		
Pedestrians		0			4				0				0				4	
Bicycles	0	0	0		0	0	0		0	0	4		0	0	0		4	
Scoters																		

Comments:

LOCATION: SW 118th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573210
DATE: Tue, Apr 23 2024

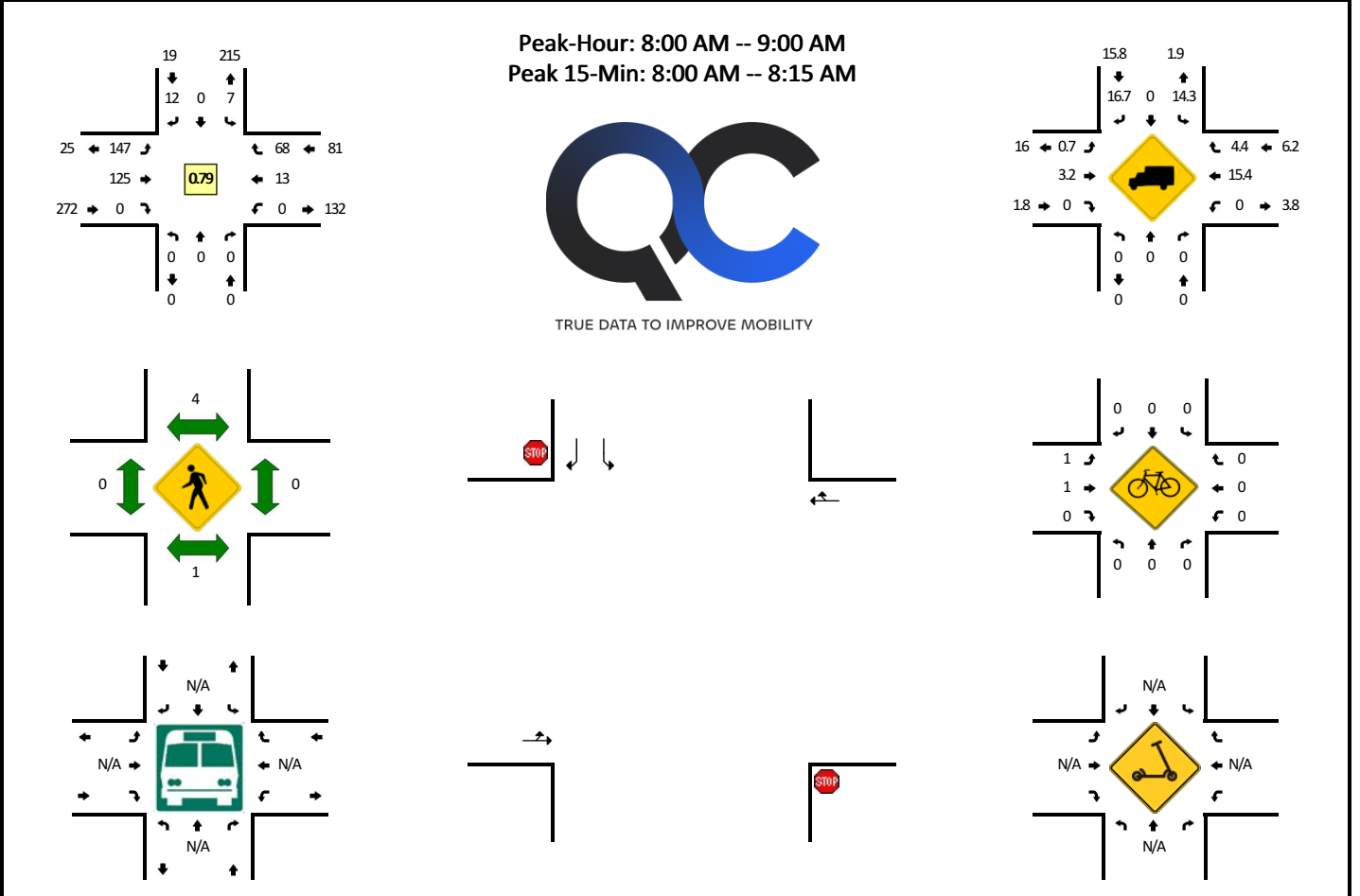


15-Min Count Period Beginning At	SW 118th Ave (Northbound)				SW 118th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	1	0	0	2	1	5	0	0	7	1	0	2	49	0	0	78	
4:15 PM	9	0	1	0	0	2	4	0	1	13	0	0	1	30	1	0	62	
4:30 PM	7	0	2	0	0	1	1	0	0	15	6	0	4	41	0	0	77	
4:45 PM	3	1	2	0	0	0	5	0	0	11	3	0	3	43	2	0	73	290
5:00 PM	10	1	2	0	0	1	3	0	1	15	0	0	4	89	0	0	126	338
5:15 PM	1	0	2	0	0	1	1	0	3	6	3	0	3	69	0	0	89	365
5:30 PM	6	1	2	0	0	0	4	0	2	5	3	0	5	59	0	0	87	375
5:45 PM	3	0	3	0	0	2	2	0	2	6	3	0	3	32	0	0	56	358
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	40	4	8	0	0	4	12	0	4	60	0	0	16	356	0	0	504	
Heavy Trucks	0	0	4	0	0	0	0	0	0	4	0	0	0	0	0	0	8	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	4		0	0	0		0	0	0		0	4	0		8	
Scoters																		

Comments:

LOCATION: West LAM Access -- SW Leveton Drive
CITY/STATE: Tualatin, OR

QC JOB #: 16573211
DATE: Tue, Apr 23 2024



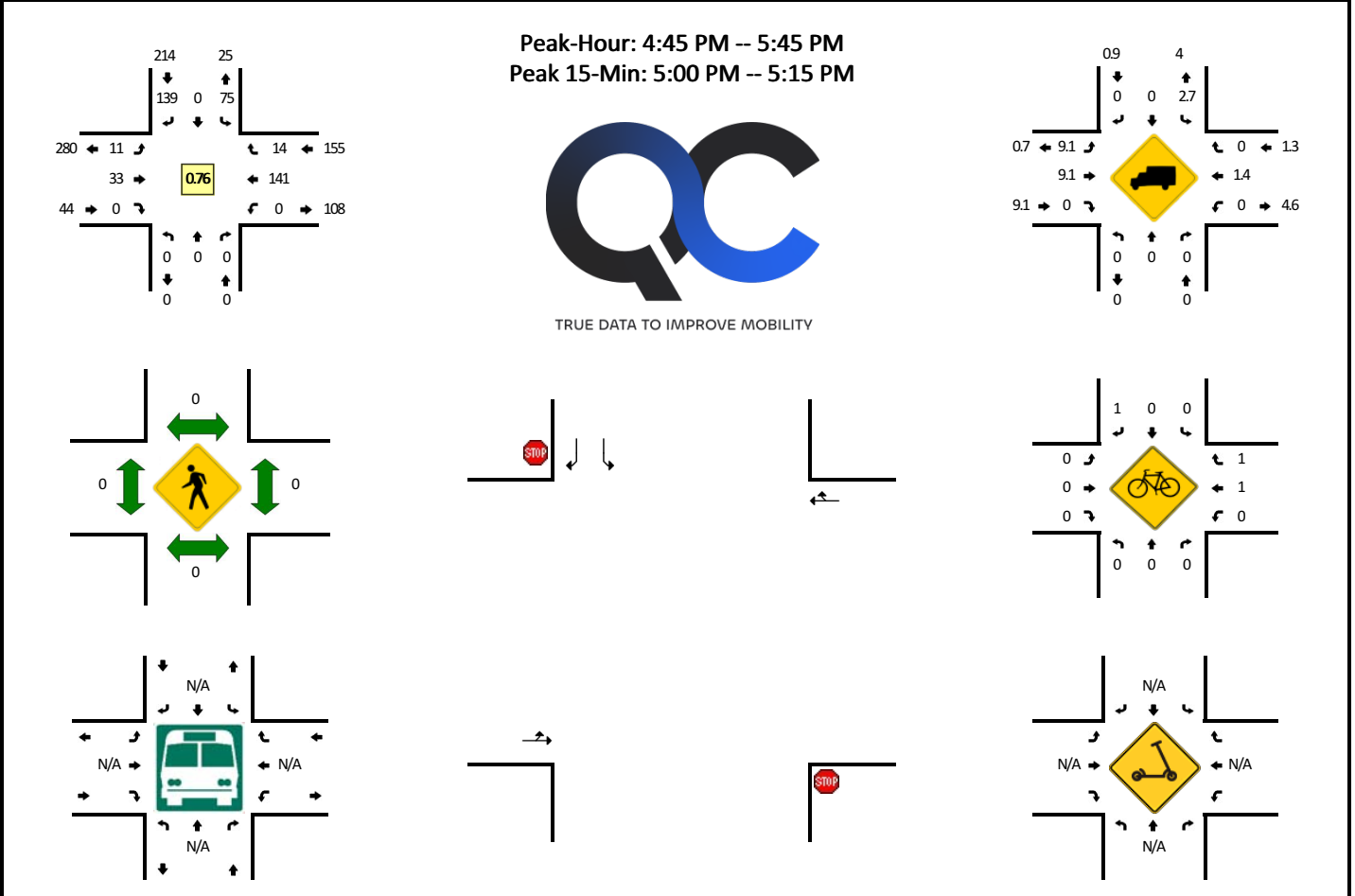
15-Min Count Period Beginning At	West LAM Access (Northbound)				West LAM Access (Southbound)				SW Leveton Drive (Eastbound)				SW Leveton Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	7	0	15	25	0	0	0	6	11	0	64	
7:15 AM	0	0	0	0	0	0	3	0	21	20	0	0	0	6	7	0	57	
7:30 AM	0	0	0	0	3	0	4	0	14	34	0	0	0	10	12	0	77	
7:45 AM	0	0	0	0	0	0	3	0	29	50	0	0	0	4	13	0	99	297
8:00 AM	0	0	0	0	2	0	4	0	40	44	0	0	0	5	23	0	118	351
8:15 AM	0	0	0	0	1	0	1	0	42	26	0	0	0	1	19	0	90	384
8:30 AM	0	0	0	0	2	0	3	0	25	24	0	0	0	4	12	0	70	377
8:45 AM	0	0	0	0	2	0	4	0	40	31	0	0	0	3	14	0	94	372

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	8	0	16	0	160	176	0	0	0	20	92	0	472
Heavy Trucks	0	0	0	0	0	0	4	0	4	8	0	0	0	0	0	0	16
Buses																	
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	0

Comments:

LOCATION: West LAM Access -- SW Leveton Drive
CITY/STATE: Tualatin, OR

QC JOB #: 16573212
DATE: Tue, Apr 23 2024



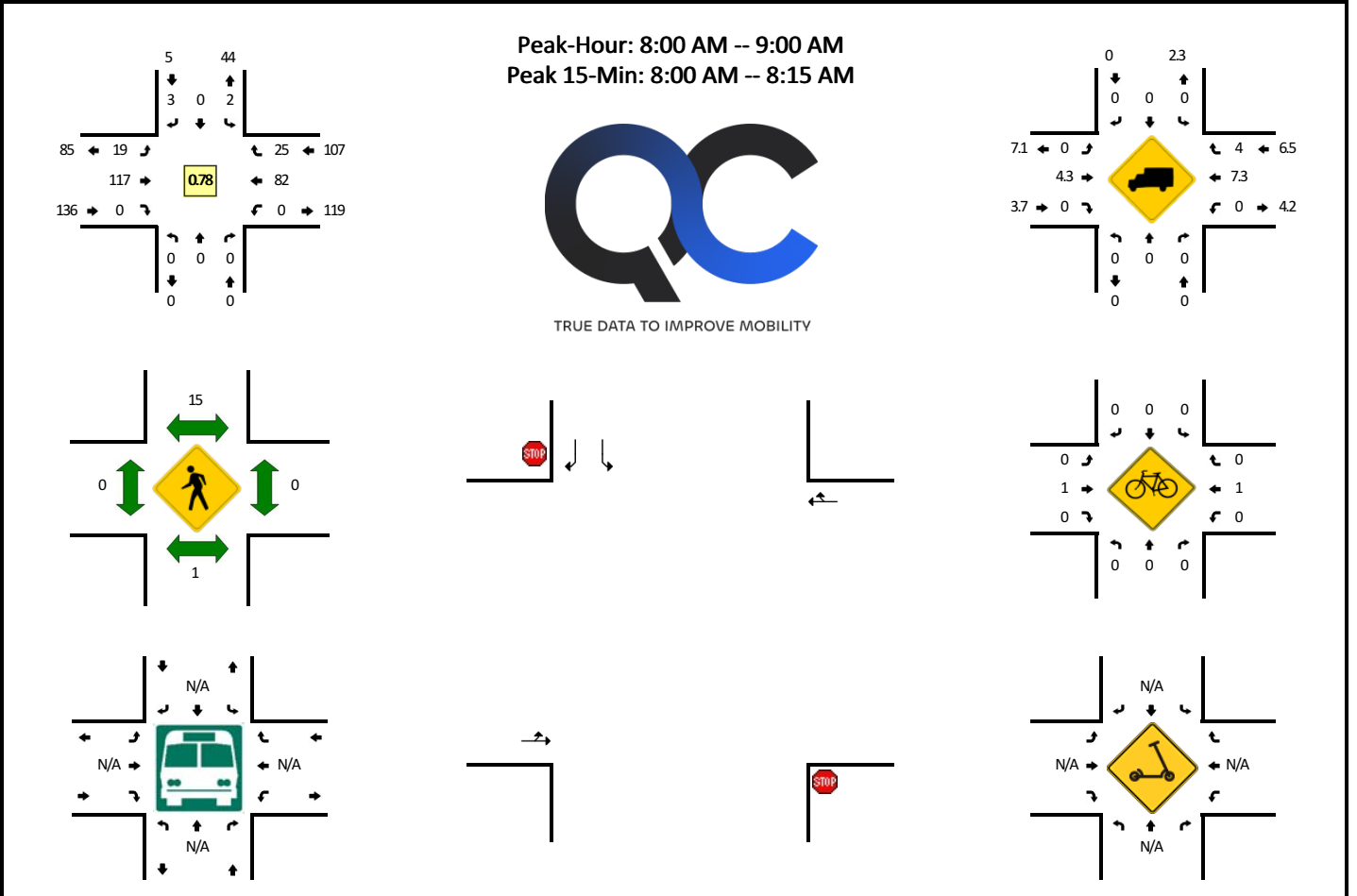
15-Min Count Period Beginning At	West LAM Access (Northbound)				West LAM Access (Southbound)				SW Leveton Drive (Eastbound)				SW Leveton Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	7	0	28	0	2	7	0	0	0	25	4	0	73	
4:15 PM	0	0	0	0	9	0	17	0	5	9	0	0	0	12	4	0	56	
4:30 PM	0	0	0	0	12	0	20	0	5	12	0	0	0	25	2	0	76	
4:45 PM	0	0	0	0	9	0	23	0	6	8	0	0	0	24	7	0	77	282
5:00 PM	0	0	0	0	18	0	45	0	3	14	0	0	0	51	5	0	136	345
5:15 PM	0	0	0	0	27	0	35	0	1	7	0	0	0	34	1	0	105	394
5:30 PM	0	0	0	0	21	0	36	0	1	4	0	0	0	32	1	0	95	413
5:45 PM	0	0	0	0	15	0	16	0	2	8	0	0	0	16	0	0	57	393

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	180	0	12	56	0	0	0	204	20	0	544
Heavy Trucks	0	0	0	0	4	0	0	0	4	4	0	0	0	0	0	0	12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scoters																	

Comments:

LOCATION: Center LAM Access -- SW Leveton Drive
CITY/STATE: Tualatin, OR

QC JOB #: 16573213
DATE: Tue, Apr 23 2024

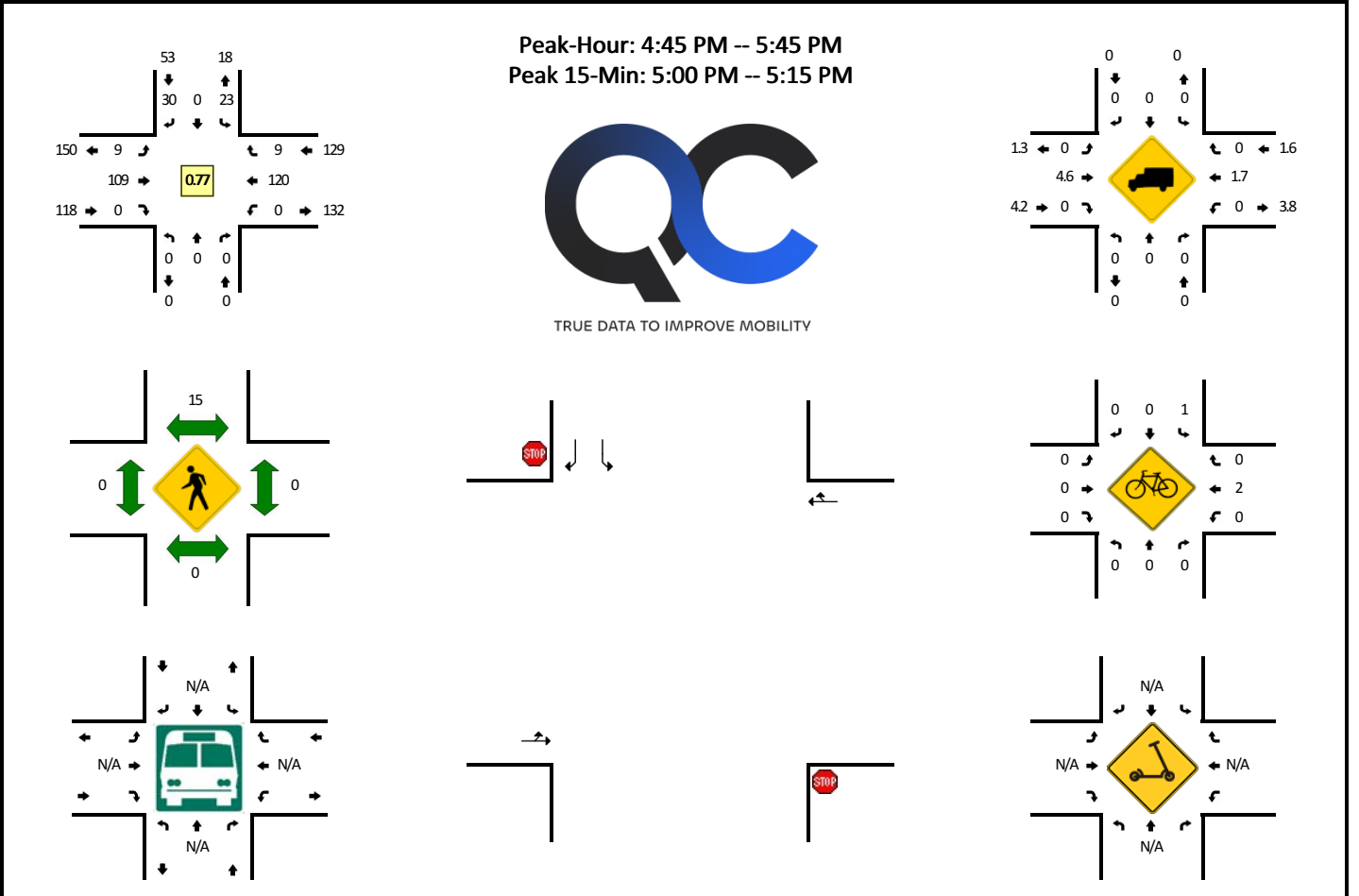


15-Min Count Period Beginning At	Center LAM Access (Northbound)				Center LAM Access (Southbound)				SW Leveton Drive (Eastbound)				SW Leveton Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	6	0	2	0	6	22	0	0	0	15	4	0	55	
7:15 AM	0	0	0	0	5	0	0	0	3	19	0	0	0	15	1	0	43	
7:30 AM	0	0	0	0	2	0	4	0	6	33	0	0	0	18	2	0	65	
7:45 AM	0	0	0	0	1	0	1	0	8	42	0	0	0	18	7	0	77	240
8:00 AM	0	0	0	0	0	0	3	0	5	41	0	0	0	24	6	0	79	264
8:15 AM	0	0	0	0	1	0	0	0	6	21	0	0	0	23	3	0	54	275
8:30 AM	0	0	0	0	1	0	0	0	3	24	0	0	0	15	7	0	50	260
8:45 AM	0	0	0	0	0	0	0	0	5	31	0	0	0	20	9	0	65	248
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	0	0	12	0	20	164	0	0	0	96	24	0	316	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	
Buses																		
Pedestrians		4				4				0				0			8	
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: Center LAM Access -- SW Leveton Drive
CITY/STATE: Tualatin, OR

QC JOB #: 16573214
DATE: Tue, Apr 23 2024



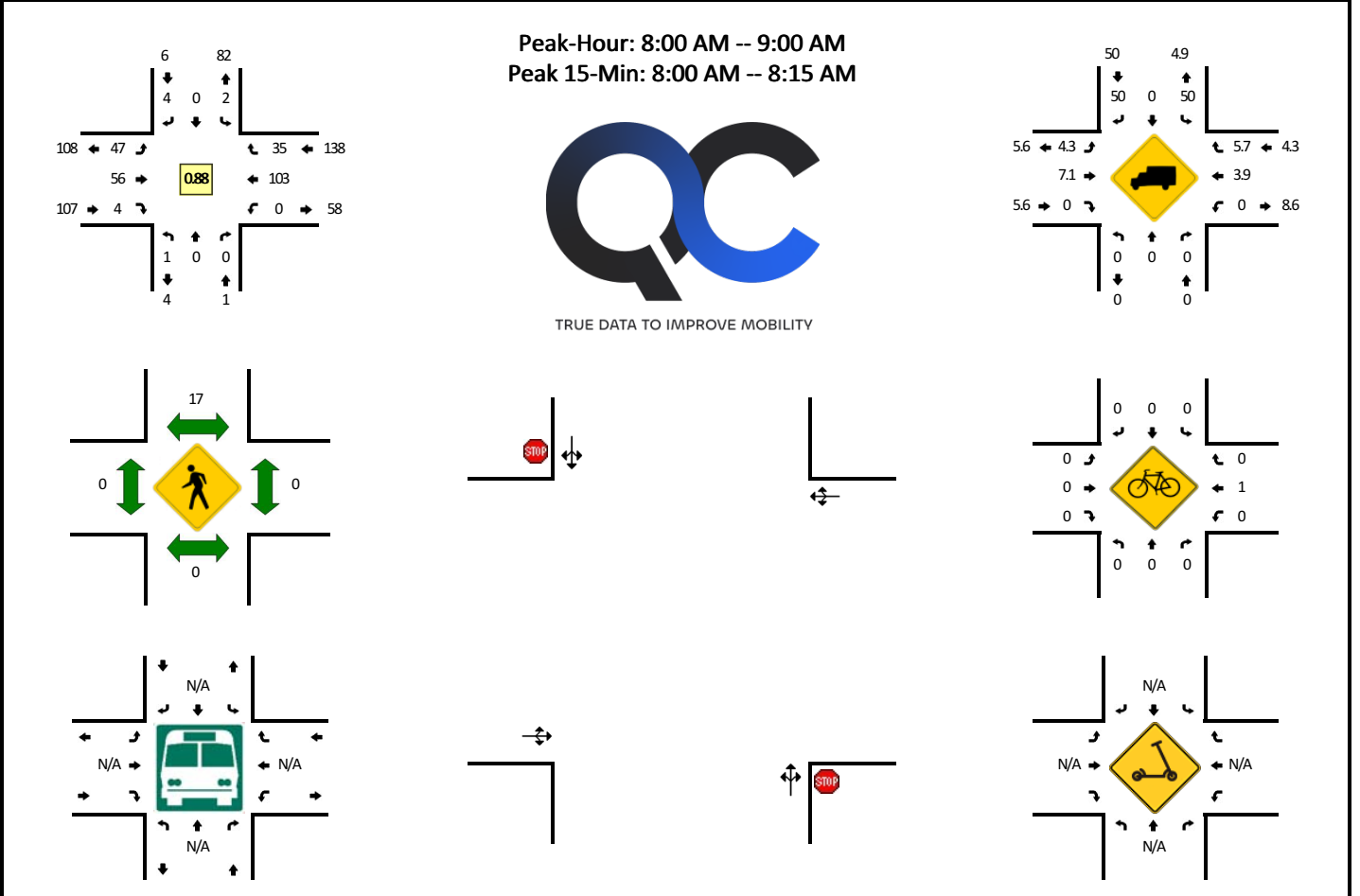
15-Min Count Period Beginning At	Center LAM Access (Northbound)				Center LAM Access (Southbound)				SW Leveton Drive (Eastbound)				SW Leveton Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	3	0	7	0	0	14	0	0	0	21	1	0	46	
4:15 PM	0	0	0	0	3	0	5	0	2	13	0	0	0	12	3	0	38	
4:30 PM	0	0	0	0	5	0	4	0	1	24	0	0	0	16	3	0	53	
4:45 PM	0	0	0	0	3	0	8	0	3	16	0	0	0	23	3	0	56	193
5:00 PM	0	0	0	0	6	0	6	0	4	30	0	0	0	48	3	0	97	244
5:15 PM	0	0	0	0	7	0	12	0	2	35	0	0	0	22	2	0	80	286
5:30 PM	0	0	0	0	7	0	4	0	0	28	0	0	0	27	1	0	67	300
5:45 PM	0	0	0	0	4	0	2	0	0	24	0	0	0	13	3	0	46	290

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	24	0	24	0	16	120	0	0	0	192	12	0	388
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scoters																	

Comments:

LOCATION: East LAM Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573221
DATE: Tue, Apr 23 2024



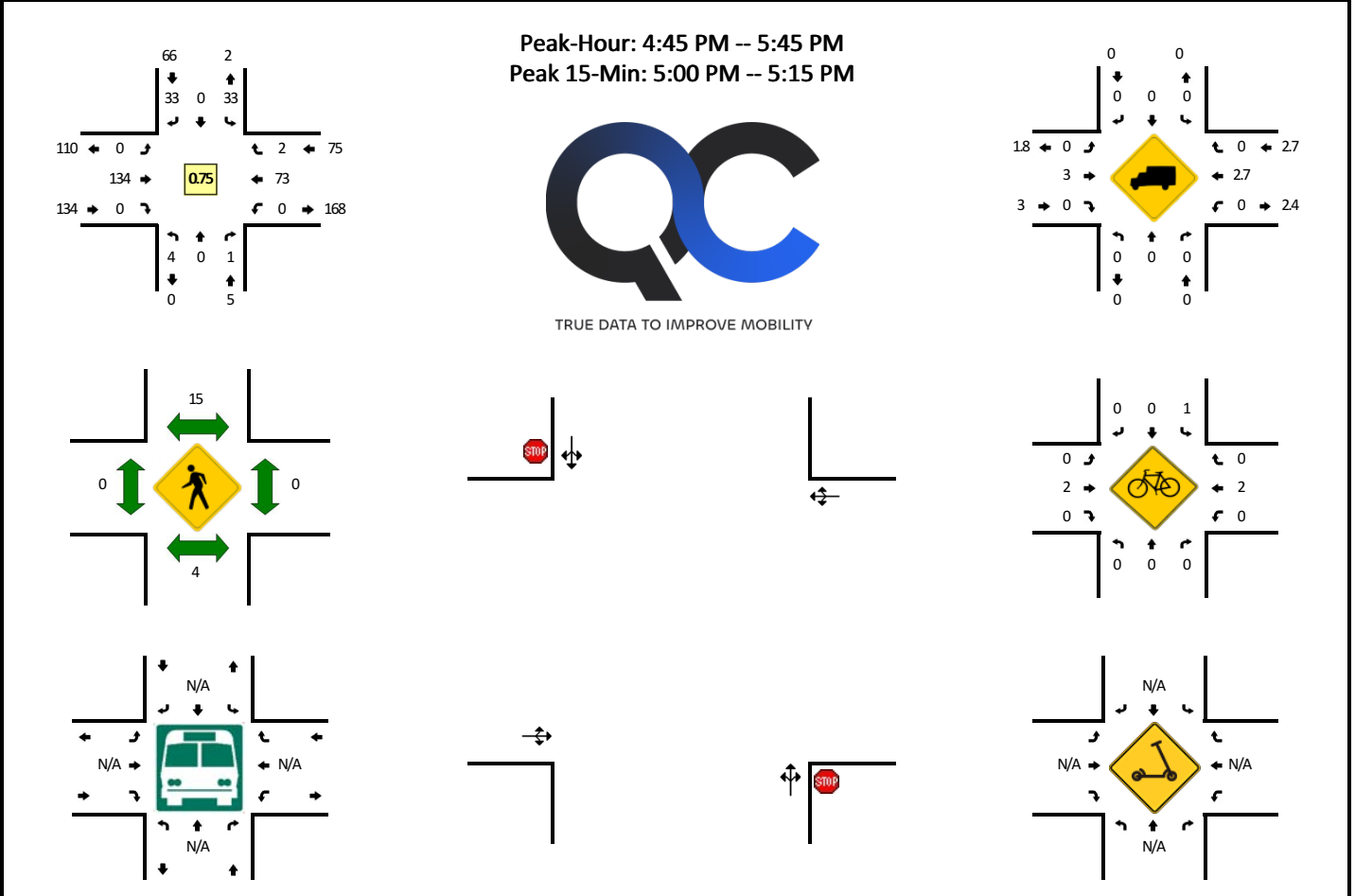
15-Min Count Period Beginning At	East LAM Access (Northbound)				East LAM Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	20	3	0	0	22	4	0	50	
7:15 AM	0	0	0	0	0	0	0	0	0	24	1	0	0	15	5	0	45	
7:30 AM	0	0	0	0	1	0	1	0	5	18	1	0	0	22	4	0	52	
7:45 AM	0	0	0	0	0	0	0	0	9	31	0	0	0	33	8	0	81	228
8:00 AM	0	0	0	0	2	0	0	0	16	19	1	0	0	28	6	0	72	250
8:15 AM	1	0	0	0	0	0	0	0	4	18	0	0	0	26	8	0	57	262
8:30 AM	0	0	0	0	0	0	1	0	10	10	3	0	0	22	7	0	53	263
8:45 AM	0	0	0	0	0	0	3	0	17	9	0	0	0	27	14	0	70	252

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	8	0	0	0	64	76	4	0	0	112	24	0	288
Heavy Trucks	0	0	0	0	4	0	0	0	4	8	0	0	0	0	4	0	20
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: East LAM Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573222
DATE: Tue, Apr 23 2024



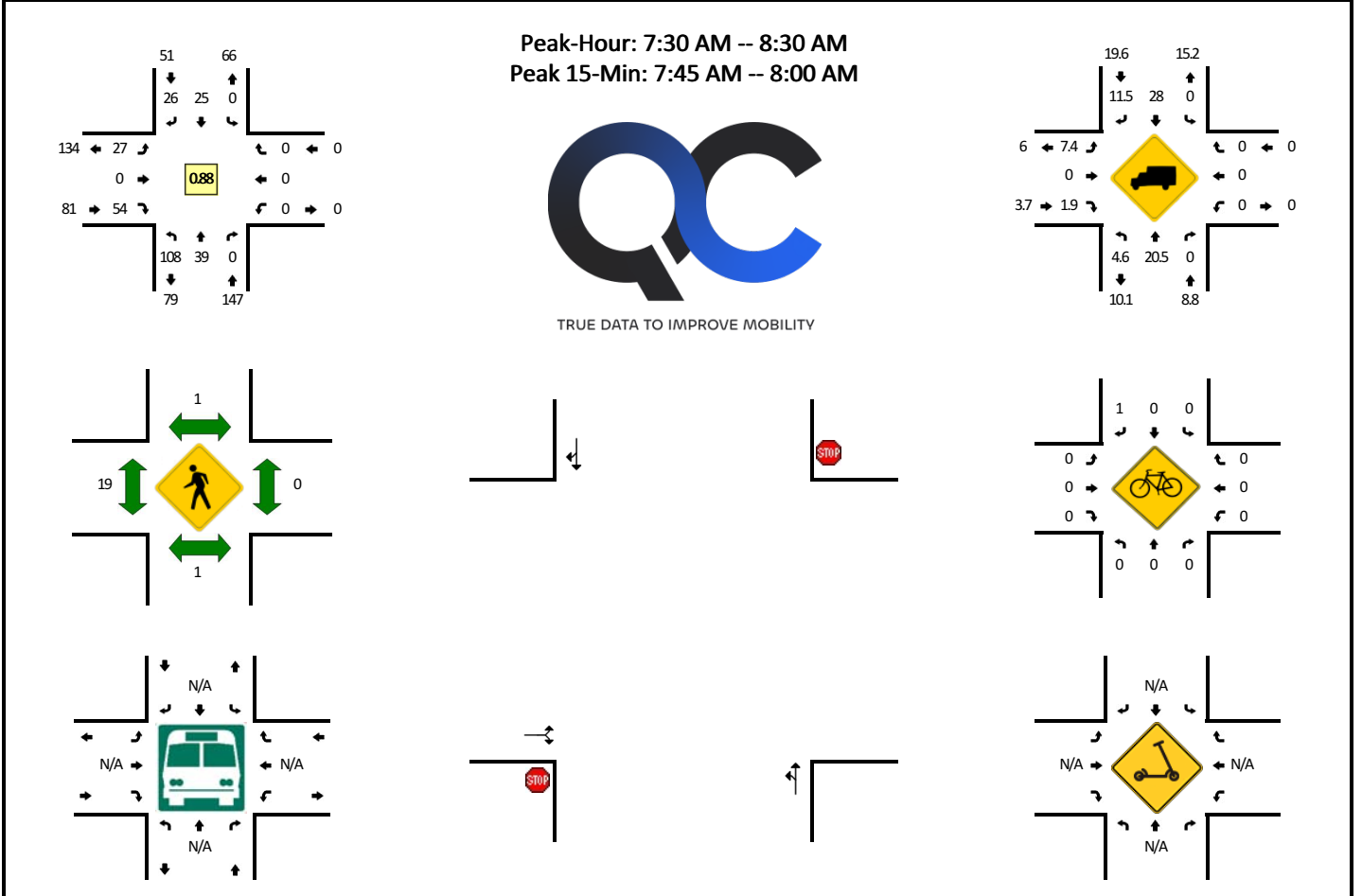
15-Min Count Period Beginning At	East LAM Access (Northbound)				East LAM Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	6	0	7	0	0	19	0	0	0	13	1	0	46	
4:15 PM	0	0	0	0	3	0	3	0	0	19	1	0	0	12	0	0	38	
4:30 PM	1	0	0	0	5	0	3	0	0	28	0	0	0	14	0	0	51	
4:45 PM	1	0	0	0	6	0	5	0	0	21	0	0	0	18	1	0	52	187
5:00 PM	3	0	0	0	12	0	13	0	0	35	0	0	0	30	0	0	93	234
5:15 PM	0	0	1	0	6	0	7	0	0	41	0	0	0	13	0	0	68	264
5:30 PM	0	0	0	0	9	0	8	0	0	37	0	0	0	12	1	0	67	280
5:45 PM	0	0	1	0	13	0	8	0	0	27	0	0	0	6	0	0	55	283

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	0	0	48	0	52	0	0	140	0	0	0	120	0	0	372
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Buses																	
Pedestrians		4				12				0				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	8	0		8
Scoters																	

Comments:

LOCATION: SW 108th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573215
DATE: Tue, Apr 23 2024

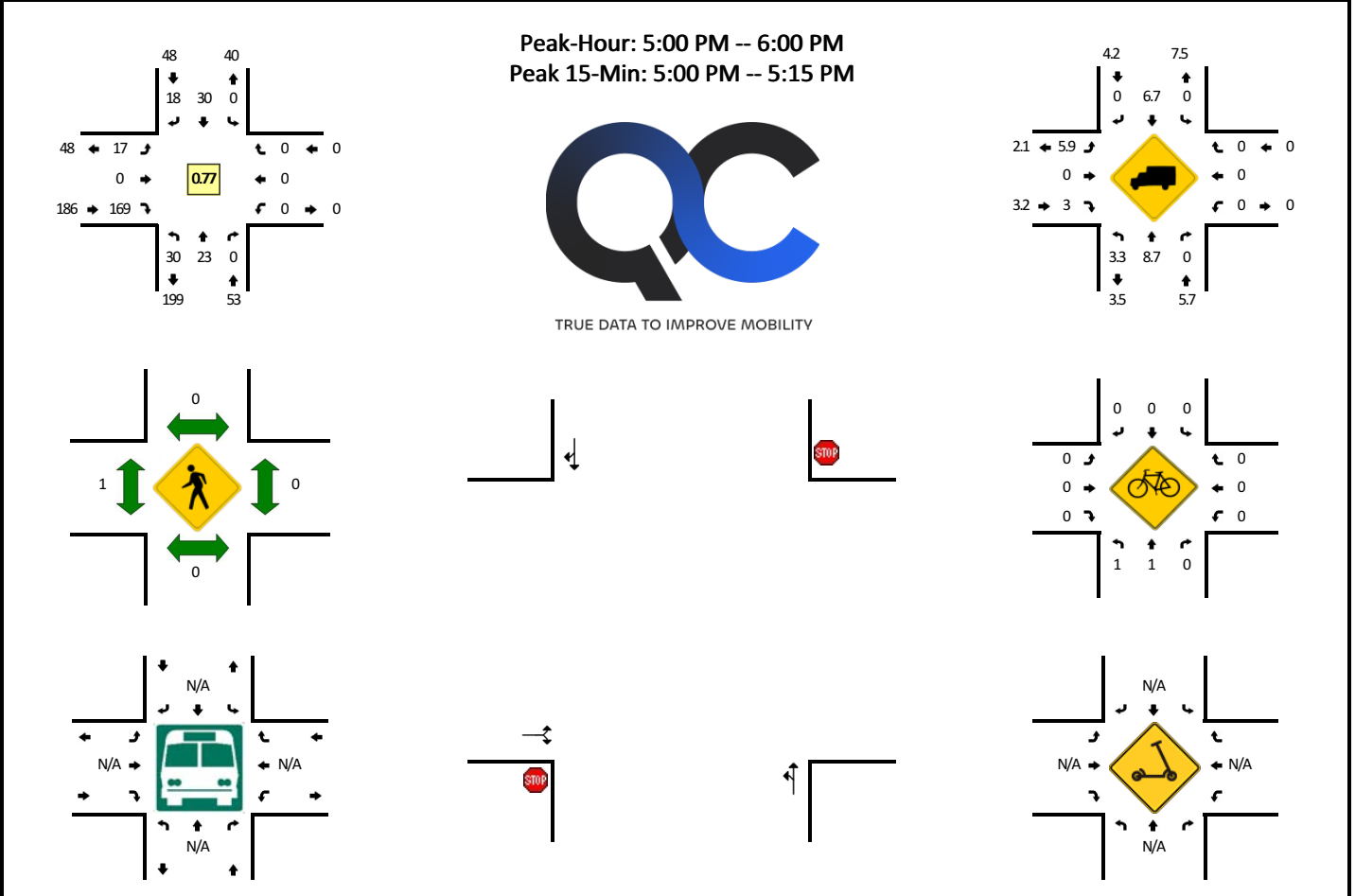


15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	23	3	0	0	0	5	4	0	6	0	12	0	0	0	0	0	53	
7:15 AM	17	9	0	0	0	6	4	0	7	0	15	0	0	0	0	0	58	
7:30 AM	24	11	0	0	0	5	3	0	2	0	17	0	0	0	0	0	62	
7:45 AM	28	10	0	0	0	4	11	0	13	0	13	0	0	0	0	0	79	252
8:00 AM	30	12	0	0	0	5	7	0	7	0	13	0	0	0	0	0	74	273
8:15 AM	26	6	0	0	0	11	5	0	5	0	11	0	0	0	0	0	64	279
8:30 AM	24	3	0	0	0	5	8	0	3	0	4	0	0	0	0	0	47	264
8:45 AM	29	7	0	0	0	4	8	0	5	0	3	0	0	0	0	0	56	241
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	112	40	0	0	0	16	44	0	52	0	52	0	0	0	0	0	316	
Heavy Trucks	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians		0				0					32			0			32	
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: SW 108th Ave -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 16573216
DATE: Tue, Apr 23 2024



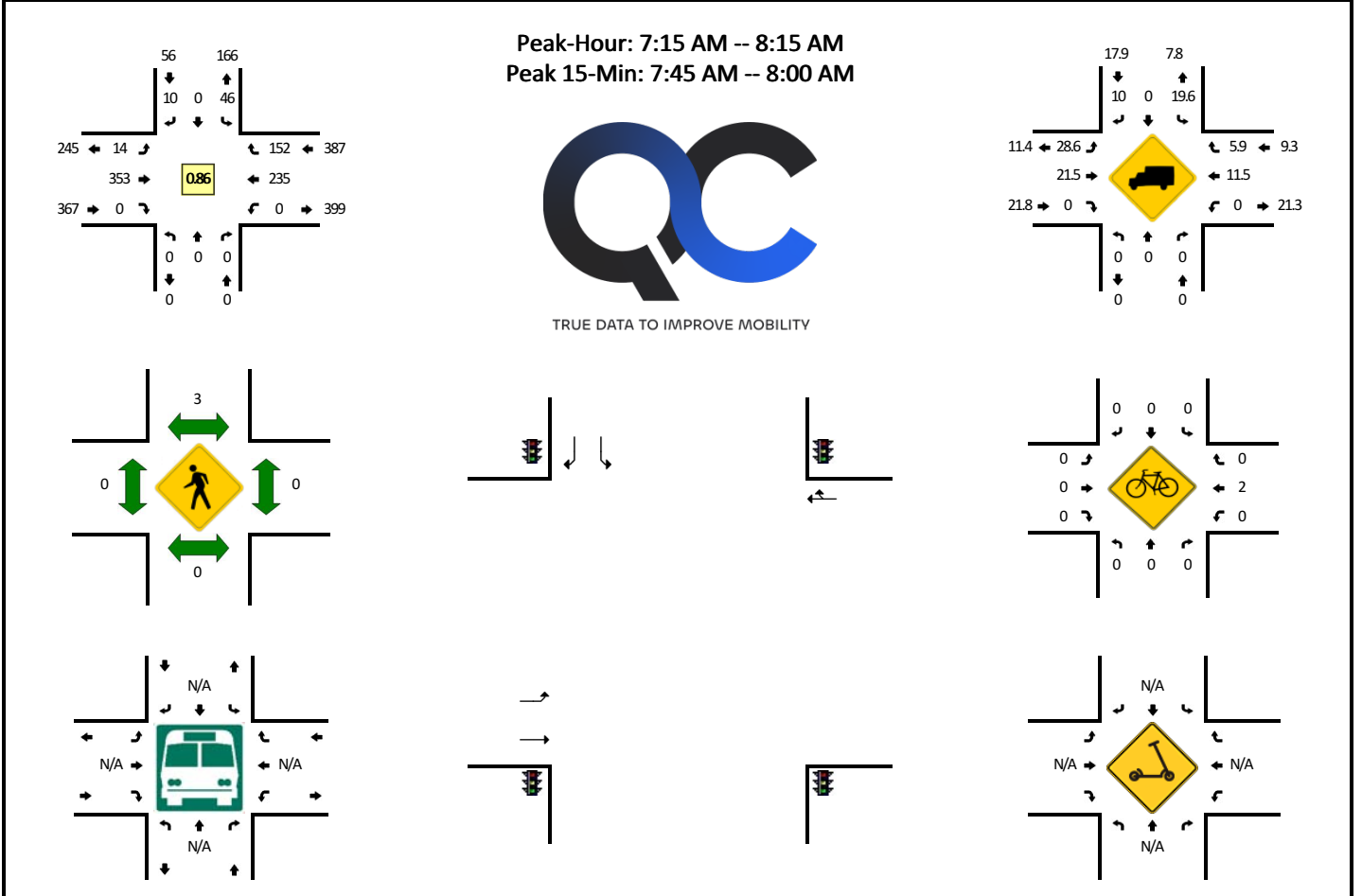
15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	5	0	0	0	14	4	0	2	0	23	0	0	0	0	0	56	
4:15 PM	8	2	0	0	0	5	2	0	2	0	21	0	0	0	0	0	40	
4:30 PM	9	8	0	0	0	6	3	0	5	0	29	0	0	0	0	0	60	
4:45 PM	14	5	0	0	0	6	4	0	3	0	23	0	0	0	0	0	55	211
5:00 PM	15	10	0	0	0	10	10	0	6	0	42	0	0	0	0	0	93	248
5:15 PM	6	5	0	0	0	9	2	0	1	0	46	0	0	0	0	0	69	277
5:30 PM	6	3	0	0	0	4	4	0	4	0	46	0	0	0	0	0	67	284
5:45 PM	3	5	0	0	0	7	2	0	6	0	35	0	0	0	0	0	58	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	60	40	0	0	0	40	40	0	24	0	168	0	0	0	0	0	372
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	8
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

LOCATION: SW 108th Ave -- SW Herman Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573217
DATE: Tue, Apr 23 2024

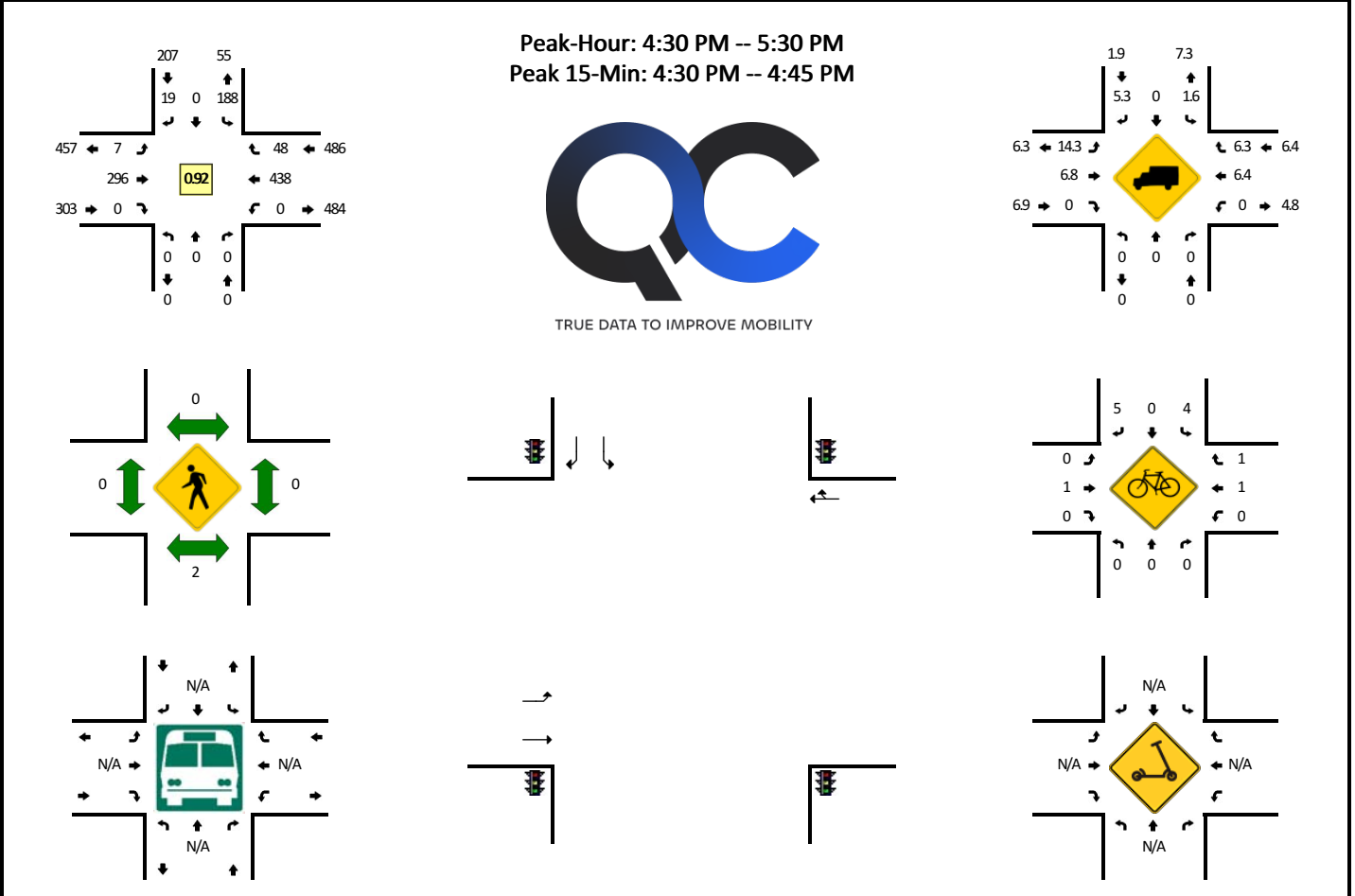


15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	13	0	2	0	4	44	0	0	0	52	28	0	143	
7:15 AM	0	0	0	0	19	0	5	0	1	87	0	0	0	59	25	0	196	
7:30 AM	0	0	0	0	14	0	3	0	6	92	0	0	0	58	35	0	208	
7:45 AM	0	0	0	0	7	0	2	0	3	97	0	0	0	76	50	0	235	782
8:00 AM	0	0	0	0	6	0	0	0	4	77	0	0	0	42	42	0	171	810
8:15 AM	0	0	0	0	11	0	3	0	1	81	0	0	0	27	40	0	163	777
8:30 AM	0	0	0	0	3	0	3	0	3	54	0	0	0	51	34	0	148	717
8:45 AM	0	0	0	0	4	0	0	0	1	60	0	0	0	46	39	0	150	632
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	28	0	8	0	12	388	0	0	0	304	200	0	940	
Heavy Trucks	0	0	0	0	0	0	0	0	0	60	0	0	0	32	8	0	100	
Buses																		
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4	
Scooters																		

Comments:

LOCATION: SW 108th Ave -- SW Herman Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16573218
DATE: Tue, Apr 23 2024

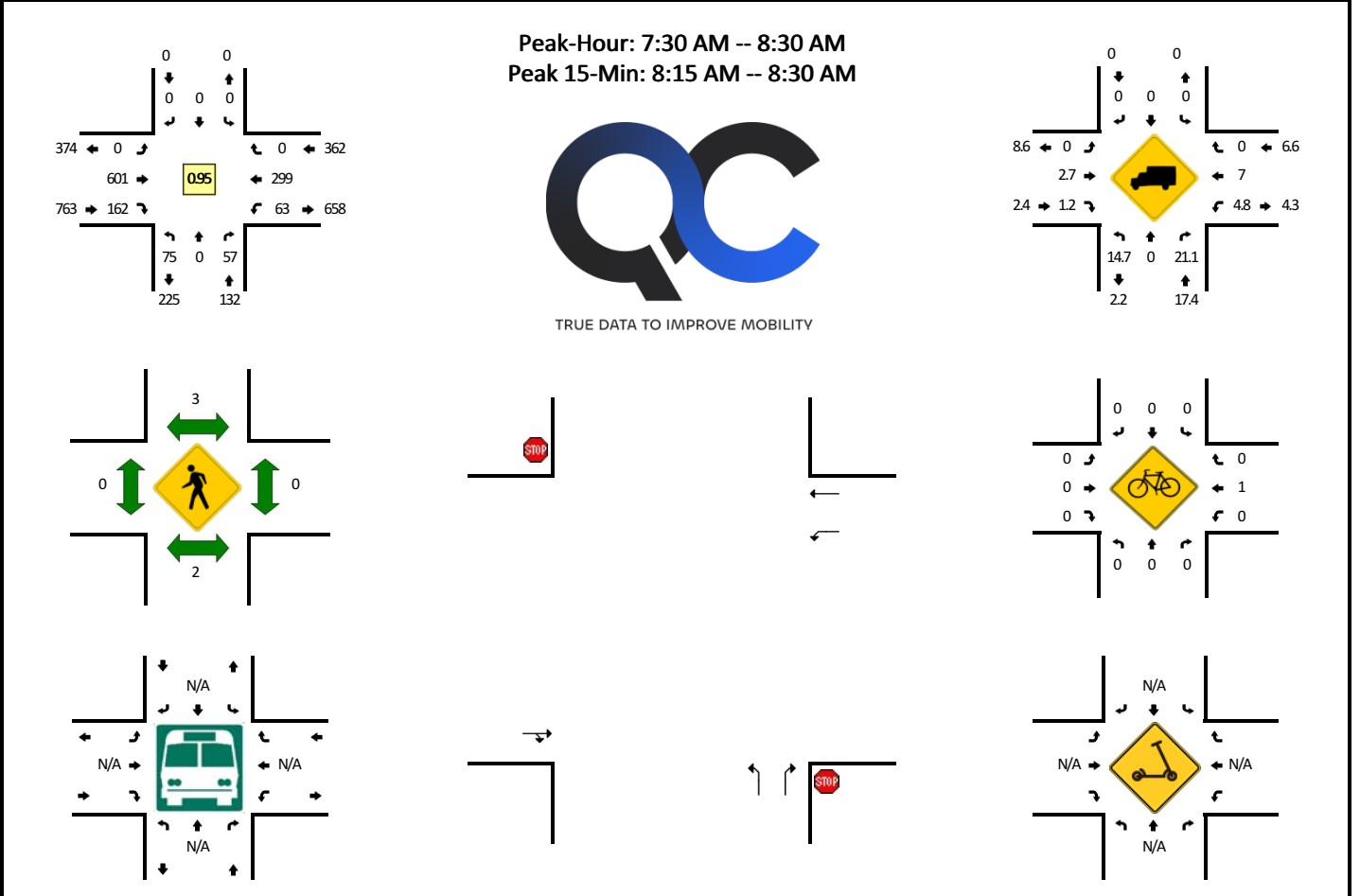


15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	40	0	5	0	2	76	0	0	0	120	12	0	255	
4:15 PM	0	0	0	0	26	0	3	0	2	78	0	0	0	121	5	0	235	
4:30 PM	0	0	0	0	38	0	4	0	4	84	0	0	0	132	10	0	272	
4:45 PM	0	0	0	0	32	0	4	0	0	63	0	0	0	101	16	0	216	978
5:00 PM	0	0	0	0	50	0	6	0	1	85	0	0	0	99	14	0	255	978
5:15 PM	0	0	0	0	68	0	5	0	2	64	0	0	0	106	8	0	253	996
5:30 PM	0	0	0	0	52	0	5	0	0	53	0	0	0	66	8	0	184	908
5:45 PM	0	0	0	0	49	0	7	0	0	45	0	0	0	46	5	0	152	844
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	152	0	16	0	16	336	0	0	0	528	40	0	1088	
Heavy Trucks	0	0	0	0	0	0	0	0	0	20	0	0	0	28	0	0	48	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4	
Scooters																		

Comments:

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

QC JOB #: 16573219
DATE: Tue, Apr 23 2024

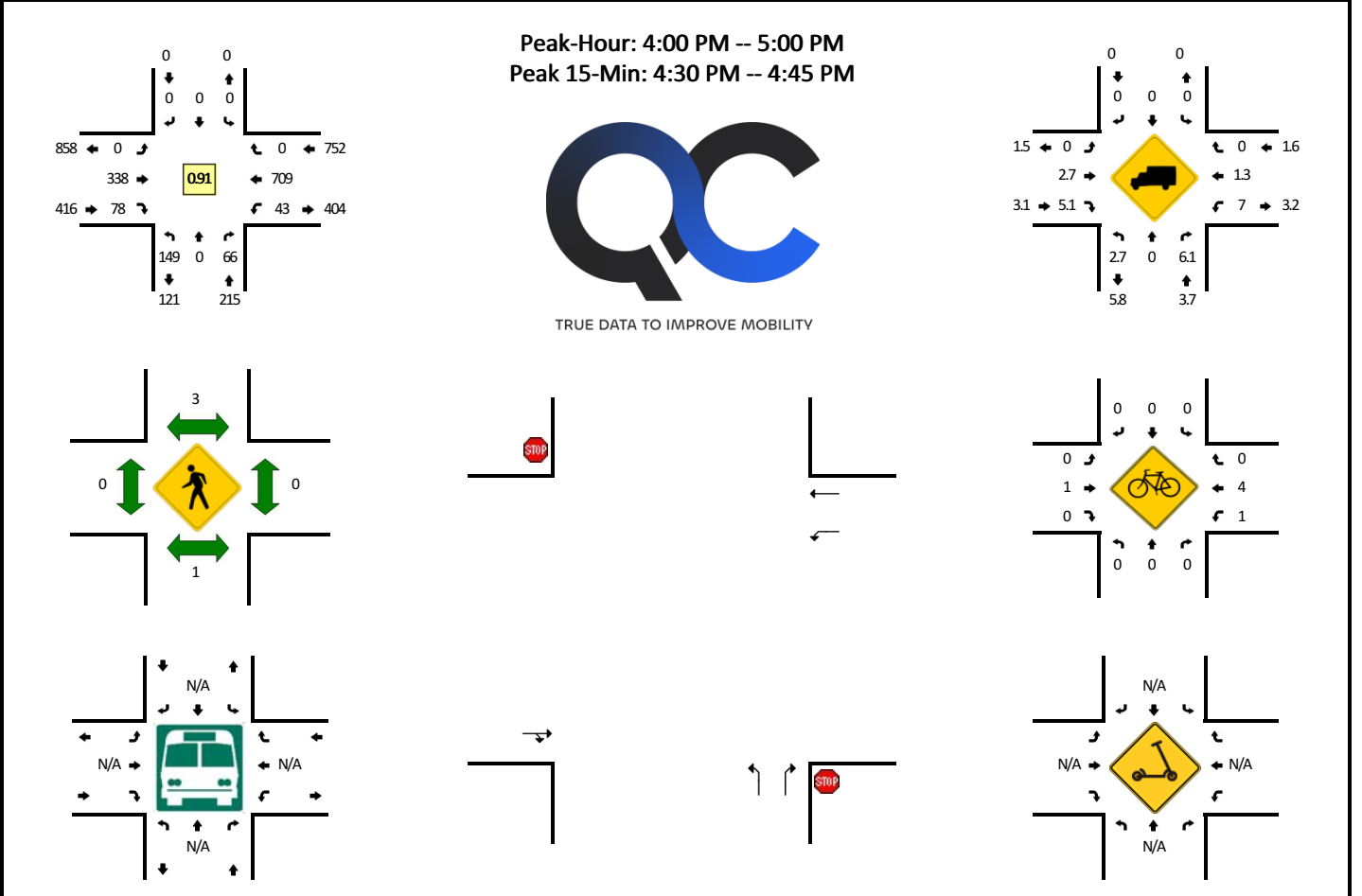


15-Min Count Period Beginning At	Teton Ave (Northbound)				Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	7	0	4	0	0	0	0	0	0	76	39	0	5	37	0	0	168		
7:15 AM	16	0	5	0	0	0	0	0	0	128	25	0	8	28	0	0	210		
7:30 AM	12	0	6	0	0	0	0	0	0	160	50	0	5	70	0	0	303		
7:45 AM	17	0	4	0	0	0	0	0	0	153	51	0	4	83	0	0	312	993	
8:00 AM	25	0	26	0	0	0	0	0	0	138	33	0	18	72	0	0	312	1137	
8:15 AM	21	0	21	0	0	0	0	0	0	150	28	0	36	74	0	0	330	1257	
8:30 AM	12	0	8	0	0	0	0	0	0	90	50	0	18	67	0	0	245	1199	
8:45 AM	22	0	8	0	0	0	0	0	0	96	25	0	7	55	0	0	213	1100	
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	84	0	84	0	0	0	0	0	0	600	112	0	144	296	0	0	1320		
Heavy Trucks	8	0	12		0	0	0		0	20	4		8	28	0		80		
Buses																			
Pedestrians		0				8				0				0			8		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scooters																			

Comments:

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

QC JOB #: 16573220
DATE: Tue, Apr 23 2024

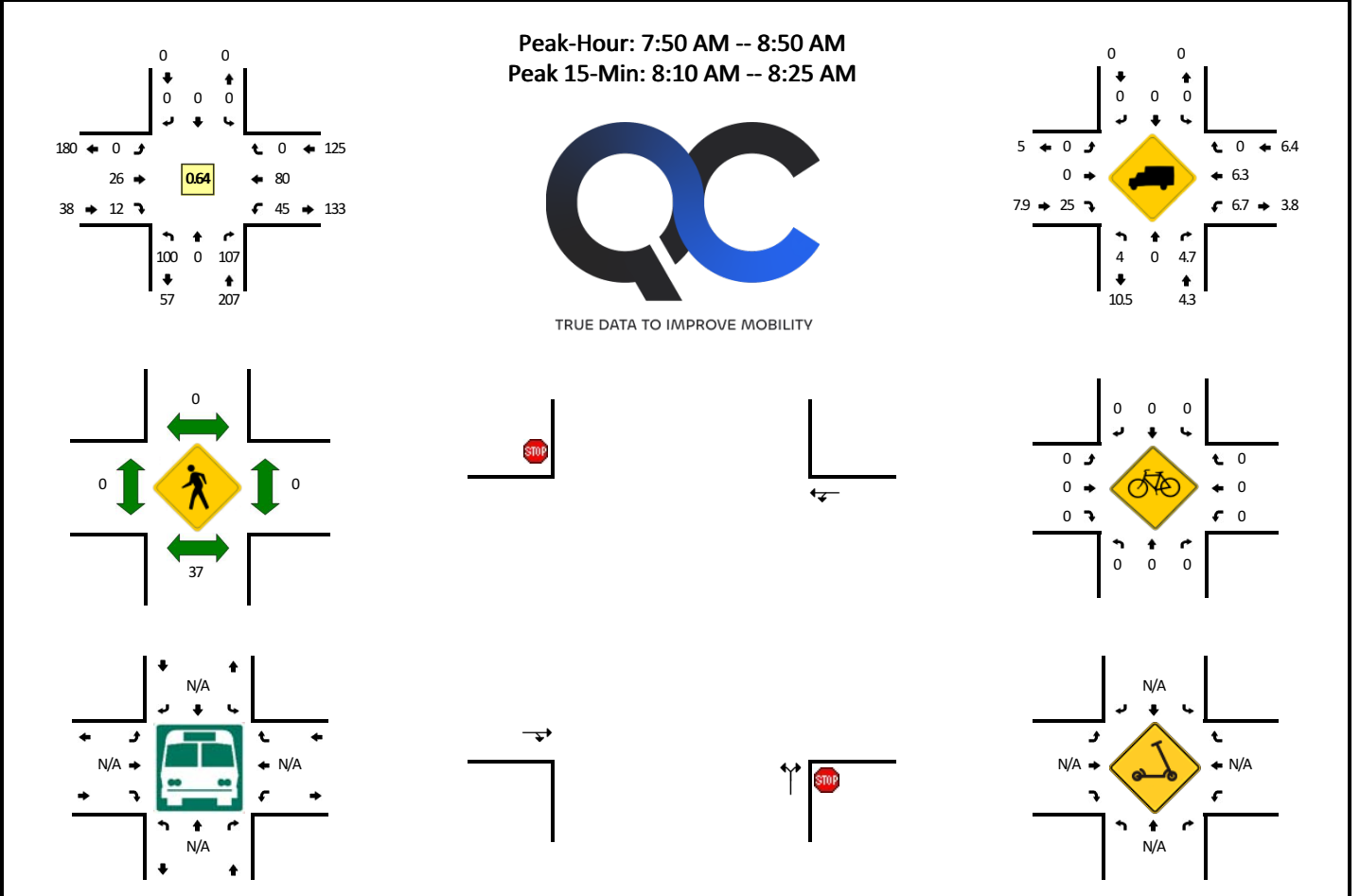


15-Min Count Period Beginning At	Teton Ave (Northbound)				Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	47	0	23	0	0	0	0	0	0	69	12	0	5	200	0	0	356		
4:15 PM	36	0	10	0	0	0	0	0	0	88	21	0	17	166	0	0	338		
4:30 PM	39	0	25	0	0	0	0	0	0	86	28	0	11	189	0	0	378		
4:45 PM	27	0	8	0	0	0	0	0	0	95	17	0	10	154	0	0	311	1383	
5:00 PM	45	0	13	0	0	0	0	0	0	74	15	0	10	182	0	0	339	1366	
5:15 PM	36	0	3	0	0	0	0	0	0	62	13	0	6	196	0	0	316	1344	
5:30 PM	24	0	7	0	0	0	0	0	0	79	21	0	2	174	0	0	307	1273	
5:45 PM	22	0	5	0	0	0	0	0	0	74	12	0	4	115	0	0	232	1194	
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	156	0	100	0	0	0	0	0	0	344	112	0	44	756	0	0	1512		
Heavy Trucks	0	0	0		0	0	0		0	16	8		4	12	0		40		
Buses																			
Pedestrians		0				4				0				0			4		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scoters																			

Comments:

LOCATION: SW 115th Ave -- SW Hazelbrook Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16651303
DATE: Tue, Jun 11 2024

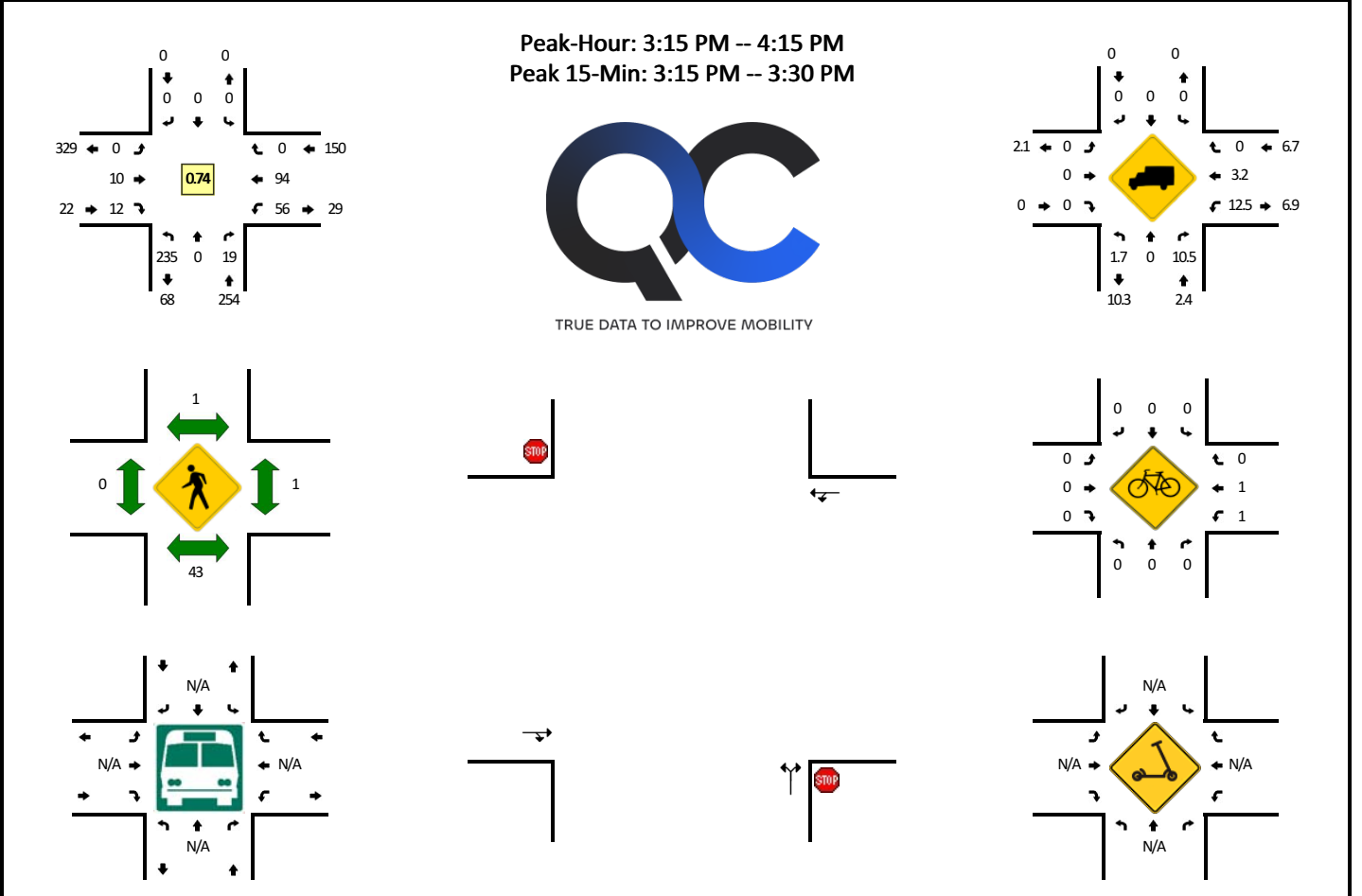


5-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	0	2	0	0	0	0	0	0	0	0	0	1	3	0	0	10	
7:05 AM	8	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	11	
7:10 AM	6	0	1	0	0	0	0	0	0	2	0	0	0	5	0	0	14	
7:15 AM	6	0	1	0	0	0	0	0	0	1	1	0	0	2	0	0	11	
7:20 AM	6	0	3	0	0	0	0	0	0	1	0	0	0	5	0	0	15	
7:25 AM	9	0	2	0	0	0	0	0	0	1	1	0	1	4	0	0	18	
7:30 AM	7	0	7	0	0	0	0	0	0	3	2	0	0	6	0	0	25	
7:35 AM	10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	
7:40 AM	7	0	1	0	0	0	0	0	0	3	1	0	0	7	0	0	19	
7:45 AM	8	0	4	0	0	0	0	0	0	3	1	0	0	3	0	0	19	
7:50 AM	9	0	6	0	0	0	0	0	0	5	1	0	0	0	0	0	21	191
7:55 AM	7	0	1	0	0	0	0	0	0	3	0	0	2	3	0	0	16	210
8:00 AM	13	0	10	0	0	0	0	0	0	0	2	0	1	3	0	0	29	238
8:05 AM	9	0	18	0	0	0	0	0	0	2	0	0	5	5	0	0	39	262
8:10 AM	5	0	11	0	0	0	0	0	0	3	2	0	8	9	0	0	38	296
8:15 AM	6	0	17	0	0	0	0	0	0	1	0	0	12	9	0	0	45	342
8:20 AM	12	0	22	0	0	0	0	0	0	4	1	0	4	18	0	0	61	351
8:25 AM	8	0	6	0	0	0	0	0	0	3	0	0	3	7	0	0	27	355
8:30 AM	8	0	6	0	0	0	0	0	0	2	2	0	3	8	0	0	29	356
8:35 AM	2	0	2	0	0	0	0	0	0	0	2	0	2	5	0	0	13	362
8:40 AM	9	0	3	0	0	0	0	0	0	2	2	0	1	8	0	0	25	370
8:45 AM	12	0	5	0	0	0	0	0	0	1	0	0	4	5	0	0	27	358
8:50 AM	4	0	1	0	0	0	0	0	0	0	1	0	0	3	0	0	9	360
8:55 AM	12	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	18	
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	92	0	200	0	0	0	0	0	0	32	12	0	96	144	0	0	576	
Heavy Trucks	4	0	16	0	0	0	0	0	0	0	4	0	12	8	0	0	44	
Buses		100				0				0				0			100	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles																		
Scoters																		

Comments:

LOCATION: SW 115th Ave -- SW Hazelbrook Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16651304
DATE: Tue, Jun 11 2024



5-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
2:00 PM	12	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	16	
2:05 PM	10	0	1	0	0	0	0	0	0	0	2	2	0	1	2	0	0	18	
2:10 PM	11	0	1	0	0	0	0	0	0	0	2	0	0	0	7	0	0	21	
2:15 PM	9	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	11	
2:20 PM	12	0	1	0	0	0	0	0	0	0	0	0	0	1	4	0	0	18	
2:25 PM	10	0	4	0	0	0	0	0	0	0	1	4	0	1	5	0	0	25	
2:30 PM	14	0	1	0	0	0	0	0	0	0	1	0	0	0	3	0	0	19	
2:35 PM	13	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	19	
2:40 PM	19	0	2	0	0	0	0	0	0	0	2	1	0	0	0	0	0	24	
2:45 PM	15	0	6	0	0	0	0	0	0	0	3	0	0	1	4	0	0	29	
2:50 PM	10	0	8	0	0	0	0	0	0	0	2	0	0	0	4	0	0	24	
2:55 PM	18	0	5	0	0	0	0	0	0	0	0	1	0	1	3	0	0	28	252
3:00 PM	19	0	10	0	0	0	0	0	0	0	2	1	0	1	2	0	0	35	271
3:05 PM	10	0	8	0	0	0	0	0	0	0	1	0	0	1	5	0	0	25	278
3:10 PM	13	0	9	0	0	0	0	0	0	0	4	1	0	6	4	0	0	37	294
3:15 PM	5	0	3	0	0	0	0	0	0	0	1	0	0	23	22	0	0	54	337
3:20 PM	18	0	6	0	0	0	0	0	0	0	2	0	0	12	16	0	0	54	373
3:25 PM	19	0	1	0	0	0	0	0	0	0	0	3	0	3	9	0	0	35	383
3:30 PM	21	0	0	0	0	0	0	0	0	0	0	2	0	4	6	0	0	33	397
3:35 PM	19	0	0	0	0	0	0	0	0	0	1	1	0	2	3	0	0	26	404
3:40 PM	19	0	2	0	0	0	0	0	0	0	0	0	0	1	4	0	0	26	406
3:45 PM	25	0	2	0	0	0	0	0	0	0	2	1	0	3	5	0	0	38	415
3:50 PM	20	0	1	0	0	0	0	0	0	0	3	1	0	4	5	0	0	34	425
3:55 PM	16	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	24	421
4:00 PM	25	0	0	0	0	0	0	0	0	0	1	1	0	1	6	0	0	34	420
4:05 PM	17	0	3	0	0	0	0	0	0	0	0	1	0	1	5	0	0	27	422
4:10 PM	31	0	1	0	0	0	0	0	0	0	0	2	0	2	5	0	0	41	426
4:15 PM	21	0	0	0	0	0	0	0	0	0	2	1	0	0	2	0	0	26	398
4:20 PM	18	0	1	0	0	0	0	0	0	0	0	1	0	2	2	0	0	24	368
4:25 PM	17	0	2	0	0	0	0	0	0	0	1	0	0	2	7	0	0	29	362
4:30 PM	20	0	0	0	0	0	0	0	0	0	1	1	0	0	5	0	0	27	356
4:35 PM	32	0	0	0	0	0	0	0	0	0	2	0	0	0	12	0	0	46	376
4:40 PM	23	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	33	383
4:45 PM	19	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	22	367
4:50 PM	19	0	0	0	0	0	0	0	0	0	1	1	0	2	10	0	0	33	366
4:55 PM	13	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	17	359
5:00 PM	21	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	26	351
5:05 PM	23	0	3	0	0	0	0	0	0	0	0	1	0	0	5	0	0	32	356

5-Min Count Period Beginning At	SW 115th Ave (Northbound)				SW 115th Ave (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:10 PM	19	0	0	0	0	0	0	0	0	3	0	0	0	8	0	0	30	345
5:15 PM	21	0	0	0	0	0	0	0	0	1	0	0	1	4	0	0	27	346
5:20 PM	22	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	25	347
5:25 PM	18	0	1	0	0	0	0	0	0	1	1	0	3	2	0	0	26	344
5:30 PM	27	0	0	0	0	0	0	0	0	0	1	0	1	3	0	0	32	349
5:35 PM	22	0	1	0	0	0	0	0	0	0	1	0	0	4	0	0	28	331
5:40 PM	18	0	2	0	0	0	0	0	0	2	1	0	0	4	0	0	27	325
5:45 PM	18	0	1	0	0	0	0	0	0	5	0	0	1	3	0	0	28	331
5:50 PM	16	0	2	0	0	0	0	0	0	1	1	0	0	2	0	0	22	320
5:55 PM	15	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	18	321
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	168	0	40	0	0	0	0	0	0	12	12	0	152	188	0	0	572	
Heavy Trucks	0	0	0		0	0	0		0	0	0		28	4	0		32	
Buses																		
Pedestrians		164				0				0				0			164	
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4	
Scoters																		

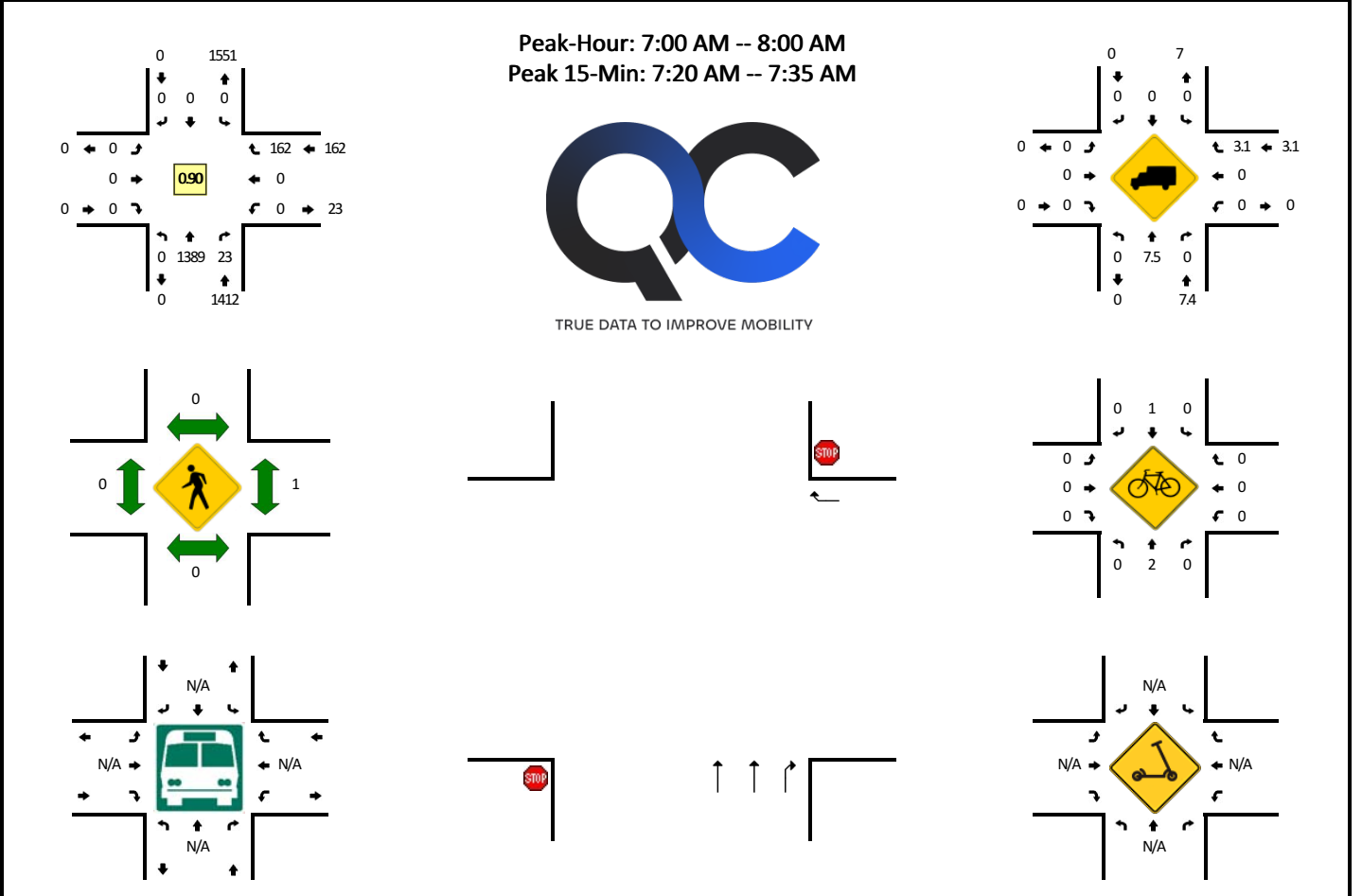
Comments:

Report generated on 6/17/2024 10:33 AM

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

LOCATION: SW Pacific Hwy -- SW Hazelbrook Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16651301
DATE: Tue, Jun 11 2024

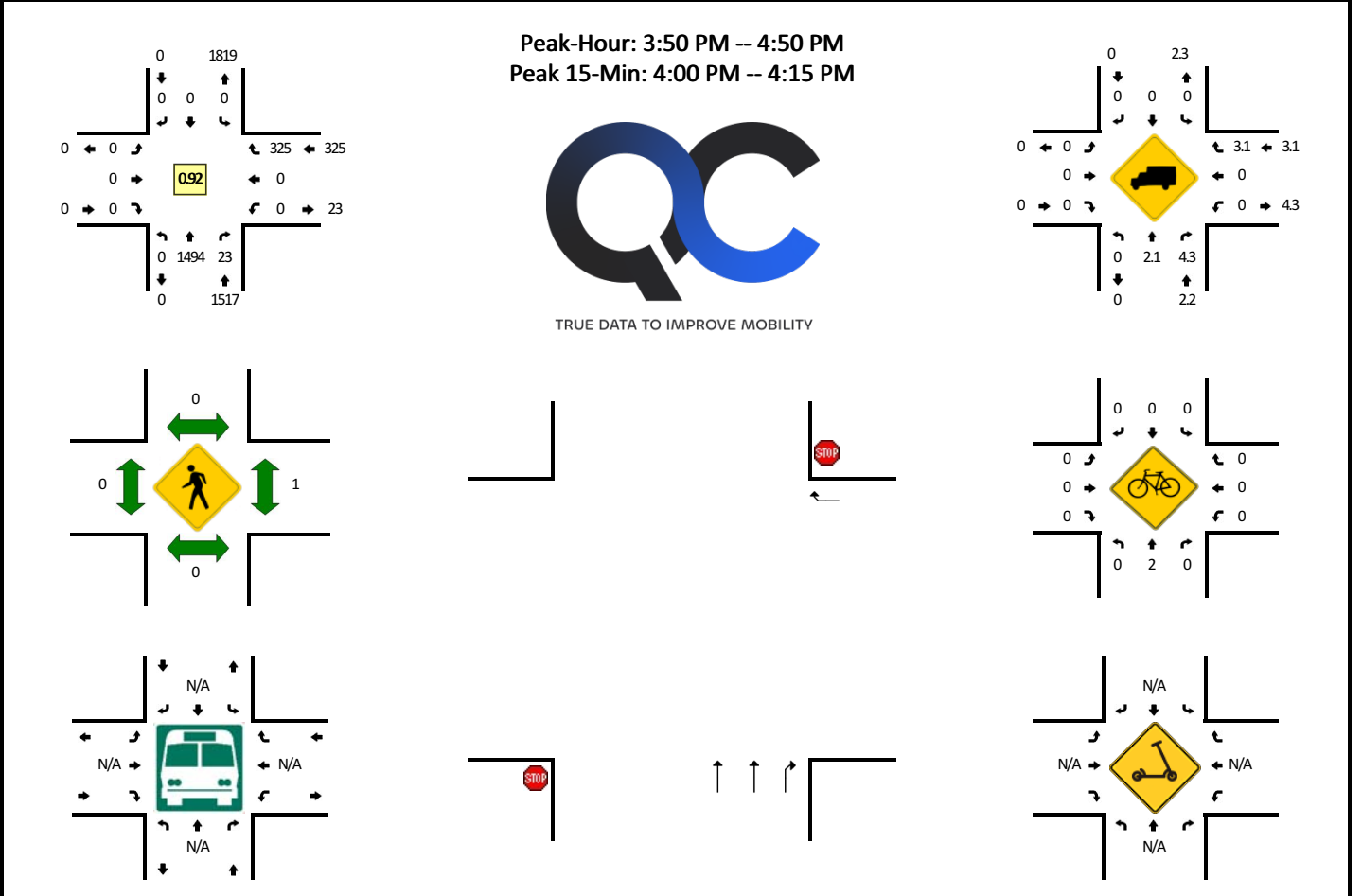


5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	128	0	0	0	0	0	0	0	0	0	0	0	0	11	0	139	
7:05 AM	0	141	0	0	0	0	0	0	0	0	0	0	0	0	12	0	153	
7:10 AM	0	90	2	0	0	0	0	0	0	0	0	0	0	0	13	0	105	
7:15 AM	0	137	1	0	0	0	0	0	0	0	0	0	0	0	8	0	146	
7:20 AM	0	129	1	0	0	0	0	0	0	0	0	0	0	0	13	0	143	
7:25 AM	0	130	2	0	0	0	0	0	0	0	0	0	0	0	12	0	144	
7:30 AM	0	131	2	0	0	0	0	0	0	0	0	0	0	0	19	0	152	
7:35 AM	0	102	0	0	0	0	0	0	0	0	0	0	0	0	18	0	120	
7:40 AM	0	101	5	0	0	0	0	0	0	0	0	0	0	0	16	0	122	
7:45 AM	0	107	2	0	0	0	0	0	0	0	0	0	0	0	12	0	121	
7:50 AM	0	96	6	0	0	0	0	0	0	0	0	0	0	0	13	0	115	
7:55 AM	0	97	2	0	0	0	0	0	0	0	0	0	0	0	15	0	114	1574
8:00 AM	0	82	4	0	0	0	0	0	0	0	0	0	0	0	20	0	106	1541
8:05 AM	0	104	1	0	0	0	0	0	0	0	0	0	0	0	11	0	116	1504
8:10 AM	0	99	4	0	0	0	0	0	0	0	0	0	0	0	16	0	119	1518
8:15 AM	0	114	3	0	0	0	0	0	0	0	0	0	0	0	17	0	134	1506
8:20 AM	0	107	4	0	0	0	0	0	0	0	0	0	0	0	27	0	138	1501
8:25 AM	0	62	3	0	0	0	0	0	0	0	0	0	0	0	21	0	86	1443
8:30 AM	0	82	2	0	0	0	0	0	0	0	0	0	0	0	17	0	101	1392
8:35 AM	0	101	0	0	0	0	0	0	0	0	0	0	0	0	10	0	111	1383
8:40 AM	0	105	2	0	0	0	0	0	0	0	0	0	0	0	14	0	121	1382
8:45 AM	0	116	0	0	0	0	0	0	0	0	0	0	0	0	19	0	135	1396
8:50 AM	0	80	1	0	0	0	0	0	0	0	0	0	0	0	9	0	90	1371
8:55 AM	0	118	3	0	0	0	0	0	0	0	0	0	0	0	14	0	135	1392
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	1560	20	0	0	0	0	0	0	0	0	0	0	0	176	0	1756	
Heavy Trucks	0	100	0	0	0	0	0	0	0	0	0	0	0	0	12	0	112	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scoters																		

Comments:

LOCATION: SW Pacific Hwy -- SW Hazelbrook Rd
CITY/STATE: Tualatin, OR

QC JOB #: 16651302
DATE: Tue, Jun 11 2024



5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	98	1	0	0	0	0	0	0	0	0	0	0	0	14	0	113	
2:05 PM	0	92	2	0	0	0	0	0	0	0	0	0	0	0	12	0	106	
2:10 PM	0	115	1	0	0	0	0	0	0	0	0	0	0	0	18	0	134	
2:15 PM	0	94	0	0	0	0	0	0	0	0	0	0	0	0	10	0	104	
2:20 PM	0	110	1	0	0	0	0	0	0	0	0	0	0	0	13	0	124	
2:25 PM	0	99	2	0	0	0	0	0	0	0	0	0	0	0	19	0	120	
2:30 PM	0	101	3	0	0	0	0	0	0	0	0	0	0	0	18	0	122	
2:35 PM	0	107	0	0	0	0	0	0	0	0	0	0	0	0	16	0	123	
2:40 PM	0	169	5	0	0	0	0	0	0	0	0	0	0	0	20	0	194	
2:45 PM	0	120	2	0	0	0	0	0	0	0	0	0	0	0	18	0	140	
2:50 PM	0	74	2	0	0	0	0	0	0	0	0	0	0	0	15	0	91	
2:55 PM	0	110	2	0	0	0	0	0	0	0	0	0	0	0	19	0	131	1502
3:00 PM	0	95	1	0	0	0	0	0	0	0	0	0	0	0	21	0	117	1506
3:05 PM	0	92	2	0	0	0	0	0	0	0	0	0	0	0	13	0	107	1507
3:10 PM	0	130	4	0	0	0	0	0	0	0	0	0	0	0	19	0	153	1526
3:15 PM	0	107	1	0	0	0	0	0	0	0	0	0	0	0	22	0	130	1552
3:20 PM	0	106	2	0	0	0	0	0	0	0	0	0	0	0	29	0	137	1565
3:25 PM	0	104	1	0	0	0	0	0	0	0	0	0	0	0	32	0	137	1582
3:30 PM	0	109	1	0	0	0	0	0	0	0	0	0	0	0	25	0	135	1595
3:35 PM	0	125	2	0	0	0	0	0	0	0	0	0	0	0	28	0	155	1627
3:40 PM	0	126	1	0	0	0	0	0	0	0	0	0	0	0	28	0	155	1588
3:45 PM	0	122	3	0	0	0	0	0	0	0	0	0	0	0	24	0	149	1597
3:50 PM	0	101	1	0	0	0	0	0	0	0	0	0	0	0	26	0	128	1634
3:55 PM	0	113	0	0	0	0	0	0	0	0	0	0	0	0	26	0	139	1642
4:00 PM	0	142	2	0	0	0	0	0	0	0	0	0	0	0	25	0	169	1694
4:05 PM	0	132	1	0	0	0	0	0	0	0	0	0	0	0	29	0	162	1749
4:10 PM	0	132	3	0	0	0	0	0	0	0	0	0	0	0	33	0	168	1764
4:15 PM	0	129	3	0	0	0	0	0	0	0	0	0	0	0	24	0	156	1790
4:20 PM	0	131	1	0	0	0	0	0	0	0	0	0	0	0	19	0	151	1804
4:25 PM	0	113	1	0	0	0	0	0	0	0	0	0	0	0	26	0	140	1807
4:30 PM	0	105	3	0	0	0	0	0	0	0	0	0	0	0	24	0	132	1804
4:35 PM	0	136	2	0	0	0	0	0	0	0	0	0	0	0	36	0	174	1823
4:40 PM	0	133	3	0	0	0	0	0	0	0	0	0	0	0	35	0	171	1839
4:45 PM	0	127	3	0	0	0	0	0	0	0	0	0	0	0	22	0	152	1842
4:50 PM	0	89	2	0	0	0	0	0	0	0	0	0	0	0	23	0	114	1828
4:55 PM	0	124	0	0	0	0	0	0	0	0	0	0	0	0	23	0	147	1836
5:00 PM	0	119	2	0	0	0	0	0	0	0	0	0	0	0	24	0	145	1812
5:05 PM	0	144	2	0	0	0	0	0	0	0	0	0	0	0	25	0	171	1821

5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Hazelbrook Rd (Eastbound)				SW Hazelbrook Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:10 PM	0	144	4	0	0	0	0	0	0	0	0	0	0	0	31	0	179	1832
5:15 PM	0	104	2	0	0	0	0	0	0	0	0	0	0	0	20	0	126	1802
5:20 PM	0	118	1	0	0	0	0	0	0	0	0	0	0	0	26	0	145	1796
5:25 PM	0	103	2	0	0	0	0	0	0	0	0	0	0	0	22	0	127	1783
5:30 PM	0	111	1	0	0	0	0	0	0	0	0	0	0	0	25	0	137	1788
5:35 PM	0	113	1	0	0	0	0	0	0	0	0	0	0	0	26	0	140	1754
5:40 PM	0	102	2	0	0	0	0	0	0	0	0	0	0	0	25	0	129	1712
5:45 PM	0	129	6	0	0	0	0	0	0	0	0	0	0	0	16	0	151	1711
5:50 PM	0	79	1	0	0	0	0	0	0	0	0	0	0	0	25	0	105	1702
5:55 PM	0	127	0	0	0	0	0	0	0	0	0	0	0	0	16	0	143	1698
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	1624	24	0	0	0	0	0	0	0	0	0	0	0	348	0	1996	
Heavy Trucks	0	32	0		0	0	0		0	0	0		0	0	8		40	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

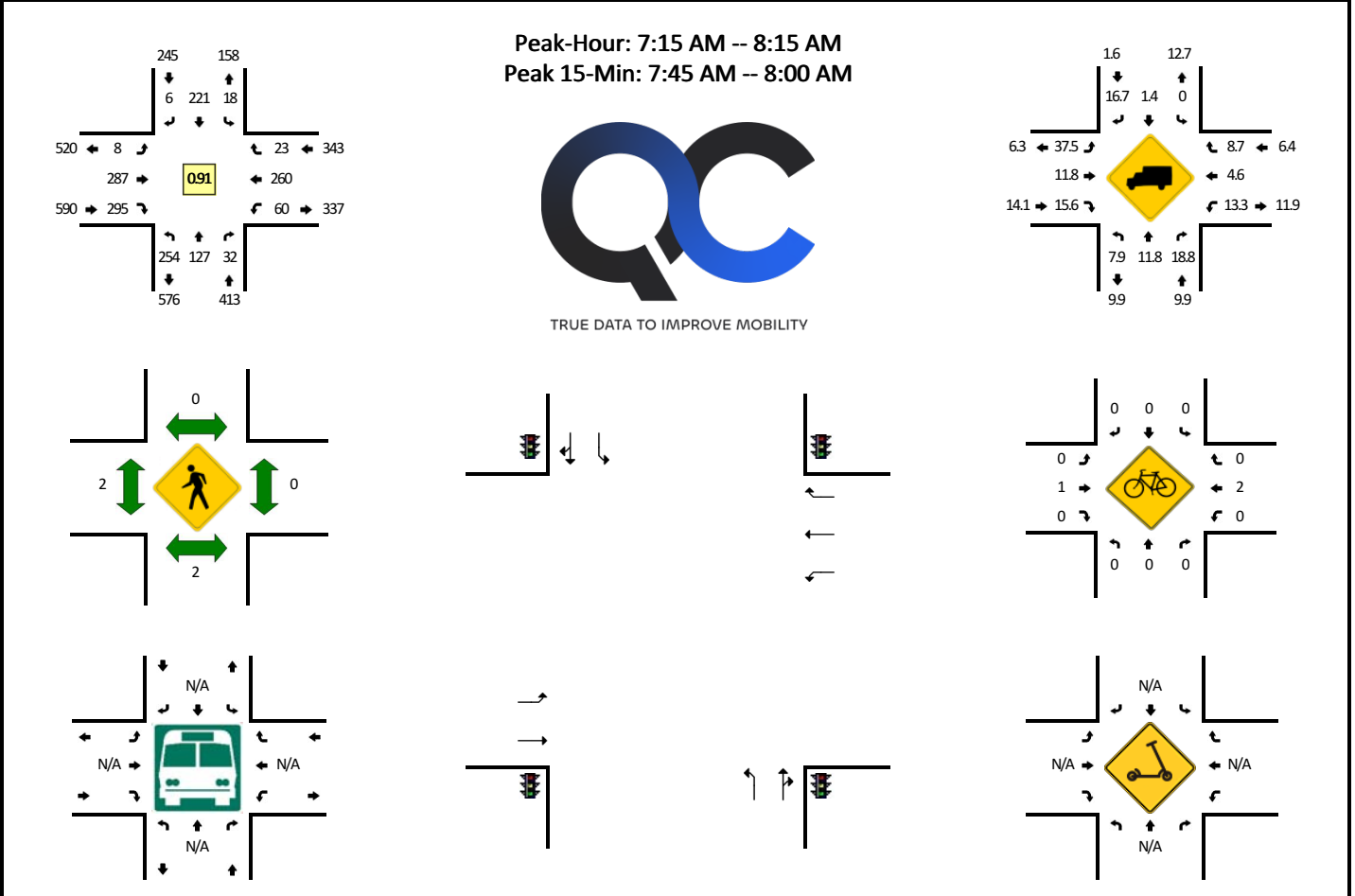
Comments:

Report generated on 6/17/2024 10:33 AM

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

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

QC JOB #: 14768946
DATE: Tue, Sep 11 2018

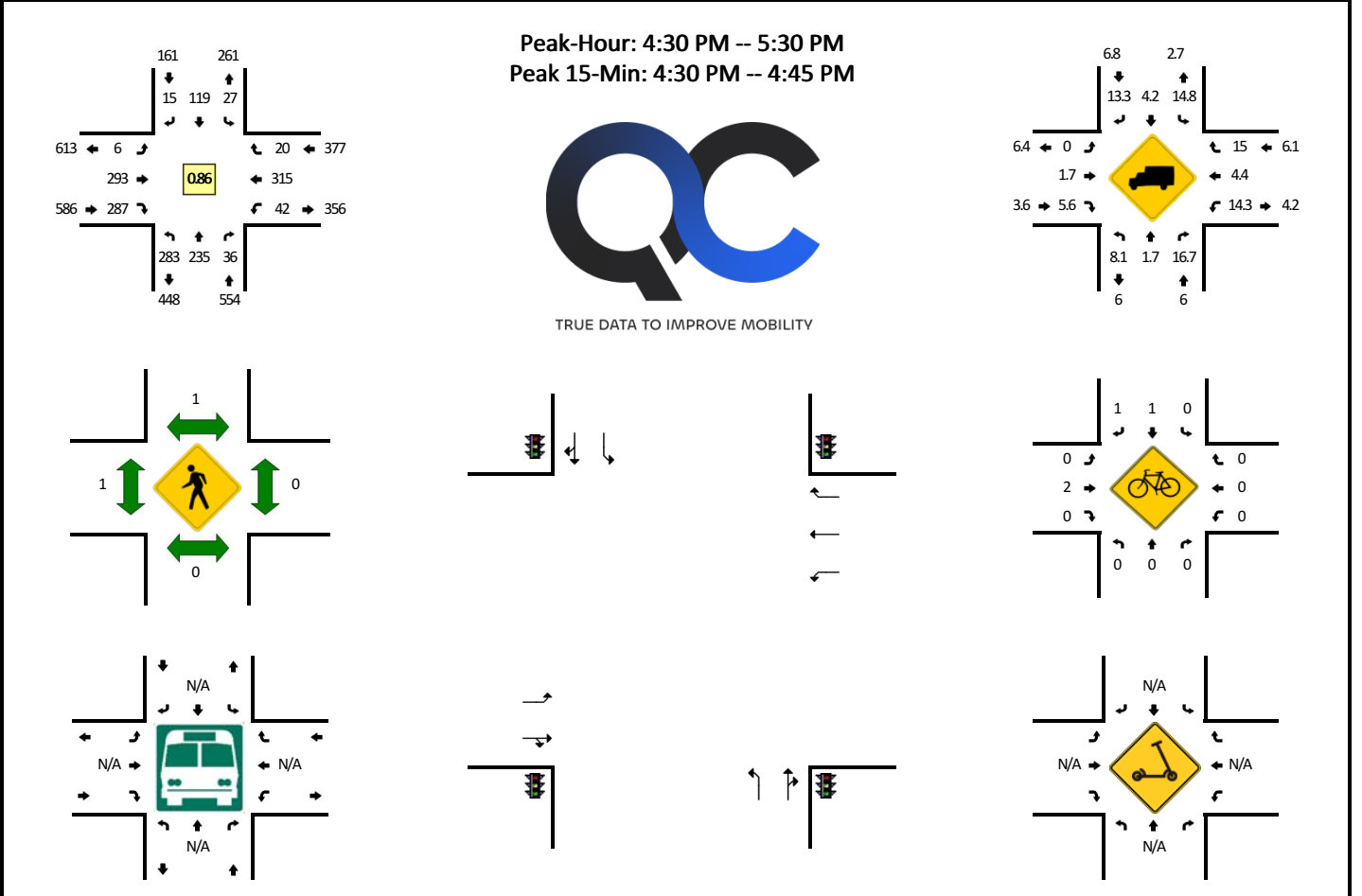


15-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	72	16	4	0	3	38	0	0	1	55	53	0	4	58	1	0	305	
7:15 AM	54	29	6	0	4	38	0	0	2	68	71	0	8	71	3	0	354	
7:30 AM	61	25	10	0	5	68	0	0	2	75	75	0	9	62	2	0	394	
7:45 AM	65	38	8	0	5	67	3	0	2	73	80	0	23	62	10	0	436	1489
8:00 AM	74	35	8	0	4	48	3	0	2	71	69	0	20	65	8	0	407	1591
8:15 AM	56	45	3	0	1	34	2	0	2	66	54	0	10	53	5	0	331	1568
8:30 AM	65	66	13	0	2	30	2	0	0	51	17	0	5	57	1	0	309	1483
8:45 AM	59	42	9	0	8	41	0	0	2	47	23	0	10	59	3	0	303	1350
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	260	152	32	0	20	268	12	0	8	292	320	0	92	248	40	0	1744	
Heavy Trucks	12	0	8		0	4	4		0	28	40		4	20	0		120	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

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

QC JOB #: 14768932
DATE: Thu, Aug 16 2018



15-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	70	56	7	0	7	32	3	0	3	87	63	0	5	64	7	0	404	
4:15 PM	59	41	13	0	1	13	2	0	1	52	60	0	9	71	1	0	323	
4:30 PM	78	56	13	0	3	32	5	0	3	95	77	0	16	101	9	0	488	
4:45 PM	68	62	12	0	8	38	4	0	2	53	58	0	10	83	2	0	400	1615
5:00 PM	88	64	6	0	9	28	5	0	0	77	73	0	10	63	4	0	427	1638
5:15 PM	49	53	5	0	7	21	1	0	1	68	79	0	6	68	5	0	363	1678
5:30 PM	44	41	9	0	4	21	6	0	2	68	54	0	8	59	0	0	316	1506
5:45 PM	30	45	6	0	2	25	1	0	0	51	62	0	9	54	5	0	290	1396
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	312	224	52	0	12	128	20	0	12	380	308	0	64	404	36	0	1952	
Heavy Trucks	24	12	12		8	8	4		0	4	8		8	20	4		112	
Buses																		
Pedestrians		0				4				4				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Existing Trip Generation							
Site Driveway	Veh Type	AM:	8:00 AM	9:00 AM	PM:	4:45 PM	5:45 PM
		enter	exit	total	enter	exit	total
West	PC	211	16	227	24	212	236
	trucks	4	3	7	1	2	3
	total	215	19	234	25	214	239
Center	PC	43	5	48	18	53	71
	trucks	1	0	1	0	0	0
	total	44	5	49	18	53	71
East	PC	78	3	81	2	66	68
	trucks	4	3	7	0	0	0
	total	82	6	88	2	66	68
Total	PC	332	24	356	44	331	375
	trucks	9	6	15	1	2	3
	total	341	30	371	45	333	378



APPENDIX E.
**SEASONAL
ADJUSTMENT DATA**

SEASONAL TREND TABLE (Updated: 11/08/2023)																									Seasonal Trend Peak Period Factor
TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	
INTERSTATE URBANIZED	1.0869	1.1041	1.0688	1.0335	1.0182	1.0028	0.9995	0.9962	0.9901	0.9840	0.9641	0.9443	0.9502	0.9562	0.9510	0.9458	0.9575	0.9692	0.9791	0.9891	1.0107	1.0324	1.0532	1.0739	0.9443
INTERSTATE NONURBANIZED	1.2459	1.2915	1.2286	1.1657	1.0907	1.0158	1.0059	0.9960	0.9728	0.9496	0.9128	0.8760	0.8650	0.8540	0.8612	0.8684	0.8905	0.9126	0.9488	0.9850	1.0336	1.0822	1.1717	1.2612	0.8540
COMMUTER	1.0905	1.0986	1.0636	1.0285	1.0162	1.0038	0.9959	0.9879	0.9814	0.9749	0.9631	0.9512	0.9614	0.9717	0.9608	0.9500	0.9548	0.9595	0.9634	0.9673	1.0090	1.0507	1.0733	1.0958	0.9500
COASTAL DESTINATION	1.2064	1.1715	1.1234	1.0753	1.0545	1.0337	1.0372	1.0407	1.0216	1.0024	0.9586	0.9147	0.8760	0.8372	0.8371	0.8370	0.8678	0.8985	0.9578	1.0170	1.0730	1.1290	1.1823	1.2357	0.8370
COASTAL DESTINATION ROUTE	1.3937	1.2897	1.2245	1.1594	1.1247	1.0901	1.0911	1.0921	1.0516	1.0111	0.9493	0.8875	0.8172	0.7469	0.7455	0.7440	0.7916	0.8391	0.9274	1.0158	1.1126	1.2094	1.3193	1.4291	0.7440
AGRICULTURE	1.4537	1.4624	1.3705	1.2786	1.2139	1.1492	1.1207	1.0923	1.0075	0.9226	0.8742	0.8258	0.8348	0.8439	0.8422	0.8405	0.7976	0.7547	0.8073	0.8598	1.0041	1.1484	1.3339	1.5194	0.7547
RECREATIONAL SUMMER	1.6049	1.5814	1.4924	1.4034	1.3208	1.2382	1.2380	1.2377	1.0939	0.9500	0.8669	0.7839	0.7392	0.6945	0.7065	0.7185	0.7404	0.7624	0.8468	0.9311	1.1270	1.3230	1.5054	1.6879	0.6945
RECREATIONAL SUMMER WINTER	1.0075	0.9570	0.9184	0.8799	0.9701	1.0603	1.0675	1.0747	1.0843	1.0939	1.0045	0.9151	0.8244	0.7336	0.7795	0.8254	0.9368	1.0482	1.1794	1.3105	1.4969	1.6833	1.3470	1.0108	0.7336
RECREATIONAL WINTER**	0.8059	0.6710	0.6475	0.6240	0.7462	0.8685	0.9307	0.9928	1.1496	1.3064	1.2173	1.1282	0.9996	0.8709	0.9526	1.0342	1.1225	1.2108	1.4061	1.6013	1.9826	2.3639	1.6332	0.9026	0.6240
SUMMER	1.2374	1.2352	1.1733	1.1114	1.0786	1.0459	1.0330	1.0202	0.9851	0.9500	0.9160	0.8819	0.8660	0.8501	0.8561	0.8620	0.8891	0.9161	0.9430	0.9698	1.0525	1.1352	1.2002	1.2653	0.8501
SUMMER < 2500	1.2836	1.2576	1.1943	1.1310	1.1011	1.0712	1.0448	1.0184	0.9633	0.9082	0.8661	0.8641	0.8609	0.8578	0.8695	0.8813	0.8874	0.8936	0.9165	0.9394	1.0500	1.1607	1.2535	1.3463	0.8578

April 23rd

* Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.

** Grey shading indicates months were seasonal factor is greater than or less than 30%

**Use Recreation Winter Trend with Caution! ATR site was down for most of 2022 due to loop issues and was estimated while the site was down

Seasonal Adjustment Factor: 1.036533

APPENDIX F.
CRASH DATA

CITY OF TUALATIN, WASHINGTON COUNTY

124TH AVE at TUALATIN RD, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

14 - 15 of 15 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE																						
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE																		
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						
00497	N	N	N	N	N	N	02/01/2022	16	SW TUALATIN RD	INTER	3-LEG	N	N	RAIN	O-1 L-TURN	01	NONE	9	STRGHT																
CITY							TU	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN	N/A	S -N										000		00						
N							6P			04	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	9	TURN-L																
																N/A	N -E										000		00						
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000		000	00							
05431	N	N	N	N	N	N	11/16/2022	16	SW TUALATIN RD	INTER	3-LEG	N	N	CLR	O-1 L-TURN	01	NONE	0	STRGHT																
CITY							WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	S -N										000		00						
N							5A			04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	50	F	OR-Y		000		000	00						
N							45 23 16.36	-122 48																											
								15.23																											
																02	NONE	0	TURN-L																
																PRVTE	N -E										000		00						
																PSNGR CAR		01	DRVR	INJC	22	M	OR-Y		028,004,020	000	000	02,04							

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

TUALATIN RD at 115TH AVE, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	TRLR QTY	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ACT	EVENT	CAUSE
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	DIRECT	(MEDIAN)	TRAF-	RNDBT	SURF	COLL	TRLR	QTY	OWNER	FROM	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR		
RD DPT	E	L	G	N	H	R	FROM	SECOND STREET	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO											
UNLOC?	D	C	S	V	L	K	LONG	LRS																				
00658	N	N	N	N		02/06/2018	17	SW TUALATIN RD	INTER	3-LEG	N	N	CLR	ANGL-STP	01	NONE	9	TURN-L										
NONE						TU	0	SW 115TH AVE	N		STOP SIGN	N	DRY	TURN	N/A		W	-N							000		00	
N						2P			06	0		N	DAY	PDO	PSNGR	CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00
N						45 23 23.12	-122 47																					
							43.4																					
															02	NONE	9	STOP										
															N/A		N	-S								011		00
															PSNGR	CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00

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

TUALATIN RD at 108TH AVE, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

1 - 3 of 3 Crash records shown.

SER#	S P R J S W DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE														
INVEST	E A U I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN) INT-REL	OFFRD WTHR CRASH	TRLR QTY	MOVE											
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			
01097	N N N N N N 02/25/2020	17	SW TUALATIN RD	INTER	3-LEG N	N CLR ANGL-OTH	01 NONE 0	STRGHT									02		
CITY	TU	0	SW 108TH AVE	CN	STOP SIGN	N DRY TURN	PRVTE	W -E								000	00		
N	11P			04	0	N DLIT INJ	PSNGR CAR		01	DRVR	NONE	55	M	OR-Y	000	000	00		
N	45 23 23.11 -122 47 15.82										OR<25								
							02 NONE 0	TURN-L											
							PRVTE	S -W								015	00		
							PSNGR CAR		01	DRVR	INJC	22	M	OR-Y	028	000	02		
											OR<25								
05023	N N N N N N 11/17/2021	17	SW TUALATIN RD	INTER	3-LEG N	N CLR S-1TURN	01 NONE 0	STRGHT									08		
CITY	WE	0	SW 108TH AVE	CN	STOP SIGN	N DRY TURN	PRVTE	W -E								000	00		
N	10A			04	0	N DAY INJ	PSNGR CAR		01	DRVR	INJB	16	M	OR-Y	000	000	00		
N	45 23 23.11 -122 47 15.82										OR<25								
							02 NONE 0	U-TURN											
							PRVTE	W -W								000	00		
							PSNGR CAR		01	DRVR	NONE	92	M	OR-Y	008	000	08		
											OR<25								
04259	N N N N N 08/15/2022	17	SW TUALATIN RD	INTER	3-LEG N	N CLR ANGL-OTH	01 NONE 9	STRGHT									02		
NONE	MO	0	SW 108TH AVE	CN	STOP SIGN	N DRY TURN	N/A	W -E								000	00		
N	8A			04	0	N DAY PDO	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00		
N	45 23 23.11 -122 47 15.82										UNK								
							02 NONE 9	TURN-L											
							N/A	S -W								000	00		
							PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00		
											UNK								

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 LEVETON DR, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

1 - 5 of 7 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	A	S																					
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	RD CHAR	TRLR QTY	MOVE			G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE												
RD DPT	E	L	G	N	H	R	FROM	SECOND STREET	DIRECT	OWNER	FROM			P#	TYPE	SVRTY	E	X	RES	LOC	ERROR												
UNLOC?	D	C	S	V	L	K	LONG	LRS	LOCTN	#	TYPE	TO																					
										(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE																	
05935	N	N	N	N		11/12/2019	16	SW LEVETON DR	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	9	STRGHT															
NONE						TU	0	124TH AVE	N																								
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															
																N/A		N	-S									011		00			
																PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00		00			
04719	N	N	N	N		12/22/2020	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	9	STRGHT															
NONE						TU	0	124TH AVE	N																								
N						12P			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															
																N/A		N	-S										011		00		
																PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00		00			
02597	N	N	N	N	N	05/23/2018	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	9	STRGHT															
CITY						WE	0	124TH AVE	E																								
N						5P			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															
																N/A		E	-W											011		00	
																PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00		00			
04159	Y	N	N	N	N	08/16/2019	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	OVERTURN	01	NONE	0	TURN-L															
CITY						FR	0	124TH AVE	E																								
N						6P			05	0		N	DAY	INJ		TRUCK			01	DRVR	INJB	25	M	OTH-Y		047	000	00	01				
N						45 23 5.63	-122 48	14.95																									
05424	N	N	N	N		10/04/2019	16	SW LEVETON DR	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE	0	STRGHT															
NO RPT						FR	0	124TH AVE	CN																								
N						11A			04	0		N	DAY	INJ		PSNGR	CAR		01	DRVR	INJC	57	M	OR-Y		020	000	00	04				
N						45 23 5.63	-122 48	14.95																									
															02	NONE	0	TURN-L															
																PRVTE		S	-W											000		00	
																PSNGR	CAR		01	DRVR	INJC	63	F	OR-Y		000	000	00		00			

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 LEVETON DR, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

6 - 7 of 7 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE																		
INVEST	E	A	U	I	C	O	DAY	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		
01884	N	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												
																N/A		S -N										000	00		
																PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00		
01646	N	N	N	N			04/14/2022	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	9	TURN-L											08	
CITY							TH	0	124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	N/A		E -S										000	00		
N							9A			04	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00		
N							45 23 5.63	-122 48 14.95																							
																02	NONE	9	TURN-R												
																N/A		S -E										000	00		
																PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00		

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

108TH AVE at HERMAN RD, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	A	S															
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE													
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	
00130	N	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										00
																	N/A	NE-SW										011		00
																	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00

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.

CITY OF TUALATIN, WASHINGTON COUNTY

TETON AVE at HERMAN RD, City of Tualatin, Washington County, 01/01/2018 to 12/31/2022

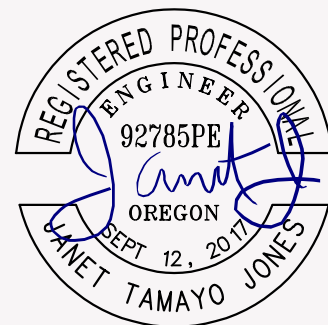
1 - 5 of 5 Crash records shown.

SER#	S P	D R	M J	W S	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									
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				
03890	N N N N N N	08/01/2019	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-OTHER	01 NONE	1	TURN-L									
	CITY		TH	0	SW TETON AVE		N		DRY	TURN	PRVTE		N -NE					000	00			
	N		12P				06	2	DAY	INJ	SEMI TOW		01 DRVR	NONE	51	M	OR-Y	080	000	05		
	N		45 23 5.35	-122 47 1.5																		
											02 NONE	0	STOP									
											PRVTE		N -S						011	00		
											PSNGR CAR		01 DRVR	INJC	60	F	OR-Y	000	000	00		
00751	Y N N N	02/16/2022	17	SW HERMAN RD	INTER	CROSS	N	N	FOG	S-1STOP	01 NONE		STRGHT						124,015	01,07		
	NONE		WE	0	SW TETON AVE		S		WET	REAR	PRVTE		S -N						001	124	00	
	N		6A				06	0	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	32	M	OR-Y	026	000	01,07		
	N		45 23 5.37	-122 47 1.51																		
											02 NONE		STOP									
											PRVTE		S -N						011	00		
											PSNGR CAR		01 DRVR	INJC	43	M	OR-Y	000	000	00		
03558	Y Y N N N N	09/01/2021	17	SW HERMAN RD	INTER	CROSS	N	Y	CLR	FIX OBJ	01 NONE	9	TURN-R							043	01,08	
	CITY		WE	0	SW TETON AVE		W		DRY	FIX	N/A		SW-S							000	00	
	N		8P				09	2	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK	000	000	00		
	N		45 23 5.35	-122 47 1.5																		
05774	N N N N N N	11/04/2019	17	SW HERMAN RD	INTER	CROSS	N	N	CLD	ANGL-OTH	01 NONE	0	STRGHT								27,04	
	CITY		MO	0	SW TETON AVE		CN		DRY	ANGL	PRVTE		N -S								000	00
	N		11A				03	2	DAY	INJ	PSNGR CAR		01 DRVR	INJB	33	M	OR-Y	000	000	00		
	N		45 23 5.35	-122 47 1.5																		
											02 NONE	0	STRGHT									
											RENTL		SW-NE							000	00	
											PSNGR CAR		01 DRVR	INJC	33	F	OR-Y	016,020	038	27,04		
00417	N N N N	02/06/2021	17	SW HERMAN RD	INTER	CROSS	N	N	RAIN	O-1 L-TURN	01 NONE	9	STRGHT								02	
	CITY		SA	0	SW TETON AVE		CN		WET	TURN	N/A		N -S								000	00
	N		1P				01	0	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK	000	000	00		
	N		45 23 5.39	-122 47 1.52																		
											02 NONE	9	TURN-L									
											N/A		S -SW							000	00	
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK	000	000	00		

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.

APPENDIX G.
IN-PROCESS DATA

MACKENZIE.



EXPIRES: 6/30/23

TRANSPORTATION IMPACT ANALYSIS

To
City of Tualatin

For
Lam Research

Dated
August 12, 2022

Project Number
2220087.00



MACKENZIE
Since 1960

RiverEast Center | 1515 SE Water Avenue, Suite 100, Portland, OR 97214
PO Box 14310, Portland, OR 97293 | T 503.224.9560 | www.mcknze.com

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

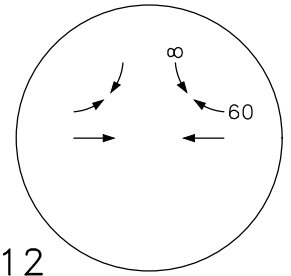
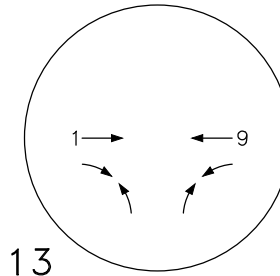
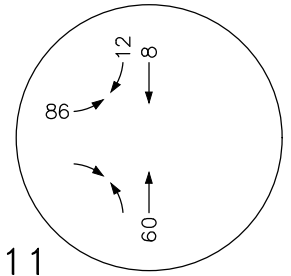
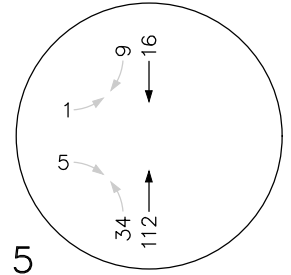
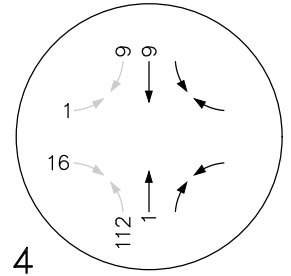
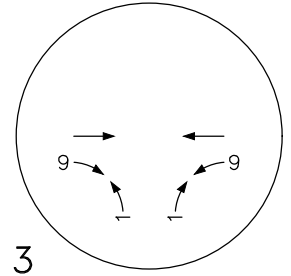
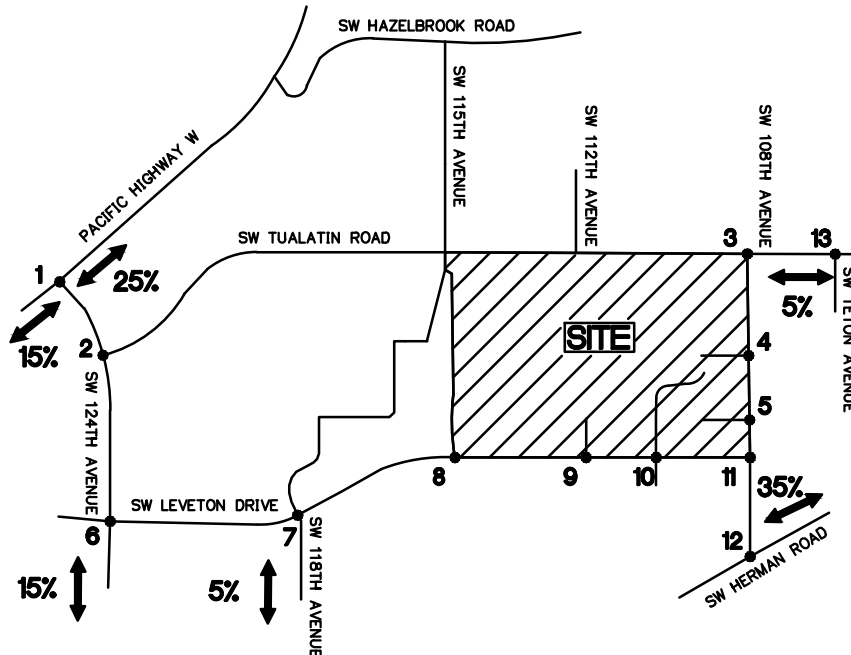
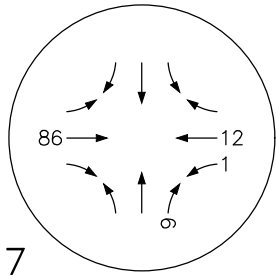
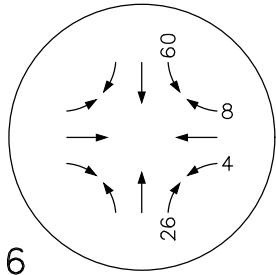
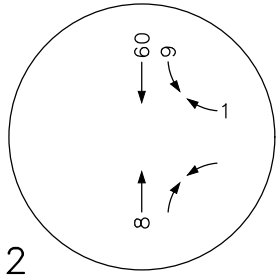
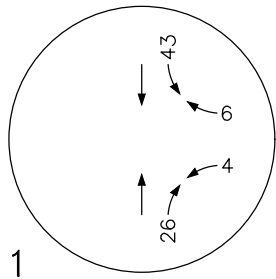
With the proposed building, other site changes including additional parking along SW 108th Avenue, two (2) new driveways on SW 108th Avenue, and limiting the East Access on SW Leveton Drive to trucks are proposed. With the closure of the East Access to passenger vehicle traffic, existing site trips that 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.



NOT TO SCALE

AM PEAK HOUR

Enter - 172
Exit - 24
Total - 196



M **Portland** 503.224.9560 **Vancouver** 360.695.7879 **Seattle** 206.749.9993
www.mcknzie.com
Architecture - Interiors
Planning - Engineering

MACKENZIE
DATE: 08.10.22
DRAWN BY: CNL
CHECKED BY: JTJ
JOB NO:
222008700

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

FIGURE 11A

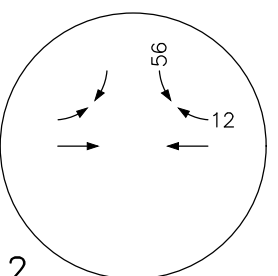
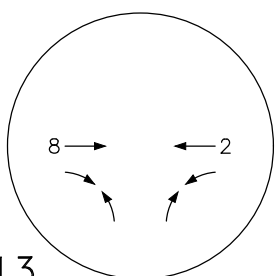
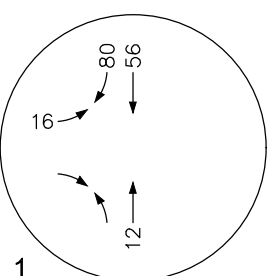
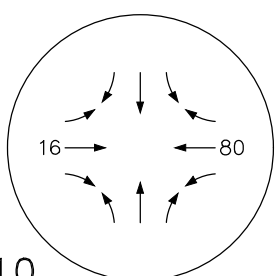
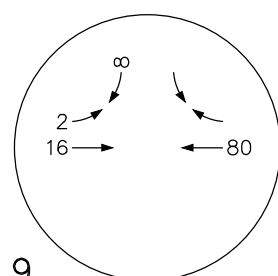
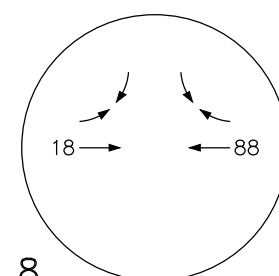
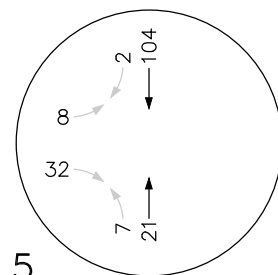
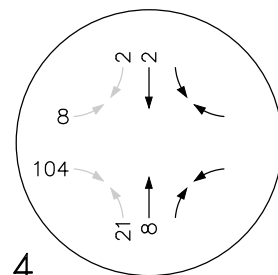
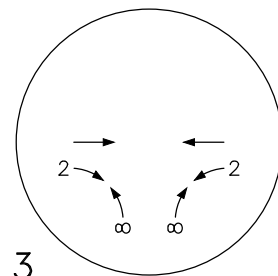
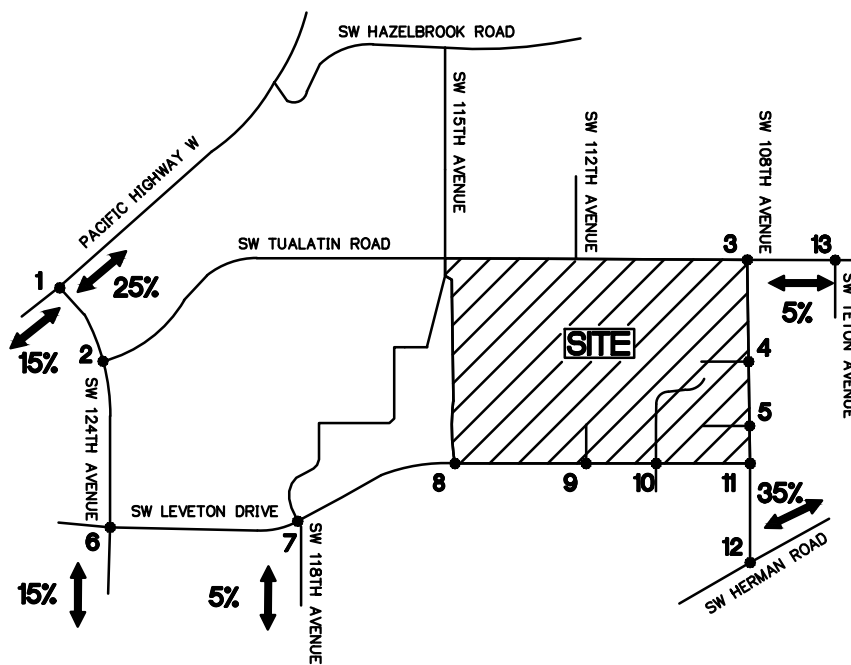
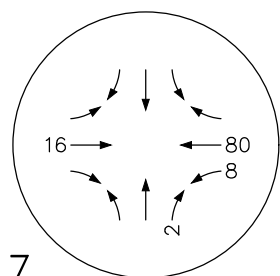
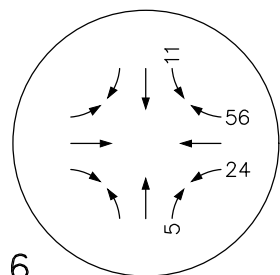
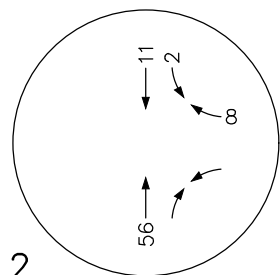
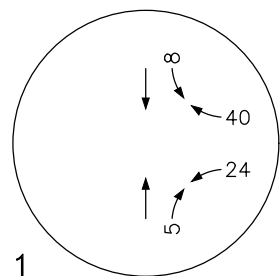
© MACKENZIE 2018 ALL RIGHTS RESERVED
THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION



NOT TO SCALE

PM PEAK HOUR

Enter - 33
Exit - 160
Total - 193



Portland 503.224.9560
Vancouver 360.695.7879
Seattle 206.749.9993
www.mcknz.com

Architecture - Interiors
Planning - Engineering

DATE: 08.10.22
DRAWN BY: CNL
CHECKED BY: JTJ
JOB NO:
222008700

PRIMARY TRIP DISTRIBUTION +
TRAFFIC ASSIGNMENT -
PM PEAK HOUR

LAM RESEARCH NEW OFFICE BUILDING
TUALATIN, OREGON

FIGURE
11B

© MACKENZIE 2018 ALL RIGHTS RESERVED
THESE DRAWINGS ARE THE PROPERTY OF MACKENZIE AND ARE NOT TO BE
USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

MACKENZIE.

September 14, 2023 (*Revised October 11, 2023*)

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

Re: **Fujimi Facility Expansion**
Trip Generation and Distribution
Project Number 2210148.00

Dear Tony:

Mackenzie has prepared this trip generation letter for the proposed two-story, 70,000-square-foot (SF) expansion of the existing Fujimi facility located at 11200 SW Leveton Drive in Tualatin, Oregon.

PROJECT DESCRIPTION

The proposed building addition, located at the southeast corner of the existing Fujimi building, will be two stories with a gross floor area of up to 70,000 SF. The proposed addition will include manufacturing space, clean rooms, laboratories, and some office area. With the expansion, approximately 10-20 new employees will be added over time. This project will include associated site work, including approximately 30 additional parking spaces. The project will also add a new hammerhead fire turnaround at the southeast corner of the site. Per the City of Tualatin Traffic Study Requirements, a full Transportation Impact Analysis (TIA) is required for any development that generates 500 or more new daily trips. The proposed expansion is estimated to add approximately 333 new daily trips, so this letter presents the information required for a Trip Generation and Distribution Description letter.

TRIP GENERATION

Trip generation estimates were reviewed using trip rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition for the "General Light Industrial" (LUC 110) land use, as required by the "Tualatin Traffic Study Requirements" document (updated March 16, 2022). In addition, we surveyed the existing Fujimi site to better understand the site's actual trip generation compared with existing ITE data for not only the "General Light Industrial" use, but also the "Manufacturing" (LUC 140) use.

Existing Site Trips

The existing Fujimi site on SW Leveton Drive was surveyed for trip generation on Tuesday, October 3, 2023 during the AM and PM peak hours of the street. The generation summary for the existing 175,000 SF building is summarized in Table 1.



TABLE 1 – EXISTING TRIP GENERATION SUMMARY								
Trip Type	Size (KSF)	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Total	175.0	40	6	46	10	24	34	238 ^a
Trucks		2	0	2	0	0	0	24 ^b
Passenger Cars		38	6	44	10	24	34	214

As presented in Table 1, the site currently generates 46 AM peak hour and 34 PM peak hour. A total daily trip estimate of 238 was derived by assuming a 7x ratio to the PM peak hour trips comparable to ITE trip data for the “General Light Industrial” and “Manufacturing” uses. Fujimi notes they have on average 8-12 trucks per day for deliveries. Based on the trip data above, the site-specific trip rates for all vehicles are 0.26 AM trips/KSF, 0.19 PM trips/KSF, and 1.36 daily trips/KSF.

Proposed Site Trips

We reviewed the proposed building expansion’s trip generation utilizing the site-specific trip rates noted above, as well as ITE trip rates for “General Light Industrial” and “Manufacturing” uses. The trip generation comparison is presented in Table 2 below.

TABLE 2 – TOTAL TRIP GENERATION COMPARISON FOR EXPANSION									
ITE Code	Land Use	Size (KSF)	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
N/A	Fujimi Site	70.0	16	2	18	4	9	13	91
110	General Light Industrial		45	6	51	6	40	46	341
140	Manufacturing		40	12	52	13	30	43	333

As presented in Table 2, the ITE trip rates for the “General Light Industrial” and “Manufacturing” uses likely overestimate the site’s trip impact for the proposed expansion by a factor of 2-3 times. We note the ITE trip generation estimates grossly overestimate the expected trip generation with the expansion as only 10-20 employees will be added with the proposal; however, as a worst-case scenario, we propose estimating the site’s trip generation using ITE trip data for the “Manufacturing” (LUC 140) use for purposes of calculating the proposed expansion’s Transportation Development Tax (TDT) imposed by Washington County.

The existing site trip rates yield an expected impact of only 18 AM peak hour and 13 PM peak hour trips forecasted with the expansion. Therefore, a Transportation Impact Analysis (TIA) is not warranted with the approximately 70,000 SF addition.

^a Assumes total daily trips are 7x PM peak hour trips based on ITE data for “General Light Industrial” and “Manufacturing.”

^b Based on existing Fujimi delivery activity consisting of 8-12 trucks per day, on average.



Truck Trips

Table 3 presents the truck trip generation estimates associated with the proposed expansion utilizing ITE “Manufacturing” truck trip rates.

TABLE 3 – TRUCK TRIP GENERATION COMPARISON FOR EXPANSION									
ITE Code	Land Use	Size (KSF)	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
110	General Light Industrial	70.0	0	1	1	0	1	1	18
140	Manufacturing		1	1	2	1	1	2	32

The additional truck trips associated with the expansion are estimated to be 2 AM peak hour, 2 PM peak hour, and 32 daily trips, per trip data for ITE’s “Manufacturing” land use. Note these truck trip estimates are included in the total trip estimates presented in Table 2 and are not in addition to those estimates. The truck trip generation estimates for the “Manufacturing” use are significantly higher than those based on ITE’s “General Light Industrial” use. Similar to the total site-specific trip estimates, ITE truck trip generation estimates grossly overestimate the expected growth in truck trips associated with the expansion. Therefore, we do not recommend further analysis based on truck trip generation.

Pedestrians, Bicycles, and Transit

Sidewalks are provided along the site’s SW Leveton Drive frontage. Sidewalks continue along SW 108th Avenue which provides a pedestrian connection to the nearby Hazelbrook neighborhood located north of SW Tualatin Road, and to SW Herman Road which has a Tualatin Ride Connection Blue Line Shuttle stop east of SW 108th Avenue. Data provided by Fujimi shows that their current workforce has a 0% pedestrian mode share. This is not expected to change with the proposed expansion.

The Tualatin Ride Connection Blue Line Shuttle provides transit service to the site, with a stop along the site’s SW Leveton Drive frontage. The Blue Line runs only during weekday peak hours, with a headway of approximately 45 minutes. Data provided by Fujimi shows that their current workforce has a 0% transit mode share. This is not expected to change with the proposed expansion.

Bike lanes are provided on all non-residential roads in the site vicinity. There is currently an outdoor 5-position bicycle rack on the site, in addition to available indoor bike parking. Data provided by Fujimi shows that their current workforce has a 5% bicycle mode share. This is not expected to change with the proposed expansion, which corresponds to a maximum of 2 additional daily bike trips with the addition of 20 employees. Based on this estimate, it is not expected the proposed expansion will have a significant impact on the bicycle infrastructure in the vicinity of the site.

TRIP DISTRIBUTION

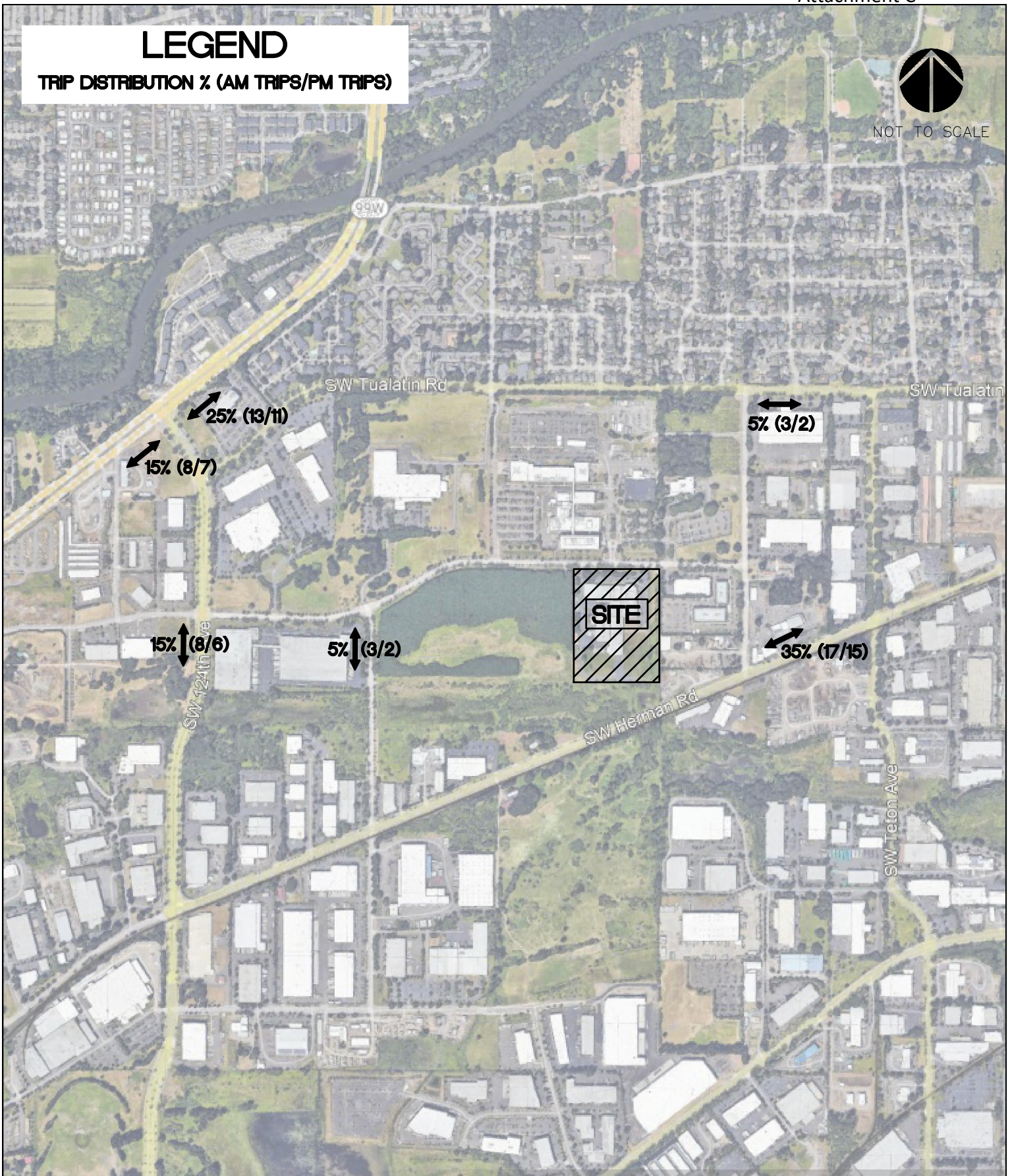
Trip distribution for the new trips generated by the proposed expansion was estimated by reviewing the existing distribution from recent and existing counts at surrounding intersections in conjunction with review of previous trip

LEGEND

TRIP DISTRIBUTION % (AM TRIPS/PM TRIPS)



NOT TO SCALE



Portland 503.224.9560
 Vancouver 360.695.7879
 Seattle 206.749.9993
www.mackenzie.com

Architecture - Interiors
 Planning - Engineering

MACKENZIE

DATE: 9.14.2023

DRAWN BY: LCB

CHECKED BY: JTJ

JOB NO:
 221014800

TRIP DISTRIBUTION + ASSIGNMENT

FUJIMI FACILITY EXPANSION
 TUALATIN, OR

FIGURE

1



lancaster
moble

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

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

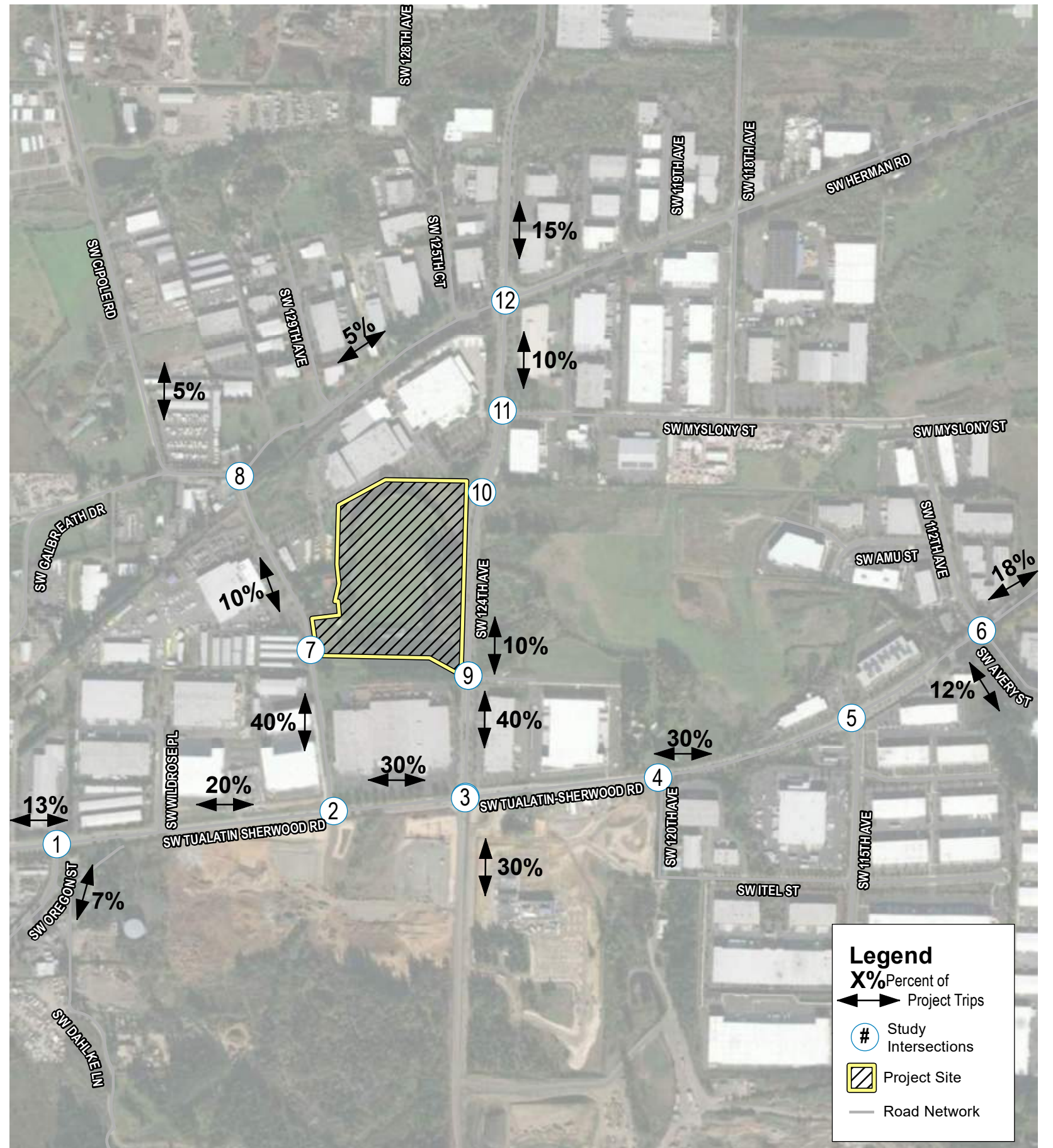
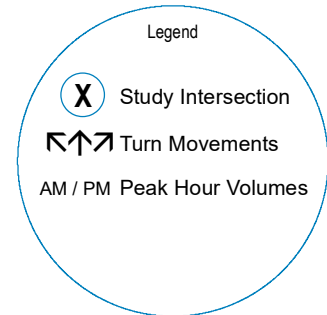
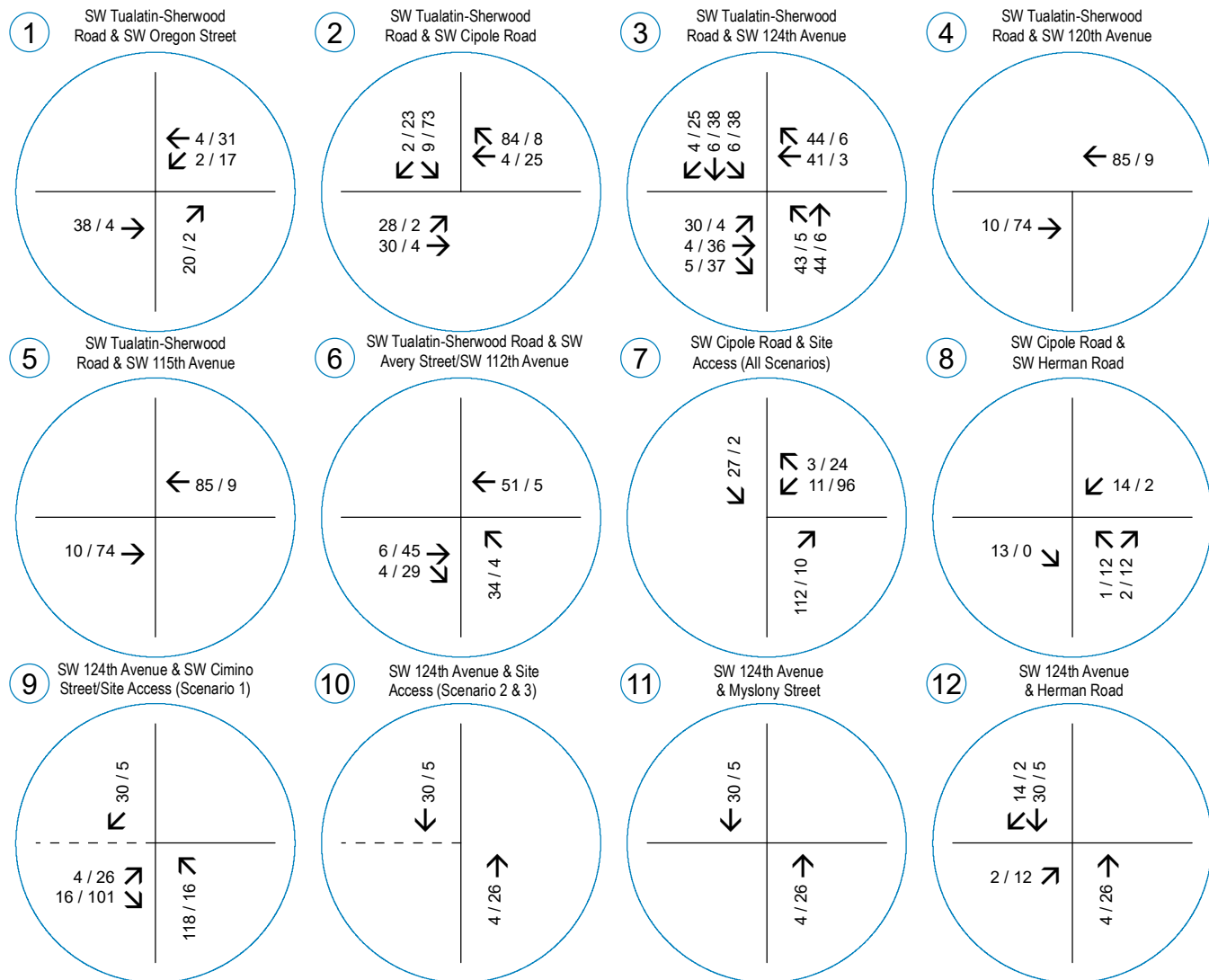
With the third scenario assuming a full access on SW 124th Avenue at the northeast corner of the site, the split of traffic is assumed to be approximately 65 percent using the SW Cipole Road access and 35 percent using the access on SW 124th Avenue.

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.





lancaster
moblely

124th Business Park

Transportation Impact Analysis

Tualatin, Oregon

Date:

April 18, 2023

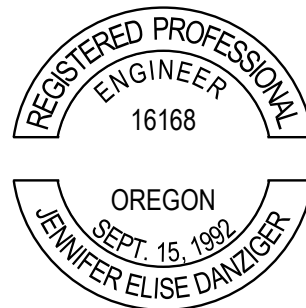
Prepared for:

VLMK Engineering & Design

Prepared by:

Myla Cross

Jennifer Danziger, PE



RENEWS: 12/31/2023

Site Trips

Trip Generation

To estimate trips that will be generated by the development, trip rates from the *Trip Generation Manual*¹ were used. Specifically, data from the land use code 110, *General Light Industrial*, was used based on the square footage of the development. The 124th Business Park proposes to develop the site with three industrial buildings enclosing a total of 199,170 SF of gross floor area.

The trip generation calculations show that the 124th Business Park site is projected to generate 147 trips during the morning peak hour, 129 trips during the evening peak hour, and 970 trips during the average weekday. Table 3 summarizes the estimated net trip generation of the site with the land use assumptions discussed above.

Table 3: Trip Generation Summary

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour			Weekday Total
			In	Out	Total	In	Out	Total	
General Light Industrial (All Vehicles)	110	199,170 SF	129	18	147	18	111	129	970
General Light Industrial (Trucks)	110	199,170 SF	1	1	2	1	1	2	50

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 20 percent of site trips will travel to/from the north along SW 124th Avenue

To address the right-in/right-out access on SW 124th Avenue, some of the traffic will not be able to travel along the most direct route to the site. Inbound traffic from the north will need to travel southward to SW Tualatin-Sherwood Road by another route and then turn northward on SW 124th Avenue. Outbound traffic destined for locations south, west, or east of the site will need to travel northward on SW 124th Avenue and then travel southward to SW Tualatin-Sherwood Road by an alternate route.

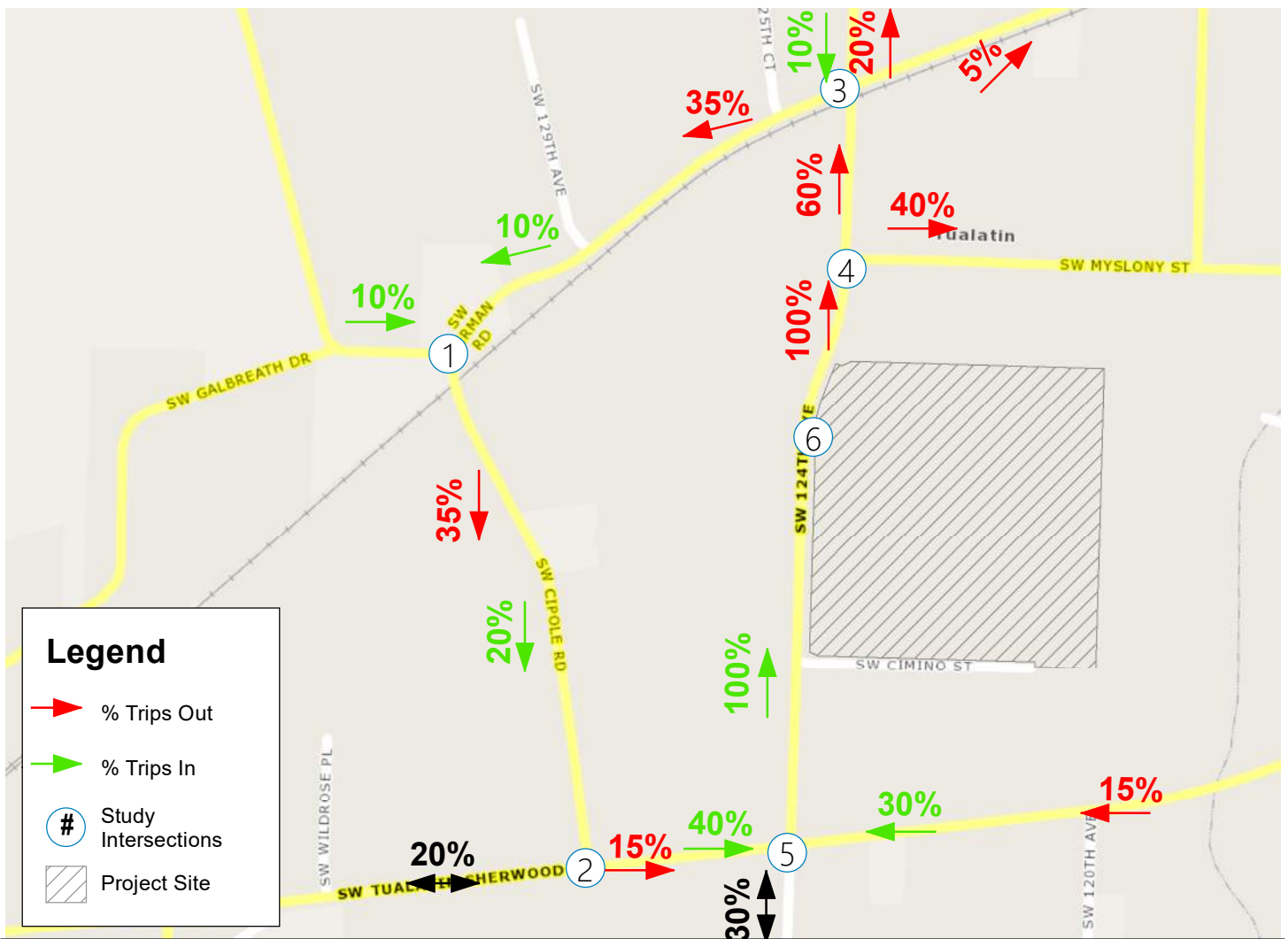
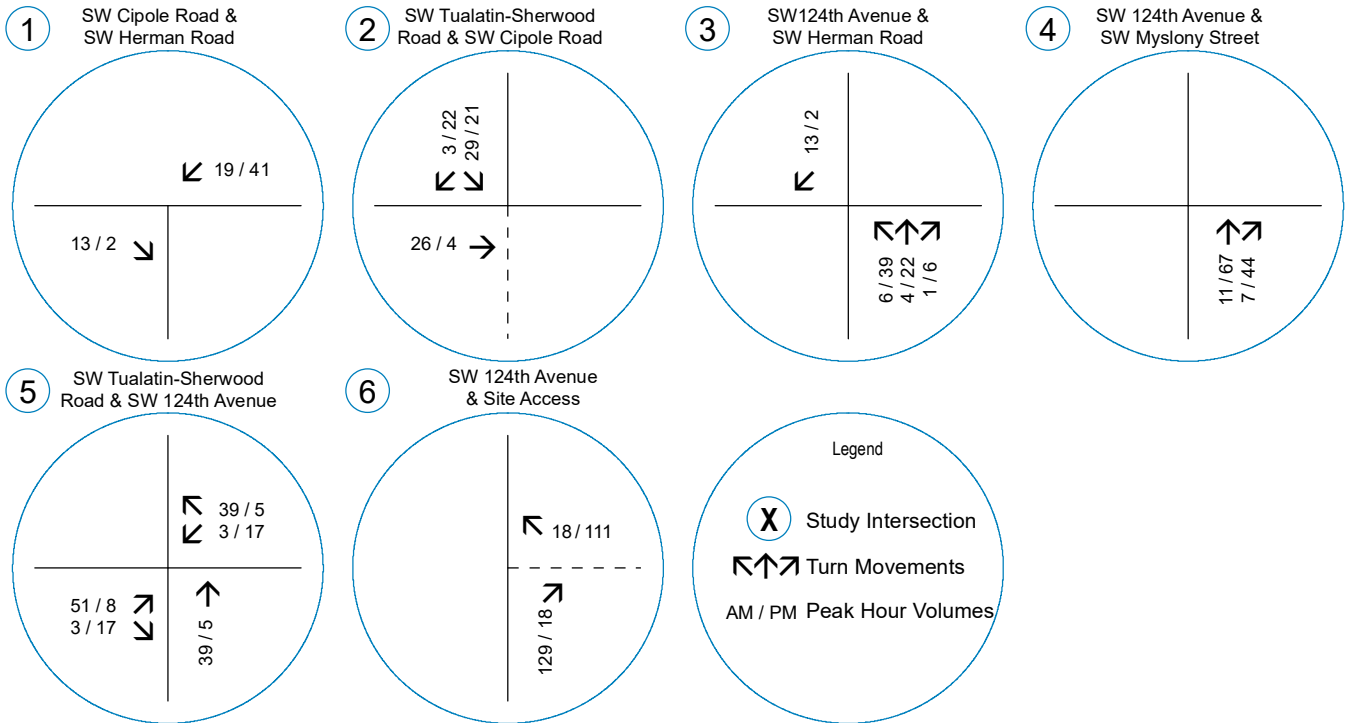
¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2022.

The following indirect routes are assumed:

- Approximately half, 10 percent, of the inbound traffic from the north is assumed to use to SW Cipole Road from OR 99E instead of SW 124th Avenue.
- The remaining 10 percent from the north is assumed to travel along SW 124th Avenue to SW Herman Road to SW Cipole Road.
- Approximately 40 percent of the outbound traffic is assumed to travel northward along SW 124th Avenue, turn right onto SW Myslony Street, and travel to SW Tualatin-Sherwood Road.
- Approximately 5 percent of the outbound traffic is assumed to travel northward on SW 124th Avenue and turn east on SW Herman Road to access SW Tualatin-Sherwood Road via SW Teton Avenue or other connecting roadways.
- Approximately 35 percent of the outbound traffic is assumed to travel northward on SW 124th Avenue and turn west on SW Herman Road and turn south on SW Cipole Road to SW Tualatin-Sherwood Road.

The resulting trip assignment is shown in Figure 3.





APPENDIX H.
**SIGNAL
INFORMATION**

Intersection Name: 99W @ 124th Ave

Controller 122367.2 Channel: 214 Drop: 25

System: TransCore TransSuite TCS

Controller Type: Voyage

Revision - Version -

TransCore Unified Controller Manager 21.5.1

Zero Tables

DetectorPlans
 DetectorFailMonitor
 PedOverlaps
 ADVANCE WARNING
 FYLTA
 DYNAMIC FYLTA
 ServicePlans1 4
 ServicePlans5 8
 MaxPlans
 CoordinationPlans
 CoordinationPlansCont
 DynamicPhaseLength
 PlatoonProgression
 ForceOffPercents
 DayProgram 41 80
 DayProgram 81 120
 DayProgram 121 160
 DayProgram 161 200
 ExceptionDays
 PreemptionSequence 5 8
 PriorityReturnAndSpecialIntervals
 LightRailTrain
 IEEE1570
 ServiceDelayLog
 ServiceDelay Detectors
 TransitPriority
 TransitPriorityAOFPP
 GroupTiming
 TruckPriority
 IO Options
 CommandBox 97 192
 CommandBox 193 256
 StrategyMapping

Non-Zero Tables

ControllerFunctionTiming
 Phase Timing
 Dual Entry
 OtherControllerFunctions
 DetectorData
 SystemDetector
 Vehicle Overlaps
 CoordinationModes
 CircuitMapping
 DayProgram 1 40
 WeekProgram
 YearDays
 TimeClockReferences
 CircuitOverrides 1 100
 CircuitOverrides 101 199
 CircuitOverrides 201 216
 PreemptionSequence 1 4
 SequenceTiming
 CommData
 CommReports
 170 Inputs
 170 Outputs
 CommandBox 1 96
 CONTROLLER ID

Controller Function and Timing

Security, Sequence and Timing (Next/2/1, Next/2/2/3/A, Next/2/2/5)				
Security Code	0	0 = disabled, or 1000-9999	First All Red	8.0 0.0 to 25.5 seconds
Sequence	7	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag		
Power up Flash	0.0	0.0 - 25.5 seconds		

Initialization (Next/2/2/5)			Lead Lag (Next/2/2/3/A)			
Ring 1	Ring 2	Interval	Phases 1 - 2	Phases 3 - 4	Phases 5 - 6	Phases 7 - 8
1	0	0	2	2	2	2
Phase 1 - 8		0 = Red, 1 = Yel, 2 = Grn	0 = no reversal, 1 = reversal, 2 = by coord plan or clock			

(Next/2/2/3)		Phase Functions		(Next/2/2/1)								
Phase Used	1 2 3 4 - 6 - 8			Yellow Lock	- - - - -							
Restricted Phases	- - - - -			Min Recall	- 2 - - - 6 - -							
Exclusive Phases	- - - - -			Max Recall	- - - - -							
				Ped Recall	- - - - -							
				Red Lock	- - - - -							
				Max Out Recall Inhibit	1 2 3 4 5 6 7 8							
				Soft Recall	- - - - -							
				Free Walk Rest	- - - - -							
				Conditional Ped	- - - - -							
				Disable Inhibit Max Termination	- - - - -							
				Call To Non-Act 1	- - - - -							
				Call To Non-Act 2	- - - - -							

Phase Times (Next/2/2/2)									
Phase	1	2	3	4	5	6	7	8	
Movement									
Minimum Green	4	10	4	6	0	10	0	6	0 - 255 sec.
Passage	2.3	5.4	0.2	2.3	0.0	5.4	0.0	2.3	0.0 - 25.5 sec.
Yellow	4.5	5.0	4.0	4.0	0.0	5.0	0.0	4.0	0.0 - 25.5 sec.
Red Clearance	1.1	1.0	0.0	1.0	0.0	1.0	0.0	2.0	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	21	50	10	20	0	50	0	20	0 - 255 sec.
Max 2	32	60	10	25	0	60	0	25	0 - 255 sec.
Walk	0	9	5	0	0	0	0	8	0 - 255 sec.
Ped Clear	0	22	6	0	0	0	0	27	0 - 255 sec.
Seconds Per Actuation	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	8	10	0	8	0	10	0	8	0 - 255 sec.
Time to Reduce	3	20	0	3	0	20	0	3	0 - 255 sec.
Minimum Gap	0.5	3.4	0.2	0.5	0.0	3.4	0.0	0.5	0.0 - 25.5 sec.
Max Variable Initial	4	21	4	6	0	21	0	6	0 - 255 sec.
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec.
Advanced walk	0	0	0	0	0	0	0	0	0 - 255 sec.

Phase Times (Next/2/2/9/5)									
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Dual Entry (Next/2/2/9/3)

Mode	1	0 = off, 1 = on, 2 = Not Used, 3 = by coord plan, 4 = by time clock circuit 61
------	---	--

Dual Entry Ph -->	1	2	3	4	5	6	7	8	
Phase	0	0	8	8	0	0	0	4	0 = none, 1-8 = phase 1-8

Cond Service (Next/2/2/9/3/A)			5 Sec Head Logic (Next/2/2/9/4)						
	Mode	CS Max Time	X Omits Y		Anti-Trap			Yellow Blanking LT	
Phase			X:Y		Trap Protected Phase	Next Phase	Phase		
Phase 1	0	0							
Phase 3	0	0	6:1	0	1	0	< (5)	1	0
Phase 5	0	0	8:3	0	3	0	< (7)	3	0
Phase 7	0	0	2:5	0	5	0	< (1)	5	0
0 = off, 1 = C.S.On. 2 = C.S. on by TOD circuit 57, 3 = N/A, 4 = C.S. and C.R. On, 5 = C.R. on by TOD circuit 57.			4:7	0	7	0	< (3)	7	0
			0 = off, 1 = side call, 2 = no side call		X = On				

Other Controller Functions (Next/2/2/9/1, Next/2/2/9/5)

Inhibit Simultaneous Gap Out	1 - 3 4 5 - 7 8	
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear	On	X = On
FDW thru Yellow	Off	X = On
Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence	Off	X = On (After a download without a power on - off cycle)
Advanced Flash Rate	60 FPM	0 = Disabled (60 FPM), 1 = 120 FPM
Ped Push Button Time	null	0 = Disable, 0 - 5 Seconds

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Local Detectors (Next/2/2/4/1)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
1				1	1	0	0	2.0	0
2				1	1	0	0	0.0	0
3				3	3	0	0	0.0	0
4				3	3	0	0	0.0	0
5				5	5	0	0	0.0	0
6				5	5	0	0	0.0	0
7				7	7	0	0	0.0	0
8				7	7	0	0	0.0	0
9				2	2	0	0	1.0	0
10				2	2	0	0	1.0	0
11				2	2	0	0	0.0	0
12				2	2	0	0	0.0	0
13				2	2	0	0	0.0	0
14				4	4	0	0	2.0	0
15				4	4	0	0	2.0	0
16				4	4	0	0	0.0	0
17				4	4	0	0	0.0	0
18				4	4	0	0	0.0	0
19				6	6	0	0	1.0	0
20				6	6	0	0	1.0	0
21				6	6	0	0	0.0	0
22				6	6	0	0	0.0	0
23				6	6	0	0	0.0	0
24				8	8	0	0	2.0	0
25				8	8	0	0	2.0	0
26				8	8	0	0	0.0	0
27				8	8	0	0	7.5	0
28				8	8	0	0	0.0	0
29				0	0	0	0	0.0	0
30				0	0	0	0	0.0	0
31				0	0	0	0	0.0	0
32				0	0	0	0	0.0	0

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 -12

Local Detectors 33 - 64 (Next/2/2/4/6)

Detector Data

Detector	Description	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
33		N/A	N/A	0	0	N/A	N/A	N/A	N/A
34		N/A	N/A	0	0	N/A	N/A	N/A	N/A
35		N/A	N/A	0	0	N/A	N/A	N/A	N/A
36		N/A	N/A	0	0	N/A	N/A	N/A	N/A
37		N/A	N/A	0	0	N/A	N/A	N/A	N/A
38		N/A	N/A	0	0	N/A	N/A	N/A	N/A
39		N/A	N/A	0	0	N/A	N/A	N/A	N/A
40		N/A	N/A	0	0	N/A	N/A	N/A	N/A
41		N/A	N/A	0	0	N/A	N/A	N/A	N/A
42		N/A	N/A	0	0	N/A	N/A	N/A	N/A
43		N/A	N/A	0	0	N/A	N/A	N/A	N/A
44		N/A	N/A	0	0	N/A	N/A	N/A	N/A
45		N/A	N/A	0	0	N/A	N/A	N/A	N/A
46		N/A	N/A	0	0	N/A	N/A	N/A	N/A
47		N/A	N/A	0	0	N/A	N/A	N/A	N/A
48		N/A	N/A	0	0	N/A	N/A	N/A	N/A
49		N/A	N/A	0	0	N/A	N/A	N/A	N/A
50		N/A	N/A	0	0	N/A	N/A	N/A	N/A
51		N/A	N/A	0	0	N/A	N/A	N/A	N/A
52		N/A	N/A	0	0	N/A	N/A	N/A	N/A
53		N/A	N/A	0	0	N/A	N/A	N/A	N/A
54		N/A	N/A	0	0	N/A	N/A	N/A	N/A
55		N/A	N/A	0	0	N/A	N/A	N/A	N/A
56		N/A	N/A	0	0	N/A	N/A	N/A	N/A
57		N/A	N/A	0	0	N/A	N/A	N/A	N/A
58		N/A	N/A	0	0	N/A	N/A	N/A	N/A
59		N/A	N/A	0	0	N/A	N/A	N/A	N/A
60		N/A	N/A	0	0	N/A	N/A	N/A	N/A
61		N/A	N/A	0	0	N/A	N/A	N/A	N/A
62		N/A	N/A	0	0	N/A	N/A	N/A	N/A
63		N/A	N/A	0	0	N/A	N/A	N/A	N/A
64		N/A	N/A	0	0	N/A	N/A	N/A	N/A

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 -12

Detector Plans (Next/2/2/4/5)

Detector Plans (Next/2/2/4/5)										
Loop Number										
Plan Detectors		0	0	0	0	0	0	0	0	0 - 32, 0 = none, 1 - 32 = detectors 1 - 32
Detector Plan 1	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 2	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14
Detector Plan 3	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extended Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 seconds
	Stretch / Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 seconds
	Delay / Disconnect Mode	0	0	0	0	0	0	0	0	0 - 14

Detector Fail (Next/2/2/4/3)

Detector Fail Sample Period (all detectors)		0	0 - 255 minutes						
Dynamic Phase Length Fail Period		0	0 - 255 minutes						
Video Fail Inputs	1	2	3	4	5	6	7	8	0 = none, 1 - 8 = phase 1 - 8
Phase Recalled	0	0	0	0	0	0	0	0	
System Detectors	1	2	3	4	5	6	7	8	0 = none, 1 - 32 = detector 1 - 32
Local Detector	0	0	0	0	0	0	0	0	

Flash (Next/2/2/5)

Flash Entry					Flash Exit				
Ring 1	Ring 2	Interval			Ring 1	Ring 2	Interval		
0	0	red			1	0	0		
0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn			0 = none, phase 1 - 8		0 = red, 1 = yel, 2 = grn		

Soft Flash (Next/2/2/5/A)

Phase	1	2	3	4	5	6	7	8				
	3	4	3	4	3	4	3	4				
Overlap	A	B	C	D	E	F	G	H	I	J	K	L
	3	4	3	4	3	4	3	4	3	4	3	4
0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG												

Internal Logic	1	2	3	4	5	6	7	8	9	10	11	12	0 = normal, 1 = dark, 2 = flash WIG
Output	0	0	0	0	0	0	0	0	0	0	0	0	

Overlaps (Next/2/2/8/1)

Vehicle Overlaps	Phase or Movement	Phase or Movement								Extension Green	Clearance		A - D 0 = no overlap 1 = overlap 2 = 60 FPM 3 = Not ped overlap 4 = Comp Phase 5 = Prevent Ext 6 = Not Vehicle 7 = Adv. FF E - L 0 = no Overlap 1 = Overlap Green, Yellow, Red 0.0 - 25.5 sec
		1	2	3	4	5	6	7	8		Yellow	Red	
A		1	0	0	1	0	0	0	0	0.0	4.0	1.0	
B		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
C		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
D		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
E		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
F		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
G		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
H		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
I		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
J		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
K		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
L		0	0	0	0	0	0	0	0	0.0	0.0	0.0	

(Next/2/2/8/6/8)

Ped Overlaps (Next/2/2/8/5)

Overlap	Not Ped-Ped Overlaps								Ped Overlap	Phase	Recall	Walk	Ped Clear	Walk, Ped Clear 0 - 255 seconds
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>						
A	-	-	-	-	-	-	-	A	- - - - -		0	0		
B	-	-	-	-	-	-	-	B	- - - - -		0	0		
C	-	-	-	-	-	-	-	C	- - - - -		0	0		
D	-	-	-	-	-	-	-	D	- - - - -		0	0		
	-	-	-	-	-	-	-	E	- - - - -		0	0		
	-	-	-	-	-	-	-	F	- - - - -		0	0		
	-	-	-	-	-	-	-	G	- - - - -		0	0		
	-	-	-	-	-	-	-	H	- - - - -		0	0		

Advance Warning (Next/2/2/8/3)

	E	F	G	H	I	J	K	L	
Enable	0	0	0	0	0	0	0	0	0 = Disable, 1 = Enable
1st Conditional Overlaps	0	0	0	0	0	0	0	0	0 = None, 1 = OL E, 2 = OL F, 3 = OL G, 4 = OL H, 5 = OL I, 6 = OL J, 7 = OL K, 8 = OL L
2nd Conditional Overlaps	0	0	0	0	0	0	0	0	
Advance Deactivation Delay	0	0	0	0	0	0	0	0	0 - 99 sec

CoordinationData

Coordination Modes (Next/2/3/1)

Flash Mode	33	0=off, 1=on, 33=time clock, 34=comm, 35=hardwire
Coordination Plan Mode	34	0=free, 1-32 = coord plan 1-32, 33=time clock, 34=comm, 35=hardwire
Offset Seeking Mode	2	0=add only, 1=dwel, 2=fastway
Late Ped	0	0 = off, 1 = on
Coord Walk Rest	0	0 = off, 1 = on, 2 = by tod circuit 160, 3 = end of walk, 4 = coord ped during perms
Zero Mode(TS2 only)	0	0=start of main street, 1=end of main street, 2=by TOD circuit 144, 3 = first green
(Next/2/3/4/1)		
Repeated Ped Service	0	0=off, 1=on (no coord ped), 2=on (beginning green coord ped), 3=on (coord ped always)
Omit Phase During Repeated Phase	- - - - -	-- = service allowed ; # = service prevented

Coordination Plans (Next/2/3/2)

Coord Plan	Coordination Phases		Cycle Length	Offset Time	Min Cycle Len Dwell Time	Permissive	Service Plan	Max Plan
	Ring 1	Ring 2						
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0
	0 - 8		0 - 255 sec				0 - 8	

Circuit Mapping (Next/2/3/3)

Circuit Map	Coord Plan	Time Clock Circuit							
		1	2	3	4	5	6	7	8
1	34	0	0	0	0	0	0	0	0
2	34	0	0	0	0	0	0	0	0
3	34	0	0	0	0	0	0	0	0
4	34	0	0	0	0	0	0	0	0
5	34	0	0	0	0	0	0	0	0
6	34	0	0	0	0	0	0	0	0
7	34	0	0	0	0	0	0	0	0
8	34	0	0	0	0	0	0	0	0
9	34	0	0	0	0	0	0	0	0
10	34	0	0	0	0	0	0	0	0
11	34	0	0	0	0	0	0	0	0
12	34	0	0	0	0	0	0	0	0
13	34	0	0	0	0	0	0	0	0
14	34	0	0	0	0	0	0	0	0
15	34	0	0	0	0	0	0	0	0
16	34	0	0	0	0	0	0	0	0
17	34	0	0	0	0	0	0	0	0
18	34	0	0	0	0	0	0	0	0
19	34	0	0	0	0	0	0	0	0
20	34	0	0	0	0	0	0	0	0

coord plan - 0 = free, 1 - 32 = coord plan 1 - 32, 33 = any, 34 none selected
time clock circuits - 0 = not used, or circuits 6 - 199

Dynamic Phase Lengths (Next/2/3/4/4)

Phase ->	1	2	3	4	5	6	7	8	
Back Detector	0	0	0	0	0	0	0	0	0 = none, 1-32 = detector 1-32
Lane Factor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 = none, 0.5 - 5.0
Check Out Detector	0	0	0	0	0	0	0	0	0 = none, 1-32 = detector 1-32
Coord Delta Force Off	Set A	0	0	0	0	0	0	0	0 - 255 sec
	Set B	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	
Free Delta Max	Set A	0	0	0	0	0	0	0	
	Set B	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	

Auto Permissive Min Green (Next/2/3/4/3)

Phase ->	1	2	3	4	5	6	7	8	
Auto Perm Min Green	0	0	0	0	0	0	0	0	0 - 255 sec.

Time of Day Data (Next/2/4/1)

Day Program

	Day Prog	Time	Coord Plan or Circuit	Coord Plan # or Circuit #	Circuit Abbrev	State On/Off
1	1	05:45	Circuit	13	MX2	X
2	1	06:00	Circuit	8	ESR	X
3	1	08:00	Circuit	13	MX2	
4	1	15:00	Circuit	13	MX2	X
5	1	18:00	Circuit	13	MX2	
6	1	20:00	Circuit	8	ESR	
7	2	06:00	Circuit	8	ESR	X
8	2	20:00	Circuit	8	ESR	
9	3	06:00	Circuit	8	ESR	X
10	3	20:00	Circuit	8	ESR	
11	0	00:00	Circuit	0	None / Coord Plan	
12	0	00:00	Circuit	0	None / Coord Plan	
13	0	00:00	Circuit	0	None / Coord Plan	
14	0	00:00	Circuit	0	None / Coord Plan	
15	0	00:00	Circuit	0	None / Coord Plan	
16	0	00:00	Circuit	0	None / Coord Plan	
17	0	00:00	Circuit	0	None / Coord Plan	
18	0	00:00	Circuit	0	None / Coord Plan	
19	0	00:00	Circuit	0	None / Coord Plan	
20	0	00:00	Circuit	0	None / Coord Plan	
21	0	00:00	Circuit	0	None / Coord Plan	
22	0	00:00	Circuit	0	None / Coord Plan	
23	0	00:00	Circuit	0	None / Coord Plan	
24	0	00:00	Circuit	0	None / Coord Plan	
25	0	00:00	Circuit	0	None / Coord Plan	
26	0	00:00	Circuit	0	None / Coord Plan	
27	0	00:00	Circuit	0	None / Coord Plan	
28	0	00:00	Circuit	0	None / Coord Plan	
29	0	00:00	Circuit	0	None / Coord Plan	
30	0	00:00	Circuit	0	None / Coord Plan	
31	0	00:00	Circuit	0	None / Coord Plan	
32	0	00:00	Circuit	0	None / Coord Plan	
33	0	00:00	Circuit	0	None / Coord Plan	
34	0	00:00	Circuit	0	None / Coord Plan	
35	0	00:00	Circuit	0	None / Coord Plan	
36	0	00:00	Circuit	0	None / Coord Plan	
37	0	00:00	Circuit	0	None / Coord Plan	
38	0	00:00	Circuit	0	None / Coord Plan	
39	0	00:00	Circuit	0	None / Coord Plan	
40	0	00:00	Circuit	0	None / Coord Plan	
	1 - 15	hh:mm	X = On = Coord Plan	coord plan 0 - 32 or circuit 1-199		X = On

CIRCUIT OVERRIDES 1 - 100 (Next/2/4/4)

1 - Coord Line 1	CL1	2 = TOD	51 - Ped Omit 3	PO3	2 = TOD
2 - Coord Line 2	CL2	2 = TOD	52 - Ped Omit 4	PO4	2 = TOD
3 - Coord Line 4	CL4	2 = TOD	53 - Ped Omit 5	PO5	2 = TOD
4 - Coord Line 8	CL8	2 = TOD	54 - Ped Omit 6	PO6	2 = TOD
5 - Coord Line 16	C16	2 = TOD	55 - Ped Omit 7	PO7	2 = TOD
6 - Coordinated Operation	CRD	2 = TOD	56 - Ped Omit 8	PO8	2 = TOD
7 - Soft Flash	SFL	2 = TOD	57 - Conditional Service	CVS	2 = TOD
8 - Enable System Relays	ESR	2 = TOD	58 - Inhibit Simultaneous Gap Out	ISG	1 = On
9 - Call to Non Actuated Ring 1	CN1	2 = TOD	59 - Inhibit Hardwire	HWI	2 = TOD
10 - Call to Non Actuated Ring 2	CN2	2 = TOD	60 - Ped Override Mode	POM	1 = On
11 - Walk Rest Modifier	WRM	2 = TOD	61 - Dual Entry	DLE	1 = On
12 - Min Recall	MIN	2 = TOD	62 - Exclusive Ped	EPD	2 = TOD
13 - Max 2 Both Rings	MX2	2 = TOD	63 - Call to Time Clock Mode	CTC	2 = TOD
14 - Coord Inhibit Max Ring 1,2	IMT	2 = TOD	64 - Dual Enhanced Ped	DEP	2 = TOD
15 - Enable Service Log	ESL	2 = TOD	65 - Service Plan 1	SP1	2 = TOD
16 - Call to Free	CTF	2 = TOD	66 - Service Plan 2	SP2	2 = TOD
17 - TOD Output 1	TO1	2 = TOD	67 - Service Plan 3	SP3	2 = TOD
18 - TOD Output 2	TO2	2 = TOD	68 - Service Plan 4	SP4	2 = TOD
19 - TOD Output 3	TO3	2 = TOD	69 - Service Plan 5	SP5	2 = TOD
20 - TOD Output 4	TO4	2 = TOD	70 - Service Plan 6	SP6	2 = TOD
21 - TOD Output 5	TO5	2 = TOD	71 - Service Plan 7	SP7	2 = TOD
22 - TOD Output 6	TO6	2 = TOD	72 - Service Plan 8	SP8	2 = TOD
23 - TOD Output 7	TO7	2 = TOD	73 - Max Plan 1	MP1	2 = TOD
24 - TOD Output 8	TO8	2 = TOD	74 - Max Plan 2	MP2	2 = TOD
25 - Vehicle Call Phase 1	VC1	2 = TOD	75 - Max Plan 3	MP3	2 = TOD
26 - Vehicle Call Phase 2	VC2	2 = TOD	76 - Max Plan 4	MP4	2 = TOD
27 - Vehicle Call Phase 3	VC3	2 = TOD	77 - Max Plan 5	MP5	2 = TOD
28 - Vehicle Call Phase 4	VC4	2 = TOD	78 - Max Plan 6	MP6	2 = TOD
29 - Vehicle Call Phase 5	VC5	2 = TOD	79 - Max Plan 7	MP7	2 = TOD
30 - Vehicle Call Phase 6	VC6	2 = TOD	80 - Max Plan 8	MP8	2 = TOD
31 - Vehicle Call Phase 7	VC7	2 = TOD	81 - Transit Priority Max Group 1	TG1	2 = TOD
32 - Vehicle Call Phase 8	VC8	2 = TOD	82 - Transit Priority Max Group 2	TG2	2 = TOD
33 - Ped Call Phase 1	PC1	2 = TOD	83 - Transit Priority Max Group 3	TG3	2 = TOD
34 - Ped Call Phase 2	PC2	2 = TOD	84 - Transit Priority Max Group 4	TG4	2 = TOD
35 - Ped Call Phase 3	PC3	2 = TOD	85 - Transit Priority Max Group 5	TG5	2 = TOD
36 - Ped Call Phase 4	PC4	2 = TOD	86 - Transit Priority Max Group 6	TG6	2 = TOD
37 - Ped Call Phase 5	PC5	2 = TOD	87 - Transit Priority Max Group 7	TG7	2 = TOD
38 - Ped Call Phase 6	PC6	2 = TOD	88 - Transit Priority Max Group 8	TG8	2 = TOD
39 - Ped Call Phase 7	PC7	2 = TOD	89 - Inhibit Gap Reducing 1	GR1	2 = TOD
40 - Ped Call Phase 8	PC8	2 = TOD	90 - Inhibit Gap Reducing 2	GR2	2 = TOD
41 - Phase Omit 1	VO1	2 = TOD	91 - Inhibit Gap Reducing 3	GR3	2 = TOD
42 - Phase Omit 2	VO2	2 = TOD	92 - Inhibit Gap Reducing 4	GR4	2 = TOD
43 - Phase Omit 3	VO3	2 = TOD	93 - Inhibit Gap Reducing 5	GR5	2 = TOD
44 - Phase Omit 4	VO4	2 = TOD	94 - Inhibit Gap Reducing 6	GR6	2 = TOD
45 - Phase Omit 5	VO5	2 = TOD	95 - Inhibit Gap Reducing 7	GR7	2 = TOD
46 - Phase Omit 6	VO6	2 = TOD	96 - Inhibit Gap Reducing 8	GR8	2 = TOD
47 - Phase Omit 7	VO7	2 = TOD	97 - Lag 1	LG1	2 = TOD
48 - Phase Omit 8	VO8	2 = TOD	98 - Lag 3	LG3	2 = TOD
49 - Ped Omit 1	PO1	2 = TOD	99 - Lag 5	LG5	2 = TOD
50 - Ped Omit 2	PO2	2 = TOD	100 - Lag 7	LG8	2 = TOD

CIRCUIT OVERRIDES 101 - 200 (Next/2/4/4)

101 - Inhibit Overlap A	OLA	2 = TOD	151 - Coord Hold 7	HD7	2 = TOD
102 - Inhibit Overlap B	OLB	2 = TOD	152 - Coord Hold 8	HD8	2 = TOD
103 - Inhibit Overlap C	OLC	2 = TOD	153 - PE Priority Return B	PRB	2 = TOD
104 - Inhibit Overlap D	OLD	2 = TOD	154 - PE Priority Return C	PRC	2 = TOD
105 - Enable Schedule A Phone 1	AT1	2 = TOD	155 - PE Priority Return D	PRD	2 = TOD
106 - Enable Schedule A Phone 2	AT2	2 = TOD	156 - PE Priority Return E	PRE	2 = TOD
107 - Enable Schedule B Phone 1	BT1	2 = TOD	157 - Platoon Inbound	PPI	2 = TOD
108 - Enable Schedule B Phone 2	BT2	2 = TOD	158 - Platoon Outbound	PPO	2 = TOD
109 - Enable Schedule C Phone 1	CT1	2 = TOD	159 - Platoon Spl 2	PS2	2 = TOD
110 - Enable Schedule C Phone 2	CT2	2 = TOD	160 - Coord Walk Rest	CWR	2 = TOD
111 - Enable Volume to Call Phone 1	VT1	2 = TOD	161 - Dynamic Phase Length Short Inhibit 1	SL1	2 = TOD
112 - Enable Volume to Call Phone 1	VT2	2 = TOD	162 - Dynamic Phase Length Short Inhibit 2	SL2	2 = TOD
113 - Enable Volume Logging	EVL	1 = On	163 - Dynamic Phase Length Short Inhibit 3	SL3	2 = TOD
114 - Enable MOE Logging	EML	1 = On	164 - Dynamic Phase Length Short Inhibit 4	SL4	2 = TOD
115 - Detector Low Threshold Inhibit	DLI	2 = TOD	165 - Dynamic Phase Length Short Inhibit 5	SL5	2 = TOD
116 - Detector Continue Presence Inhibit	DPI	2 = TOD	166 - Dynamic Phase Length Short Inhibit 6	SL6	2 = TOD
117 - Inhibit Detector Based On Programming	IND	2 = TOD	167 - Dynamic Phase Length Short Inhibit 7	SL7	2 = TOD
118 - Inhibit Detector Delay	IDD	2 = TOD	168 - Dynamic Phase Length Short Inhibit 8	SL8	2 = TOD
119 - Inhibit Conditional Ped	ICP	2 = TOD	169 - Coord Late Left Turn 1	CT1	2 = TOD
120 - Inhibit Transit Priority	ITP	2 = TOD	170 - Coord Late Left Turn 3	CT3	2 = TOD
121 - Red Rest Ring 1,2	RRM	2 = TOD	171 - Coord Late Left Turn 5	CT5	2 = TOD
122 - Enable Transcend	TRA	2 = TOD	172 - Coord Late Left Turn 7	CT7	2 = TOD
123 - Omit Red Clear Ring 1,2	ORC	2 = TOD	173 - Dynamic Phase Length Enable A	DPA	2 = TOD
124 - Enable Classification Logging	CLE	2 = TOD	174 - Dynamic Phase Length Enable B	DPB	2 = TOD
125 - Ped Recycle Ring 1,2	PCY	2 = TOD	175 - Dynamic Phase Length Enable C	DPC	2 = TOD
126 - Not Used"	N/U	2 = TOD	176 - Dynamic Phase Length Enable D	DPD	2 = TOD
127 - Enable MOE Log to Call Phone 1	MT1	2 = TOD	177 - Proactive Plan Select Average	PSA	2 = TOD
128 - Enable MOE Log to Call Phone 2	MT2	2 = TOD	178 - Proactive Plan Select Inbound	PSI	2 = TOD
129 - Transit Inhibit Short Time 1	IS1	2 = TOD	179 - Proactive Plan Select Outbound	PSO	2 = TOD
130 - Transit Inhibit Short Time 2	IS2	2 = TOD	180 - Split Variant Inbound	SVI	2 = TOD
131 - Transit Inhibit Short Time 3	IS3	2 = TOD	181 - Split Variant Outbound	SVO	2 = TOD
132 - Transit Inhibit Short Time 4	IS4	2 = TOD	182 - Disable Coord Walk Rest Ring 1	WR1	2 = TOD
133 - Transit Inhibit Short Time 5	IS5	2 = TOD	183 - Disable Coord Walk Rest Ring 2	WR2	2 = TOD
134 - Transit Inhibit Short Time 6	IS6	2 = TOD	184 - Proactive Plan Select New Look	NLK	2 = TOD
135 - Transit Inhibit Short Time 7	IS7	2 = TOD	185 - Disable Red Clearance Extension	DRX	2 = TOD
136 - Transit Inhibit Short Time 8	IS8	2 = TOD	186 - Detector Plan Line 1	DL1	2 = TOD
137 - Enable Transit Priority Logging	ETL	2 = TOD	187 - Detector Plan Line 2	DL2	2 = TOD
138 - Disable Flashing Yellow Arrow 1	DF1	2 = TOD	188 - Disable LRT 1 Vertical Flashing Bar	DV1	2 = TOD
139 - Disable Flashing Yellow Arrow 3	DF3	2 = TOD	189 - Disable LRT 2 Vertical Flashing Bar	DV2	2 = TOD
140 - Disable Flashing Yellow Arrow 5	DF5	2 = TOD	190 - Disable LRT 3 Vertical Flashing Bar	DV3	2 = TOD
141 - Disable Flashing Yellow Arrow 7	DF7	2 = TOD	191 - Disable LRT 4 Vertical Flashing Bar	DV4	2 = TOD
142 - Disable Auto Max	DAM	2 = TOD	192 - Datakey Enable	DKE	1 = On
143 - Disable Repeated Phase Service	DRS	2 = TOD	193 - Dynamic Phase Reversal Enable 1	DR1	2 = TOD
144 - End of Main Street	EMS	2 = TOD	194 - Dynamic Phase Reversal Enable 3	DR3	2 = TOD
145 - Coord Hold 1	HD1	2 = TOD	195 - Dynamic Phase Reversal Enable 5	DR5	2 = TOD
146 - Coord Hold 2	HD2	2 = TOD	196 - Dynamic Phase Reversal Enable 7	DR7	2 = TOD
147 - Coord Hold 3	HD3	2 = TOD	197 - Enable Coordination Log	ECL	1 = On
148 - Coord Hold 4	HD4	2 = TOD	198 - Disable Gap For FYLTA	DGF	2 = TOD
149 - Coord Hold 5	HD5	2 = TOD	199 - Coordination Auto Walk	CAW	2 = TOD
150 - Coord Hold 6	HD6	2 = TOD	200 - Enable Coordinated Auto Max	ECM	2 = TOD

PREEMPTION SEQUENCE 1 - 4 (Next/2/5)

Seq	Interval	Instruction	Phases Serviced	Interval Time	Hold On Input	Output On	Output Mode	
1	1	0	- 2 - - 5 - - -	0	On	- - - - -	0	Instructions - 0 = service phases defined in phases location 1-9 = use special intervals 1-9 10 = preempt sequence allows fylta 11 = preempt interval disables fylta 15 = alternate trap protection 90 = go to all red 91 = turn cvm off 92 = turn cvm on 93 = enable ped service and phases defined in phases location 94 = disable ped service 96 = enable coordination w/peds 97 = enable coordination w/o peds 98 = return with no calls 99 = return with ped calls and phases defined in phases location 100 = jump to step defined in time location and input has to be active for jump 101 = use time as resettable gap timer and service phases defined in phases location 196 = coordination sync w/peds 197 = coordination sync w/o peds 200 = lrt phase service w/o peds 201 = lrt phase service w/peds 202 = priority return-queue/delay 216 = lrt coordination sync w/peds 217 = lrt coordination sync w/o peds Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
2	1	0	- - - - -	0	Off	- - - - -	0	100 = jump to step defined in time location and input has to be active for jump 101 = use time as resettable gap timer and service phases defined in phases location 196 = coordination sync w/peds 197 = coordination sync w/o peds 200 = lrt phase service w/o peds 201 = lrt phase service w/peds 202 = priority return-queue/delay 216 = lrt coordination sync w/peds 217 = lrt coordination sync w/o peds Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10
	2	0	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
3	1	0	1 - - - - 6 - -	0	On	- - - - -	0	100 = jump to step defined in time location and input has to be active for jump 101 = use time as resettable gap timer and service phases defined in phases location 196 = coordination sync w/peds 197 = coordination sync w/o peds 200 = lrt phase service w/o peds 201 = lrt phase service w/peds 202 = priority return-queue/delay 216 = lrt coordination sync w/peds 217 = lrt coordination sync w/o peds Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	
4	1	0	- - - 4 - - - 8	0	On	- - - - -	0	Hold on Input: 0 = Do not hold 1 = Hold 2 = Ped Service to Rest in Walk Outputs On - output 1 - 8 Output Modes - 0 = all steady on 1 = all flash together 2 = odd flashes WIG, even flashes WAG 3 = 1 - 4 steady on, 5 - 8 all flash together
	2	98	- - - - -	0	Off	- - - - -	0	
	3	0	- - - - -	0	Off	- - - - -	0	
	4	0	- - - - -	0	Off	- - - - -	0	
	5	0	- - - - -	0	Off	- - - - -	0	
	6	0	- - - - -	0	Off	- - - - -	0	
	7	0	- - - - -	0	Off	- - - - -	0	
	8	0	- - - - -	0	Off	- - - - -	0	
	9	0	- - - - -	0	Off	- - - - -	0	
	10	0	- - - - -	0	Off	- - - - -	0	

SEQUENCE TIMING (Next/2/5/0)

Sequence		1	2	3	4	5	6	7	8		
Input Memory										X = on	
Input Priority		6	0	6	6	0	0	0	0	0 = lowest, - 8 = highest	
Entry (Transition) Parameters	Min Green	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec 0.0 would time the normal function time	
	Walk	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0		
	Ped Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec	
	Overlap Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Overlap Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 255 sec	
	Delay to Preempt	0	0	0	0	0	0	0	0		
	Delay Ped Omit	0	0	0	0	0	0	0	0		
	Delay Phase Omit	0	0	0	0	0	0	0	0		
Min Reservice		0	0	0	0	0	0	0	0	0 - 255 min	
Overlap Inhibits		A								X = on	
		B									
		C									
		D									
Exit Parameters	Exit to Coord Plan Offset by X	0	0	0	0	0	0	0	0	0 - 20	
	Exit Coord Plan Time	0	0	0	0	0	0	0	0	0 - 60 min	
	Exit to Max Plan	0	0	0	0	0	0	0	0	0 - 8	
	Exit Free Time	0	0	0	0	0	0	0	0	0 - 60 min	
	Override Time	0	0	0	0	0	0	0	0		
	Fail Time	0	0	0	0	0	0	0	0		
	Exit Mode Time	0	0	0	0	0	0	0	0		

PRIORITY RETURN AND SPECIAL INTERVALS (Next/2/5/0/6, Next/2/5/9)

Phase / Overlap		1	2	3	4	5	6	7	8	A	B	C	D	
Priority Return	Enable	Off	0 = disabled; 1 = enabled; 2 = enabled and skip preempt phase on exit											
	A (max)	0	0	0	0	0	0	0	0	0 - 100% of currently used max				
	B (max)	0	0	0	0	0	0	0	0					
	C (max)	0	0	0	0	0	0	0	0					
	D (max)	0	0	0	0	0	0	0	0					
	E (max)	0	0	0	0	0	0	0	0					
	Ped Clear	0	0	0	0	0	0	0	0	0 - 100% of currently used ped clearance				
Queue Delay Recovery		0	0	0	0	0	0	0	0	0 - 255 sec				
Special Intervals	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = Dark 1 = green don't walk 2 = green walk 3 = green flashing don't walk 4 = yellow 5 = red 6 = flashing yellow WIG 7 = flashing yellow WAG 8 = flashing red WIG 9 = flashing red WAG 10 = walk only 11=flashing don't walk only
	2	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	
	6	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	

LIGHT RAIL TRAIN (Next/2/5/0/7)

Light Rail Train	1	2	3	4	
Associated Preempt	0	0	0	0	0 = none, preempt 1 - 8
Time to Green	0	0	0	0	0 - 255 sec
Horizontal Bar Flash Time	0.0	0.0	0.0	0.0	
Vertical Bar Flash Time	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
Min Duration	0	0	0	0	0 - 255 sec

COMMUNICATION DATA (Next/2/6)

1st Central Phone Number		2nd Central Phone Number	
Modem Setup String			
Intersection Name	2B367: 99W @ 124th		
Central Port	6 = UDP/AB3418/C14S		
System Mode	0		
System Port	0		
System ID	19	AB3418 Physical Address	1
Local ID	2	AB3418 Group Address	0
Serial Port Parameters	Baud Rates	Flow	Ethernet Parameters 1, 2
Port1 (Slot A2 Upper)	0 = 1200	1	IP Address 167.131.138.203
Port2 (Slot A2 Lower)	0 = 1200	1	Gateway Address 167.131.138.193
Port3 (Slot A1 Upper)	0 = 1200	0	Subnet Mask 255.255.255.192 0 . 0 . 0 . 0
Port4 (Slot A1 :pwr pr C50S)	2 = 9600	Not Used	IP Port 25000 0

0 = 1200, 1 = 2400, 2 = 9600, 3 = 19200 baud

COMMUNICATION REPORTS (Next/2/6/6, Next/2/6/7)

Volume Log Period	15	0 - 255 seconds or see below	MOE Log Period	15	See below
Volume OCC Period	0	0 - 255 seconds			
0 = disabled, 1,2,3,4,5,6,10,12,15,20,30,60 minutes					

Alarm 1	0	0 = none 1 = schedule A 2 = schedule B 3 = schedule C 4 = schedule R	Soft Flash	1	0 = none 1 = schedule A 2 = schedule B 3 = schedule C 4 = schedule R
Alarm 2	0		Manual Control Enable (MCE)	4	
Alarm 3	0		Emergency or Railroad Preempt	1	
Alarm 4	0		Light Rail Train (LRG)	0	
Alarm 5	0		Cycle Failure	2	
Not Used			Coordination Failure	2	
Not Used			Keyboard use /Data Changed	3	
Not Used			Coord Running / Free	2	
Power On / Off	1		Cabinet Door	3	
Checksum Failure	4		Extended Ped Pushbutton	0	
Video / Detector Failure	4	Monitor Status	4		
Master to Local Comm Lost	0	Red Extension	0		

170 INPUTS (Next/2/8/1)

C1-39	101 - Veh Detector 9	C1-67	22 - Ped Detector 2
C1-40	113 - Veh Detector 19	C1-68	26 - Ped Detector 6
C1-41	106 - Veh Detector 14	C1-69	23 - Ped Detector 3
C1-42	118 - Veh Detector 24	C1-70	28 - Ped Detector 8
C1-43	102 - Veh Detector 10	C1-71	151 - Preempt In 1
C1-44	114 - Veh Detector 20	C1-72	152 - Preempt In 2
C1-45	107 - Veh Detector 15	C1-73	153 - Preempt In 3
C1-46	161 - Veh Detector 25	C1-74	154 - Preempt In 4
C1-47	105 - Veh Detector 13	C1-75	254 - Pin Not Used
C1-48	117 - Veh Detector 23	C1-76	104 - Veh Detector 12
C1-49	112 - Veh Detector 18	C1-77	116 - Veh Detector 22
C1-50	164 - Veh Detector 28	C1-78	111 - Veh Detector 17
C1-51	199 - LRT Ped Inhibit	C1-79	163 - Veh Detector 27
C1-52	155 - Preempt In 5	C1-80	82 - Interval Advance
C1-53	85 - Manual Control Enable	C1-81	137 - Conflict Monitor Status/Flash
C1-54	254 - Pin Not Used	C1-82	62 - Stop Timing Ring 1
C1-55	15 - Veh Detector 5	C11-15	254 - Pin Not Used
C1-56	11 - Veh Detector 1	C11-16	254 - Pin Not Used
C1-57	17 - Veh Detector 7	C11-17	254 - Pin Not Used
C1-58	13 - Veh Detector 3	C11-18	254 - Pin Not Used
C1-59	16 - Veh Detector 6	C11-19	254 - Pin Not Used
C1-60	12 - Veh Detector 2	C11-20	254 - Pin Not Used
C1-61	18 - Veh Detector 8	C11-21	254 - Pin Not Used
C1-62	14 - Veh Detector 4	C11-22	254 - Pin Not Used
C11-10	254 - Pin Not Used	C11-23	254 - Pin Not Used
C11-11	254 - Pin Not Used	C11-24	254 - Pin Not Used
C11-12	254 - Pin Not Used	C11-25	254 - Pin Not Used
C11-13	254 - Pin Not Used	C11-26	254 - Pin Not Used
C1-63	103 - Veh Detector 11	C11-27	254 - Pin Not Used
C1-64	115 - Veh Detector 21	C11-28	254 - Pin Not Used
C1-65	108 - Veh Detector 16	C11-29	254 - Pin Not Used
C1-66	162 - Veh Detector 26	C11-30	254 - Pin Not Used

INPUTS AND OUTPUTS OPTIONS (Next/2/8/3)

Connector Type	C1/C11	Change I/O	0 = Disabled
0 = C1/C11; 1 = MS-A/B/C/D; 2 = TS2 Port 1; 3 = ITS Cabinet		X = On (After a download without a power on - off cycle)	

170 OUTPUTS (Next/2/8/2)

C1-2	43 - Don't Walk, Ph 3	C1-35	131 - TOD Output 1
C1-3	63 - Walk, Ph 3	C1-36	132 - TOD Output 2
C1-4	14 - Red, Ph 4	C1-37	133 - TOD Output 3
C1-5	24 - Yellow, Ph 4	C1-38	134 - TOD Output 4
C1-6	34 - Green, Ph 4	C1-100	53 - Ped Clear, Ph 3
C1-7	13 - Red, Ph 3	C1-101	51 - Ped Clear, Ph 1
C1-8	23 - Yellow, Ph 3	C1-102	187 - Soft Flash
C1-9	33 - Green, Ph 3	C1-103	147 - Watchdog
C1-10	42 - Don't Walk, Ph 2	C1-83	43 - Don't Walk, Ph 3
C1-11	62 - Walk, Ph 2	C1-84	63 - Walk, Ph 3
C1-12	12 - Red, Ph 2	C1-85	116 - Overlap D, Red
C1-13	22 - Yellow, Ph 2	C1-86	115 - Overlap D, Yellow
C1-15	32 - Green, Ph 2	C1-87	114 - Overlap D, Green
C1-16	11 - Red, Ph 1	C1-88	113 - Overlap C, Red
C1-17	21 - Yellow, Ph 1	C1-89	112 - Overlap C, Yellow
C1-18	31 - Green, Ph 1	C1-90	111 - Overlap C, Green
C1-19	48 - Don't Walk, Ph 8	C1-91	41 - Don't Walk, Ph 1
C1-20	68 - Walk, Ph 8	C1-93	61 - Walk, Ph 1
C1-21	18 - Red, Ph 8	C1-94	106 - Overlap B, Red
C1-22	28 - Yellow, Ph 8	C1-95	105 - Overlap B, Yellow
C1-23	38 - Green, Ph 8	C1-96	104 - Overlap B, Green
C1-24	17 - Red, Ph 7	C1-97	103 - Overlap A, Red
C1-25	27 - Yellow, Ph 7	C1-98	102 - Overlap A, Yellow
C1-26	37 - Green, Ph 7	C1-99	101 - Overlap A, Green
C1-27	46 - Don't Walk, Ph 6	C11-1	254 - Pin Not Used
C1-28	66 - Walk, Ph 6	C11-2	254 - Pin Not Used
C1-29	16 - Red, Ph 6	C11-3	254 - Pin Not Used
C1-30	26 - Yellow, Ph 6	C11-4	254 - Pin Not Used
C1-31	36 - Green, Ph 6	C11-5	254 - Pin Not Used
C1-32	15 - Red, Ph 5	C11-6	254 - Pin Not Used
C1-33	25 - Yellow, Ph 5	C11-7	254 - Pin Not Used
C1-34	35 - Green, Ph 5	C11-8	254 - Pin Not Used

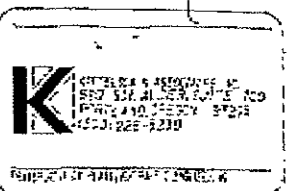
INTERNAL LOGIC 1 - 96 (Next/2/9)

Step	Inst.	Comment	Step	Inst.	Comment
1	208	Transfer	49	0	VD30 - for logging
2	1	I9U	50	0	
3	200	VD29 - for logging	51	0	
4	28	Transfer	52	0	
5	1	J9U	53	0	
6	223	VD29 - for logging	54	0	
7	1	Transfer	55	0	
8	27	VD9 - I2U to	56	0	
9	1	VD30 - for logging	57	0	
10	0	Transfer	58	0	
11	0	VD10 - I2L to	59	0	
12	0	VD30 - for logging	60	0	
13	0	Transfer	61	0	
14	0		62	0	
15	0	VD31 - for logging	63	0	
16	0	Transfer	64	0	
17	0		65	0	
18	0	VD31 - for logging	66	0	
19	0	Transfer	67	0	
20	0		68	0	
21	0	VD32 - for logging	69	0	
22	0	Transfer	70	0	
23	0		71	0	
24	0	VD32 - for logging	72	0	
25	0		73	0	
26	0		74	0	
27	0	VD33 - for logging	75	0	
28	0		76	0	
29	0		77	0	
30	0	VD33 - for logging	78	0	
31	0		79	0	
32	0		80	0	
33	0		81	0	
34	0		82	0	
35	0		83	0	
36	0		84	0	
37	0		85	0	
38	0		86	0	
39	0		87	0	
40	0		88	0	
41	0		89	0	
42	0		90	0	
43	0		91	0	
44	0		92	0	
45	0		93	0	
46	0		94	0	
47	0		95	0	
48	0		96	0	

CONTROLLER ID	
----------------------	--

Manufacturer ID	NORTHWEST SIGNAL
Model ID	Voyage-0 v05.03.00
Protocol Revision ID	AB3418E V1

124TH AT TUALATIN RD
DETECTOR & INTERCONNECT PLAN



REVISED AS CONSTRUCTED
28-June-1999 CONTRACT 12044
8/16/99 Add Bure Loop

LEGEND

- (C) CONTROLLER (See Signal Plan)
- (S) Junction box (See Signal Plan)
- (D) Install 400 ohm 1/2 watt 1/4 205 ohm 1/4 watt resistor at each detector junction box
- (V) Install phase 100' of 1/2" shielded video detector cable
- (P) Install phase 100' of 1/2" shielded video detector loop
- (I) Install 1/2" phase 100' video sensor cables
- (L) Install pair of loop wires
- (E) Install 1/2" wire shielded conduct
- (EC) Electronic control (See Signal Plan)
- (IC) Install 1/2" wire shielded conduct cable
- (P) Install only portion if not shown

ABBREVIATIONS

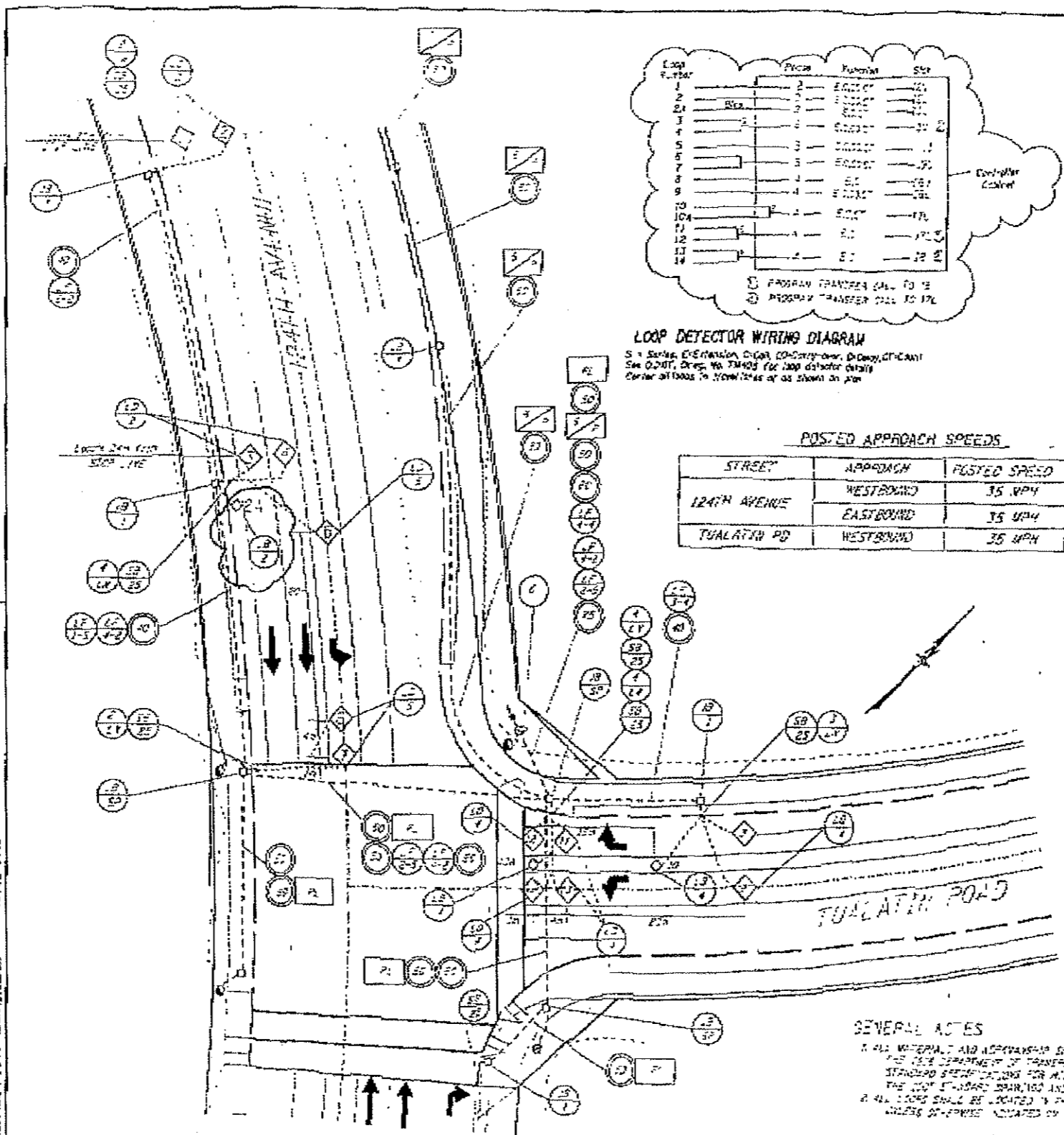
- T = TYPE SHOWN
- PH = P-AIR SHOWN
- N = NUMBER OF CABLES SHOWN
- E = ELEVATOR PLUMBING
- M = HEIGHT SHOWN
- A = NUMBER SHOWN
- S = SIZE SHOWN
- ST = STANDARD PLUMBING
- CH = CHANNEL SHOWN
- L = LENGTH SHOWN
- PV = POLE MOUNTED

POSTED APPROACH SPEEDS

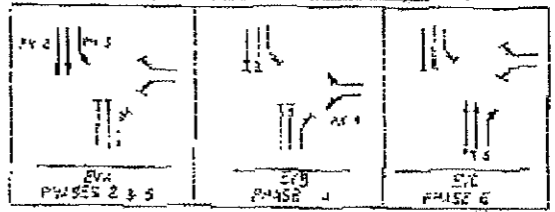
STREET	APPROACH	POSTED SPEED
124TH AVENUE	WESTBOUND	35 MPH
	EASTBOUND	35 MPH
TUALATIN RD	WESTBOUND	35 MPH

LOOP DETECTOR WIRING DIAGRAM

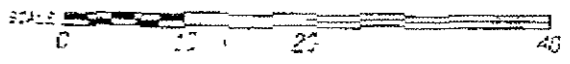
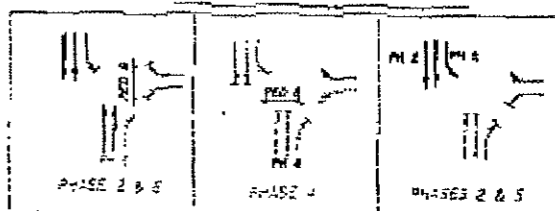
S = Series Extension, D/C = Direct Current, D/C = Direct Current
See O.D.T. Draw. No. 73403 for loop detector details
Corner offsets to town lines as shown on plan



FIRE PREEMPTION OPERATION



NORMAL PHASE ROTATION



GENERAL NOTES

- 1. ALL MATERIAL AND APPROVALS SHALL BE IN ACCORDANCE WITH THE OREGON DEPARTMENT OF TRANSPORTATION (ODOT) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE 2001 STANDARD DRAWINGS AND SPECIAL PROVISIONS.
- 2. ALL LOTS SHALL BE LOCATED IN THE CENTER OF THE LANE UNLESS OTHERWISE NOTED ON THE DETECTOR PLAN.

TRAFFIC SIGNAL INSTALLATION		
35th AT 124TH AVENUE & TUALATIN RD, SEASIDE, OREGON		
PACIFIC HIGHWAY WEST		
VAN-INGEN CONSULTANTS		
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
REGION ID	OREGON DIVISION	TS 5

PROJECT NO. 2219 URBAN SIG. PLAN APRIL 1999

01/25/00 15:37 P.003/005

NORTH

Friday, June 10, 2016 09:09

Intersection Name	1 - Tualatin_124th A	Local ID	1	
Intersection Telephone Number				
System Name	19 - 99W_Tualatin	System ID	19	
Controller Type	Voyage - C1-C11			
Controller Serial Number		Installation Date		
Programmed by		Programmed Date		

Graphic Map Background	Phase Rotation Diagram

Control Data (next/2/2)

Controller Function and Timing (next/2/1, next/2/2)

Security, Sequence, Initialization

Security Code	****	0 = disabled, or 1000-9999
Sequence	7	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag

	Lead Lag (next/2/2/3)			
	Phases 1 - 2	Phases 3 - 4	Phases 5 - 6	Phases 7 - 8
	2	2	2	2
0 = no reversal, 1 = reversal, 2 = by coord plan or clock				

Initialization and Flash (next/2/2/5)

	Initialization	Flash Entry	Flash Exit	
Ring 1 Phase	2	0	2	phase 1-8
Ring 2 Phase	6	0	6	phase 1-8
Interval	2	0	2	0 = red, 1 = yellow, 2 = green
Power up Flash	0.0	0.0 - 25.5 seconds	First All Red	8.0
				0.0 - 25.5 seconds

Soft Flash (next/2/2/5)

Phase	1	2	3	4	5	6	7	8	0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG				
	3	4	3	4	3	4	3	4					
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	same as phase
	3	4	3	4	3	4	3	4	3	4	3	4	
Internal Logic Output	1	2	3	4	5	6	7	8	9	10	11	12	0 = normal, 1 = dark, 2 = flash WIG
	0	0	0	0	0	0	0	0	0	0	0	0	

Per Phase Functions (next/2/2/3, next/2/2/1)									
	1	2	3	4	5	6	7	8	
Phases Used		X		X	X	X		X	X = on
Restricted Phases									X = on (Sequence 2, 6, 7 only)
Exclusive Phases									X = on (Sequence 7 only)
Yellow Lock									X = on
Min Recall		X				X			
Max Recall									
Ped Recall									
Red Lock									
Max Out Recall Inhibit									
Soft Recall									
Free Walk Rest									
Conditional Ped									
Disable Inhibit Max Termination									
Call to Non Act 1									
Call to Non Act 2									
Dual Entry (next/2/2/9/3)									
Mode	1	0 = off, 1 = on, 2 = Not Used, 3 = by coord plan, 4 = by time clock circuit 61							
Dual Entry Phase -->	1	2	3	4	5	6	7	8	
Phase	0	6	0	8	0	2	0	4	0 = none, 1-8 = phase 1-8
Conditional Service, Five Section Head									
Conditional Service (next/2/2/9/3)			5 Section Head Logic (next/2/2/9/4)						
Phase	Mode	CS Max Time	X Omits Y		Anti-Trap			Yellow Blanking LT	
			X : Y		Trap Protected Phase	Next Phase	Phase		
Phase 1	0	0	6 : 1	0	1		< (5)	1	
Phase 3	0	0	8 : 3	0	3		< (7)	3	
Phase 5	0	0	2 : 5	0	5		< (1)	5	
Phase 7	0	0	4 : 7	0	7		< (3)	7	
0 = off, 1 = C.S.On. 2 = C.S. on by TOD circuit 57, 3 = N/A, 4 = C.S. and C.R. On, 5 = C.R. on by TOD circuit 57.			0=off, 1=side call, 2=no side call		X = On				

Phase Times (next/2/2/2, next/2/2/9/5)								
	1	2	3	4	5	6	7	8
Movement		<i>SB</i>		<i>WB</i>	<i>SBL</i>	<i>NB</i>		<i>PED</i>
Minimum Green	0	10	0	5	10	10	0	0
Passage	0.0	3.0	0.0	3.0	3.0	3.9	0.0	0.0
Yellow	0.0	4.0	0.0	4.0	4.0	4.0	0.0	2.0
Red Clearance	0.0	1.0	0.0	1.0	1.0	1.0	0.0	0.0
Max 1	0	50	0	15	40	50	0	30
Max 2	0	50	0	15	40	50	0	30
Walk	0	0	0	0	0	10	0	9
Ped Clear	0	0	0	0	0	15	0	23
Seconds Per Actuation	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0
Time Before Reduction	0	0	0	0	0	0	0	0
Time to Reduce	0	0	0	0	0	0	0	0
Minimum Gap	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0
Max Variable Initial	0	10	0	0	10	10	0	0
Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auto Max Limit	0	0	0	0	0	0	0	0
Inhibit Min Yellow								X
Red Decimal Off								X
Advance Walk	0	0	0	0	0	0	0	0
Other Controller Functions (next/2/2/9)								
Phase -->	1	2	3	4	5	6	7	8
Inhibit Simultaneous Gap Out	X		X	X	X		X	X
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage						
Red Revert (+2 seconds)	3.0	0 - 25.5 sec						
Auto Ped Clear		X = On						
Flashing Don't Walk Into Yellow		X = On						
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec						
Ped Pushbutton	0	0 - 5 sec, 0 = disable						
Advance Flash Rate	0	0 = disable, 1 = 120 FPM						
Change Sequence		X = On (After a download with a power on - off cycle)						
Phase -->	1	2	3	4	5	6	7	8
Red Clear Extension Detector	0	0	0	0	0	0	0	0
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Local Detectors (next/2/2/4)

Detector Data								
	Yellow Lock	Detector Inhibit	Call Phase	Extend Phase	Switch Phase	Delay Time	Stretch / Disconnect Time	Delay or Disconnect Mode
Detector 1 - I1			1	1	0	0	0.0	0
Detector 2 - I9U			1	1	0	0	0.0	0
Detector 3 - I5			3	3	0	0	0.0	0
Detector 4 - I9L			3	3	0	0	0.0	0
Detector 5 - J1U			5	5	0	0	0.0	0
Detector 6 - J9U			5	5	0	0	0.0	0
Detector 7 - J5			7	7	0	0	0.0	0
Detector 8 - J9L			7	7	0	0	0.0	0
Detector 9 - I2U			2	2	0	0	0.0	0
Detector 10 - I2L			2	2	0	0	0.0	0
Detector 11 - I3U			2	2	0	0	0.0	0
Detector 12 - I3L			2	2	0	0	0.0	0
Detector 13 - I4			2	2	0	0	0.0	0
Detector 14 - I6U			4	4	0	5	0.0	0
Detector 15 - I6L			4	4	0	0	0.0	0
Detector 16 - I7U			4	4	0	5	0.0	0
Detector 17 - I7L			4	4	0	0	0.0	0
Detector 18 - I8			4	4	0	0	0.0	0
Detector 19 - J2U			6	6	0	0	0.0	0
Detector 20 - J2L			6	6	0	0	0.0	0
Detector 21 - J3U			6	6	0	0	0.0	0
Detector 22 - J3L			6	6	0	0	0.0	0
Detector 23 - J4			6	6	0	0	0.0	0
Detector 24 - J6U			8	8	0	0	0.0	0
Detector 25 - J6L			8	8	0	0	0.0	0
Detector 26 - J7U			8	8	0	0	0.0	0
Detector 27 - J7L			8	8	0	0	0.0	0
Detector 28 - J1L			5	5	0	0	0.0	0
Detector 29 -			0	0	0	0	0.0	0
Detector 30 -			0	0	0	0	0.0	0
Detector 31 -			0	0	0	0	0.0	0
Detector 32 -			0	0	0	0	0.0	0

yellow lock, detector inhibit, - X = On; call, extend, phase - 0 = none 1 - 8 = phase 1 - 8; delay time - 0 - 255 sec
stretch / disconnect time - 0.0 - 25.5 sec.; delay or disconnect Mode - 0 - 13

Detector Plans (next/2/2/4/5)

Detector Plans (next/2/2/4/5)										
Loop Number										
Plan Detectors		0	0	0	0	0	0	0	0	0 - 32, 0 = none, 1 - 3 2 = detectors 1 - 32
Detector Plan 1	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extend Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	
	Stretch/Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
	Delay/ Disconnect Mode	0	0	0	0	0	0	0	0	0 - 13
Detector Plan 2	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extend Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 sec
	Stretch/Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
Delay/ Disconnect Mode	0	0	0	0	0	0	0	0	0 - 13	
Detector Plan 3	Call Phase	0	0	0	0	0	0	0	0	0 - 8, 0 = none, 1 - 8 = phase 1 - 8
	Extend Phase	0	0	0	0	0	0	0	0	
	Switch Phase	0	0	0	0	0	0	0	0	
	Delay Time	0	0	0	0	0	0	0	0	0 - 255 sec
	Stretch/Disconnect Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
Delay/ Disconnect Mode	0	0	0	0	0	0	0	0	0 - 13	

Detector Fail Monitor (next/2/2/4/3)					Detectors 33-64 (next/2/2/4/6)					
	Fail Monitor Enable	Recall Phase	Min Counts	Max Counts		Call Phase	Extend Phase			
Detector 1 - I1		0	0	0	Detector 33 -	0	0			
Detector 2 - I9U		0	0	0	Detector 34 -	0	0			
Detector 3 - I5		0	0	0	Detector 35 -	0	0			
Detector 4 - I9L		0	0	0	Detector 36 -	0	0			
Detector 5 - J1U		0	0	0	Detector 37 -	0	0			
Detector 6 - J9U		0	0	0	Detector 38 -	0	0			
Detector 7 - J5		0	0	0	Detector 39 -	0	0			
Detector 8 - J9L		0	0	0	Detector 40 -	0	0			
Detector 9 - I2U		0	0	0	Detector 41 -	0	0			
Detector 10 - I2L		0	0	0	Detector 42 -	0	0			
Detector 11 - I3U		0	0	0	Detector 43 -	0	0			
Detector 12 - I3L		0	0	0	Detector 44 -	0	0			
Detector 13 - I4		0	0	0	Detector 45 -	0	0			
Detector 14 - I6U		0	0	0	Detector 46 -	0	0			
Detector 15 - I6L		0	0	0	Detector 47 -	0	0			
Detector 16 - I7U		0	0	0	Detector 48 -	0	0			
Detector 17 - I7L		0	0	0	Detector 49 -	0	0			
Detector 18 - I8		0	0	0	Detector 50 -	0	0			
Detector 19 - J2U		0	0	0	Detector 51 -	0	0			
Detector 20 - J2L		0	0	0	Detector 52 -	0	0			
Detector 21 - J3U		0	0	0	Detector 53 -	0	0			
Detector 22 - J3L		0	0	0	Detector 54 -	0	0			
Detector 23 - J4		0	0	0	Detector 55 -	0	0			
Detector 24 - J6U		0	0	0	Detector 56 -	0	0			
Detector 25 - J6L		0	0	0	Detector 57 -	0	0			
Detector 26 - J7U		0	0	0	Detector 58 -	0	0			
Detector 27 - J7L		0	0	0	Detector 59 -	0	0			
Detector 28 - J1L		0	0	0	Detector 60 -	0	0			
Detector 29 -		0	0	0	Detector 61 -	0	0			
Detector 30 -		0	0	0	Detector 62 -	0	0			
Detector 31 -		0	0	0	Detector 63 -	0	0			
Detector 32 -		0	0	0	Detector 64 -	0	0			
fail monitor enable - X = On, recall phase - 0 = none 1 - 8 = phase 1 - 8, min, max					call / extend phase - 0 = none 1 - 8 = phase 1 - 8					
Detector Fail Sample Period (all detectors)			0	0 - 255 minutes						
Video Fail Inputs (next/2/2/4/3) -->		1	2	3	4	5	6	7	8	0 = none, 1 - 8 = phase 1 - 8
Phase Recalled		0	0	0	0	0	0	0	0	
System Detectors (next/2/2/4/4)										
System Detectors -->		1	2	3	4	5	6	7	8	0 = none, 1 - 32 = phase 1 - 32
Local Detector		0	0	0	0	0	0	0	0	

Overlaps / FYLTA (next/2/2/8)														
Vehicle Overlaps		Phase or Movement	Phases								Extension Green	Clearance		A - D 0 = none 1 = overlap 2 = 60 FPM 3 = Not ped 4=Comp. Ph. 5=Prevent. Ext. 6=Not Veh. 7=Adv. FF E - L 0 = no Overlap 1 = Overlap Green, Yellow Red
			1	2	3	4	5	6	7	8		Yellow	Red	
Overlaps	A	WBR	0	0	0	1	1	0	0	0	0.0	4.0	0.0	
	B		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	C		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	D		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	E		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	F		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	G		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	H		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	I		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	J		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	K		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	L		0	0	0	0	0	0	0	0	0.0	0.0	0.0	
Not Ped - Ped Overlaps (next/2/2/8/5)														
Ped Overlaps -->		A	B	C	D	E	F	G	H					
Overlaps	A									X = Nor Ped Ped Overlap				
	B													
	C													
	D													
Advance Warning (next/2/2/8/3)														
					E	F	G	H	I	J	K	L		
Enable					0	0	0	0	0	0	0	0	0 = disabled, 1 = enabled	
1st Conditional Overlap					0	0	0	0	0	0	0	0	0 = none, 1 - overlap E, 2 = overlap F, etc.	
2nd Conditional Overlap					0	0	0	0	0	0	0			
Advance Deactivation Delay					0	0	0	0	0	0	0	0	0 - 99 seconds	
Ped Overlaps (next/2/2/8/5)														
Phase -->		1	2	3	4	5	6	7	8	Walk	Ped Clear	Ped Recall		
Ped Overlap	A									0	0		Phase, Ped Recall: X = on	
	B									0	0			
	C									0	0			
	D									0	0			
	E									0	0		Walk, Ped Clear: 0 - 255 seconds	
	F									0	0			
	G									0	0			
	H									0	0			
Flashing Yellow Left Turn Arrow (FYLTA) (next/2/2/8/6)														
Phase Pairs -->		1 - 2	3 - 4	5 - 6	7 - 8									
Enable		0	0	4	0	0 = off, 3 = 3 outputs, 4 = 4 outputs, 5 = 5 outputs								
Even Omits Odd		0	0	1	0	0 = off, 1 = on, 2 = on, place call across barrier								
Detector Switch Odd / Even						X = on, odd phase must be omitted								
Red Transition		0.0	0.0	3.0	0.0	0.0 or 2.0 - 25.5 sec								
Red Extension		0.0	0.0	3.0	0.0	0.0 - 25.5 sec								
Return to GLTA		0	0	0	0	0 = off, 1 = max out, 2 = yellow lock								
Flashing Yellow Left Turn Arrow (FYLTA) - Continued on last page														

Service Plans (next/2/2/6)

Phase -->		1	2	3	4	5	6	7	8	
Service Plan 1	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	
Service Plan 2	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	
Service Plan 3	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	
Service Plan 4	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	
Service Plan 5	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	
Service Plan 6	Call Mode	0	0	0	0	0	0	0	0	
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest									
	Minimum Green	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0 - 255 sec.	

Service Plans Cont.

Phase -->		1	2	3	4	5	6	7	8		
Service Plan 7	Call Mode	0	0	0	0	0	0	0	0		
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest										
	Minimum Green	0	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0	0 - 255 sec.	

Phase -->		1	2	3	4	5	6	7	8		
Service Plan 8	Call Mode	0	0	0	0	0	0	0	0		
	0 = actuated, 1 = omit, 2 = CNA, 3 = min recall, 4 = max recall, 5 = soft recall, 6 = ped recall, 7 = omit ped, 8 = red rest										
	Minimum Green	0	0	0	0	0	0	0	0	0	0 - 255 sec.
	Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 or 3.0 - 25.5
	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
	Walk	0	0	0	0	0	0	0	0	0	0 - 255 sec.
Pedestrian Clearance	0	0	0	0	0	0	0	0	0	0 - 255 sec.	

Max Plans (next/2/2/7)

Phase -->		1	2	3	4	5	6	7	8	
Max Plan 1	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 2	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 3	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 4	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 5	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 6	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 7	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec
Max Plan 8	Normal Max	0	0	0	0	0	0	0	0	0 - 255 sec
	Fail Max	0	0	0	0	0	0	0	0	
	Auto Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Auto Max Limit	0	0	0	0	0	0	0	0	0 - 255 sec

Coordination Data (next/2/3)

Coordination Modes (next/2/3/1, next/2/3/4/1, next/2/3/4/3)

Flash Mode	33	0=off, 1=on, 33=time clock, 34=comm, 35=hardwire, 36=NWS Set only, 37=AB3418 / NTCIP S
Coordination Plan Mode	33	0=free, 1-32 = coord plan 1-32, 33=time clock, 34=comm, 35=hardwire, 36=NWS Set only, 37=
Offset Seeking Mode	2	0=add only, 1=dwel, 2=fastway
Late Ped	0	0 = off, 1 = on
Coord Walk Rest	0	0 = off, 1 = on, 2 = by TOD circuit 160, 3 = end of walk, 4 = coord ped during perms
Repeated Phase Service	0	0=off, 1=on (no coord ped), 2=on (beginning green coord ped), 3=on (coord ped always)
Zero Mode (TS2 only)	0	0=start of main street, 1=end of main street, 2=by TOD circuit 144

	Phase -->	1	2	3	4	5	6	7	8	0 = service allowed 1 = service prevented
Omit Phase During Repeated Phase Service		0	0	0	0	0	0	0	0	
Auto Permissive Min Green		0	0	0	0	0	0	0	0	0 - 255 seconds

Coordination Plans (next/2/3/2)

Coord Plan	Coordination Phases		Cycle Length	Offset Time	Min Cycle Length Dwell Time	Permissive	Service Plan	Max Plan
	Ring 1	Ring 2						
1-	0	0	0	0	0	0	0	0
2-	0	0	0	0	0	0	0	0
3-	0	0	0	0	0	0	0	0
4-	0	0	0	0	0	0	0	0
5-	0	0	0	0	0	0	0	0
6-	0	0	0	0	0	0	0	0
7-	0	0	0	0	0	0	0	0
8-	0	0	0	0	0	0	0	0
9-	0	0	0	0	0	0	0	0
10-	0	0	0	0	0	0	0	0
11-	0	0	0	0	0	0	0	0
12-	0	0	0	0	0	0	0	0
13-	0	0	0	0	0	0	0	0
14-	0	0	0	0	0	0	0	0
15-	0	0	0	0	0	0	0	0
16-	0	0	0	0	0	0	0	0
17-	0	0	0	0	0	0	0	0
18-	0	0	0	0	0	0	0	0
19-	0	0	0	0	0	0	0	0
20-	0	0	0	0	0	0	0	0
21-	0	0	0	0	0	0	0	0
22-	0	0	0	0	0	0	0	0
23-	0	0	0	0	0	0	0	0
24-	0	0	0	0	0	0	0	0
25-	0	0	0	0	0	0	0	0
26-	0	0	0	0	0	0	0	0
27-	0	0	0	0	0	0	0	0
28-	0	0	0	0	0	0	0	0
29-	0	0	0	0	0	0	0	0
30-	0	0	0	0	0	0	0	0
31-	0	0	0	0	0	0	0	0
32-	0	0	0	0	0	0	0	0
0 - 8			0 - 255 sec.			0 - 8		

Coordination Plans cont.

Coord Plan	* = Force Offs / Split Times (TS2)								* = Yield Points / Actuated Times (TS2)	
	1	2	3	4	5	6	7	8	Ring 1	Ring 2
1-	0	0	0	0	0	0	0	0	0	0
2-	0	0	0	0	0	0	0	0	0	0
3-	0	0	0	0	0	0	0	0	0	0
4-	0	0	0	0	0	0	0	0	0	0
5-	0	0	0	0	0	0	0	0	0	0
6-	0	0	0	0	0	0	0	0	0	0
7-	0	0	0	0	0	0	0	0	0	0
8-	0	0	0	0	0	0	0	0	0	0
9-	0	0	0	0	0	0	0	0	0	0
10-	0	0	0	0	0	0	0	0	0	0
11-	0	0	0	0	0	0	0	0	0	0
12-	0	0	0	0	0	0	0	0	0	0
13-	0	0	0	0	0	0	0	0	0	0
14-	0	0	0	0	0	0	0	0	0	0
15-	0	0	0	0	0	0	0	0	0	0
16-	0	0	0	0	0	0	0	0	0	0
17-	0	0	0	0	0	0	0	0	0	0
18-	0	0	0	0	0	0	0	0	0	0
19-	0	0	0	0	0	0	0	0	0	0
20-	0	0	0	0	0	0	0	0	0	0
21-	0	0	0	0	0	0	0	0	0	0
22-	0	0	0	0	0	0	0	0	0	0
23-	0	0	0	0	0	0	0	0	0	0
24-	0	0	0	0	0	0	0	0	0	0
25-	0	0	0	0	0	0	0	0	0	0
26-	0	0	0	0	0	0	0	0	0	0
27-	0	0	0	0	0	0	0	0	0	0
28-	0	0	0	0	0	0	0	0	0	0
29-	0	0	0	0	0	0	0	0	0	0
30-	0	0	0	0	0	0	0	0	0	0
31-	0	0	0	0	0	0	0	0	0	0
32-	0	0	0	0	0	0	0	0	0	0
0 - 255 sec * = force offs and yield points										

Circuit Mapping (next/2/3/3)																	
Circuit Map	Coord Plan	Time Clock Circuit		Time Clock Circuit		Time Clock Circuit		Time Clock Circuit		Time Clock Circuit		Time Clock Circuit		Time Clock Circuit		Time Clock Circuit	
1	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
2	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
3	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
4	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
5	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
6	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
7	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
8	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
9	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
10	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
11	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
12	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
13	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
14	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
15	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
16	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
17	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
18	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
19	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U
20	34	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U	0	N/U

coord plan - 0 = free, 1 - 32 = coord plan 1 - 32, 33 = any, 34 none selected
time clock circuits - 0 = not used, or circuits 6 - 196

Dynamic Phase Length (next/2/3/4/4)									
Phase -->	1	2	3	4	5	6	7	8	
Back Detector	0	9	0	0	0	19	0	0	0 = none, 1-32 = detector 1-32
Lane Factor	0	0	0	0	0	0	0	0	0 = none, 1.0 - 5.0
Check Out Detector	0	0	0	0	0	0	0	0	0 = none, 1-32 = detector 1-32
Coord Delta Force Off	Set A	0	0	0	0	0	0	0	0 - 255 sec
	Set B	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	
Free Delta Max	Set A	0	0	0	0	0	0	0	
	Set B	0	0	0	0	0	0	0	
	Set C	0	0	0	0	0	0	0	
	Set D	0	0	0	0	0	0	0	

Platoon Progression (next/2/3/4/5)					
Entry Local Only			Master Local Only		
Platoon Max	0	0 - 255 sec	Smoothing Factor	0.0	0.0 - 1.0
Min Platoon Green	0	0 - 255 sec			
Entry Detector Gap	0.0	0.0 - 25.5			
Min Platoon Cycle	0	0 - 255 sec			

Inbound			Outbound		
Only for Entry Inbound Local or Master Local			Only for Entry Outbound Local or Master Local		
Entry IB Local also Last OB Local	0	0 - 50	Entry OB Local also Last IB Local	0	0 - 50
Speed	0	0 - 55 mph	Speed	0	0 - 55 mph
Distance from Entry Local	0	0 - 65000 feet	Distance from Entry Local	0	0 - 65000 feet

Entry Local Only			Entry Local Only		
Distance from Entry Local Detector	0	0 - 999 feet	Distance from Entry Local Detector	0	0 - 999 feet
Entry Local Detector	0	0 - 32	Entry Local Detector	0	0 - 32

Master Local			Master Local		
Master Mid - System Critical Detectors	0	0 - 16	Master Mid - System Critical Detectors	0	0 - 16

Force Off Percents													
Inbound						Outbound							
	1	3	4	5	7	8		1	3	4	5	7	8
Split 1	0	0	0	0	0	0	Split 1	0	0	0	0	0	0
Split 2	0	0	0	0	0	0	Split 2	0	0	0	0	0	0
0 - 100 %						0 - 100 %							

Time of Day Data (next/2/4)

Day Program (next/2/4/1)

Day Prog.	Time	Coord Plan	Coord Plan or Circuit		State Off	On /		Day Prog.	Time	Coord Plan	Coord Plan or Circuit		State On/Off
1	1	06:00		8	ESR	X	51						
2	1	06:00		99	LG5	X	52						
3	1	20:00		8	ESR		53						
4	1	20:00		99	LG5		54						
5	2	06:00		8	ESR	X	55						
6	2	06:00		99	LG5	X	56						
7	2	20:00		8	ESR		57						
8	2	20:00		99	LG5		58						
9	3	06:00		8	ESR	X	59						
10	3	06:00		99	LG5	X	60						
11	3	20:00		8	ESR		61						
12	3	20:00		99	LG5		62						
13							63						
14							64						
15							65						
16							66						
17							67						
18							68						
19							69						
20							70						
21							71						
22							72						
23							73						
24							74						
25							75						
26							76						
27							77						
28							78						
29							79						
30							80						
31							81						
32							82						
33							83						
34							84						
35							85						
36							86						
37							87						
38							88						
39							89						
40							90						
41							91						
42							92						
43							93						
44							94						
45							95						
46							96						
47							97						
48							98						
49							99						
50							100						
	1 - 15	hh : mm	X = on	coord plan 0 - 32 or circuit 1-196		X = on		1 - 15	hh : mm	X = on	coord plan 0 - 32 or circuit 1-196		X = on

Day Program cont.

	Day Prog.	Time	Coord Plan	Coord Plan or Circuit	State On / Off		Day Prog.	Time	Coord Plan	Coord Plan or Circuit	State On / Off
101							151				
102							152				
103							153				
104							154				
105							155				
106							156				
107							157				
108							158				
109							159				
110							160				
111							161				
112							162				
113							163				
114							164				
115							165				
116							166				
117							167				
118							168				
119							169				
120							170				
121							171				
122							172				
123							173				
124							174				
125							175				
126							176				
127							177				
128							178				
129							179				
130							180				
131							181				
132							182				
133							183				
134							184				
135							185				
136							186				
137							187				
138							188				
139							189				
140							190				
141							191				
142							192				
143							193				
144							194				
145							195				
146							196				
147							197				
148							198				
149							199				
150							200				
	1 - 15	hh : mm	X = on	coord plan 0 - 32 or circuit 1-196	X = on		1 - 15	hh : mm	X = on	coord plan 0 - 32 or circuit 1-196	X = on

Circuit Overrides (next/2/4/4)

1 - Coord Line 1	CL1	TOD		51 - Ped Omit 3	PO3	TOD	
2 - Coord Line 2	CL2	TOD		52 - Ped Omit 4	PO4	TOD	
3 - Coord Line 4	CL4	TOD		53 - Ped Omit 5	PO5	TOD	
4 - Coord Line 8	CL8	TOD		54 - Ped Omit 6	PO6	TOD	
5 - Coord Line 16	C16	TOD		55 - Ped Omit 7	PO7	TOD	
6 - Coord Operation	CRD	TOD		56 - Ped Omit 8	PO8	TOD	
7 - Soft Flash	SFL	TOD		57 - Conditional Service	CVS	TOD	
8 - Enable System Relays	ESR	On		58 - Inhibit Simultaneous Gap Out	ISG	On	
9 - Call to Non Act 1	CN1	TOD		59 - Inhibit Hardwire	HWI	TOD	
10 - Call to Non Act 2	CN2	TOD		60 - Ped Override Mode	POM	On	
11 - Walk Rest Modifier	WRM	TOD		61 - Dual Entry	DLE	On	
12 - Min Recall	MIN	TOD		62 - Exclusive Ped	EPD	TOD	
13 - Max 2 Both Rings	MX2	TOD		63 - Call to Time Clock Mode	CTC	TOD	
14 - Coord Inhibit Max Ring 1, 2	IMT	TOD		64 - Dual Enhanced Ped	DEP	TOD	
15 - Enable Service Log	ESL	TOD		65 - Service Plan 1	SP1	TOD	
16 - Call to Free	CTF	TOD		66 - Service Plan 2	SP2	TOD	
17 - TOD Output 1	TO1	TOD		67 - Service Plan 3	SP3	TOD	
18 - TOD Output 2	TO2	TOD		68 - Service Plan 4	SP4	TOD	
19 - TOD Output 3	TO3	TOD		69 - Service Plan 5	SP5	TOD	
20 - TOD Output 4	TO4	TOD		70 - Service Plan 6	SP6	TOD	
21 - TOD Output 5	TO5	TOD		71 - Service Plan 7	SP7	TOD	
22 - TOD Output 6	TO6	TOD		72 - Service Plan 8	SP8	TOD	
23 - TOD Output 7	TO7	TOD		73 - Max Plan 1	MP1	TOD	
24 - TOD Output 8	TO8	TOD		74 - Max Plan 2	MP2	TOD	
25 - Vehicle Call Phase 1	VC1	TOD	On / Off / TOD	75 - Max Plan 3	MP3	TOD	On / Off / TOD
26 - Vehicle Call Phase 2	VC2	TOD		76 - Max Plan 4	MP4	TOD	
27 - Vehicle Call Phase 3	VC3	TOD		77 - Max Plan 5	MP5	TOD	
28 - Vehicle Call Phase 4	VC4	TOD		78 - Max Plan 6	MP6	TOD	
29 - Vehicle Call Phase 5	VC5	TOD		79 - Max Plan 7	MP7	TOD	
30 - Vehicle Call Phase 6	VC6	TOD		80 - Max Plan 8	MP8	TOD	
31 - Vehicle Call Phase 7	VC7	TOD		81 - Transit Priority Max Group 1	TG1	TOD	
32 - Vehicle Call Phase 8	VC8	TOD		82 - Transit Priority Max Group 2	TG2	TOD	
33 - Ped Call Phase 1	PC1	TOD	83 - Transit Priority Max Group 3	TG3	TOD		
34 - Ped Call Phase 2	PC2	TOD	84 - Transit Priority Max Group 4	TG4	TOD		
35 - Ped Call Phase 3	PC3	TOD	85 - Transit Priority Max Group 5	TG5	TOD		
36 - Ped Call Phase 4	PC4	TOD	86 - Transit Priority Max Group 6	TG6	TOD		
37 - Ped Call Phase 5	PC5	TOD	87 - Transit Priority Max Group 7	TG7	TOD		
38 - Ped Call Phase 6	PC6	TOD	88 - Transit Priority Max Group 8	TG8	TOD		
39 - Ped Call Phase 7	PC7	TOD	89 - Inhibit Volume Density 1	IV1	TOD		
40 - Ped Call Phase 8	PC8	TOD	90 - Inhibit Volume Density 2	IV2	TOD		
41 - Vehicle Omit 1	VO1	TOD	91 - Inhibit Volume Density 3	IV3	TOD		
42 - Vehicle Omit 2	VO2	TOD	92 - Inhibit Volume Density 4	IV4	TOD		
43 - Vehicle Omit 3	VO3	TOD	93 - Inhibit Volume Density 5	IV5	TOD		
44 - Vehicle Omit 4	VO4	TOD	94 - Inhibit Volume Density 6	IV6	TOD		
45 - Vehicle Omit 5	VO5	TOD	95 - Inhibit Volume Density 7	IV7	TOD		
46 - Vehicle Omit 6	VO6	TOD	96 - Inhibit Volume Density 8	IV8	TOD		
47 - Vehicle Omit 7	VO7	TOD	97 - Lag 1	LG1	TOD		
48 - Vehicle Omit 8	VO8	TOD	98 - Lag 3	LG3	TOD		
49 - Ped Omit 1	PO1	TOD	99 - Lag 5	LG5	TOD		
50 - Ped Omit 2	PO2	TOD	100 - Lag 7	LG7	TOD		

Circuit Overrides cont.

101 - Inhibit Overlap A	OLA	TOD		151 - Coord Hold 7	HD7	TOD
102 - Inhibit Overlap B	OLB	TOD		152 - Coord Hold 8	HD8	TOD
103 - Inhibit Overlap C	OLC	TOD		153 - PE Priority Return B	PRB	TOD
104 - Inhibit Overlap D	OLD	TOD		154 - PE Priority Return C	PRC	TOD
105 - Enable Schedule A Phone 1	AT1	TOD		155 - PE Priority Return D	PRD	TOD
106 - Enable Schedule A Phone 2	AT2	TOD		156 - PE Priority Return E	PRE	TOD
107 - Enable Schedule B Phone 1	BT1	TOD		157 - Platoon Inbound	PPI	TOD
108 - Enable Schedule B Phone 2	BT2	TOD		158 - Platoon Outbound	PPO	TOD
109 - Enable Schedule C Phone 1	CT1	TOD		159 - Platoon Spl 2	PS2	TOD
110 - Enable Schedule C Phone 2	CT2	TOD		160 - Coord Walk Rest	CWR	TOD
111 - Enable Volume to Call Phone 1	VT1	TOD		161 - Dynamic Phase Length Short Inhibit 1	SI1	TOD
112 - Enable Volume to Call Phone 2	VT2	TOD		162 - Dynamic Phase Length Short Inhibit 2	SI2	TOD
113 - Enable Volume Logging	EVL	On		163 - Dynamic Phase Length Short Inhibit 3	SI3	TOD
114 - Enable MOE Logging	EML	On		164 - Dynamic Phase Length Short Inhibit 4	SI4	TOD
115 - Detector Low Threshold Inhibit	DLI	TOD		165 - Dynamic Phase Length Short Inhibit 5	SI5	TOD
116 - Detector Continue Presence Inhibit	DPI	TOD		166 - Dynamic Phase Length Short Inhibit 6	SI6	TOD
117 - Inhibit Detector Based on Programming	IND	TOD		167 - Dynamic Phase Length Short Inhibit 7	SI7	TOD
118 - Inhibit Detector Delay	IDD	TOD		168 - Dynamic Phase Length Short Inhibit 8	SI8	TOD
119 - Inhibit Conditional Ped	ICP	TOD		169 - Coord Late Left Turn 1	CT1	TOD
120 - Inhibit Transit Priority	ITP	TOD		170 - Coord Late Left Turn 3	CT3	TOD
121 - Red Rest Ring 1,2	RRM	TOD		171 - Coord Late Left Turn 5	CT5	TOD
122 - Enable Transcend	TRA	TOD		172 - Coord Late Left Turn 7	CT7	TOD
123 - Omit Red Clear Ring 1,2	ORC	TOD		173 - Dynamic Phase Length Enable A	DPA	TOD
124 - Enable Classification Logging	CLE	TOD		174 - Dynamic Phase Length Enable B	DPB	TOD
125 - Ped Recycle Ring 1,2	PCY	TOD	On /	175 - Dynamic Phase Length Enable C	DPC	TOD
126 - Not Used	N/U	TOD	Off /	176 - Dynamic Phase Length Enable D	DPD	TOD
127 - Enable MOE Log to Call Phone 1	MT1	TOD	TOD	177 - Proactive Plan Select Average	PSA	TOD
128 - Enable MOE Log to Call Phone 2	MT2	TOD		178 - Proactive Plan Select Inbound	PSI	TOD
129 - Transit Inhibit Short Time 1	IS1	TOD		179 - Proactive Plan Select Outbound	PSO	TOD
130 - Transit Inhibit Short Time 2	IS2	TOD		180 - Split Variant Inbound	SVI	TOD
131 - Transit Inhibit Short Time 3	IS3	TOD		181 - Split Variant Outbound	SVO	TOD
132 - Transit Inhibit Short Time 4	IS4	TOD		182 - Disable Coord Walk Rest Ring 1	DW1	TOD
133 - Transit Inhibit Short Time 5	IS5	TOD		183 - Disable Coord Walk Rest Ring 2	DW2	TOD
134 - Transit Inhibit Short Time 6	IS6	TOD		184 - Proactive Plan Select New Look	NLK	TOD
135 - Transit Inhibit Short Time 7	IS7	TOD		185 - Disable Red Clearance Extension	DRX	TOD
136 - Transit Inhibit Short Time 8	IS8	TOD		186 - Detector Plan Line 1	DL1	TOD
137 - Enable Transit Priority Logging	ETL	TOD		187 - Detector Plan Line 2	DL2	TOD
138 - Disable Flashing Yellow Arrow 1	DF1	TOD		188 - Disable LRT 1 Vertical Flashing Bar	DV1	TOD
139 - Disable Flashing Yellow Arrow 3	DF3	TOD		189 - Disable LRT 2 Vertical Flashing Bar	DV2	TOD
140 - Disable Flashing Yellow Arrow 5	DF5	TOD		190 - Disable LRT 3 Vertical Flashing Bar	DV3	TOD
141 - Disable Flashing Yellow Arrow 7	DF7	TOD		191 - Disable LRT 4 Vertical Flashing Bar	DV4	TOD
142 - Disable Auto Max	DAM	TOD		192 - Datakey Enable	DKE	On
143 - Disable Repeat Phase Service	DRS	TOD		193 - Dynamic Phase Reversal Enable 1	DR1	TOD
144 - Coord End of Main Street	EMS	TOD		194 - Dynamic Phase Reversal Enable 3	DR3	TOD
145 - Coord Hold 1	HD1	TOD		195 - Dynamic Phase Reversal Enable 5	DR5	TOD
146 - Coord Hold 2	HD2	TOD		196 - Dynamic Phase Reversal Enable 7	DR7	TOD
147 - Coord Hold 3	HD3	TOD		197 - Enable Coord Logging	ECL	On
148 - Coord Hold 4	HD4	TOD		198 - Disable Gap FYLTA 1,3,5,7	DGF	TOD
149 - Coord Hold 5	HD5	TOD		199 - Coordination Auto Walk	CAW	TOD
150 - Coord Hold 6	HD6	TOD		200 - Enable Coordinated Auto Max	ECM	TOD

Preemption Data (next/2/5)

Sequence (next/2/5/1 - 8)							Instructions
Sequences / Intervals	Instruction	Phases Serviced	Interval Time	Hold On Input	Outputs On	Output Mode	
1	1	0	25	0	1	0	0 - Service Phases 1-9 = Special Interval 1-9 10 - Preempt Sequence Allows FYLTA 11 - Preempt Interval Disables FYLTA 15 - Alternate Trap Protection 90 - Go to all Red 91 - Soft Flash On 92 - Soft Flash Off 93 - Enable Ped 94 - Disable Peds 95 - Priority Return 96 - Enable Coordination with peds 97 - Enable Coordination without peds 98 - Return with NO Calls 99 - Return with Vehicle Calls 100 - jump to step in Interval Time 101 - Use Interval Time as Resettable Gap Timer
	2	98		0	0	0	
	3	0		0	0	0	
	4	0		0	0	0	
	5	0		0	0	0	
	6	0		0	0	0	
	7	0		0	0	0	
	8	0		0	0	0	
	9	0		0	0	0	
	10	0		0	0	0	
2	1	0	4	0	1	0	196 - Coord Re-synch with Peds 197 - Coord Re-synch without Peds 200 - Light Rail Train phase without Peds 201 - Light Rail Train phase with Peds 202 - Return to highest queue/delay phase (this uses the Dynamic Phase Length Back Detectors) 216 - Light Rail Train Coord Re-synch with Peds 217 - Light Rail Train Coord Re-synch without Peds
	2	98		0	0	0	
	3	0		0	0	0	
	4	0		0	0	0	
	5	0		0	0	0	
	6	0		0	0	0	
	7	0		0	0	0	
	8	0		0	0	0	
	9	0		0	0	0	
	10	0		0	0	0	
3	1	0	6	0	1	0	
	2	98		0	0	0	
	3	0		0	0	0	
	4	0		0	0	0	
	5	0		0	0	0	
	6	0		0	0	0	
	7	0		0	0	0	
	8	0		0	0	0	
	9	0		0	0	0	
	10	0		0	0	0	
4	1	0		0	0	0	Phases Serviced - phases 1 - 8 Interval Time - 0 - 255 sec or interval 1 - 10 Hold on Input: 0 = Do not hold 1 = Hold 2 = Ped Service to Rest in Walk
	2	0		0	0	0	
	3	0		0	0	0	
	4	0		0	0	0	
	5	0		0	0	0	
	6	0		0	0	0	
	7	0		0	0	0	
	8	0		0	0	0	
	9	0		0	0	0	
	10	0		0	0	0	
5	1	0		0	0	0	Outputs On - output 1 - 8 Output Modes - 0 = all steady on 1 = all flash together 2 = odd flashes WIG, even flashes WAG 3 = 1 - 4 steady on, 5 - 8 all flash together
	2	0		0	0	0	
	3	0		0	0	0	
	4	0		0	0	0	
	5	0		0	0	0	
	6	0		0	0	0	
	7	0		0	0	0	
	8	0		0	0	0	
	9	0		0	0	0	
	10	0		0	0	0	

Sequence cont.							
Sequences / Intervals	Instruction	Phases Serviced	Interval Time	Hold On Input	Outputs On	Output Mode	
6	1	0		0	0		0
	2	0		0	0		0
	3	0		0	0		0
	4	0		0	0		0
	5	0		0	0		0
	6	0		0	0		0
	7	0		0	0		0
	8	0		0	0		0
	9	0		0	0		0
	10	0		0	0		0
7	1	0		0	0		0
	2	0		0	0		0
	3	0		0	0		0
	4	0		0	0		0
	5	0		0	0		0
	6	0		0	0		0
	7	0		0	0		0
	8	0		0	0		0
	9	0		0	0		0
	10	0		0	0		0
8	1	0		0	0		0
	2	0		0	0		0
	3	0		0	0		0
	4	0		0	0		0
	5	0		0	0		0
	6	0		0	0		0
	7	0		0	0		0
	8	0		0	0		0
	9	0		0	0		0
	10	0		0	0		0

Sequence Timing (next/2/5/0)										
Sequence -->		1	2	3	4	5	6	7	8	
Input Memory										X = on
Input Priority		6	6	6	0	0	0	0	0	0 = lowest, - 8 = highest
Entry (Transition) Parameters	Min Green	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
	Walk	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0 would time the normal function time
	Ped Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Overlap Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec
	Overlap Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Delay to Preempt	0	0	0	0	0	0	0	0	
	Delay Ped Omit	0	0	0	0	0	0	0	0	0 - 255 sec
	Delay Phase Omit	0	0	0	0	0	0	0	0	
Min Reservice		0	0	0	0	0	0	0	0	0 - 255 min
Overlap Inhibits	A									X = inhibit
	B									
	C									
	D									
Exit Parameters	Exit to Coord Plan Offset by X	0	0	0	0	0	0	0	0	0 - 20
	Exit Coord Plan Time	0	0	0	0	0	0	0	0	0 - 60 min
	Exit to Max Plan	0	0	0	0	0	0	0	0	0 - 8
	Exit Free Time	0	0	0	0	0	0	0	0	0 - 60 min
	Override Time	0	0	0	0	0	0	0	0	
	Fail Time	0	0	0	0	0	0	0	0	
Exit Mode Time		0	0	0	0	0	0	0	0	

Priority Return and Special Intervals (next/2/5/0/6, next/2/5/9)														
Phase / Overlap -->		1	2	3	4	5	6	7	8	A	B	C	D	
Priority Return	Enable	0	0 = disabled, 1 = enabled, 2 = enabled, skip preemption phases on exit											
	A (max)	0	0	0	0	0	0	0	0	0	0 - 100% of currently used max			
	B (max)	0	0	0	0	0	0	0	0					
	C (max)	0	0	0	0	0	0	0	0					
	D (max)	0	0	0	0	0	0	0	0					
	E (max)	0	0	0	0	0	0	0	0					
Ped Clear	0	0	0	0	0	0	0	0	0	0 - 100% of currently used ped clearance				
Queue Delay Recovery	0	0	0	0	0	0	0	0	0	0 - 255 sec.				
Special Intervals	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = Dark 1 = green don't walk 2 = green walk 3 = green flashing don't walk 4 = yellow 5 = red 6 = flashing yellow WIG 7 = flashing yellow WAG 8 = flashing red WIG 9 = flashing red WAG 10 = walk only 11=flashing don't walk only
	2	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	
	6	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	
Light Rail Train (next/2/5/0/7)														
Light Rail Train -->		1	2	3	4									
Associated Preempt		0	0	0	0	0 = none, preempt 1 - 8								
Time to Green		0	0	0	0	0 - 255 sec								
Horizontal Bar Flash Time		0.0	0.0	0.0	0.0	0.0 - 25.5 sec								
Vertical Bar Flash Time		0.0	0.0	0.0	0.0	0 - 255 sec								
Min Duration		0	0	0	0	0 - 255 sec								

Communications Data (next/2/6)

System ID	19	Local ID	1		
1st Central Phone Number		2nd Central Phone Number			
Modem Setup String		Intersection Name	124th @ Tualatin		
Subnet Mask 1	0.0.0.0	Subnet Mask 2	0.0.0.0		
IP (Ethernet) Port 1	25000	IP (Ethernet) Port 2	0		
Central Port	0				
System Mode	1				
System Port	1	Alternate System Port	0		
IP Address 1	0.0.0.0	IP Address 2	0.0.0.0		
Gateway Address 1	0.0.0.0	Gateway Address 2	0.0.0.0		
		AB3418e Physical Address	1		
		AB3418e Group Address	0		
Baud Rates		Flow Control	Port Use		
Port 1 (Slot A2 Upper)	0	1	<i>Suggested Use - FSK</i>		
Port 2 (Slot A2 Lower)	0	1	<i>Suggested Use - Not Used</i>		
Port 3 (Slot A1 Upper)	0	0	<i>Suggested Use - Modem to Central</i>		
Port 4 (Slot A1 Lower or C50S)	2	NIU	<i>Suggested Use - RS232 to Laptop</i>		
0 = 1200, 1 = 2400, 2 = 9600, 3 = 19200 baud		0 = off, 1 = on			
Reports					
Volume Log Period	15	minute	MOE Log Period		
Volume/Occ Log Period	0	second	15		
			minute		
0 = disabled, 1,2,3,4,5,6,10,12,15,20,30,60 minutes					
Function Schedule Mapping (next/2/6/7)					
Alarm 1	0	0 = none 1 = schedule A 2 = schedule B 3 = schedule C 4 = schedule R	Soft Flash	1	0 = none 1 = schedule A 2 = schedule B 3 = schedule C 4 = schedule R
Alarm 2	0		Manual Control Enable (MCE)	4	
Alarm 3	0		Emergency or Railroad Preempt	1	
Alarm 4	0		Light Rail Train (LRT)	0	
Alarm 5	0		Cycle Failure	2	
Not Used	0		Coordination Failure	2	
Not Used	0		Keyboard use / Data Changed	3	
Not Used	0		Coord Running / Free	2	
Power On / Off	1		Cabinet Door	3	
Checksum Failure	4		Extended Ped Pushbutton	0	
Video / Detector Failure	4	Monitor Status	4		
Master to Local Comm Lost	0	Red Extension	0		

Miscellaneous Data

Transit Priority (next/2/7)									
	1	2	3	4	5	6	7	8	
Phases									Phases 1 - 8 (max of 2 compatible phases)
PE Enable (6.25Hz TP call on PE)									X = 6.25 Hz signal will activate TP
Priority	0	0	0	0	0	0	0	0	0 - 8, 8 = highest
Memory									X = on
Delay Time	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Reservice Time (per input)	0	0	0	0	0	0	0	0	0 - 255 min
Override Time	0	0	0	0	0	0	0	0	0 - 255 sec
Bus Extend	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Reservice Time (all inputs)	0	0 - 255 min							
Free Operation Mode	0	0 = use shortest of max 1 or 2, 1 - 8 = use max time of group 1 - 8, 9 = use time of day							

Transit Priority Alternate Force Off Plans									
	1	2	3	4	5	6	7	8	
Current Coord Plan	1	2	3	4	5	6	7	8	0 = none 17 - 32 = coord plan 17 - 32
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	
Current Coord Plan	9	10	11	12	13	14	15	16	
Alternate TP Force Off Plan	0	0	0	0	0	0	0	0	

Group Timing										
	Phase -->	1	2	3	4	5	6	7	8	
Group 1	Max Times	0	0	0	0	0	0	0	0	0 - 255 sec 0 would time the normal function time
	Walk Times	0	0	0	0	0	0	0	0	
Group 2	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 3	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 4	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 5	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 6	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 7	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	
Group 8	Max Times	0	0	0	0	0	0	0	0	
	Walk Times	0	0	0	0	0	0	0	0	

Truck Priority (next/2/7/9)									
	1	2	3	4	5	6	7	8	
Truck Priority-->	1	2	3	4	5	6	7	8	
Associated Transit Priority	0	0	0	0	0	0	0	0	0 = none 1 - 8 = transit priority 1 - 8
Leading Detector	0	0	0	0	0	0	0	0	0 = none, 1 - 32 = detector 1 - 32
Trailing Detector	0	0	0	0	0	0	0	0	
Stop Bar Distance	0	0	0	0	0	0	0	0	0 - 999 feet
Trap Distance	0	0	0	0	0	0	0	0	0.0 - 99.9 feet
Minimum Speed	0	0	0	0	0	0	0	0	0 - 100 mph
Minimum Length	0	0	0	0	0	0	0	0	0 - 255 feet
Downhill Grade	0	0	0	0	0	0	0	0	0 - 20 %
Uphill Grade	0	0	0	0	0	0	0	0	
Undersized Vehicle									X = Enabled

Change I/O	X = On (After a download with a power on - off cycle)
-------------------	---

Inputs (Non Default I/O is offset to the right) (next/2/8/1)											
C1-39	101	VD9	C1-55	15	VD5	C1-67	22	PED2	C11-15	254	N/U
C1-40	113	VD19	C1-56	11	VD1	C1-68	26	PED6	C11-16	254	N/U
C1-41	106	VD14	C1-57	17	VD7	C1-69	24	PED4	C11-17	254	N/U
C1-42	118	VD24	C1-58	13	VD3	C1-70	28	PED8	C11-18	254	N/U
C1-43	102	VD10	C1-59	16	VD6	C1-71	151	PE1	C11-19	254	N/U
C1-44	114	VD20	C1-60	12	VD2	C1-72	152	PE2	C11-20	254	N/U
C1-45	107	VD15	C1-61	18	VD8	C1-73	153	PE3	C11-21	254	N/U
C1-46	161	VD25	C1-62	14	VD4	C1-74	154	PE4	C11-22	254	N/U
C1-47	105	VD13	C11-10	254	N/U	C1-75	254	N/U	C11-23	254	N/U
C1-48	117	VD23	C11-11	254	N/U	C1-76	104	VD12	C11-24	254	N/U
C1-49	112	VD18	C11-12	254	N/U	C1-77	116	VD22	C11-25	254	N/U
C1-50	164	VD28	C11-13	254	N/U	C1-78	111	VD17	C11-26	254	N/U
C1-51	199	PEDI	C1-63	103	VD11	C1-79	163	VD27	C11-27	254	N/U
C1-52	155	PE5	C1-64	115	VD21	C1-80	82	IADV	C11-28	254	N/U
C1-53	85	MCE	C1-65	108	VD16	C1-81	137	MONS	C11-29	254	N/U
C1-54	254	N/U	C1-66	162	VD26	C1-82	62	ST1	C11-30	254	N/U

Outputs (Non Default I/O is offset to the right) (next/2/8/2)											
C1-2	44	4DWK	C1-19	48	8DWK	C1-35	131	TO1	C1-91	41	1DWK
C1-3	64	4WLK	C1-20	68	8WLK	C1-36	217	FYA5	C1-93	61	1WLK
C1-4	14	4RED	C1-21	18	8RED	C1-37	133	TO3	C1-94	106	OLBR
C1-5	24	4YEL	C1-22	28	8YEL	C1-38	134	TO4	C1-95	105	OLBY
C1-6	34	4GRN	C1-23	38	8GRN	C1-100	53	3PCL	C1-96	104	OLBG
C1-7	103	OLAR	C1-24	17	7RED	C1-101	51	1PCL	C1-97	254	N/U
C1-8	102	OLAY	C1-25	27	7YEL	C1-102	187	SFL	C1-98	254	N/U
C1-9	101	OLAG	C1-26	37	7GRN	C1-103	147	WDOG	C1-99	254	N/U
C1-10	42	2DWK	C1-27	46	6DWK	C1-83	43	3DWK	C11-1	254	N/U
C1-11	62	2WLK	C1-28	66	6WLK	C1-84	63	3WLK	C11-2	254	N/U
C1-12	12	2RED	C1-29	16	6RED	C1-85	116	OLDR	C11-3	254	N/U
C1-13	22	2YEL	C1-30	26	6YEL	C1-86	115	OLDY	C11-4	254	N/U
C1-15	32	2GRN	C1-31	36	6GRN	C1-87	114	OLDG	C11-5	254	N/U
C1-16	11	1RED	C1-32	15	5RED	C1-88	113	OLCR	C11-6	254	N/U
C1-17	21	1YEL	C1-33	223	FYC5	C1-89	112	OLCY	C11-7	254	N/U
C1-18	31	1GRN	C1-34	35	5GRN	C1-90	111	OLCG	C11-8	254	N/U

Internal Logic (next/2/9)			
Step	Inst.	Description	Comment
1	220	Input Off if Test(s) are True	
2	15	Vehicle Detector 5	
3	35	System Relay 1-32 - Tested for Set	
4	1	Relay - 1	
5	220	Input Off if Test(s) are True	
6	16	Vehicle Detector 6	
7	35	System Relay 1-32 - Tested for Set	
8	1	Relay - 1	
9	220	Input Off if Test(s) are True	
10	106	Vehicle Detector 14	
11	35	System Relay 1-32 - Tested for Set	
12	1	Relay - 1	
13	220	Input Off if Test(s) are True	
14	107	Vehicle Detector 15	
15	35	System Relay 1-32 - Tested for Set	
16	1	Relay - 1	
17	220	Input Off if Test(s) are True	
18	108	Vehicle Detector 16	
19	35	System Relay 1-32 - Tested for Set	
20	1	Relay - 1	
21	220	Input Off if Test(s) are True	
22	111	Vehicle Detector 17	
23	35	System Relay 1-32 - Tested for Set	
24	1	Relay - 1	
25	220	Input Off if Test(s) are True	
26	112	Vehicle Detector 18	
27	35	System Relay 1-32 - Tested for Set	
28	1	Relay - 1	
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			

Internal Logic cont.

Step	Inst.	Description	Comment
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			
101			
102			
103			
104			
105			
106			
107			
108			
109			
110			

Internal Logic cont.

Step	Inst.	Description	Comment
111			
112			
113			
114			
115			
116			
117			
118			
119			
120			
121			
122			
123			
124			
125			
126			
127			
128			
129			
130			
131			
132			
133			
134			
135			
136			
137			
138			
139			
140			
141			
142			
143			
144			
145			
146			
147			
148			
149			
150			
151			
152			
153			
154			
155			
156			
157			
158			
159			
160			
161			
162			
163			
164			
165			

Internal Logic cont.

Step	Inst.	Description	Comment
166			
167			
168			
169			
170			
171			
172			
173			
174			
175			
176			
177			
178			
179			
180			
181			
182			
183			
184			
185			
186			
187			
188			
189			
190			
191			
192			
193			
194			
195			
196			
197			
198			
199			
200			
201			
202			
203			
204			
205			
206			
207			
208			
209			
210			
211			
212			
213			
214			
215			
216			
217			
218			
219			
220			

Internal Logic cont.

Step	Inst.	Description	Comment
221			
222			
223			
224			
225			
226			
227			
228			
229			
230			
231			
232			
233			
234			
235			
236			
237			
238			
239			
240			
241			
242			
243			
244			
245			
246			
247			
248			
249			
250			
251			
252			
253			
254			
255			
256			

FYLTA - Continued (next/2/2/8/6)

		Phase Pairs -->	1 - 2	3 - 4	5 - 6	7 - 8	
Gap-Dependent FYLTA (next/2/2/8/6-A)	Detector Input		0	0	21	0	0 = disable, 1 - 64 detectors
	Min Delay		0	0	3	0	0 - 255 sec
	Detector Gap		0.0	0.0	5.0	0.0	0 - 25.5 sec
	Max Delay		0	0	255	0	0 - 255 sec
	Not Ped		0	0	4	0	0 - 255 sec

FYLTA Gap-Dependent Plans (next/2/2/8/6)

		Phase Pairs -->	1 - 2	3 - 4	5 - 6	7 - 8	
FYLTA Gap-Dependent Plan A	Detector Input		0	0	0	0	0 = disable, 1 - 64 detectors
	Min Delay		0	0	0	0	0 - 255 sec
	Detector Gap		0.0	0.0	0.0	0.0	0 - 25.5 sec
	Max Delay		0	0	0	0	0 - 255 sec
	Not Ped		0	0	0	0	0 - 255 sec
FYLTA Gap-Dependent Plan B	Detector Input		0	0	0	0	0 = disable, 1 - 64 detectors
	Min Delay		0	0	0	0	0 - 255 sec
	Detector Gap		0.0	0.0	0.0	0.0	0 - 25.5 sec
	Max Delay		0	0	0	0	0 - 255 sec
	Not Ped		0	0	0	0	0 - 255 sec
FYLTA Gap-Dependent Plan C	Detector Input		0	0	0	0	0 = disable, 1 - 64 detectors
	Min Delay		0	0	0	0	0 - 255 sec
	Detector Gap		0.0	0.0	0.0	0.0	0 - 25.5 sec
	Max Delay		0	0	0	0	0 - 255 sec

	Not Ped	0	0	0	0	0 - 255 sec
FYLTA Gap-Dependent Plan D	Detector Input	0	0	0	0	0 = disable, 1 - 64 detectors
	Min Delay	0	0	0	0	0 - 255 sec
	Detector Gap	0.0	0.0	0.0	0.0	0 - 25.5 sec
	Max Delay	0	0	0	0	0 - 255 sec
	Not Ped	0	0	0	0	0 - 255 sec

Preemption - Continued

Railroad Communications (IEEE 1570) (next/2/5/0/8)

	ATC	Wayside	
Railroad Number	0	0	0 - 999, represents railroad
Railroad Line Number	0	0	0 - 999, represents railroad line
Group Number	0	0	0 - 999, represents physical group of equipment
Subnode Number	0	0	0 - 99, subnode within physical group of equipment
Device Number	0	0	0 - 99, device within physical group of equipment
Associated Preempt	0		0 - 8
Communication Port	0		0 - 4

Reports - Continued

Reports - Service Delay Modes (next/2/6/0)

Phase -->	1	2	3	4	5	6	7	8	
Mode	0	0	0	0	0	0	0	0	0 = disable, 1 = enable, 2 = Ped, 3 = Veh/P

Ped Overlap -->

	A	B	C	D	E	F	G	H	
Mode	0	0	0	0	0	0	0	0	0 = disable, 1 = enable

Detector -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector -->	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Enable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector -->	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Enable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector -->	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Enable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck Priority - Continued

Truck Priority (next/2/7/9)

Truck Priority-->	1	2	3	4	5	6	7	8	
Minimum Log Speed	0	0	0	0	0	0	0	0	0 - 100 mph
Minimum Log Length	0	0	0	0	0	0	0	0	0 - 255 feet

Transcend Logic

Step	Inst.	Description	Comment
257			
258			
259			
260			
261			
262			
263			
264			
265			
266			
267			
268			
269			
270			
271			
272			
273			
274			
275			
276			

277		
278		
279		
280		
281		
282		
283		
284		
285		
286		
287		
288		
289		
290		
291		
292		
293		
294		
295		
296		
297		
298		
299		
300		
301		
302		
303		
304		
305		
306		
307		
308		
309		
310		
311		
312		
313		
314		
315		
316		
317		
318		
319		
320		
321		
322		
323		
324		
325		
326		
327		
328		
329		
330		
331		
332		
333		
334		
335		
336		

337		
338		
339		
340		
341		
342		
343		
344		
345		
346		
347		
348		
349		
350		
351		
352		
353		
354		
355		
356		
357		
358		
359		
360		
361		
362		
363		
364		
365		
366		
367		
368		
369		
370		
371		
372		
373		
374		
375		
376		
377		
378		
379		
380		
381		
382		
383		
384		
385		
386		
387		
388		
389		
390		
391		
392		
393		
394		
395		
396		

397		
398		
399		
400		
401		
402		
403		
404		
405		
406		
407		
408		
409		
410		
411		
412		
413		
414		
415		
416		
417		
418		
419		
420		
421		
422		
423		
424		
425		
426		
427		
428		
429		
430		
431		
432		
433		
434		
435		
436		
437		
438		
439		
440		
441		
442		
443		
444		
445		
446		
447		
448		
449		
450		
451		
452		
453		
454		
455		
456		

457		
458		
459		
460		
461		
462		
463		
464		
465		
466		
467		
468		
469		
470		
471		
472		
473		
474		
475		
476		
477		
478		
479		
480		
481		
482		
483		
484		
485		
486		
487		
488		
489		
490		
491		
492		
493		
494		
495		
496		
497		
498		
499		
500		
501		
502		
503		
504		
505		
506		
507		
508		
509		
510		
511		
512		

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 1996 OREGON DEPARTMENT OF TRANSPORTATION (ODOT) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ODOT STANDARD DRAWINGS.
2. THE CONTRACTOR SHALL SUPPLY ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED FOR THE SIGNAL OPERATIONS SHOWN ON THIS PLAN.
3. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF EXISTING UTILITIES AND COORDINATE HIS WORK WITH THE UTILITY COMPANIES/AGENCIES TO ELIMINATE ANY CONFLICTS.
4. THE CONTRACTOR SHALL CONTACT PGE TO LOCATE THE POWER SOURCE IN THE FIELD AND COORDINATE WORK WITH PGE FOR POWER SERVICE CONNECTION.

SIGNAL PLAN

124TH AVENUE AT LEVETON DRIVE

WORK CHANGE DIRECTIVE NO. 1

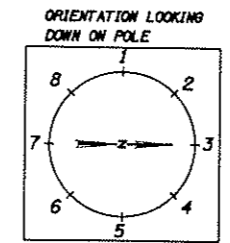
POLE ENTRANCE CHART

POLE NUMBER	1	2	3	4	5	6
LUMINAIRE ARM	3	5	-	7	1	-
MAST ARM	3	5	-	7	1	-
PEDESTRIAN SIGNAL CLAM SHELL	5,7	-	1,7	1,3	-	3,5
PEDESTRIAN PB/DECAL	1,3	-	3,5	5,7	-	1,7
TERMINAL CABINET	7	1	-	3	5	-

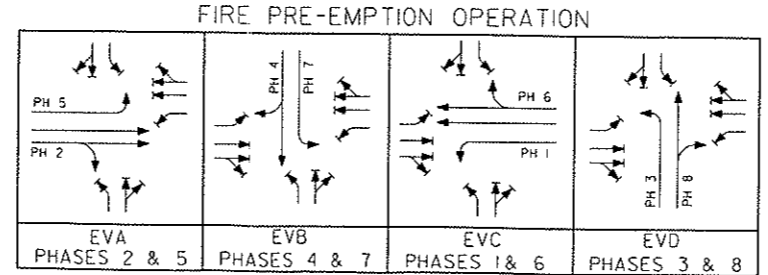
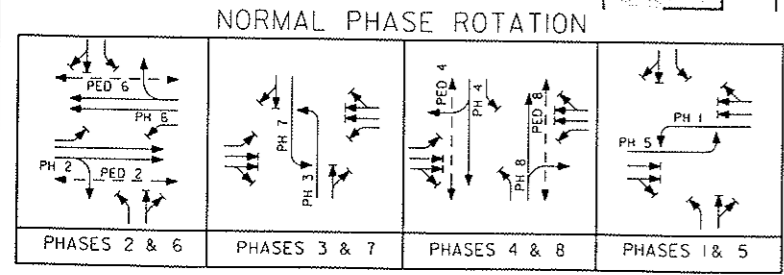
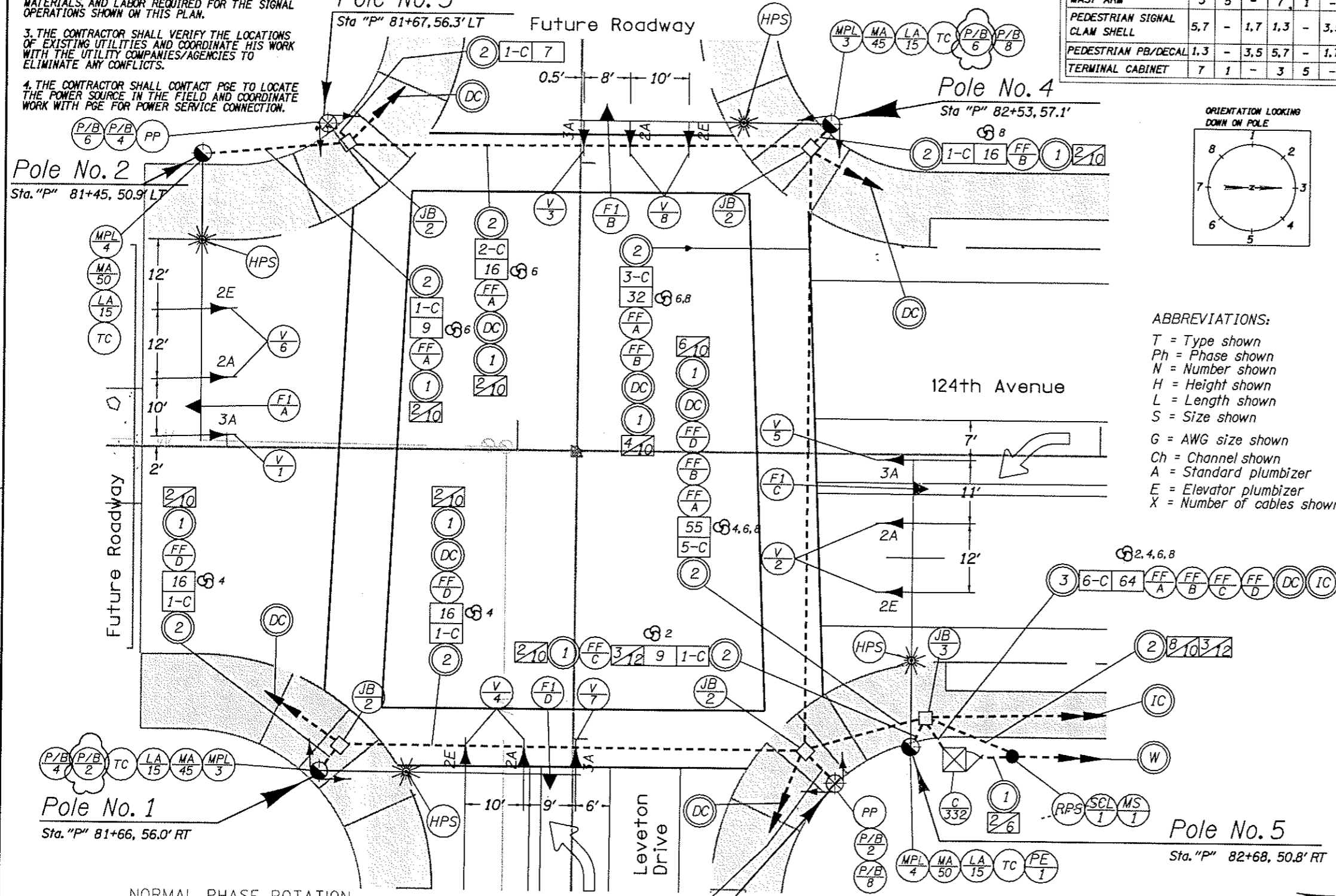
CH2MHILL

LEGEND

- Install model 170 controller in model 332 cabinet with riser frame, orient front(louvered) door as shown
- Install type (T) standard traffic signal mast arm pole with luminaire pole extension (40 ft. mounting ht.)
- Install (L) feet traffic signal mast arm
- Install (L) feet luminaire arm
- Install pedestrian signal pedestal
- Install remote power service post
- Install 400 watt high pressure sodium luminaire, type M-N-IV, 120, 208, 240, 277 multi-volt mag-regulator ballast
- Install photoelectric cell on pole (20' - 35' above pole base)
- Install terminal cabinet
- Install service cabinet, 120 volt, for both signal and illumination circuits
- Install 120 volt meter base
- Install phase (Ph) vehicle signal with LED's
2 = 12" R, 12" Y, 12" G
3 = 12" RLTA, 12" YLTA, 12" GLTA
- Includes 3 spare wires for phase (Ph) as per table
- Install phase (Ph) pedestrian signal with LED's, pushbutton and instruction decal
- Install 22" x 12" x 12" (min. dimension) precast concrete junction box
- Install 22" x 12" x 12" (min. dimension) precast concrete junction box with concrete apron
- Install 30" x 17" x 12" (min. dimension) precast concrete junction box with concrete apron
- Install (S) inch electrical conduit
- Detector conduit (See Detector Plan)
- Interconnect conduit (See Interconnect Plan)
- Install conduit and wire as required by power company
- Install (N) No. 8 type THWN (Signal system common)
- Install (N) No. 14 type THWN wires
- Install (N) No. (G) type THWN wires
- Install channel (Ch) fire pre-emption detector feeder cable
- Install channel (Ch), (N) barrel fire pre-emption detector unit



ABBREVIATIONS:
 T = Type shown
 Ph = Phase shown
 N = Number shown
 H = Height shown
 L = Length shown
 S = Size shown
 G = AWG size shown
 Ch = Channel shown
 A = Standard plumbizer
 E = Elevator plumbizer
 X = Number of cables shown



Revised June 30, 1999

0 10 20 30 40 50 FEET

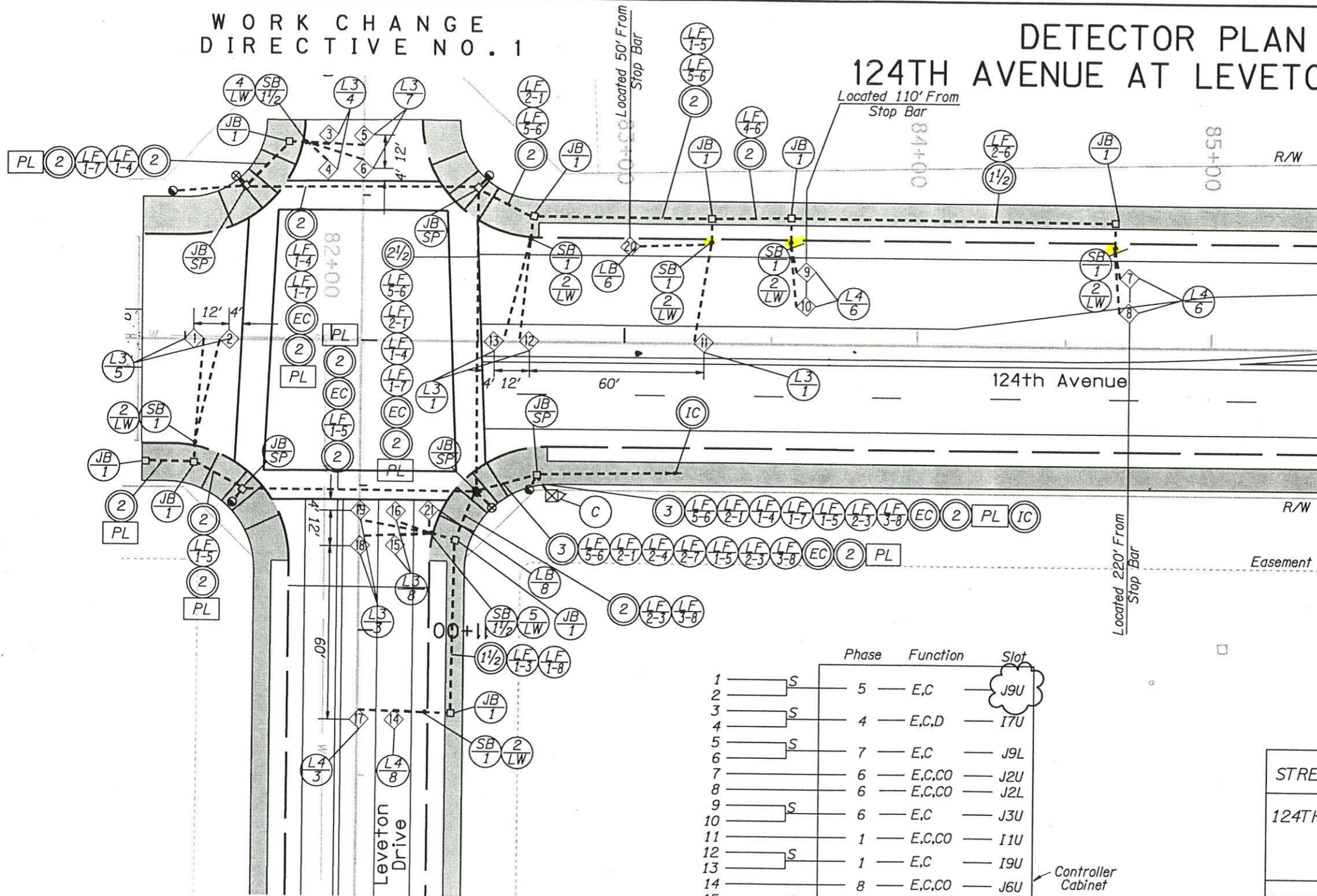
SIGNAL PLANS & DETAILS		S.W. 124TH AVENUE / S.W. LEVETON DRIVE TRAFFIC SIGNAL PLAN	
The Contract Document Drawings are the printed documents dated May 1999 as subsequently officially amended, which define the scope, extent, and character of the work. This originally issued Contract Document Drawing was sealed and signed by Belying Wang P.E. No. 17,041	Jennifer Ringert - Designer	S.W. 124TH AVENUE AND W. LEVETON DRIVE WASHINGTON COUNTY	
Gary D. Gray - Drafter	TUALATIN DEVELOPMENT COMMISSION		SHEET NO. 15
Belying Wang - Checked			

NDM:1459031:45903sg1.dwg 02-JUL-1999 10:35:37 skafko

WORK CHANGE
DIRECTIVE NO. 1

DETECTOR PLAN
124TH AVENUE AT LEVETON DRIVE

CH2MHILL



LEGEND

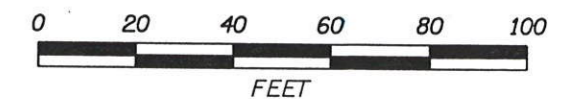
- (C) Controller (See Signal Plan)
- (S) Install (S) inch electrical conduit
- (EC) Electrical conduit (See Signal Plan)
- (IC) Interconnect conduit (See Interconnect Plan)
- (LB/Ph) Install phase (Ph) 2 1/2 FT. diamond bicycle detector loop
- (L3/Ph) Install phase (Ph) 3 FT. diamond vehicle detector loop
- (L4/Ph) Install phase (Ph) 4 FT. diamond vehicle detector loop
- (LX/Ph) Install (X) phase (Ph) loop feeder cables
- (N/LW) Install (N) pair of loop wires
- (SB/S) Install 4" x 4" x 4" galv. cast iron street box with (S) inch conduit to junction box
- (JB/I) Install 17" x 10" x 12" (min. dimension) precast concrete junction box
- (JB/1A) Install 17" x 10" x 12" (min. dimension) precast concrete junction box with concrete apron
- (JB/SP) Junction box (See Signal Plan)
- (PL) Install poly pull line (1 kn min-strength)

ABBREVIATIONS:

- PH= Phase Shown
- S = Size Shown
- X = Number Of Cables Shown
- N = Number Shown

POSTED APPROACH SPEEDS

STREET	APPROACH	POSTED SPEED
124TH AVENUE	NORTHBOUND	35 MPH
	SOUTHBOUND	35 MPH
LEVETON DRIVE	WESTBOUND	35 MPH



Revised June 30, 1999

TRAFFIC ENGINEER

The Contract Document Drawings are the printed documents dated May 1999 as subsequently officially amended, which define the scope, extent, and character of the work. This originally issued Contract Document Drawing was sealed and signed by Seiyung Wang, P.T.E. No. 17,047

S.W. 124TH AVENUE / S.W. LEVETON DRIVE
DETECTOR PLAN
S.W. 124TH AVE. AND W. LEVETON DRIVE
WASHINGTON COUNTY



TUALATIN DEVELOPMENT
COMMISSION

SHEET
NO.
15A

Phase	Function	Slot
1	S	5 — E,C — J9U
2	S	4 — E,C,D — I7U
3	S	7 — E,C — J9L
4	S	6 — E,C,CO — J2U
5	S	6 — E,C,CO — J2L
6	S	6 — E,C — J3U
7	S	1 — E,C,CO — I1U
8	S	1 — E,C — I9U
9	S	8 — E,C,CO — J6U
10	S	8 — E,C,D — J7U
11	S	3 — E,C,CO — I5U
12	S	3 — E,C — I9L
13	S	6 — E — J3L
14	S	8 — E,C — J7L*
15	S	
16	S	
17	S	
18	S	
19	S	
20	S	
21	S	

* PROGRAM TRANSFER CALL TO J8U

LOOP DETECTOR WIRING DIAGRAM

S = Series, E=Extension, C=Call, CO=Carry-over, D=Delay
See T.E.S. Drwg. No. TM408 for loop detector details
Center all loops in travel lanes or as shown on plan

- GENERAL NOTES:
- All Loops Are To Be Individually Wound Clockwise And Series Wired At Junction Boxes Or Controller, As Shown On The Loop Detector Wiring Diagram.
 - All Detector Loops Shall Be Located In The Center Of The Lane Unless Otherwise Indicated On The Detector Plan.
 - All Materials And Workmanship Shall Conform To The 1996 Oregon Department Of Transportation (ODOT) Standard Specifications For Highway Construction And The ODOT Standard Drawings And Special Provisions.

* STATE is using cold mix, epoxy boxes.

02-JUL-1999 10:41:07
skafko
NDM:145903:45903sg2.dwg

DETECTOR PLAN 124TH AVENUE AT TUALATIN ROAD

GENERAL NOTES:

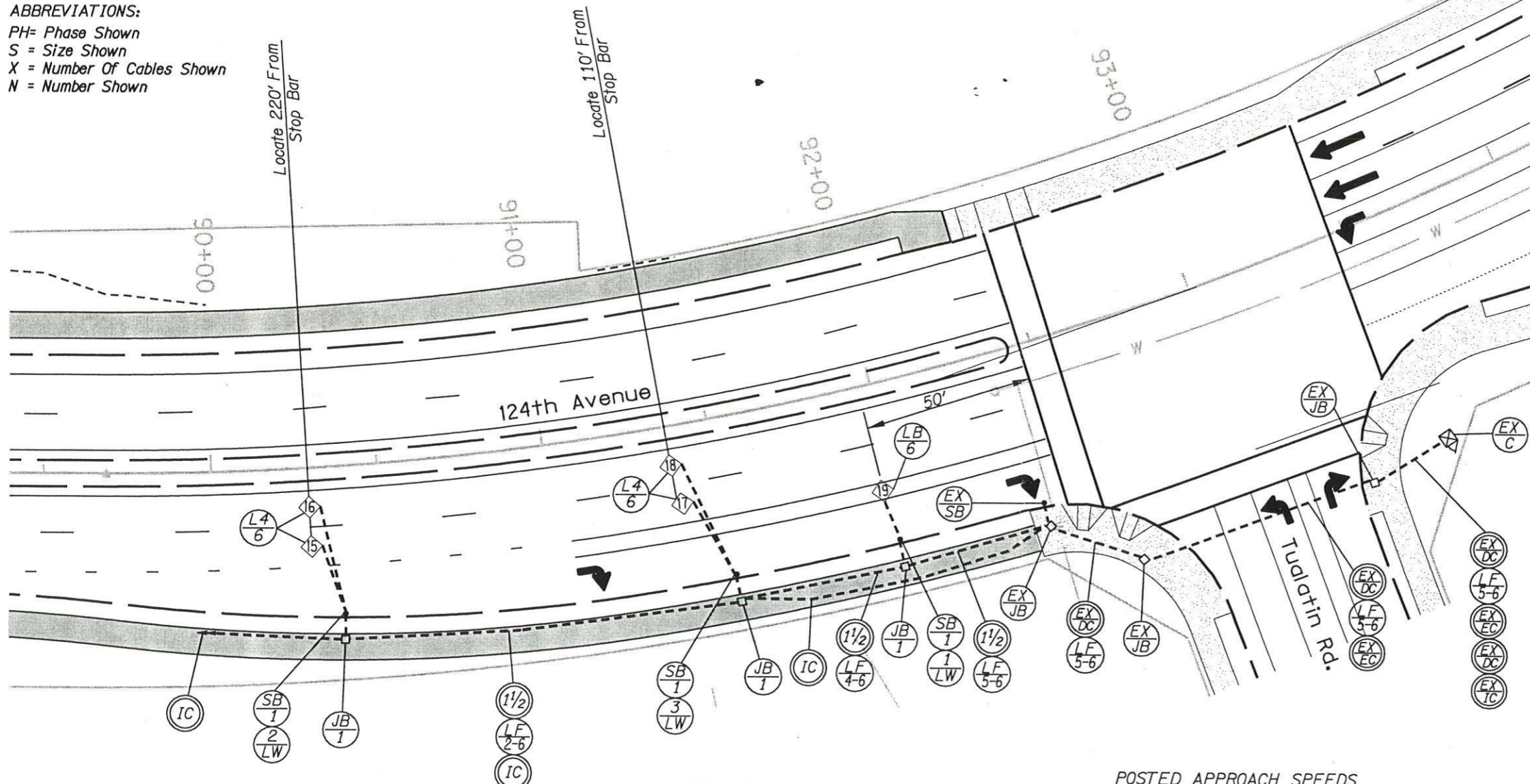
- All Loops Are To Be Individually Wound Clockwise And Series Wired At Junction Boxes Or Controller, As Shown On The Loop Detector Wiring Diagram.
- All Detector Loops Shall Be Located In The Center Of The Lane Unless Otherwise Indicated On The Detector Plan.
- All Materials And Workmanship Shall Conform To The 1996 Oregon Department Of Transportation (ODOT) Standard Specifications For Highway Construction And The ODOT Standard Drawings And Special Provisions.

ABBREVIATIONS:

- PH= Phase Shown
S = Size Shown
X = Number Of Cables Shown
N = Number Shown

LEGEND

- (C) Controller (See Signal Plan)
- (S) Install (S) inch electrical conduit
- (IC) Interconnect conduit (See Interconnect Plan)
- (L3/Ph) Install phase (Ph) 3 FT. diamond vehicle detector loop
- (L4/Ph) Install phase (Ph) 4 FT. diamond vehicle detector loop
- (LF/X-Ph) Install (X) phase (Ph) loop feeder cables
- (N/LW) Install (N) pair of loop wires
- (SB/S) Install 4" x4" x4" galv. cast iron street box with (S) inch conduit to junction box
- (JB/I) Install 17" x 10" x 12" (min. dimension) precast concrete junction box
- (JB/1A) Install 17" x 10" x 12" (min. dimension) precast concrete junction box with concrete apron
- (JB/SP) Junction box (See Signal Plan)
- (EX/JB) Retain and protect existing junction box
- (EX/C) Retain and protect existing Model 170 controller and Model 332 cabinet
- (EX/EC) Retain and protect existing electrical conduit
- (EX/DC) Retain and protect existing detector conduit
- (EX/IC) Retain and protect existing interconnect conduit
- (EX/SB) Retain and protect existing galv. cast iron street box with 1" conduit to junction box



	Phase	Function	Slot	
15	6	E,C,CO	J2U	Controller Cabinet
16	6	E,C,CO	J2L	
17	S	E,C	J3U	
19	6	E	J3L	

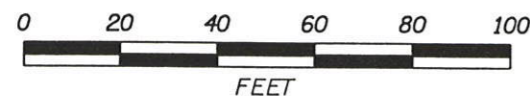
LOOP DETECTOR WIRING DIAGRAM

S = Series, E=Extension, C=Call, CO=Carry-over, D=Delay
See T.E.S. Drwg. No. TM408 for loop detector details
Center all loops in travel lanes or as shown on plan

Cold mix in Exopy Boxes?

POSTED APPROACH SPEEDS

STREET	APPROACH	POSTED SPEED
124TH AVENUE	NORTHBOUND	35 MPH
	SOUTHBOUND	35 MPH
TUALATIN ROAD	WESTBOUND	35 MPH



30-APR-1999 16:54:58

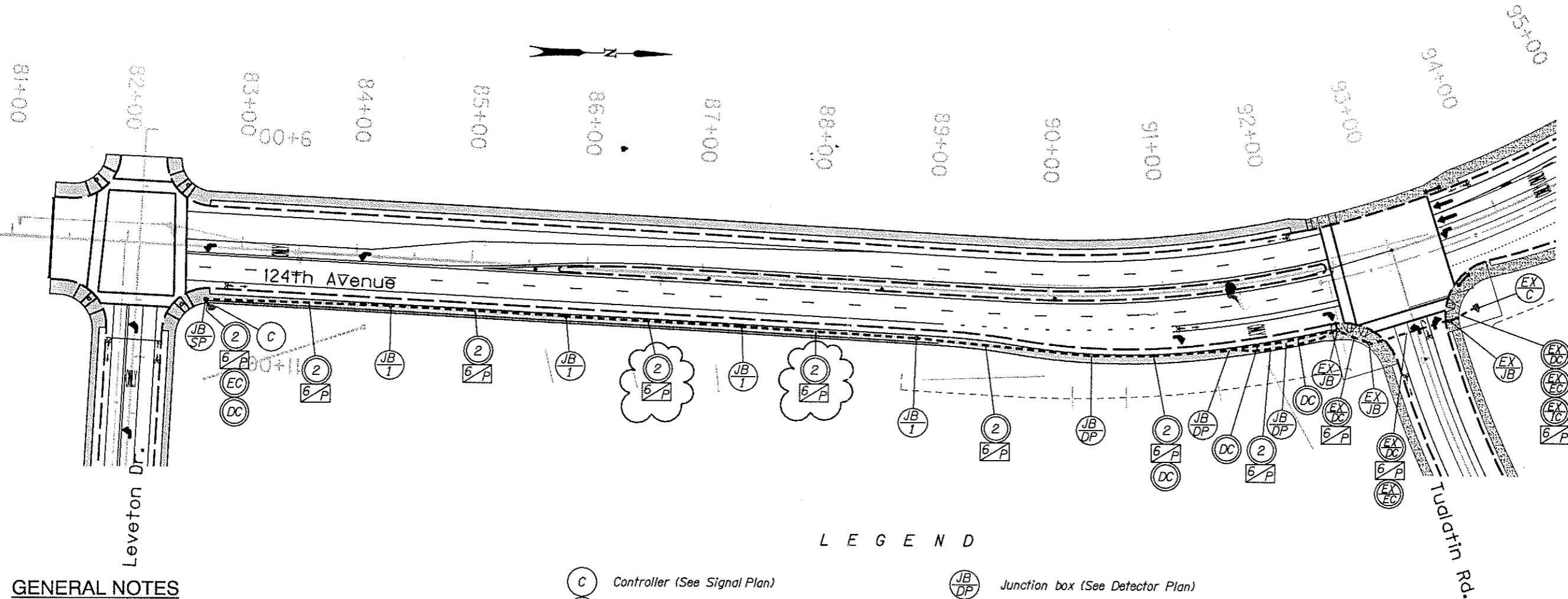
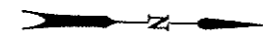
NDM:145903:45903sg3.dwg

<p>TRAFFIC ENGINEER</p> <p>Beijing Wang 4/30/99 Exp. 6/30/00</p>	<p>S.W. 124TH AVENUE / S.W. LEVETON DRIVE DETECTOR PLAN S.W. 124TH AVE. AND TUALATIN ROAD WASHINGTON COUNTY</p>		<p>SHEET NO. 15B</p>
	<p>TUALATIN DEVELOPMENT COMMISSION</p>		

INTERCONNECT PLAN

124TH AVENUE AT LEVETON DRIVE

WORK CHANGE DIRECTIVE NO. 1



L E G E N D

- | | |
|--|--|
| <ul style="list-style-type: none"> Controller (See Signal Plan) Install (S) inch electrical conduit Detector conduit (See Detector Plan) Electrical conduit (See Signal Plan) Install 17" x 10" x 12" (min. dimension) precast concrete junction box Install 17" x 10" x 12" (min. dimension) precast concrete junction box with concrete apron Junction box (See Signal Plan) | <ul style="list-style-type: none"> Junction box (See Detector Plan) Retain and protect existing junction box Retain and protect existing electrical conduit Retain and protect existing detector conduit Retain and protect existing interconnect conduit Install (N) No. (G) type THWN wires Retain and protect existing controller and cabinet |
|--|--|

GENERAL NOTES

1. All Material And Workmanship Shall Conform To The 1996 Standard Specifications For Highway Construction Of The Oregon Department Of Transportation And The Special Provisions.
2. All Electrical Equipment Shall Conform To The Current Standards Of the National Electrical Manufacturers Association (NEMA) And The Underwriters Laboratories, Inc. (U.L.). Wherever Applicable. In Addition To The Requirements Of All The Plans, Standards Specifications, And The Special Provisions, All Materials and Workmanship Shall Conform To The Current Requirements Of The National Electrical Code (NEC) The National Electrical Safety Code, Standards Of The American National Standards Institute (ANSI), And Any Local Ordinances Which May Apply.
3. Location Of Interconnect Conduits And Junction Boxes Are Approximate. Contractor Shall Coordinate With Other Utilities To Proper Installation.
4. Rigid Non-metallic Electrical Conduit Shall Be Acceptable For Interconnect Conduit



Revised June 30, 1999

<p>TRAFFIC ENGINEER</p> <p>The Contract Document Drawings are the printed documents dated May 1999 as subsequently officially amended, which define the scope, extent, and character of the work. This originally issued Contract Document Drawing was sealed and signed by Beijing Wang P.T.E. No. 17,047</p>	<p>S.W. 124TH AVENUE / S.W. LEVETON DRIVE SYSTEM INTERCONNECT PLAN 124th AVE. @ LEVETON DR. WASHINGTON COUNTY</p>	<p>TUALATIN DEVELOPMENT COMMISSION</p>	<p>SHEET NO. 15C</p>
---	--	---	----------------------------------

02-JUL-1999 10:46:45

NDM:145903:45903.dwg

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

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 S) wire to Output File terminal 120.
- ⑥ Re-establish telephone connection with local company after completion of utility pole relocation.

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. (G=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

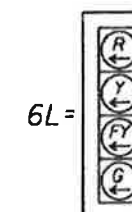
Install crosswalk closure barricades with signs (both sides of barricade)

SIGNAL MOUNTING OPTIONS

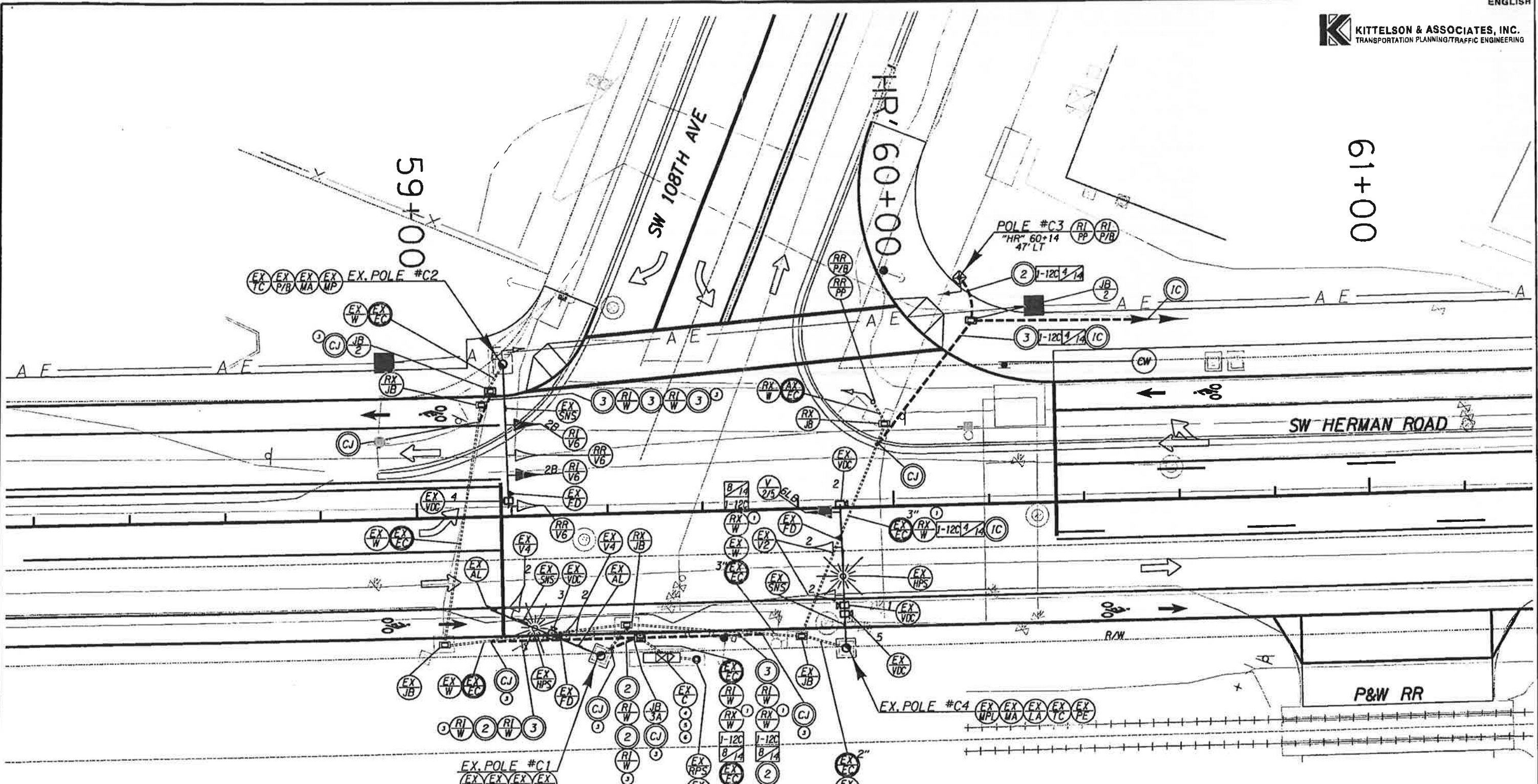
B = Adjustable bracket assembly w/rain cap(s) (install 1" metallic chase nipple in lieu of tenon when required for wiring)

SIGNAL HEAD TYPES

2 = 12" R, 12" Y, 12" G
6L = 12" GLTA, 12" YLTA, 12" FYLTA, 12" GLTA



	<p>TUALATIN DEVELOPMENT COMMISSION</p>
	<p>S.W. HERMAN RD. - S.W. 124TH AVE. TO S.W. TETON AVE.</p> <p>WASHINGTON COUNTY</p> <p>Reviewed By - C. Radosta Designed By - C. Tiester Drafted By - J. Henriksen</p>
	<p>SW HERMAN RD/SW 108TH AVE LEGEND SHEET</p> <p>SHEET NO. TS-11</p>



REGISTERED PROFESSIONAL
ENGINEER
19283PE
Chew. Radosta
OREGON
JULY 17, 1997
CHARLES W. RADOSTA
8/27/08
EXPIRES 12/31/08

TUALATIN DEVELOPMENT
COMMISSION

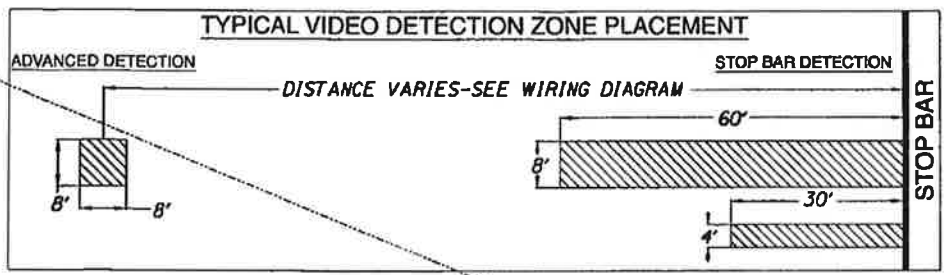
S.W. HERMAN RD. - S.W. 124TH AVE. TO
S.W. TETON AVE.

WASHINGTON COUNTY

Reviewed By - C. Radosta
Designed By - C. Tiesler
Drafted By - J. Henriksen

SW HERMAN RD/SW 108TH AVE
SIGNAL PLAN

SHEET
NO.
TS-12

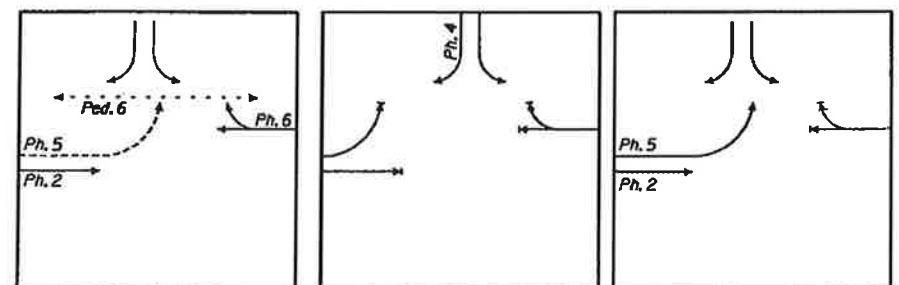
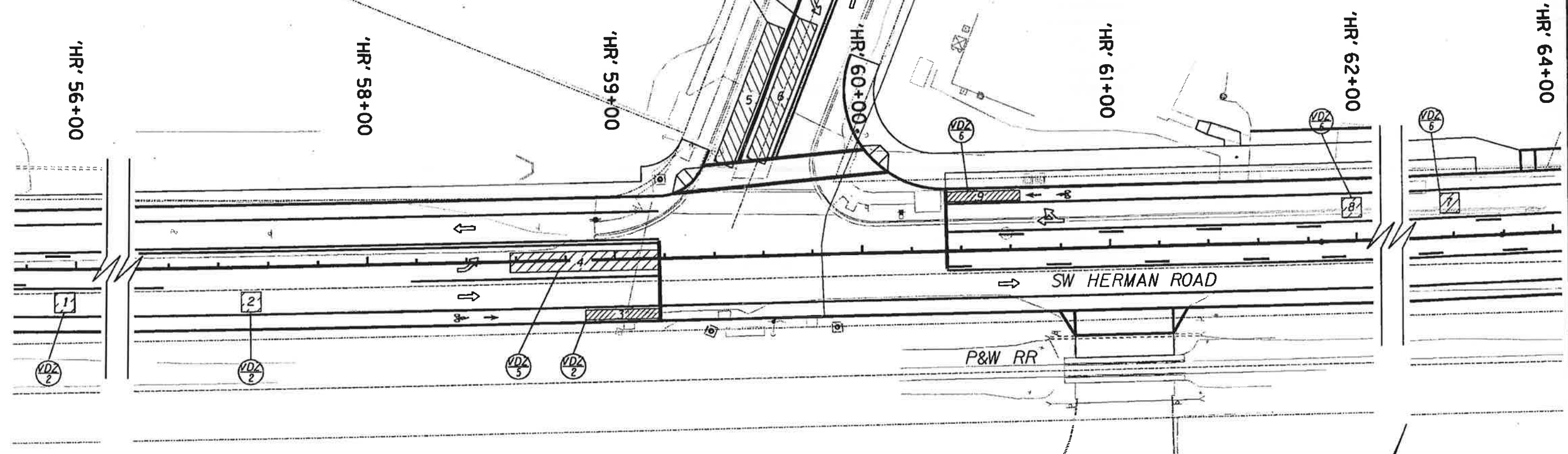


VIDEO DETECTION WIRING DIAGRAM

CAMERA	DETECTION ZONE	DISTANCE (FEET)	PHASE	SLOT
1	1	320	2	I2L1
2	2	180	2	I2L1
3	3		2	I3L1
4	4		5	I1L1
5	5		4	I6L1
6	6		4	I6L1
7	7	320	6	I2L1
8	8	180	6	I2L1
9	9		6	I3L1

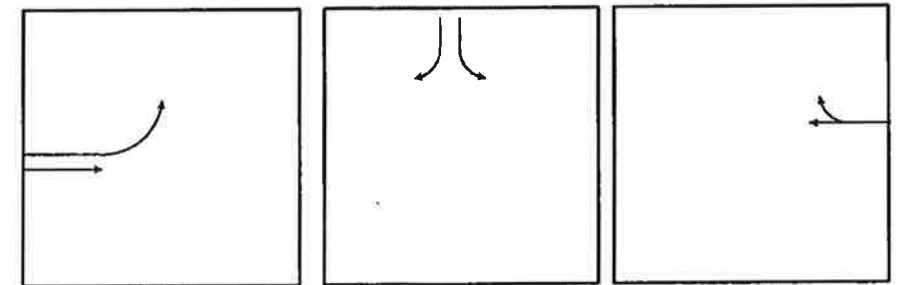
DESIGN APPROACH SPEEDS

STREET	APPROACH	OPERATING SPEED
HERMAN RD	EASTBOUND	45 M.P.H.
	WESTBOUND	45 M.P.H.
108TH AVE	SOUTHBOUND	35 M.P.H.



PHASES 2 & 6
PHASE 4
PHASES 2 & 5

NORMAL PHASE ROTATION



CHANNEL A PHASES 2 & 5
CHANNEL B PHASE 4
CHANNEL C PHASE 6

FIRE PREEMPTION DIAGRAM



TUALATIN DEVELOPMENT COMMISSION

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

WASHINGTON COUNTY

Reviewed By - C. Radosta
Designed By - C. Tiesler
Drafted By - J. Henriksen

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	<u>2</u> <u>5</u>
EVB Phases	B	<u>4</u> <u>7</u>
EVC Phases	C	<u>1</u> <u>6</u>
EVD Phases	D	<u>3</u> <u>8</u>
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 Hold 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				
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		0.0		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		0.0		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 18 In Delay	7	0
Plan 18 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	CO-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	CO-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
Hardwire 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	2 4 6

(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 Min 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	KEY2	KEY1	7	8	9	A	B	C	D	E	F
		Plan 10	Plan 11	Plan 12	Plan 13	Plan 14	Plan 15	Plan 16	Plan 17	Plan 18	
Cycle Length	0	0	0	0	0	0	0	0	0	0	0
Forceoff 01	1	0	0	0	0	0	0	0	0	0	0
Forceoff 02	2	0	0	0	0	0	0	0	0	0	0
Forceoff 03	3	0	0	0	0	0	0	0	0	0	0
Forceoff 04	4	0	0	0	0	0	0	0	0	0	0
Forceoff 05	5	0	0	0	0	0	0	0	0	0	0
Forceoff 06	6	0	0	0	0	0	0	0	0	0	0
Forceoff 07	7	0	0	0	0	0	0	0	0	0	0
Forceoff 08	8	0	0	0	0	0	0	0	0	0	0
Offset	9	0	0	0	0	0	0	0	0	0	0
Perm Length	A	0	0	0	0	0	0	0	0	0	0
Max Dwell	B	0	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	

W4IKS Table 9 Page 0
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(A+4+KEY)

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

(A+5+KEY)

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

(A+6+KEY)

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

W4IKS Table 9 Page 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+A+4+KEY)

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

(D+A+5+KEY)

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

(D+A+6+KEY)

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

W4IKS Table 9 Page 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+A+B+KEY)

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

(D+A+C+KEY)

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

(D+A+D+KEY)

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

W4IKS Table 10 Page 0
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 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	OLB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	08 Ped Y	3	0	OLB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	OLB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	OLA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	OLA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	OLA 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	OLD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	OLD Yellow	B	0			
02 Green	C	0	06 Green	C	0	OLD Green	C	0	High Byte IDC		0
01 Red	D	0	05 Red	D	99	OLC Red	D	0			
01 Yellow	E	0	05 Yellow	E	99	OLC Yellow	E	0			
01 Green	F	0	05 Green	F	99	OLC Green	F	0			

W4IKS Table 10 Page 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+A+0+KEY)			(D+A+1+KEY)			(D+A+2+KEY)			(D+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	0	01 Walk	1	0
04 Red	2	0	08 Red	2	0	04 Ped Y	2	0	OLB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	08 Ped Y	3	0	OLB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	OLB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	OLA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	OLA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	OLA 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	OLD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	OLD Yellow	B	0			
02 Green	C	0	06 Green	C	0	OLD Green	C	0			
01 Red	D	0	05 Red	D	0	OLC Red	D	0			
01 Yellow	E	0	05 Yellow	E	0	OLC Yellow	E	0			
01 Green	F	0	05 Green	F	0	OLC Green	F	0			

W4IKS Table 10 Page 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+A+7+KEY)			(D+A+8+KEY)			(D+A+9+KEY)			(D+A+A+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	0	01 Walk	1	0
04 Red	2	0	08 Red	2	0	04 Ped Y	2	0	OLB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	08 Ped Y	3	0	OLB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	OLB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	OLA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	OLA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	OLA 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	OLD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	OLD Yellow	B	0			
02 Green	C	0	06 Green	C	0	OLD Green	C	0			
01 Red	D	0	05 Red	D	0	OLC Red	D	0			
01 Yellow	E	0	05 Yellow	E	0	OLC Yellow	E	0			
01 Green	F	0	05 Green	F	0	OLC Green	F	0			

W4IKS Table 11 Page 0
 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	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18	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	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18	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	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18	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+8+KEY1+KEY2)

KEY1 = 0			KEY1 = 1			KEY1 = 2			KEY1 = 3		
FUNCTION	KEY2	VALUE	FUNCTION	KEY2	VALUE	FUNCTION	KEY2	VALUE	FUNCTION	KEY2	VALUE
1/Month	0	0	3/Hour On	0	0	5/Hour Off	0	0	7/Plan	0	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	_____	OLH Green	0	0.0	RR Max II	0	0
Overlap J	1	_____	OLH Yellow	1	0.0	Ped Perm Pl 1	1	0
Overlap K	2	_____	OLH Red	2	0.0	Ped Perm Pl 2	2	0
Overlap L	3	_____	OLJ Green	3	0.0	Ped Perm Pl 3	3	0
OLH Switchpack	4	_____	OLJ Yellow	4	0.0	Ped Perm Pl 4	4	0
OLJ Switchpack	5	_____	OLJ Red	5	0.0	Ped Perm Pl 5	5	0
OLK Switchpack	6	_____	OLK Green	6	0.0	Ped Perm Pl 6	6	0
OLL Switchpack	7	_____	OLK Yellow	7	0.0	Ped Perm Pl 7	7	0
Reserved	8	_____	OLK Red	8	0.0	Ped Perm Pl 8	8	0
Reserved	9	_____	OLL Green	9	0.0	Ped Perm Pl 9	9	0
All Red Before EV	A	_____	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
						No 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	26	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

Page ID - 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

Page ID - 1

(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

Page ID - 2

APPENDIX I.
**OPERATIONS
CALCULATIONS**

HCM Signalized Intersection Capacity Analysis

1: SW 124th Avenue & Highway 99W

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↙↘	↑↑	↙↘	↙↘
Traffic Volume (vph)	1198	553	921	894	127	301
Future Volume (vph)	1198	553	921	894	127	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1568	3400	3438	3183	2472
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1568	3400	3438	3183	2472
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1331	614	1023	993	141	334
RTOR Reduction (vph)	0	193	0	0	0	0
Lane Group Flow (vph)	1331	421	1023	993	141	334
Confl. Peds. (#/hr)						3
Heavy Vehicles (%)	5%	3%	3%	5%	10%	15%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	51.4	51.4	38.6	94.0	14.0	56.6
Effective Green, g (s)	53.4	53.4	40.2	96.0	16.0	57.9
Actuated g/C Ratio	0.46	0.46	0.35	0.83	0.14	0.50
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1582	721	1178	2845	439	1233
v/s Ratio Prot	c0.39		c0.30	0.29	c0.04	0.14
v/s Ratio Perm		0.27				
v/c Ratio	0.84	0.58	0.87	0.35	0.32	0.27
Uniform Delay, d1	27.6	23.1	35.4	2.4	45.1	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	3.4	6.9	0.3	0.3	0.1
Delay (s)	33.2	26.6	42.4	2.8	45.4	16.9
Level of Service	C	C	D	A	D	B
Approach Delay (s)	31.1			22.9	25.4	
Approach LOS	C			C	C	
Intersection Summary						
HCM 2000 Control Delay			26.7		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			116.0		Sum of lost time (s)	7.4
Intersection Capacity Utilization			74.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	221	221	51	747	706
Future Volume (vph)	44	221	221	51	747	706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1556	1524	3085	1387	1769	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.48	1.00
Satd. Flow (perm)	1556	1524	3085	1387	902	3471
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	49	248	248	57	839	793
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	49	248	248	57	839	793
Confl. Peds. (#/hr)				1	1	
Heavy Vehicles (%)	16%	6%	17%	14%	2%	4%
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)	9.7	18.9	11.8	11.8	25.0	25.0
Effective Green, g (s)	10.7	20.9	12.8	12.8	26.0	26.0
Actuated g/C Ratio	0.25	0.49	0.30	0.30	0.61	0.61
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	389	853	924	415	756	2113
v/s Ratio Prot	0.03	c0.07	0.08		c0.26	0.23
v/s Ratio Perm		0.09		0.04	c0.41	
v/c Ratio	0.13	0.29	0.27	0.14	1.11	0.38
Uniform Delay, d1	12.4	6.5	11.4	10.9	6.8	4.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.1	0.1	67.1	0.1
Delay (s)	12.5	6.6	11.5	11.0	74.0	4.3
Level of Service	B	A	B	B	E	A
Approach Delay (s)	7.6		11.4			40.1
Approach LOS	A		B			D

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	42.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	44	221	221	51	747	706
Future Volume (veh/h)	44	221	221	51	747	706
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1663	1811	1648	1693	1870	1841
Adj Flow Rate, veh/h	49	248	248	57	839	793
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	16	6	17	14	2	4
Cap, veh/h	324	773	711	325	921	2154
Arrive On Green	0.20	0.20	0.23	0.23	0.30	0.62
Sat Flow, veh/h	1584	1535	3214	1431	1781	3589
Grp Volume(v), veh/h	49	248	248	57	839	793
Grp Sat Flow(s),veh/h/ln	1584	1535	1566	1431	1781	1749
Q Serve(g_s), s	0.8	3.2	2.2	1.1	10.0	3.8
Cycle Q Clear(g_c), s	0.8	3.2	2.2	1.1	10.0	3.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	324	773	711	325	921	2154
V/C Ratio(X)	0.15	0.32	0.35	0.18	0.91	0.37
Avail Cap(c_a), veh/h	900	1331	1779	813	921	2154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	4.9	10.8	10.4	6.9	3.2
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.2	12.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.5	0.2	3.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	5.1	11.1	10.6	19.8	3.3
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	297		305			1632
Approach Delay, s/veh	6.1		11.0			11.8
Approach LOS	A		B			B
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.6		9.8	13.0	10.6
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.8		5.2	12.0	4.2
Green Ext Time (p_c), s		7.5		1.0	0.0	2.3
Intersection Summary						
HCM 6th Ctrl Delay			10.9			
HCM 6th LOS			B			

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	62	677	5	4	218	128	2	1	1	40	2	29
Future Vol, veh/h	62	677	5	4	218	128	2	1	1	40	2	29
Conflicting Peds, #/hr	1	0	1	1	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	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	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, %	3	2	40	50	9	7	100	2	100	10	2	14
Mvmt Flow	67	736	5	4	237	139	2	1	1	43	2	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	742	0	0	1206	1259	740	1190	1192	308
Stage 1	-	-	-	-	-	-	874	874	-	316	316	-
Stage 2	-	-	-	-	-	-	332	385	-	874	876	-
Critical Hdwy	4.13	-	-	4.6	-	-	8.1	6.52	7.2	7.2	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.52	-	6.2	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.52	-	6.2	5.52	-
Follow-up Hdwy	2.227	-	-	2.65	-	-	4.4	4.018	4.2	3.59	4.018	3.426
Pot Cap-1 Maneuver	1176	-	-	683	-	-	104	171	291	159	187	705
Stage 1	-	-	-	-	-	-	238	367	-	678	655	-
Stage 2	-	-	-	-	-	-	517	611	-	334	367	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1175	-	-	682	-	-	94	160	291	150	175	704
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	160	-	150	175	-
Stage 1	-	-	-	-	-	-	224	346	-	639	650	-
Stage 2	-	-	-	-	-	-	489	607	-	313	346	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.1			33.9			29.6		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	129	1175	-	-	682	-	-	222
HCM Lane V/C Ratio	0.034	0.057	-	-	0.006	-	-	0.348
HCM Control Delay (s)	33.9	8.2	-	-	10.3	-	-	29.6
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1.5

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	688	330	10	18	7
Future Vol, veh/h	5	688	330	10	18	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	20	3	9	20	6	2
Mvmt Flow	5	717	344	10	19	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	360	0	-	0	1082 355
Stage 1	-	-	-	-	355 -
Stage 2	-	-	-	-	727 -
Critical Hdwy	4.3	-	-	-	6.46 6.22
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.38	-	-	-	3.554 3.318
Pot Cap-1 Maneuver	1106	-	-	-	237 689
Stage 1	-	-	-	-	701 -
Stage 2	-	-	-	-	471 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1100	-	-	-	233 685
Mov Cap-2 Maneuver	-	-	-	-	355 -
Stage 1	-	-	-	-	693 -
Stage 2	-	-	-	-	468 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1100	-	-	-	410
HCM Lane V/C Ratio	0.005	-	-	-	0.064
HCM Control Delay (s)	8.3	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	742	20	35	341	3	3
Future Vol, veh/h	742	20	35	341	3	3
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	15	9	9	2	33
Mvmt Flow	781	21	37	359	3	3

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	804	0	1227
Stage 1	-	-	-	-	794
Stage 2	-	-	-	-	433
Critical Hdwy	-	-	4.19	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.281	-	3.518
Pot Cap-1 Maneuver	-	-	790	-	197
Stage 1	-	-	-	-	445
Stage 2	-	-	-	-	654
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	788	-	187
Mov Cap-2 Maneuver	-	-	-	-	318
Stage 1	-	-	-	-	444
Stage 2	-	-	-	-	623

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	330	-	-	788	-
HCM Lane V/C Ratio	0.019	-	-	0.047	-
HCM Control Delay (s)	16.1	-	-	9.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	6	55	0
Future Vol, veh/h	0	0	0	6	55	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	6	58	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	64	58	58	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	6	-	-	-	-	-
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	942	1008	1546	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	942	1008	1546	-	-	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

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)	1546	-	-	-	-	-
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 6th TWSC
 8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	6	55	0
Future Vol, veh/h	0	0	0	6	55	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	6	58	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	64	58	58	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	6	-	-	-	-	-
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	942	1008	1546	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	942	1008	1546	-	-	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

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)	1546	-	-	-	-	-
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 6th TWSC
 9: SW 108th Avenue & South 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	66	51	0
Future Vol, veh/h	0	0	0	66	51	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	69	54	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	123	54	54	0	0
Stage 1	54	-	-	-	-
Stage 2	69	-	-	-	-
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	872	1013	1551	-	-
Stage 1	969	-	-	-	-
Stage 2	954	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	872	1013	1551	-	-
Mov Cap-2 Maneuver	872	-	-	-	-
Stage 1	969	-	-	-	-
Stage 2	954	-	-	-	-

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)	1551	-	-	-	-	-
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

10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	5	90	32	5	6	31	25	239	49	191	541	23
Future Volume (vph)	5	90	32	5	6	31	25	239	49	191	541	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frb, 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	0.96		1.00	0.87		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)	1770	1753		1128	1495		1612	3021		1767	3369	
Flt Permitted	0.73	1.00		0.62	1.00		0.30	1.00		0.46	1.00	
Satd. Flow (perm)	1358	1753		735	1495		511	3021		858	3369	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	6	106	38	6	7	36	29	281	58	225	636	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	6	144	0	6	43	0	29	339	0	225	663	0
Confl. Peds. (#/hr)									3	3		
Heavy Vehicles (%)	2%	2%	10%	60%	17%	10%	12%	18%	6%	2%	6%	18%
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)	17.5	15.4		17.9	15.6		26.3	18.8		29.9	20.6	
Effective Green, g (s)	19.5	16.4		19.9	16.6		28.3	19.8		31.9	21.6	
Actuated g/C Ratio	0.32	0.27		0.32	0.27		0.46	0.32		0.52	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	449	465		257	401		385	967		594	1177	
v/s Ratio Prot	0.00	c0.08		c0.00	0.03		0.01	0.11		c0.06	c0.20	
v/s Ratio Perm	0.00			0.01			0.02			0.13		
v/c Ratio	0.01	0.31		0.02	0.11		0.08	0.35		0.38	0.56	
Uniform Delay, d1	14.5	18.2		14.3	17.0		9.4	16.1		8.4	16.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.3		0.0	0.1		0.1	0.2		0.3	0.5	
Delay (s)	14.5	18.4		14.3	17.1		9.5	16.2		8.7	16.8	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		18.3			16.8			15.7			14.7	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.4				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			61.8			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			36.1%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	5	90	32	5	6	31	25	239	49	191	541	23
Future Volume (veh/h)	5	90	32	5	6	31	25	239	49	191	541	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1752	1011	1648	1752	1722	1633	1811	1870	1811	1633
Adj Flow Rate, veh/h	6	106	38	6	7	36	29	281	58	225	636	27
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	10	60	17	10	12	18	6	2	6	18
Cap, veh/h	462	201	72	312	36	184	486	723	147	699	1272	54
Arrive On Green	0.04	0.15	0.12	0.04	0.15	0.12	0.06	0.28	0.25	0.16	0.38	0.35
Sat Flow, veh/h	1781	1314	471	963	233	1199	1640	2566	521	1781	3363	143
Grp Volume(v), veh/h	6	0	144	6	0	43	29	168	171	225	325	338
Grp Sat Flow(s),veh/h/ln	1781	0	1786	963	0	1432	1640	1552	1536	1781	1721	1785
Q Serve(g_s), s	0.1	0.0	2.4	0.2	0.0	0.9	0.4	2.8	2.9	2.3	4.7	4.7
Cycle Q Clear(g_c), s	0.1	0.0	2.4	0.2	0.0	0.9	0.4	2.8	2.9	2.3	4.7	4.7
Prop In Lane	1.00		0.26	1.00		0.84	1.00		0.34	1.00		0.08
Lane Grp Cap(c), veh/h	462	0	273	312	0	219	486	437	433	699	651	675
V/C Ratio(X)	0.01	0.00	0.53	0.02	0.00	0.20	0.06	0.38	0.39	0.32	0.50	0.50
Avail Cap(c_a), veh/h	947	0	1051	574	0	843	896	913	904	973	1013	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	0.0	12.7	10.7	0.0	12.3	7.2	9.3	9.5	5.1	7.7	7.7
Incr Delay (d2), s/veh	0.0	0.0	1.2	0.0	0.0	0.3	0.0	0.4	0.4	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.8	0.0	0.0	0.2	0.1	0.6	0.6	0.3	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	13.9	10.7	0.0	12.6	7.2	9.8	9.9	5.3	8.1	8.2
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		150			49			368			888	
Approach Delay, s/veh		13.8			12.4			9.6			7.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	12.1	4.2	7.9	4.9	15.2	4.2	7.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	4.3	4.9	2.2	4.4	2.4	6.7	2.1	2.9				
Green Ext Time (p_c), s	0.3	2.3	0.0	0.4	0.0	4.3	0.0	0.1				

Intersection Summary												
HCM 6th Ctrl Delay	8.8											
HCM 6th LOS	A											

Notes

User approved pedestrian interval to be less than phase max green.

Intersection

Intersection Delay, s/veh 9.5

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	265	16	5	26	1	11	3	16	0	2	3
Future Vol, veh/h	18	265	16	5	26	1	11	3	16	0	2	3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	19	20	8	100	18	2	13	2	2	33
Mvmt Flow	22	319	19	6	31	1	13	4	19	0	2	4
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	9.8	8	8.1	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	37%	6%	16%	0%
Vol Thru, %	10%	89%	81%	40%
Vol Right, %	53%	5%	3%	60%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	299	32	5
LT Vol	11	18	5	0
Through Vol	3	265	26	2
RT Vol	16	16	1	3
Lane Flow Rate	36	360	39	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.402	0.05	0.008
Departure Headway (Hd)	4.837	4.015	4.704	4.491
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	890	765	801
Service Time	2.84	2.068	2.71	2.495
HCM Lane V/C Ratio	0.048	0.404	0.051	0.007
HCM Control Delay	8.1	9.8	8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	2	0.2	0

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	147	125	13	68	7	12
Future Vol, veh/h	147	125	13	68	7	12
Conflicting Peds, #/hr	4	0	0	4	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	79	79	79	79	79	79
Heavy Vehicles, %	2	3	15	4	15	17
Mvmt Flow	186	158	16	86	9	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	106	0	-	0	593 63
Stage 1	-	-	-	-	63 -
Stage 2	-	-	-	-	530 -
Critical Hdwy	4.12	-	-	-	6.55 6.37
Critical Hdwy Stg 1	-	-	-	-	5.55 -
Critical Hdwy Stg 2	-	-	-	-	5.55 -
Follow-up Hdwy	2.218	-	-	-	3.635 3.453
Pot Cap-1 Maneuver	1485	-	-	-	447 961
Stage 1	-	-	-	-	928 -
Stage 2	-	-	-	-	565 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1479	-	-	-	382 957
Mov Cap-2 Maneuver	-	-	-	-	382 -
Stage 1	-	-	-	-	797 -
Stage 2	-	-	-	-	563 -

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1479	-	-	-	382	957
HCM Lane V/C Ratio	0.126	-	-	-	0.023	0.016
HCM Control Delay (s)	7.8	0	-	-	14.6	8.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	19	117	82	25	2	3
Future Vol, veh/h	19	117	82	25	2	3
Conflicting Peds, #/hr	15	0	0	15	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	78	78	78	78	78	78
Heavy Vehicles, %	2	4	7	4	2	2
Mvmt Flow	24	150	105	32	3	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	152	0	-	0	334
Stage 1	-	-	-	-	136
Stage 2	-	-	-	-	198
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	1429	-	-	-	661
Stage 1	-	-	-	-	890
Stage 2	-	-	-	-	835
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1409	-	-	-	631
Mov Cap-2 Maneuver	-	-	-	-	631
Stage 1	-	-	-	-	861
Stage 2	-	-	-	-	823

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1409	-	-	-	631	900
HCM Lane V/C Ratio	0.017	-	-	-	0.004	0.004
HCM Control Delay (s)	7.6	0	-	-	10.7	9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	0

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	47	56	4	0	103	35	1	0	0	2	0	4
Future Vol, veh/h	47	56	4	0	103	35	1	0	0	2	0	4
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	7	2	2	4	6	2	2	2	50	2	50
Mvmt Flow	53	64	5	0	117	40	1	0	0	2	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	174	0	0	69	0	0	313	347	67	327	329	154
Stage 1	-	-	-	-	-	-	173	173	-	154	154	-
Stage 2	-	-	-	-	-	-	140	174	-	173	175	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.12	6.52	6.22	7.6	6.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.518	4.018	3.318	3.95	4.018	3.75
Pot Cap-1 Maneuver	1391	-	-	1532	-	-	640	576	997	544	590	780
Stage 1	-	-	-	-	-	-	829	756	-	747	770	-
Stage 2	-	-	-	-	-	-	863	755	-	729	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1368	-	-	1532	-	-	617	544	997	519	558	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	617	544	-	519	558	-
Stage 1	-	-	-	-	-	-	796	726	-	705	758	-
Stage 2	-	-	-	-	-	-	858	743	-	700	724	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.4			0			10.8			10.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	617	1368	-	-	1532	-	-	662
HCM Lane V/C Ratio	0.002	0.039	-	-	-	-	-	0.01
HCM Control Delay (s)	10.8	7.7	0	-	0	-	-	10.5
HCM Lane LOS		B	A	A	-	A	-	B
HCM 95th %tile Q(veh)		0	0.1	-	-	0	-	0

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

06/28/2024

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	54	108	39	25	26
Future Vol, veh/h	27	54	108	39	25	26
Conflicting Peds, #/hr	1	1	19	0	0	19
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	88	88	88	88	88	88
Heavy Vehicles, %	8	2	5	21	28	12
Mvmt Flow	31	61	123	44	28	30

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	353	63	77	0	0
Stage 1	62	-	-	-	-
Stage 2	291	-	-	-	-
Critical Hdwy	6.48	6.22	4.15	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-
Follow-up Hdwy	3.572	3.318	2.245	-	-
Pot Cap-1 Maneuver	633	1002	1503	-	-
Stage 1	946	-	-	-	-
Stage 2	745	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	558	983	1476	-	-
Mov Cap-2 Maneuver	558	-	-	-	-
Stage 1	850	-	-	-	-
Stage 2	732	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	5.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1476	-	784	-	-
HCM Lane V/C Ratio	0.083	-	0.117	-	-
HCM Control Delay (s)	7.7	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (vph)	14	353	235	152	46	10
Future Volume (vph)	14	353	235	152	46	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1398	1557	1624		1504	1468
Flt Permitted	0.36	1.00	1.00		0.95	1.00
Satd. Flow (perm)	536	1557	1624		1504	1468
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	16	410	273	177	53	12
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	16	410	450	0	53	12
Confl. Peds. (#/hr)	3			3		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	29%	22%	12%	6%	20%	10%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	38.0	38.0	28.5		10.8	10.8
Effective Green, g (s)	39.4	39.4	29.9		13.3	13.3
Actuated g/C Ratio	0.69	0.69	0.53		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	476	1080	854		352	343
v/s Ratio Prot	0.00	c0.26	c0.28		c0.04	0.01
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.38	0.53		0.15	0.03
Uniform Delay, d1	3.4	3.6	8.8		17.3	16.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	0.4		0.1	0.0
Delay (s)	3.4	3.8	9.3		17.4	16.8
Level of Service	A	A	A		B	B
Approach Delay (s)		3.8	9.3		17.3	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	6.7
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	353	235	152	46	10
Future Volume (veh/h)	14	353	235	152	46	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1470	1574	1722	1811	1604	1752
Adj Flow Rate, veh/h	16	410	273	177	53	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	29	22	12	6	20	10
Cap, veh/h	614	1085	501	325	234	228
Arrive On Green	0.07	0.69	0.52	0.47	0.15	0.15
Sat Flow, veh/h	1400	1574	965	626	1527	1485
Grp Volume(v), veh/h	16	410	0	450	53	12
Grp Sat Flow(s),veh/h/ln	1400	1574	0	1591	1527	1485
Q Serve(g_s), s	0.1	2.9	0.0	5.1	0.8	0.2
Cycle Q Clear(g_c), s	0.1	2.9	0.0	5.1	0.8	0.2
Prop In Lane	1.00			0.39	1.00	1.00
Lane Grp Cap(c), veh/h	614	1085	0	826	234	228
V/C Ratio(X)	0.03	0.38	0.00	0.55	0.23	0.05
Avail Cap(c_a), veh/h	1074	1171	0	1184	1201	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.5	1.7	0.0	4.4	9.7	9.4
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.4	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.5	0.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.5	1.9	0.0	4.8	10.0	9.5
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		426	450		65	
Approach Delay, s/veh		1.9	4.8		9.9	
Approach LOS		A	A		A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		20.6		5.5	4.4	16.1
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		4.9		2.8	2.1	7.1
Green Ext Time (p_c), s		5.1		0.1	0.0	4.9
Intersection Summary						
HCM 6th Ctrl Delay			3.9			
HCM 6th LOS			A			

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

06/28/2024

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	601	162	63	299	75	57
Future Vol, veh/h	601	162	63	299	75	57
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	2	5	7	15	21
Mvmt Flow	633	171	66	315	79	60

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	806	0	1168	721
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	447	-
Critical Hdwy	-	-	4.15	-	6.55	6.41
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.245	-	3.635	3.489
Pot Cap-1 Maneuver	-	-	806	-	201	397
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	804	-	184	396
Mov Cap-2 Maneuver	-	-	-	-	314	-
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	567	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	314	396	-	-	804	-
HCM Lane V/C Ratio	0.251	0.152	-	-	0.082	-
HCM Control Delay (s)	20.3	15.7	-	-	9.9	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	1	0.5	-	-	0.3	-

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Road

06/28/2024

Intersection

Int Delay, s/veh 9.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	12	0	0	100	107
Future Vol, veh/h	26	12	0	0	100	107
Conflicting Peds, #/hr	0	37	37	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	25	7	6	4	5
Mvmt Flow	41	19	0	0	156	167

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	97	0	90
Stage 1	-	-	-	-	88
Stage 2	-	-	-	-	2
Critical Hdwy	-	-	4.17	-	6.44
Critical Hdwy Stg 1	-	-	-	-	5.44
Critical Hdwy Stg 2	-	-	-	-	5.44
Follow-up Hdwy	-	-	2.263	-	3.536
Pot Cap-1 Maneuver	-	-	1466	-	906
Stage 1	-	-	-	-	930
Stage 2	-	-	-	-	1016
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1414	-	874
Mov Cap-2 Maneuver	-	-	-	-	874
Stage 1	-	-	-	-	897
Stage 2	-	-	-	-	1016

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	901	-	-	1414	-
HCM Lane V/C Ratio	0.359	-	-	-	-
HCM Control Delay (s)	11.2	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.6	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Road

06/28/2024

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	162	1445	23	0	0
Future Vol, veh/h	0	162	1445	23	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	0	180	1606	26	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	804	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0	324	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	324	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	324
HCM Lane V/C Ratio	-	-	0.556
HCM Control Delay (s)	-	-	29.2
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	3.2

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	287	295	60	260	23	254	127	32	18	221	6
Future Volume (vph)	8	287	295	60	260	23	254	127	32	18	221	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1721		1770	1840		1770	1806		1770	1855	
Flt Permitted	0.54	1.00		0.13	1.00		0.32	1.00		0.65	1.00	
Satd. Flow (perm)	1014	1721		239	1840		604	1806		1207	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	312	321	65	283	25	276	138	35	20	240	7
RTOR Reduction (vph)	0	44	0	0	3	0	0	9	0	0	1	0
Lane Group Flow (vph)	9	589	0	65	305	0	276	164	0	20	246	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	33.8	32.9		39.4	35.7		32.7	27.0		18.5	16.8	
Effective Green, g (s)	33.8	32.9		39.4	35.7		32.7	27.0		18.5	16.8	
Actuated g/C Ratio	0.40	0.39		0.47	0.43		0.39	0.32		0.22	0.20	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	417	675		179	783		401	581		277	371	
v/s Ratio Prot	0.00	c0.34		c0.02	0.17		c0.10	0.09		0.00	0.13	
v/s Ratio Perm	0.01			0.15			c0.17			0.01		
v/c Ratio	0.02	0.87		0.36	0.39		0.69	0.28		0.07	0.66	
Uniform Delay, d1	15.0	23.5		16.2	16.5		19.2	21.2		25.7	30.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	11.9		0.9	0.2		4.5	0.2		0.1	4.0	
Delay (s)	15.0	35.4		17.2	16.8		23.7	21.4		25.8	34.9	
Level of Service	B	D		B	B		C	C		C	C	
Approach Delay (s)		35.2			16.8			22.8			34.2	
Approach LOS		D			B			C			C	

Intersection Summary

HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	287	295	60	260	23	254	127	32	18	221	6
Future Volume (veh/h)	8	287	295	60	260	23	254	127	32	18	221	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	312	321	65	283	25	276	138	35	20	240	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	469	344	354	226	752	66	391	410	104	324	286	8
Arrive On Green	0.01	0.41	0.41	0.05	0.44	0.44	0.15	0.28	0.28	0.02	0.16	0.16
Sat Flow, veh/h	1781	845	869	1781	1694	150	1781	1440	365	1781	1808	53
Grp Volume(v), veh/h	9	0	633	65	0	308	276	0	173	20	0	247
Grp Sat Flow(s),veh/h/ln	1781	0	1714	1781	0	1843	1781	0	1805	1781	0	1861
Q Serve(g_s), s	0.2	0.0	27.1	1.6	0.0	8.7	9.5	0.0	5.9	0.7	0.0	10.0
Cycle Q Clear(g_c), s	0.2	0.0	27.1	1.6	0.0	8.7	9.5	0.0	5.9	0.7	0.0	10.0
Prop In Lane	1.00		0.51	1.00		0.08	1.00		0.20	1.00		0.03
Lane Grp Cap(c), veh/h	469	0	697	226	0	819	391	0	514	324	0	295
V/C Ratio(X)	0.02	0.00	0.91	0.29	0.00	0.38	0.71	0.00	0.34	0.06	0.00	0.84
Avail Cap(c_a), veh/h	563	0	846	254	0	910	423	0	532	399	0	358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	21.7	17.0	0.0	14.5	21.7	0.0	22.1	26.4	0.0	31.8
Incr Delay (d2), s/veh	0.0	0.0	11.5	0.5	0.0	0.2	4.4	0.0	0.3	0.1	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	12.2	0.6	0.0	3.4	4.2	0.0	2.5	0.3	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	0.0	33.2	17.5	0.0	14.7	26.1	0.0	22.3	26.5	0.0	44.7
LnGrp LOS	B	A	C	B	A	B	C	A	C	C	A	D
Approach Vol, veh/h		642			373			449			267	
Approach Delay, s/veh		32.9			15.2			24.7			43.3	
Approach LOS		C			B			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	37.2	15.6	17.4	4.9	40.1	5.8	27.2				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	38.5	13.0	15.0	5.0	38.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s	3.6	29.1	11.5	12.0	2.2	10.7	2.7	7.9				
Green Ext Time (p_c), s	0.0	2.6	0.1	0.3	0.0	1.6	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			28.6									
HCM 6th LOS			C									

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

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	893	213	504	1160	640	780
Future Volume (vph)	893	213	504	1160	640	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	3.0	4.3
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1538	3367	3438	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1538	3367	3438	3433	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	950	227	536	1234	681	830
RTOR Reduction (vph)	0	124	0	0	0	0
Lane Group Flow (vph)	950	103	536	1234	681	830
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	2%	5%	4%	5%	2%	2%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	48.0	48.0	22.5	76.1	29.1	56.6
Effective Green, g (s)	50.0	50.0	24.1	78.1	31.1	54.2
Actuated g/C Ratio	0.43	0.43	0.21	0.67	0.27	0.47
Clearance Time (s)	6.0	6.0	5.6	6.0	5.0	
Vehicle Extension (s)	5.4	5.4	2.3	5.4	2.3	
Lane Grp Cap (vph)	1522	661	698	2310	918	1299
v/s Ratio Prot	c0.27		c0.16	0.36	c0.20	0.30
v/s Ratio Perm		0.07				
v/c Ratio	0.62	0.16	0.77	0.53	0.74	0.64
Uniform Delay, d1	25.8	20.2	43.4	9.7	38.9	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.5	4.7	0.9	3.0	0.9
Delay (s)	27.7	20.7	48.2	10.6	41.9	24.4
Level of Service	C	C	D	B	D	C
Approach Delay (s)	26.4			22.0	32.3	
Approach LOS	C			C	C	
Intersection Summary						
HCM 2000 Control Delay			26.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			116.2		Sum of lost time (s)	12.0
Intersection Capacity Utilization			67.3%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↕↗	↰	↰	↕↗
Traffic Volume (vph)	42	657	779	49	373	384
Future Volume (vph)	42	657	779	49	373	384
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)	1687	1583	3539	1547	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.18	1.00
Satd. Flow (perm)	1687	1583	3539	1547	337	3406
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	43	677	803	51	385	396
RTOR Reduction (vph)	0	258	0	21	0	0
Lane Group Flow (vph)	43	419	803	30	385	396
Confl. Peds. (#/hr)	6			2	2	
Heavy Vehicles (%)	7%	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)	4.2	31.5	27.6	27.6	59.9	59.9
Effective Green, g (s)	5.2	33.5	28.6	28.6	60.9	60.9
Actuated g/C Ratio	0.07	0.42	0.36	0.36	0.77	0.77
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)	110	666	1271	555	766	2605
v/s Ratio Prot	0.03	c0.22	c0.23		0.18	0.12
v/s Ratio Perm		0.04		0.02	0.21	
v/c Ratio	0.39	0.63	0.63	0.05	0.50	0.15
Uniform Delay, d1	35.7	18.2	21.1	16.7	7.7	2.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	1.9	1.1	0.1	0.5	0.0
Delay (s)	38.0	20.0	22.3	16.7	8.2	2.5
Level of Service	D	C	C	B	A	A
Approach Delay (s)	21.1		22.0			5.3
Approach LOS	C		C			A

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support exclusive ped or hold phases.

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	370	1	4	600	243	0	4	5	20	2	22
Future Vol, veh/h	48	370	1	4	600	243	0	4	5	20	2	22
Conflicting Peds, #/hr	4	0	0	0	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	14	5	2	17
Mvmt Flow	51	389	1	4	632	256	0	4	5	21	2	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	892	0	0	390	0	0	1274	1392	390	1268	1264	765
Stage 1	-	-	-	-	-	-	492	492	-	772	772	-
Stage 2	-	-	-	-	-	-	782	900	-	496	492	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.34	7.15	6.52	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.426	3.545	4.018	3.453
Pot Cap-1 Maneuver	760	-	-	1169	-	-	144	142	633	143	169	380
Stage 1	-	-	-	-	-	-	558	548	-	388	409	-
Stage 2	-	-	-	-	-	-	387	357	-	550	548	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	757	-	-	1169	-	-	126	131	633	130	156	378
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	131	-	130	156	-
Stage 1	-	-	-	-	-	-	521	511	-	360	406	-
Stage 2	-	-	-	-	-	-	360	355	-	504	511	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	21	29
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	234	757	-	-	1169	-	-	196
HCM Lane V/C Ratio	0.04	0.067	-	-	0.004	-	-	0.236
HCM Control Delay (s)	21	10.1	-	-	8.1	-	-	29
HCM Lane LOS	C	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.9

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘		↙	
Traffic Vol, veh/h	12	391	895	14	8	2
Future Vol, veh/h	12	391	895	14	8	2
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	2	7	2	2
Mvmt Flow	13	434	994	16	9	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1013	0	-	0	1467 1005
Stage 1	-	-	-	-	1005 -
Stage 2	-	-	-	-	462 -
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	684	-	-	-	141 293
Stage 1	-	-	-	-	354 -
Stage 2	-	-	-	-	634 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	682	-	-	-	137 292
Mov Cap-2 Maneuver	-	-	-	-	259 -
Stage 1	-	-	-	-	346 -
Stage 2	-	-	-	-	632 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	682	-	-	-	265
HCM Lane V/C Ratio	0.02	-	-	-	0.042
HCM Control Delay (s)	10.4	-	-	-	19.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	
Traffic Vol, veh/h	386	4	9	852	28	22
Future Vol, veh/h	386	4	9	852	28	22
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	420	4	10	926	30	24

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	425	0	1369 423
Stage 1	-	-	-	-	423 -
Stage 2	-	-	-	-	946 -
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	-	-	1134	-	162 631
Stage 1	-	-	-	-	661 -
Stage 2	-	-	-	-	377 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1133	-	160 630
Mov Cap-2 Maneuver	-	-	-	-	283 -
Stage 1	-	-	-	-	660 -
Stage 2	-	-	-	-	374 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	374	-	-	1133	-
HCM Lane V/C Ratio	0.145	-	-	0.009	-
HCM Control Delay (s)	16.3	-	-	8.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	50	13	0
Future Vol, veh/h	0	0	0	50	13	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	54	14	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	68	14	14	0	-	0
Stage 1	14	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	937	1066	1604	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	937	1066	1604	-	-	-
Mov Cap-2 Maneuver	937	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	969	-	-	-	-	-

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)	1604	-	-	-	-	-
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 6th TWSC
 8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	46	13	0
Future Vol, veh/h	0	0	0	46	13	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	50	14	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	64	14	14	0	-	0
Stage 1	14	-	-	-	-	-
Stage 2	50	-	-	-	-	-
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	942	1066	1604	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	942	1066	1604	-	-	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	972	-	-	-	-	-

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)	1604	-	-	-	-	-
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 6th TWSC
 9: SW 108th Avenue & South 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	40	48	0
Future Vol, veh/h	0	0	0	40	48	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	43	52	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	95	52	52	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	43	-	-	-	-	-
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	1016	1554	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	905	1016	1554	-	-	-
Mov Cap-2 Maneuver	905	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	979	-	-	-	-	-

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)	1554	-	-	-	-	-
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
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	19	13	16	41	2	238	5	563	13	36	379	6
Future Volume (vph)	19	13	16	41	2	238	5	563	13	36	379	6
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	
Frt	1.00	0.92		1.00	0.85		1.00	1.00		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)	1770	1660		1770	1580		1128	3518		1656	3423	
Flt Permitted	0.58	1.00		0.60	1.00		0.51	1.00		0.30	1.00	
Satd. Flow (perm)	1082	1660		1114	1580		600	3518		531	3423	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	21	14	18	45	2	262	5	619	14	40	416	7
RTOR Reduction (vph)	0	14	0	0	197	0	0	1	0	0	1	0
Lane Group Flow (vph)	21	18	0	45	67	0	5	632	0	40	422	0
Heavy Vehicles (%)	2%	2%	7%	2%	50%	2%	60%	2%	15%	9%	5%	17%
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)	10.1	9.4		14.9	11.8		17.7	17.0		20.5	18.4	
Effective Green, g (s)	12.1	10.4		16.9	12.8		19.7	18.0		22.5	19.4	
Actuated g/C Ratio	0.23	0.20		0.33	0.25		0.38	0.35		0.44	0.38	
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)	276	334		416	391		246	1227		299	1286	
v/s Ratio Prot	0.00	0.01		c0.01	c0.04		0.00	c0.18		c0.01	0.12	
v/s Ratio Perm	0.02			0.03			0.01			0.05		
v/c Ratio	0.08	0.05		0.11	0.17		0.02	0.51		0.13	0.33	
Uniform Delay, d1	15.3	16.6		12.0	15.2		9.9	13.3		8.7	11.5	
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		0.1	0.2		0.0	0.4		0.2	0.2	
Delay (s)	15.4	16.7		12.1	15.4		9.9	13.7		8.9	11.6	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		16.2			15.0			13.7			11.4	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.35	B
Actuated Cycle Length (s)	51.6	Sum of lost time (s)
Intersection Capacity Utilization	48.4%	16.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

Min green cannot be greater than Max Green.

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	6	37	9	15	260	2	20	3	8	0	2	13
Future Vol, veh/h	6	37	9	15	260	2	20	3	8	0	2	13
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	2	6	11	2	2	2	5	2	25	2	2	2
Mvmt Flow	8	50	12	20	351	3	27	4	11	0	3	18
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	7.8	10.2	8.3	7.6
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	12%	5%	0%
Vol Thru, %	10%	71%	94%	13%
Vol Right, %	26%	17%	1%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	52	277	15
LT Vol	20	6	15	0
Through Vol	3	37	260	2
RT Vol	8	9	2	13
Lane Flow Rate	42	70	374	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.058	0.085	0.426	0.025
Departure Headway (Hd)	4.959	4.377	4.101	4.443
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	822	868	809
Service Time	2.964	2.385	2.176	2.449
HCM Lane V/C Ratio	0.058	0.085	0.431	0.025
HCM Control Delay	8.3	7.8	10.2	7.6
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.3	2.2	0.1

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	11	33	141	14	75	139
Future Vol, veh/h	11	33	141	14	75	139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	10	10	2	2	3	2
Mvmt Flow	14	43	186	18	99	183

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	204	0	-	0	266 195
Stage 1	-	-	-	-	195 -
Stage 2	-	-	-	-	71 -
Critical Hdwy	4.2	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.29	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1321	-	-	-	721 846
Stage 1	-	-	-	-	836 -
Stage 2	-	-	-	-	949 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1321	-	-	-	713 846
Mov Cap-2 Maneuver	-	-	-	-	713 -
Stage 1	-	-	-	-	827 -
Stage 2	-	-	-	-	949 -

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1321	-	-	-	713	846
HCM Lane V/C Ratio	0.011	-	-	-	0.138	0.216
HCM Control Delay (s)	7.8	0	-	-	10.9	10.4
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0.8

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	9	109	120	9	23	30
Future Vol, veh/h	9	109	120	9	23	30
Conflicting Peds, #/hr	15	0	0	15	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	77	77	77	77	77	77
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	12	142	156	12	30	39

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	183	0	-	0	343 177
Stage 1	-	-	-	-	177 -
Stage 2	-	-	-	-	166 -
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	1392	-	-	-	653 866
Stage 1	-	-	-	-	854 -
Stage 2	-	-	-	-	863 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1372	-	-	-	629 854
Mov Cap-2 Maneuver	-	-	-	-	629 -
Stage 1	-	-	-	-	834 -
Stage 2	-	-	-	-	851 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1372	-	-	-	629	854
HCM Lane V/C Ratio	0.009	-	-	-	0.047	0.046
HCM Control Delay (s)	7.6	0	-	-	11	9.4
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	134	0	0	73	2	4	0	1	33	0	33
Future Vol, veh/h	0	134	0	0	73	2	4	0	1	33	0	33
Conflicting Peds, #/hr	15	0	4	4	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	3	2	2	3	2	2	2	2	2	2	2
Mvmt Flow	0	179	0	0	97	3	5	0	1	44	0	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	115	0	0	183	0	0	304	298	183	294	297	114
Stage 1	-	-	-	-	-	-	183	183	-	114	114	-
Stage 2	-	-	-	-	-	-	121	115	-	180	183	-
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	1474	-	-	1392	-	-	648	614	859	658	615	939
Stage 1	-	-	-	-	-	-	819	748	-	891	801	-
Stage 2	-	-	-	-	-	-	883	800	-	822	748	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1453	-	-	1387	-	-	615	603	856	647	604	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	615	603	-	647	604	-
Stage 1	-	-	-	-	-	-	816	745	-	879	790	-
Stage 2	-	-	-	-	-	-	841	789	-	821	745	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			10.6			10.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	652	1453	-	-	1387	-	-	762
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.115
HCM Control Delay (s)	10.6	0	-	-	0	-	-	10.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4

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

06/28/2024

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	169	30	23	30	18
Future Vol, veh/h	17	169	30	23	30	18
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	6	2	3	9	7	2
Mvmt Flow	22	219	39	30	39	23

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	160	52	63	0	0
Stage 1	52	-	-	-	-
Stage 2	108	-	-	-	-
Critical Hdwy	6.46	6.22	4.13	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-
Follow-up Hdwy	3.554	3.318	2.227	-	-
Pot Cap-1 Maneuver	822	1016	1533	-	-
Stage 1	960	-	-	-	-
Stage 2	907	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	799	1015	1532	-	-
Mov Cap-2 Maneuver	799	-	-	-	-
Stage 1	934	-	-	-	-
Stage 2	906	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1532	-	991	-	-
HCM Lane V/C Ratio	0.025	-	0.244	-	-
HCM Control Delay (s)	7.4	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	296	438	48	188	19
Future Volume (vph)	7	296	438	48	188	19
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	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1570	1776	1748		1770	1524
Flt Permitted	0.29	1.00	1.00		0.95	1.00
Satd. Flow (perm)	478	1776	1748		1770	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	322	476	52	204	21
RTOR Reduction (vph)	0	0	5	0	0	16
Lane Group Flow (vph)	8	322	523	0	204	5
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	15%	7%	7%	7%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	31.3	31.3	25.3		11.7	11.7
Effective Green, g (s)	32.7	32.7	26.7		14.2	14.2
Actuated g/C Ratio	0.60	0.60	0.49		0.26	0.26
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)	324	1057	850		457	394
v/s Ratio Prot	0.00	c0.18	c0.30		c0.12	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.02	0.30	0.62		0.45	0.01
Uniform Delay, d1	5.8	5.5	10.3		17.1	15.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	1.3		0.5	0.0
Delay (s)	5.8	5.7	11.7		17.6	15.2
Level of Service	A	A	B		B	B
Approach Delay (s)		5.7	11.7		17.4	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			54.9		Sum of lost time (s)	12.0
Intersection Capacity Utilization			43.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Min green cannot be greater than Max Green.

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

06/28/2024

Intersection						
Int Delay, s/veh	12.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Vol, veh/h	338	78	43	709	149	66
Future Vol, veh/h	338	78	43	709	149	66
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	7	2	3	6
Mvmt Flow	371	86	47	779	164	73

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	458	0	1288 415
Stage 1	-	-	-	-	415 -
Stage 2	-	-	-	-	873 -
Critical Hdwy	-	-	4.17	-	6.43 6.26
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.263	-	3.527 3.354
Pot Cap-1 Maneuver	-	-	1077	-	180 629
Stage 1	-	-	-	-	664 -
Stage 2	-	-	-	-	407 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1076	-	172 628
Mov Cap-2 Maneuver	-	-	-	-	172 -
Stage 1	-	-	-	-	663 -
Stage 2	-	-	-	-	389 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	80
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	172	628	-	-	1076	-
HCM Lane V/C Ratio	0.952	0.115	-	-	0.044	-
HCM Control Delay (s)	110.4	11.5	-	-	8.5	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	7.3	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	10.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	12	0	0	235	19
Future Vol, veh/h	10	12	0	0	235	19
Conflicting Peds, #/hr	0	43	43	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	13	3	2	11
Mvmt Flow	14	16	0	0	318	26

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	73	0	66
Stage 1	-	-	-	-	65
Stage 2	-	-	-	-	1
Critical Hdwy	-	-	4.23	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.317	-	3.518
Pot Cap-1 Maneuver	-	-	1460	-	939
Stage 1	-	-	-	-	958
Stage 2	-	-	-	-	1022
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-	901
Mov Cap-2 Maneuver	-	-	-	-	901
Stage 1	-	-	-	-	919
Stage 2	-	-	-	-	1022

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	903	-	-	1400	-
HCM Lane V/C Ratio	0.38	-	-	-	-
HCM Control Delay (s)	11.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Rd

06/28/2024

Intersection

Int Delay, s/veh 23.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗	↗		↗↗
Traffic Vol, veh/h	0	325	1554	23	0	0
Future Vol, veh/h	0	325	1554	23	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	4	2	2
Mvmt Flow	0	353	1689	25	0	0

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	846	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.96	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.33	-
Pot Cap-1 Maneuver	0 ~ 304	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	- ~ 304	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	140	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 304	-
HCM Lane V/C Ratio	-	- 1.162	-
HCM Control Delay (s)	-	- 140	-
HCM Lane LOS	-	- F	-
HCM 95th %tile Q(veh)	-	- 15	-

Notes

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

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	293	287	42	315	20	283	235	36	27	119	15
Future Volume (vph)	6	293	287	42	315	20	283	235	36	27	119	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1724		1770	1846		1770	1826		1770	1832	
Flt Permitted	0.46	1.00		0.13	1.00		0.50	1.00		0.58	1.00	
Satd. Flow (perm)	859	1724		238	1846		928	1826		1081	1832	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	318	312	46	342	22	308	255	39	29	129	16
RTOR Reduction (vph)	0	45	0	0	3	0	0	5	0	0	5	0
Lane Group Flow (vph)	7	585	0	46	361	0	308	289	0	29	140	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.7	29.9		34.1	31.6		31.1	25.5		15.9	14.3	
Effective Green, g (s)	30.7	29.9		34.1	31.6		31.1	25.5		15.9	14.3	
Actuated g/C Ratio	0.39	0.38		0.44	0.41		0.40	0.33		0.20	0.18	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	347	660		153	747		508	596		234	335	
v/s Ratio Prot	0.00	c0.34		c0.01	0.20		c0.10	0.16		0.00	0.08	
v/s Ratio Perm	0.01			0.12			c0.14			0.02		
v/c Ratio	0.02	0.89		0.30	0.48		0.61	0.48		0.12	0.42	
Uniform Delay, d1	14.5	22.5		16.0	17.2		17.3	21.0		25.1	28.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	13.5		0.8	0.4		1.7	0.5		0.2	0.6	
Delay (s)	14.5	36.0		16.8	17.5		19.0	21.4		25.3	28.8	
Level of Service	B	D		B	B		B	C		C	C	
Approach Delay (s)		35.8			17.4			20.2			28.2	
Approach LOS		D			B			C			C	

Intersection Summary

HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	6	293	287	42	315	20	283	235	36	27	119	15
Future Volume (veh/h)	6	293	287	42	315	20	283	235	36	27	119	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	318	312	46	342	22	308	255	39	29	129	16
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	424	356	349	224	770	50	470	431	66	293	217	27
Arrive On Green	0.01	0.41	0.41	0.04	0.44	0.44	0.17	0.27	0.27	0.03	0.13	0.13
Sat Flow, veh/h	1781	867	850	1781	1738	112	1781	1584	242	1781	1632	202
Grp Volume(v), veh/h	7	0	630	46	0	364	308	0	294	29	0	145
Grp Sat Flow(s),veh/h/ln	1781	0	1717	1781	0	1850	1781	0	1827	1781	0	1834
Q Serve(g_s), s	0.2	0.0	25.7	1.1	0.0	10.3	10.6	0.0	10.5	1.0	0.0	5.6
Cycle Q Clear(g_c), s	0.2	0.0	25.7	1.1	0.0	10.3	10.6	0.0	10.5	1.0	0.0	5.6
Prop In Lane	1.00		0.50	1.00		0.06	1.00		0.13	1.00		0.11
Lane Grp Cap(c), veh/h	424	0	706	224	0	820	470	0	497	293	0	244
V/C Ratio(X)	0.02	0.00	0.89	0.21	0.00	0.44	0.66	0.00	0.59	0.10	0.00	0.59
Avail Cap(c_a), veh/h	526	0	947	270	0	1021	524	0	497	358	0	244
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	20.6	16.2	0.0	14.5	21.0	0.0	23.8	26.8	0.0	30.7
Incr Delay (d2), s/veh	0.0	0.0	8.0	0.3	0.0	0.3	2.2	0.0	1.6	0.1	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	11.0	0.4	0.0	4.0	4.4	0.0	4.5	0.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	28.6	16.5	0.0	14.8	23.2	0.0	25.4	26.9	0.0	34.1
LnGrp LOS	B	A	C	B	A	B	C	A	C	C	A	C
Approach Vol, veh/h		637			410			602				174
Approach Delay, s/veh		28.4			15.0			24.3				32.9
Approach LOS		C			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	36.4	16.7	15.0	4.7	38.8	6.3	25.5				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	41.5	15.0	10.0	5.0	41.5	5.0	20.0				
Max Q Clear Time (g_c+I1), s	3.1	27.7	12.6	7.6	2.2	12.3	3.0	12.5				
Green Ext Time (p_c), s	0.0	3.2	0.2	0.1	0.0	1.9	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

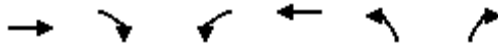
Notes

User approved pedestrian interval to be less than phase max green.

HCM Signalized Intersection Capacity Analysis

1: SW 124th Avenue & Highway 99W

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	1234	623	1038	921	140	323
Future Volume (vph)	1234	623	1038	921	140	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1568	3400	3438	3183	2472
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1568	3400	3438	3183	2472
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1371	692	1153	1023	156	359
RTOR Reduction (vph)	0	192	0	0	0	0
Lane Group Flow (vph)	1371	500	1153	1023	156	359
Confl. Peds. (#/hr)						3
Heavy Vehicles (%)	5%	3%	3%	5%	10%	15%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	49.0	49.0	41.0	94.0	14.3	59.3
Effective Green, g (s)	51.0	51.0	42.6	96.0	16.3	60.6
Actuated g/C Ratio	0.44	0.44	0.37	0.83	0.14	0.52
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1507	687	1245	2837	446	1288
v/s Ratio Prot	c0.40		c0.34	0.30	c0.05	0.15
v/s Ratio Perm		0.32				
v/c Ratio	0.91	0.73	0.93	0.36	0.35	0.28
Uniform Delay, d1	30.5	26.9	35.3	2.5	45.2	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.7	6.6	11.7	0.4	0.3	0.1
Delay (s)	40.2	33.6	47.0	2.9	45.6	15.7
Level of Service	D	C	D	A	D	B
Approach Delay (s)	38.0			26.3	24.7	
Approach LOS	D			C	C	
Intersection Summary						
HCM 2000 Control Delay			31.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			116.3		Sum of lost time (s)	7.4
Intersection Capacity Utilization			78.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	229	249	53	778	860
Future Volume (vph)	45	229	249	53	778	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1556	1524	3085	1387	1769	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.41	1.00
Satd. Flow (perm)	1556	1524	3085	1387	768	3471
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	51	257	280	60	874	966
RTOR Reduction (vph)	0	143	0	46	0	0
Lane Group Flow (vph)	51	114	280	14	874	966
Confl. Peds. (#/hr)				1	1	
Heavy Vehicles (%)	16%	6%	17%	14%	2%	4%
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)	1.0	10.5	5.7	5.7	19.2	19.2
Effective Green, g (s)	2.0	12.5	6.7	6.7	20.2	20.2
Actuated g/C Ratio	0.07	0.44	0.24	0.24	0.72	0.72
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	110	837	732	329	922	2486
v/s Ratio Prot	c0.03	0.05	0.09		c0.35	0.28
v/s Ratio Perm		0.02		0.01	c0.33	
v/c Ratio	0.46	0.14	0.38	0.04	0.95	0.39
Uniform Delay, d1	12.6	4.7	9.0	8.3	3.6	1.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.1	0.2	0.0	18.1	0.1
Delay (s)	14.8	4.7	9.3	8.3	21.7	1.6
Level of Service	B	A	A	A	C	A
Approach Delay (s)	6.4		9.1			11.2
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	28.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	229	249	53	778	860
Future Volume (veh/h)	45	229	249	53	778	860
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1663	1811	1648	1693	1870	1841
Adj Flow Rate, veh/h	51	257	280	60	874	966
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	16	6	17	14	2	4
Cap, veh/h	331	766	751	343	897	2158
Arrive On Green	0.21	0.21	0.24	0.24	0.29	0.62
Sat Flow, veh/h	1584	1535	3214	1431	1781	3589
Grp Volume(v), veh/h	51	257	280	60	874	966
Grp Sat Flow(s),veh/h/ln	1584	1535	1566	1431	1781	1749
Q Serve(g_s), s	0.9	3.5	2.6	1.1	10.0	5.0
Cycle Q Clear(g_c), s	0.9	3.5	2.6	1.1	10.0	5.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	331	766	751	343	897	2158
V/C Ratio(X)	0.15	0.34	0.37	0.17	0.97	0.45
Avail Cap(c_a), veh/h	873	1292	1727	789	897	2158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	5.2	10.9	10.4	7.6	3.5
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.2	23.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.7	0.6	0.2	6.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.3	5.4	11.2	10.6	31.4	3.6
LnGrp LOS	B	A	B	B	C	A
Approach Vol, veh/h	308		340			1840
Approach Delay, s/veh	6.4		11.1			16.8
Approach LOS	A		B			B
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.3		10.2	13.0	11.3
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		7.0		5.5	12.0	4.6
Green Ext Time (p_c), s		7.9		1.1	0.0	2.6
Intersection Summary						
HCM 6th Ctrl Delay			14.7			
HCM 6th LOS			B			

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	64	706	5	4	226	132	2	1	1	41	2	30
Future Vol, veh/h	64	706	5	4	226	132	2	1	1	41	2	30
Conflicting Peds, #/hr	1	0	1	1	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	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	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, %	3	2	40	50	9	7	100	2	100	10	2	14
Mvmt Flow	70	767	5	4	246	143	2	1	1	45	2	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	390	0	0	773	0	0	1254	1309	771	1238	1240	319
Stage 1	-	-	-	-	-	-	911	911	-	327	327	-
Stage 2	-	-	-	-	-	-	343	398	-	911	913	-
Critical Hdwy	4.13	-	-	4.6	-	-	8.1	6.52	7.2	7.2	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.52	-	6.2	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.52	-	6.2	5.52	-
Follow-up Hdwy	2.227	-	-	2.65	-	-	4.4	4.018	4.2	3.59	4.018	3.426
Pot Cap-1 Maneuver	1163	-	-	663	-	-	95	159	278	147	175	695
Stage 1	-	-	-	-	-	-	225	353	-	669	648	-
Stage 2	-	-	-	-	-	-	509	603	-	318	352	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1162	-	-	662	-	-	85	148	278	138	163	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	148	-	138	163	-
Stage 1	-	-	-	-	-	-	211	331	-	628	643	-
Stage 2	-	-	-	-	-	-	481	599	-	297	331	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.1			36.7			32.8		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	118	1162	-	-	662	-	-	207
HCM Lane V/C Ratio	0.037	0.06	-	-	0.007	-	-	0.383
HCM Control Delay (s)	36.7	8.3	-	-	10.5	-	-	32.8
HCM Lane LOS	E	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1.7

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	718	341	10	19	7
Future Vol, veh/h	5	718	341	10	19	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	20	3	9	20	6	2
Mvmt Flow	5	748	355	10	20	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	371	0	-	0	1124 366
Stage 1	-	-	-	-	366 -
Stage 2	-	-	-	-	758 -
Critical Hdwy	4.3	-	-	-	6.46 6.22
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.38	-	-	-	3.554 3.318
Pot Cap-1 Maneuver	1095	-	-	-	223 679
Stage 1	-	-	-	-	693 -
Stage 2	-	-	-	-	456 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1089	-	-	-	219 675
Mov Cap-2 Maneuver	-	-	-	-	342 -
Stage 1	-	-	-	-	685 -
Stage 2	-	-	-	-	453 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	394
HCM Lane V/C Ratio	0.005	-	-	-	0.069
HCM Control Delay (s)	8.3	-	-	-	14.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	764	30	47	351	4	5
Future Vol, veh/h	764	30	47	351	4	5
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	15	9	9	2	33
Mvmt Flow	804	32	49	369	4	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	838	0	1289
Stage 1	-	-	-	-	822
Stage 2	-	-	-	-	467
Critical Hdwy	-	-	4.19	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.281	-	3.518
Pot Cap-1 Maneuver	-	-	767	-	181
Stage 1	-	-	-	-	432
Stage 2	-	-	-	-	631
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	766	-	169
Mov Cap-2 Maneuver	-	-	-	-	302
Stage 1	-	-	-	-	431
Stage 2	-	-	-	-	591

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	316	-	-	766	-
HCM Lane V/C Ratio	0.03	-	-	0.065	-
HCM Control Delay (s)	16.7	-	-	10	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	9	77	0
Future Vol, veh/h	0	0	0	9	77	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	81	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	90	81	81	0	-
Stage 1	81	-	-	-	-
Stage 2	9	-	-	-	-
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	910	979	1517	-	-
Stage 1	942	-	-	-	-
Stage 2	1014	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	910	979	1517	-	-
Mov Cap-2 Maneuver	910	-	-	-	-
Stage 1	942	-	-	-	-
Stage 2	1014	-	-	-	-

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)	1517	-	-	-	-	-
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 6th TWSC
8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	112	8	68	9
Future Vol, veh/h	1	16	112	8	68	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	17	118	8	72	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	321	77	81	0	0
Stage 1	77	-	-	-	-
Stage 2	244	-	-	-	-
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	673	984	1517	-	-
Stage 1	946	-	-	-	-
Stage 2	797	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	621	984	1517	-	-
Mov Cap-2 Maneuver	621	-	-	-	-
Stage 1	872	-	-	-	-
Stage 2	797	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	7.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1517	-	621	984	-	-
HCM Lane V/C Ratio	0.078	-	0.002	0.017	-	-
HCM Control Delay (s)	7.6	0	10.8	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0	0.1	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	5	34	181	71	9
Future Vol, veh/h	1	5	34	181	71	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	36	191	75	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	343	80	84	0	0
Stage 1	80	-	-	-	-
Stage 2	263	-	-	-	-
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	653	980	1513	-	-
Stage 1	943	-	-	-	-
Stage 2	781	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	635	980	1513	-	-
Mov Cap-2 Maneuver	635	-	-	-	-
Stage 1	918	-	-	-	-
Stage 2	781	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1513	-	635	980	-	-
HCM Lane V/C Ratio	0.024	-	0.002	0.005	-	-
HCM Control Delay (s)	7.4	0	10.7	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

HCM Signalized Intersection Capacity Analysis
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	93	33	11	6	45	26	254	82	273	614	24
Future Volume (vph)	5	93	33	11	6	45	26	254	82	273	614	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.87		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)	1770	1753		1128	1487		1612	3005		1768	3372	
Flt Permitted	0.72	1.00		0.62	1.00		0.37	1.00		0.40	1.00	
Satd. Flow (perm)	1337	1753		740	1487		623	3005		743	3372	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	6	109	39	13	7	53	31	299	96	321	722	28
RTOR Reduction (vph)	0	21	0	0	44	0	0	42	0	0	3	0
Lane Group Flow (vph)	6	127	0	13	16	0	31	353	0	321	747	0
Confl. Peds. (#/hr)									3	3		
Heavy Vehicles (%)	2%	2%	10%	60%	17%	10%	12%	18%	6%	2%	6%	18%
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)	7.0	6.3		7.2	6.4		14.0	13.2		25.5	20.7	
Effective Green, g (s)	9.0	7.3		9.2	7.4		16.0	14.2		26.5	21.7	
Actuated g/C Ratio	0.20	0.16		0.21	0.17		0.36	0.32		0.59	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	286	286		168	246		263	956		655	1640	
v/s Ratio Prot	0.00	c0.07		c0.00	0.01		0.00	0.12		c0.10	0.22	
v/s Ratio Perm	0.00			0.01			0.04			c0.19		
v/c Ratio	0.02	0.44		0.08	0.06		0.12	0.37		0.49	0.46	
Uniform Delay, d1	14.3	16.8		14.2	15.7		9.3	11.7		4.8	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.8		0.1	0.1		0.1	0.2		0.4	0.1	
Delay (s)	14.3	17.6		14.4	15.8		9.5	11.9		5.2	7.7	
Level of Service	B	B		B	B		A	B		A	A	
Approach Delay (s)		17.5			15.5			11.7			6.9	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			9.4			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			44.6			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			44.5%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	5	93	33	11	6	45	26	254	82	273	614	24
Future Volume (veh/h)	5	93	33	11	6	45	26	254	82	273	614	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1752	1011	1648	1752	1722	1633	1811	1870	1811	1633
Adj Flow Rate, veh/h	6	109	39	13	7	53	31	299	96	321	722	28
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	10	60	17	10	12	18	6	2	6	18
Cap, veh/h	429	203	73	294	27	203	460	640	201	707	1386	54
Arrive On Green	0.03	0.15	0.13	0.04	0.16	0.13	0.06	0.28	0.25	0.19	0.41	0.38
Sat Flow, veh/h	1781	1315	471	963	166	1256	1640	2319	730	1781	3377	131
Grp Volume(v), veh/h	6	0	148	13	0	60	31	198	197	321	368	382
Grp Sat Flow(s),veh/h/ln	1781	0	1786	963	0	1422	1640	1552	1497	1781	1721	1787
Q Serve(g_s), s	0.1	0.0	2.7	0.4	0.0	1.3	0.5	3.8	4.0	3.7	5.7	5.7
Cycle Q Clear(g_c), s	0.1	0.0	2.7	0.4	0.0	1.3	0.5	3.8	4.0	3.7	5.7	5.7
Prop In Lane	1.00		0.26	1.00		0.88	1.00		0.49	1.00		0.07
Lane Grp Cap(c), veh/h	429	0	276	294	0	230	460	428	413	707	706	734
V/C Ratio(X)	0.01	0.00	0.54	0.04	0.00	0.26	0.07	0.46	0.48	0.45	0.52	0.52
Avail Cap(c_a), veh/h	866	0	949	523	0	756	824	825	796	863	915	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	14.1	11.8	0.0	13.5	8.1	10.7	11.0	5.7	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	1.2	0.0	0.0	0.4	0.0	0.6	0.6	0.3	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.0	0.1	0.0	0.4	0.1	0.9	0.9	0.5	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	15.3	11.9	0.0	14.0	8.1	11.3	11.6	6.0	8.3	8.4
LnGrp LOS	B	A	B	B	A	B	A	B	B	A	A	A
Approach Vol, veh/h		154			73			426			1071	
Approach Delay, s/veh		15.1			13.6			11.2			7.6	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	12.9	4.5	8.5	5.1	17.7	4.2	8.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	5.7	6.0	2.4	4.7	2.5	7.7	2.1	3.3				
Green Ext Time (p_c), s	0.4	2.6	0.0	0.4	0.0	4.6	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection

Intersection Delay, s/veh 11.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	381	16	8	46	1	11	3	27	0	2	3
Future Vol, veh/h	19	381	16	8	46	1	11	3	27	0	2	3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	19	20	8	100	18	2	13	2	2	33
Mvmt Flow	23	459	19	10	55	1	13	4	33	0	2	4
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	12.4	8.4	8.5	7.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	5%	15%	0%
Vol Thru, %	7%	92%	84%	40%
Vol Right, %	66%	4%	2%	60%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	416	55	5
LT Vol	11	19	8	0
Through Vol	3	381	46	2
RT Vol	27	16	1	3
Lane Flow Rate	49	501	66	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.07	0.566	0.09	0.008
Departure Headway (Hd)	5.119	4.066	4.895	4.893
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	703	877	735	734
Service Time	3.124	2.151	2.904	2.902
HCM Lane V/C Ratio	0.07	0.571	0.09	0.008
HCM Control Delay	8.5	12.4	8.4	7.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.2	3.6	0.3	0

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	147	248	35	68	7	12
Future Vol, veh/h	147	248	35	68	7	12
Conflicting Peds, #/hr	4	0	0	4	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	79	79	79	79	79	79
Heavy Vehicles, %	2	3	15	4	15	17
Mvmt Flow	186	314	44	86	9	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	134	0	-	0	777 91
Stage 1	-	-	-	-	91 -
Stage 2	-	-	-	-	686 -
Critical Hdwy	4.12	-	-	-	6.55 6.37
Critical Hdwy Stg 1	-	-	-	-	5.55 -
Critical Hdwy Stg 2	-	-	-	-	5.55 -
Follow-up Hdwy	2.218	-	-	-	3.635 3.453
Pot Cap-1 Maneuver	1451	-	-	-	348 927
Stage 1	-	-	-	-	901 -
Stage 2	-	-	-	-	477 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1445	-	-	-	291 923
Mov Cap-2 Maneuver	-	-	-	-	291 -
Stage 1	-	-	-	-	758 -
Stage 2	-	-	-	-	475 -

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1445	-	-	-	291	923
HCM Lane V/C Ratio	0.129	-	-	-	0.03	0.016
HCM Control Delay (s)	7.9	0	-	-	17.8	9
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.1

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	28	231	105	25	2	4
Future Vol, veh/h	28	231	105	25	2	4
Conflicting Peds, #/hr	15	0	0	15	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	78	78	78	78	78	78
Heavy Vehicles, %	2	4	7	4	2	2
Mvmt Flow	36	296	135	32	3	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	182	0	-	0	534 166
Stage 1	-	-	-	-	166 -
Stage 2	-	-	-	-	368 -
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	1393	-	-	-	507 878
Stage 1	-	-	-	-	863 -
Stage 2	-	-	-	-	700 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1373	-	-	-	478 865
Mov Cap-2 Maneuver	-	-	-	-	478 -
Stage 1	-	-	-	-	824 -
Stage 2	-	-	-	-	690 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1373	-	-	-	478	865
HCM Lane V/C Ratio	0.026	-	-	-	0.005	0.006
HCM Control Delay (s)	7.7	0	-	-	12.6	9.2
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	0

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	2	189	28	16	120	2	10	0	5	1	0	2
Future Vol, veh/h	2	189	28	16	120	2	10	0	5	1	0	2
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	7	2	2	4	6	2	2	2	50	2	50
Mvmt Flow	2	215	32	18	136	2	11	0	6	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	155	0	0	247	0	0	409	426	231	428	441	154
Stage 1	-	-	-	-	-	-	235	235	-	190	190	-
Stage 2	-	-	-	-	-	-	174	191	-	238	251	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.12	6.52	6.22	7.6	6.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.518	4.018	3.318	3.95	4.018	3.75
Pot Cap-1 Maneuver	1413	-	-	1319	-	-	553	520	808	463	510	780
Stage 1	-	-	-	-	-	-	768	710	-	713	743	-
Stage 2	-	-	-	-	-	-	828	742	-	669	699	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1390	-	-	1319	-	-	544	503	808	446	493	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	544	503	-	446	493	-
Stage 1	-	-	-	-	-	-	766	709	-	700	720	-
Stage 2	-	-	-	-	-	-	813	719	-	663	698	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.9			11.1			10.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	610	1390	-	-	1319	-	-	619
HCM Lane V/C Ratio	0.028	0.002	-	-	0.014	-	-	0.006
HCM Control Delay (s)	11.1	7.6	0	-	7.8	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

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

06/28/2024

Intersection						
Int Delay, s/veh	8.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	160	59	96	129	35	39
Future Vol, veh/h	160	59	96	129	35	39
Conflicting Peds, #/hr	1	1	19	0	0	19
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	88	88	88	88	88	88
Heavy Vehicles, %	8	2	5	21	28	12
Mvmt Flow	182	67	109	147	40	44

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	447	82	103	0	0
Stage 1	81	-	-	-	-
Stage 2	366	-	-	-	-
Critical Hdwy	6.48	6.22	4.15	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-
Follow-up Hdwy	3.572	3.318	2.245	-	-
Pot Cap-1 Maneuver	558	978	1470	-	-
Stage 1	927	-	-	-	-
Stage 2	689	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	494	959	1443	-	-
Mov Cap-2 Maneuver	494	-	-	-	-
Stage 1	835	-	-	-	-
Stage 2	677	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1443	-	568	-	-
HCM Lane V/C Ratio	0.076	-	0.438	-	-
HCM Control Delay (s)	7.7	0	16.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.2	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	365	242	231	59	10
Future Volume (vph)	14	365	242	231	59	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1399	1557	1607		1504	1468
Flt Permitted	0.36	1.00	1.00		0.95	1.00
Satd. Flow (perm)	523	1557	1607		1504	1468
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	16	424	281	269	69	12
RTOR Reduction (vph)	0	0	33	0	0	10
Lane Group Flow (vph)	16	424	517	0	69	2
Confl. Peds. (#/hr)	3			3		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	29%	22%	12%	6%	20%	10%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	32.2	32.2	27.1		4.2	4.2
Effective Green, g (s)	33.6	33.6	28.5		6.7	6.7
Actuated g/C Ratio	0.76	0.76	0.64		0.15	0.15
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	445	1178	1031		226	221
v/s Ratio Prot	0.00	c0.27	c0.32		c0.05	0.00
v/s Ratio Perm	0.03					
v/c Ratio	0.04	0.36	0.50		0.31	0.01
Uniform Delay, d1	1.9	1.8	4.2		16.8	16.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	0.3		0.6	0.0
Delay (s)	1.9	1.9	4.5		17.3	16.0
Level of Service	A	A	A		B	B
Approach Delay (s)		1.9	4.5		17.1	
Approach LOS		A	A		B	
Intersection Summary						
HCM 2000 Control Delay			4.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			44.4		Sum of lost time (s)	6.7
Intersection Capacity Utilization			37.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	365	242	231	59	10
Future Volume (veh/h)	14	365	242	231	59	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1470	1574	1722	1811	1604	1752
Adj Flow Rate, veh/h	16	424	281	269	69	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	29	22	12	6	20	10
Cap, veh/h	541	1108	438	419	234	228
Arrive On Green	0.07	0.70	0.55	0.50	0.15	0.15
Sat Flow, veh/h	1400	1574	798	764	1527	1485
Grp Volume(v), veh/h	16	424	0	550	69	12
Grp Sat Flow(s),veh/h/ln	1400	1574	0	1562	1527	1485
Q Serve(g_s), s	0.1	3.1	0.0	7.3	1.2	0.2
Cycle Q Clear(g_c), s	0.1	3.1	0.0	7.3	1.2	0.2
Prop In Lane	1.00			0.49	1.00	1.00
Lane Grp Cap(c), veh/h	541	1108	0	856	234	228
V/C Ratio(X)	0.03	0.38	0.00	0.64	0.29	0.05
Avail Cap(c_a), veh/h	956	1108	0	1054	1089	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.0	1.7	0.0	4.8	10.8	10.4
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.7	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.8	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.0	1.9	0.0	5.6	11.3	10.5
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h		440	550		81	
Approach Delay, s/veh		1.9	5.6		11.2	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		22.8		5.9	4.5	18.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.1		3.2	2.1	9.3
Green Ext Time (p_c), s		5.2		0.2	0.0	5.0
Intersection Summary						
HCM 6th Ctrl Delay			4.5			
HCM 6th LOS			A			

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

06/28/2024

Intersection

Int Delay, s/veh 2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	621	167	65	319	77	59
Future Vol, veh/h	621	167	65	319	77	59
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	2	5	7	15	21
Mvmt Flow	654	176	68	336	81	62

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	832	0	1216 744
Stage 1	-	-	-	-	744 -
Stage 2	-	-	-	-	472 -
Critical Hdwy	-	-	4.15	-	6.55 6.41
Critical Hdwy Stg 1	-	-	-	-	5.55 -
Critical Hdwy Stg 2	-	-	-	-	5.55 -
Follow-up Hdwy	-	-	2.245	-	3.635 3.489
Pot Cap-1 Maneuver	-	-	788	-	188 385
Stage 1	-	-	-	-	447 -
Stage 2	-	-	-	-	601 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	786	-	171 384
Mov Cap-2 Maneuver	-	-	-	-	301 -
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	549 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	384	-	-	786	-
HCM Lane V/C Ratio	0.269	0.162	-	-	0.087	-
HCM Control Delay (s)	21.3	16.2	-	-	10	-
HCM Lane LOS	C	C	-	-	B	-
HCM 95th %tile Q(veh)	1.1	0.6	-	-	0.3	-

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Road

06/28/2024

Intersection						
Int Delay, s/veh	9.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	12	0	0	103	110
Future Vol, veh/h	27	12	0	0	103	110
Conflicting Peds, #/hr	0	37	37	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	25	7	6	4	5
Mvmt Flow	42	19	0	0	161	172

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	98	0	91 89
Stage 1	-	-	-	-	89 -
Stage 2	-	-	-	-	2 -
Critical Hdwy	-	-	4.17	-	6.44 6.25
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	-	-	2.263	-	3.536 3.345
Pot Cap-1 Maneuver	-	-	1464	-	904 961
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	1016 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1412	-	872 927
Mov Cap-2 Maneuver	-	-	-	-	872 -
Stage 1	-	-	-	-	896 -
Stage 2	-	-	-	-	1016 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	900	-	-	1412	-
HCM Lane V/C Ratio	0.37	-	-	-	-
HCM Control Delay (s)	11.3	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.7	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Road

06/28/2024

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	167	1501	24	0	0
Future Vol, veh/h	0	167	1501	24	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	0	186	1668	27	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	835	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0	309	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	309	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	309
HCM Lane V/C Ratio	-	-	0.601
HCM Control Delay (s)	-	-	32.7
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	3.6

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	8	301	312	62	312	24	292	131	33	19	228	6
Future Volume (vph)	8	301	312	62	312	24	292	131	33	19	228	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1721		1770	1843		1770	1806		1770	1855	
Flt Permitted	0.48	1.00		0.11	1.00		0.29	1.00		0.64	1.00	
Satd. Flow (perm)	892	1721		205	1843		531	1806		1201	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	327	339	67	339	26	317	142	36	21	248	7
RTOR Reduction (vph)	0	43	0	0	3	0	0	10	0	0	1	0
Lane Group Flow (vph)	9	623	0	67	362	0	317	168	0	21	254	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	36.0	35.1		41.6	37.9		33.7	27.9		18.1	16.3	
Effective Green, g (s)	36.0	35.1		41.6	37.9		33.7	27.9		18.1	16.3	
Actuated g/C Ratio	0.41	0.40		0.48	0.44		0.39	0.32		0.21	0.19	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	378	694		164	802		396	579		261	347	
v/s Ratio Prot	0.00	c0.36		c0.02	0.20		c0.12	0.09		0.00	0.14	
v/s Ratio Perm	0.01			0.18			c0.19			0.02		
v/c Ratio	0.02	0.90		0.41	0.45		0.80	0.29		0.08	0.73	
Uniform Delay, d1	15.1	24.3		17.2	17.2		20.8	22.1		27.6	33.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	14.3		1.2	0.3		10.8	0.2		0.1	7.3	
Delay (s)	15.1	38.6		18.4	17.5		31.6	22.3		27.7	40.6	
Level of Service	B	D		B	B		C	C		C	D	
Approach Delay (s)		38.2			17.7			28.2			39.7	
Approach LOS		D			B			C			D	

Intersection Summary		
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.86	
Actuated Cycle Length (s)	87.0	Sum of lost time (s) 18.5
Intersection Capacity Utilization	83.1%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 20: SW Teton Avenue & SW Herman Road

07/01/2024

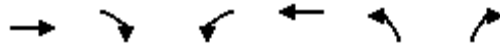


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	8	301	312	62	312	24	292	131	33	19	228	6
Future Volume (veh/h)	8	301	312	62	312	24	292	131	33	19	228	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	327	339	67	339	26	317	142	36	21	248	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	425	349	362	201	773	59	403	430	109	316	286	8
Arrive On Green	0.01	0.42	0.42	0.05	0.45	0.45	0.16	0.30	0.30	0.02	0.16	0.16
Sat Flow, veh/h	1781	841	872	1781	1715	132	1781	1440	365	1781	1810	51
Grp Volume(v), veh/h	9	0	666	67	0	365	317	0	178	21	0	255
Grp Sat Flow(s),veh/h/ln	1781	0	1713	1781	0	1847	1781	0	1805	1781	0	1861
Q Serve(g_s), s	0.2	0.0	31.8	1.8	0.0	11.6	12.1	0.0	6.6	0.8	0.0	11.4
Cycle Q Clear(g_c), s	0.2	0.0	31.8	1.8	0.0	11.6	12.1	0.0	6.6	0.8	0.0	11.4
Prop In Lane	1.00		0.51	1.00		0.07	1.00		0.20	1.00		0.03
Lane Grp Cap(c), veh/h	425	0	712	201	0	832	403	0	539	316	0	294
V/C Ratio(X)	0.02	0.00	0.94	0.33	0.00	0.44	0.79	0.00	0.33	0.07	0.00	0.87
Avail Cap(c_a), veh/h	509	0	772	222	0	832	403	0	539	379	0	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	23.9	19.2	0.0	16.1	23.6	0.0	23.3	29.0	0.0	35.1
Incr Delay (d2), s/veh	0.0	0.0	17.6	0.7	0.0	0.3	9.6	0.0	0.3	0.1	0.0	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	15.5	0.7	0.0	4.7	5.9	0.0	2.8	0.4	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	41.5	19.9	0.0	16.3	33.2	0.0	23.6	29.1	0.0	56.6
LnGrp LOS	B	A	D	B	A	B	C	A	C	C	A	E
Approach Vol, veh/h		675			432			495			276	
Approach Delay, s/veh		41.2			16.9			29.7			54.5	
Approach LOS		D			B			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	41.0	18.0	18.5	5.0	44.0	6.0	30.5				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	38.5	14.0	14.0	5.0	38.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s	3.8	33.8	14.1	13.4	2.2	13.6	2.8	8.6				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.1	0.0	1.9	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.5									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

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

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	920	230	535	1195	712	881
Future Volume (vph)	920	230	535	1195	712	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1538	3367	3438	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1538	3367	3438	3433	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	979	245	569	1271	757	937
RTOR Reduction (vph)	0	136	0	0	0	0
Lane Group Flow (vph)	979	109	569	1271	757	937
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	2%	5%	4%	5%	2%	2%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	48.2	48.2	25.9	78.1	32.5	62.4
Effective Green, g (s)	50.2	50.2	27.5	80.1	34.5	63.7
Actuated g/C Ratio	0.42	0.42	0.23	0.68	0.29	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1497	650	780	2321	998	1496
v/s Ratio Prot	c0.28		c0.17	0.37	c0.22	0.34
v/s Ratio Perm		0.07				
v/c Ratio	0.65	0.17	0.73	0.55	0.76	0.63
Uniform Delay, d1	27.3	21.2	42.1	9.9	38.3	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.6	3.2	0.9	3.2	0.7
Delay (s)	29.5	21.8	45.3	10.9	41.5	19.9
Level of Service	C	C	D	B	D	B
Approach Delay (s)	28.0			21.5	29.5	
Approach LOS	C			C	C	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	7.4
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	685	919	50	386	421
Future Volume (vph)	43	685	919	50	386	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1687	1583	3539	1548	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.18	1.00
Satd. Flow (perm)	1687	1583	3539	1548	337	3406
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	44	706	947	52	398	434
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	44	706	947	52	398	434
Confl. Peds. (#/hr)	6			2	2	
Heavy Vehicles (%)	7%	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)	9.2	18.2	18.1	18.1	31.1	31.1
Effective Green, g (s)	10.2	20.2	19.1	19.1	32.1	32.1
Actuated g/C Ratio	0.21	0.42	0.40	0.40	0.66	0.66
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	356	760	1399	612	520	2263
v/s Ratio Prot	0.03	c0.19	0.27		0.16	0.13
v/s Ratio Perm		0.25		0.03	c0.35	
v/c Ratio	0.12	0.93	0.68	0.08	0.77	0.19
Uniform Delay, d1	15.4	13.4	12.1	9.1	7.9	3.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	17.5	1.2	0.0	6.3	0.0
Delay (s)	15.5	30.8	13.2	9.2	14.3	3.1
Level of Service	B	C	B	A	B	A
Approach Delay (s)	29.9		13.0			8.5
Approach LOS	C		B			A

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	685	919	50	386	421
Future Volume (veh/h)	43	685	919	50	386	421
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1870	1870	1870	1870	1811
Adj Flow Rate, veh/h	44	706	947	52	398	434
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	2	2	2	2	6
Cap, veh/h	574	812	1168	519	490	1921
Arrive On Green	0.34	0.34	0.33	0.33	0.18	0.56
Sat Flow, veh/h	1711	1585	3647	1580	1781	3532
Grp Volume(v), veh/h	44	706	947	52	398	434
Grp Sat Flow(s),veh/h/ln	1711	1585	1777	1580	1781	1721
Q Serve(g_s), s	1.0	19.0	13.8	1.3	7.5	3.6
Cycle Q Clear(g_c), s	1.0	19.0	13.8	1.3	7.5	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	574	812	1168	519	490	1921
V/C Ratio(X)	0.08	0.87	0.81	0.10	0.81	0.23
Avail Cap(c_a), veh/h	574	812	1193	531	490	1921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	12.1	17.4	13.2	11.2	6.3
Incr Delay (d2), s/veh	0.0	9.8	4.1	0.1	9.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	18.7	5.2	0.4	3.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.9	22.0	21.5	13.3	21.0	6.4
LnGrp LOS	B	C	C	B	C	A
Approach Vol, veh/h	750		999			832
Approach Delay, s/veh	21.4		21.1			13.3
Approach LOS	C		C			B
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		22.0	13.0	21.6
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.6		21.0	9.5	15.8
Green Ext Time (p_c), s		4.3		0.0	0.0	1.8
Intersection Summary						
HCM 6th Ctrl Delay			18.7			
HCM 6th LOS			B			

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	49	383	1	4	626	250	0	4	5	21	2	23
Future Vol, veh/h	49	383	1	4	626	250	0	4	5	21	2	23
Conflicting Peds, #/hr	4	0	0	0	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	14	5	2	17
Mvmt Flow	52	403	1	4	659	263	0	4	5	22	2	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	926	0	0	404	0	0	1321	1442	404	1315	1311	796
Stage 1	-	-	-	-	-	-	508	508	-	803	803	-
Stage 2	-	-	-	-	-	-	813	934	-	512	508	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.34	7.15	6.52	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.426	3.545	4.018	3.453
Pot Cap-1 Maneuver	738	-	-	1155	-	-	134	132	621	133	159	365
Stage 1	-	-	-	-	-	-	547	539	-	373	396	-
Stage 2	-	-	-	-	-	-	372	345	-	539	539	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	735	-	-	1155	-	-	117	122	621	121	147	363
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	122	-	121	147	-
Stage 1	-	-	-	-	-	-	508	501	-	345	393	-
Stage 2	-	-	-	-	-	-	344	343	-	492	501	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.2			0			22.1			31.4		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	735	-	-	1155	-	-	184
HCM Lane V/C Ratio	0.043	0.07	-	-	0.004	-	-	0.263
HCM Control Delay (s)	22.1	10.3	-	-	8.1	-	-	31.4
HCM Lane LOS	C	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	405	930	14	8	2
Future Vol, veh/h	12	405	930	14	8	2
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	2	7	2	2
Mvmt Flow	13	450	1033	16	9	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1052	0	-	0	1522 1044
Stage 1	-	-	-	-	1044 -
Stage 2	-	-	-	-	478 -
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	662	-	-	-	130 278
Stage 1	-	-	-	-	339 -
Stage 2	-	-	-	-	624 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	660	-	-	-	127 277
Mov Cap-2 Maneuver	-	-	-	-	248 -
Stage 1	-	-	-	-	331 -
Stage 2	-	-	-	-	622 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	660	-	-	-	253
HCM Lane V/C Ratio	0.02	-	-	-	0.044
HCM Control Delay (s)	10.6	-	-	-	19.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	398	6	12	878	37	33
Future Vol, veh/h	398	6	12	878	37	33
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	433	7	13	954	40	36

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	441	0	1418 438
Stage 1	-	-	-	-	438 -
Stage 2	-	-	-	-	980 -
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	-	-	1119	-	151 619
Stage 1	-	-	-	-	651 -
Stage 2	-	-	-	-	364 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1118	-	149 618
Mov Cap-2 Maneuver	-	-	-	-	272 -
Stage 1	-	-	-	-	650 -
Stage 2	-	-	-	-	360 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	370	-	-	1118	-
HCM Lane V/C Ratio	0.206	-	-	0.012	-
HCM Control Delay (s)	17.2	-	-	8.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	70	18	0
Future Vol, veh/h	0	0	0	70	18	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	76	20	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	96	20	20	0	0
Stage 1	20	-	-	-	-
Stage 2	76	-	-	-	-
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	903	1058	1596	-	-
Stage 1	1003	-	-	-	-
Stage 2	947	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	903	1058	1596	-	-
Mov Cap-2 Maneuver	903	-	-	-	-
Stage 1	1003	-	-	-	-
Stage 2	947	-	-	-	-

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)	1596	-	-	-	-	-
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 6th TWSC
8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	104	21	57	16	2
Future Vol, veh/h	8	104	21	57	16	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	9	113	23	62	17	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	126	18	19	0	0
Stage 1	18	-	-	-	-
Stage 2	108	-	-	-	-
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	869	1061	1597	-	-
Stage 1	1005	-	-	-	-
Stage 2	916	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	856	1061	1597	-	-
Mov Cap-2 Maneuver	856	-	-	-	-
Stage 1	990	-	-	-	-
Stage 2	916	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1597	-	856	1061	-	-
HCM Lane V/C Ratio	0.014	-	0.01	0.107	-	-
HCM Control Delay (s)	7.3	0	9.2	8.8	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.4	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	32	7	64	154	2
Future Vol, veh/h	8	32	7	64	154	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	9	35	8	70	167	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	254	168	169	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	86	-	-	-	-	-
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	735	876	1409	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	937	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	731	876	1409	-	-	-
Mov Cap-2 Maneuver	731	-	-	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	937	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1409	-	731	876	-	-
HCM Lane V/C Ratio	0.005	-	0.012	0.04	-	-
HCM Control Delay (s)	7.6	0	10	9.3	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

HCM Signalized Intersection Capacity Analysis

10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	13	16	71	2	314	5	628	20	53	399	6
Future Volume (vph)	20	13	16	71	2	314	5	628	20	53	399	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.85		1.00	1.00		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)	1770	1660		1770	1581		1128	3509		1656	3424	
Flt Permitted	0.31	1.00		0.67	1.00		0.49	1.00		0.18	1.00	
Satd. Flow (perm)	582	1660		1249	1581		587	3509		315	3424	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	22	14	18	78	2	345	5	690	22	58	438	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	22	32	0	78	347	0	5	712	0	58	445	0
Heavy Vehicles (%)	2%	2%	7%	2%	50%	2%	60%	2%	15%	9%	5%	17%
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)	23.5	16.3		26.9	18.0		23.0	20.4		33.0	26.4	
Effective Green, g (s)	25.5	17.3		28.9	19.0		25.0	21.4		34.0	27.4	
Actuated g/C Ratio	0.36	0.25		0.41	0.27		0.36	0.30		0.48	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	350	409		587	427		236	1069		335	1336	
v/s Ratio Prot	0.01	0.02		c0.02	c0.22		0.00	c0.20		c0.02	c0.13	
v/s Ratio Perm	0.02			0.04			0.01			0.06		
v/c Ratio	0.06	0.08		0.13	0.81		0.02	0.67		0.17	0.33	
Uniform Delay, d1	14.8	20.3		12.7	23.9		14.6	21.3		11.0	15.0	
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		0.1	11.0		0.0	1.4		0.2	0.1	
Delay (s)	14.9	20.4		12.8	34.9		14.6	22.7		11.1	15.1	
Level of Service	B	C		B	C		B	C		B	B	
Approach Delay (s)		18.1			30.8			22.7			14.6	
Approach LOS		B			C			C			B	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↗	
Traffic Volume (veh/h)	20	13	16	71	2	314	5	628	20	53	399	6
Future Volume (veh/h)	20	13	16	71	2	314	5	628	20	53	399	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1159	1870	1011	1870	1678	1767	1826	1648
Adj Flow Rate, veh/h	22	14	18	78	2	345	5	690	22	58	438	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	7	2	50	2	60	2	15	9	5	17
Cap, veh/h	236	251	322	714	2	360	285	1037	33	331	1165	19
Arrive On Green	0.04	0.34	0.32	0.07	0.37	0.35	0.02	0.29	0.28	0.06	0.33	0.31
Sat Flow, veh/h	1781	743	955	1781	6	977	963	3515	112	1682	3495	56
Grp Volume(v), veh/h	22	0	32	78	0	347	5	349	363	58	217	228
Grp Sat Flow(s),veh/h/ln	1781	0	1698	1781	0	983	963	1777	1850	1682	1735	1816
Q Serve(g_s), s	0.4	0.0	0.7	1.4	0.0	17.8	0.2	8.9	8.9	1.1	4.9	4.9
Cycle Q Clear(g_c), s	0.4	0.0	0.7	1.4	0.0	17.8	0.2	8.9	8.9	1.1	4.9	4.9
Prop In Lane	1.00		0.56	1.00		0.99	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	236	0	573	714	0	362	285	524	546	331	578	605
V/C Ratio(X)	0.09	0.00	0.06	0.11	0.00	0.96	0.02	0.67	0.67	0.17	0.38	0.38
Avail Cap(c_a), veh/h	510	0	626	932	0	362	448	655	682	552	639	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	11.7	9.1	0.0	16.4	12.1	15.9	16.0	11.4	13.1	13.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	36.0	0.0	1.4	1.4	0.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.4	0.0	6.9	0.0	3.0	3.2	0.3	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	11.8	9.1	0.0	52.4	12.1	17.4	17.4	11.6	13.4	13.4
LnGrp LOS	B	A	B	A	A	D	B	B	B	B	B	B
Approach Vol, veh/h		54			425			717			503	
Approach Delay, s/veh		12.2			44.5			17.3			13.2	
Approach LOS		B			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	18.2	6.7	20.4	4.3	20.2	5.1	22.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	3.1	10.9	3.4	2.7	2.2	6.9	2.4	19.8				
Green Ext Time (p_c), s	0.0	3.3	0.1	0.0	0.0	2.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection

Intersection Delay, s/veh 12.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	61	9	28	366	2	21	3	11	0	2	13
Future Vol, veh/h	6	61	9	28	366	2	21	3	11	0	2	13
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	2	6	11	2	2	2	5	2	25	2	2	2
Mvmt Flow	8	82	12	38	495	3	28	4	15	0	3	18
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	14.3	8.8	8.1
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	8%	7%	0%
Vol Thru, %	9%	80%	92%	13%
Vol Right, %	31%	12%	1%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	76	396	15
LT Vol	21	6	28	0
Through Vol	3	61	366	2
RT Vol	11	9	2	13
Lane Flow Rate	47	103	535	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.07	0.131	0.632	0.028
Departure Headway (Hd)	5.347	4.595	4.251	4.887
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	669	781	856	730
Service Time	3.39	2.624	2.251	2.933
HCM Lane V/C Ratio	0.07	0.132	0.625	0.027
HCM Control Delay	8.8	8.3	14.3	8.1
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.4	4.6	0.1

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	11	60	256	14	75	139
Future Vol, veh/h	11	60	256	14	75	139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	10	10	2	2	3	2
Mvmt Flow	14	79	337	18	99	183

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	355	0	-	0	453 346
Stage 1	-	-	-	-	346 -
Stage 2	-	-	-	-	107 -
Critical Hdwy	4.2	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.29	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1161	-	-	-	563 697
Stage 1	-	-	-	-	714 -
Stage 2	-	-	-	-	915 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1161	-	-	-	556 697
Mov Cap-2 Maneuver	-	-	-	-	556 -
Stage 1	-	-	-	-	705 -
Stage 2	-	-	-	-	915 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1161	-	-	-	556	697
HCM Lane V/C Ratio	0.012	-	-	-	0.177	0.262
HCM Control Delay (s)	8.1	0	-	-	12.9	12
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6	1.1

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	11	136	227	9	23	38
Future Vol, veh/h	11	136	227	9	23	38
Conflicting Peds, #/hr	15	0	0	15	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	77	77	77	77	77	77
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	14	177	295	12	30	49

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	322	0	-	0	521 316
Stage 1	-	-	-	-	316 -
Stage 2	-	-	-	-	205 -
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	1238	-	-	-	516 724
Stage 1	-	-	-	-	739 -
Stage 2	-	-	-	-	829 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1220	-	-	-	495 714
Mov Cap-2 Maneuver	-	-	-	-	495 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	817 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1220	-	-	-	495	714
HCM Lane V/C Ratio	0.012	-	-	-	0.06	0.069
HCM Control Delay (s)	8	0	-	-	12.7	10.4
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.2

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	154	8	6	188	0	27	0	14	0	0	0
Future Vol, veh/h	0	154	8	6	188	0	27	0	14	0	0	0
Conflicting Peds, #/hr	15	0	4	4	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	3	2	2	3	2	2	2	2	2	2	2
Mvmt Flow	0	205	11	8	251	0	36	0	19	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	266	0	0	220	0	0	482	497	215	502	502	266
Stage 1	-	-	-	-	-	-	215	215	-	282	282	-
Stage 2	-	-	-	-	-	-	267	282	-	220	220	-
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	1298	-	-	1349	-	-	495	475	825	480	471	773
Stage 1	-	-	-	-	-	-	787	725	-	725	678	-
Stage 2	-	-	-	-	-	-	738	678	-	782	721	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1279	-	-	1344	-	-	491	463	822	460	459	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	491	463	-	460	459	-
Stage 1	-	-	-	-	-	-	784	722	-	715	664	-
Stage 2	-	-	-	-	-	-	733	664	-	764	718	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			12			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	569	1279	-	-	1344	-	-	-
HCM Lane V/C Ratio	0.096	-	-	-	0.006	-	-	-
HCM Control Delay (s)	12	0	-	-	7.7	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	32	156	34	38	116	133
Future Vol, veh/h	32	156	34	38	116	133
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	6	2	3	9	7	2
Mvmt Flow	42	203	44	49	151	173

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	376	239	325	0	-	0
Stage 1	239	-	-	-	-	-
Stage 2	137	-	-	-	-	-
Critical Hdwy	6.46	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	618	800	1229	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	594	799	1228	-	-	-
Mov Cap-2 Maneuver	594	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	3.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1228	-	755	-	-
HCM Lane V/C Ratio	0.036	-	0.323	-	-
HCM Control Delay (s)	8	0	12	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	311	451	66	261	20
Future Volume (vph)	7	311	451	66	261	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	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)	1570	1776	1740		1770	1524
Flt Permitted	0.18	1.00	1.00		0.95	1.00
Satd. Flow (perm)	292	1776	1740		1770	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	338	490	72	284	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	8	338	562	0	284	22
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	15%	7%	7%	7%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	24.9	24.9	18.6		17.9	17.9
Effective Green, g (s)	26.3	26.3	20.0		20.4	20.4
Actuated g/C Ratio	0.52	0.52	0.39		0.40	0.40
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	244	919	685		710	612
v/s Ratio Prot	0.00	c0.19	c0.32		c0.16	0.01
v/s Ratio Perm	0.01					
v/c Ratio	0.03	0.37	0.82		0.40	0.04
Uniform Delay, d1	7.9	7.3	13.8		10.8	9.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	7.6		0.3	0.0
Delay (s)	7.9	7.5	21.4		11.1	9.2
Level of Service	A	A	C		B	A
Approach Delay (s)		7.5	21.4		11.0	
Approach LOS		A	C		B	
Intersection Summary						
HCM 2000 Control Delay			14.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			50.8		Sum of lost time (s)	6.7
Intersection Capacity Utilization			48.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	311	451	66	261	20
Future Volume (veh/h)	7	311	451	66	261	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1678	1796	1796	1796	1870	1811
Adj Flow Rate, veh/h	8	338	490	72	284	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	7	7	7	2	6
Cap, veh/h	458	1076	724	106	503	433
Arrive On Green	0.05	0.60	0.47	0.43	0.28	0.28
Sat Flow, veh/h	1598	1796	1526	224	1781	1535
Grp Volume(v), veh/h	8	338	0	562	284	22
Grp Sat Flow(s),veh/h/ln	1598	1796	0	1750	1781	1535
Q Serve(g_s), s	0.1	3.2	0.0	8.6	4.7	0.4
Cycle Q Clear(g_c), s	0.1	3.2	0.0	8.6	4.7	0.4
Prop In Lane	1.00			0.13	1.00	1.00
Lane Grp Cap(c), veh/h	458	1076	0	830	503	433
V/C Ratio(X)	0.02	0.31	0.00	0.68	0.56	0.05
Avail Cap(c_a), veh/h	861	1076	0	984	1058	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.7	3.4	0.0	7.1	10.6	9.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	1.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.0	2.1	1.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.7	3.5	0.0	8.4	11.3	9.1
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		346	562		306	
Approach Delay, s/veh		3.6	8.4		11.2	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.3		11.2	4.3	19.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.2		6.7	2.1	10.6
Green Ext Time (p_c), s		4.0		0.9	0.0	4.3
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

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

06/28/2024

Intersection						
Int Delay, s/veh	16					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Vol, veh/h	358	80	44	733	153	68
Future Vol, veh/h	358	80	44	733	153	68
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	7	2	3	6
Mvmt Flow	393	88	48	805	168	75

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	482	0	1339 438
Stage 1	-	-	-	-	438 -
Stage 2	-	-	-	-	901 -
Critical Hdwy	-	-	4.17	-	6.43 6.26
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.263	-	3.527 3.354
Pot Cap-1 Maneuver	-	-	1055	-	~ 168 610
Stage 1	-	-	-	-	648 -
Stage 2	-	-	-	-	395 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1054	-	~ 160 609
Mov Cap-2 Maneuver	-	-	-	-	~ 160 -
Stage 1	-	-	-	-	647 -
Stage 2	-	-	-	-	377 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	102.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	160	609	-	-	1054	-
HCM Lane V/C Ratio	1.051	0.123	-	-	0.046	-
HCM Control Delay (s)	142.7	11.7	-	-	8.6	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	8.5	0.4	-	-	0.1	-

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

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Rd

06/28/2024

Intersection						
Int Delay, s/veh	10.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	12	0	0	242	20
Future Vol, veh/h	10	12	0	0	242	20
Conflicting Peds, #/hr	0	43	43	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	13	3	2	11
Mvmt Flow	14	16	0	0	327	27

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	73	0	66
Stage 1	-	-	-	-	65
Stage 2	-	-	-	-	1
Critical Hdwy	-	-	4.23	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.317	-	3.518
Pot Cap-1 Maneuver	-	-	1460	-	939
Stage 1	-	-	-	-	958
Stage 2	-	-	-	-	1022
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-	901
Mov Cap-2 Maneuver	-	-	-	-	901
Stage 1	-	-	-	-	919
Stage 2	-	-	-	-	1022

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	903	-	-	1400	-
HCM Lane V/C Ratio	0.392	-	-	-	-
HCM Control Delay (s)	11.5	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0	-

Intersection						
Int Delay, s/veh	34.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗	↗		↗↗
Traffic Vol, veh/h	0	335	1679	24	0	0
Future Vol, veh/h	0	335	1679	24	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	4	2	2
Mvmt Flow	0	364	1825	26	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	914	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0 ~ 274	-	-	0	-
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %					
Mov Cap-1 Maneuver	- ~ 274	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	207.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 274	-
HCM Lane V/C Ratio	-	- 1.329	-
HCM Control Delay (s)	-	- 207.6	-
HCM Lane LOS	-	- F	-
HCM 95th %tile Q(veh)	-	- 18.6	-

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

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	330	341	43	334	21	298	242	37	28	123	15
Future Volume (vph)	6	330	341	43	334	21	298	242	37	28	123	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1721		1770	1846		1770	1826		1770	1833	
Flt Permitted	0.46	1.00		0.11	1.00		0.46	1.00		0.58	1.00	
Satd. Flow (perm)	849	1721		198	1846		849	1826		1072	1833	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	359	371	47	363	23	324	263	40	30	134	16
RTOR Reduction (vph)	0	44	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	7	686	0	47	383	0	324	297	0	30	146	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	36.7	35.9		40.3	37.7		30.5	23.9		15.9	13.3	
Effective Green, g (s)	36.7	35.9		40.3	37.7		30.5	23.9		15.9	13.3	
Actuated g/C Ratio	0.44	0.43		0.48	0.45		0.37	0.29		0.19	0.16	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	381	739		144	833		455	522		225	291	
v/s Ratio Prot	0.00	c0.40		c0.01	0.21		c0.11	0.16		0.00	0.08	
v/s Ratio Perm	0.01			0.15			c0.15			0.02		
v/c Ratio	0.02	0.93		0.33	0.46		0.71	0.57		0.13	0.50	
Uniform Delay, d1	13.3	22.6		16.7	15.9		20.8	25.4		27.8	32.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	17.7		1.0	0.3		4.9	1.2		0.2	1.0	
Delay (s)	13.3	40.2		17.7	16.1		25.7	26.6		28.0	33.1	
Level of Service	B	D		B	B		C	C		C	C	
Approach Delay (s)		40.0			16.3			26.1			32.2	
Approach LOS		D			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.85	
Actuated Cycle Length (s)	83.5	Sum of lost time (s) 18.5
Intersection Capacity Utilization	75.2%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	6	330	341	43	334	21	298	242	37	28	123	15
Future Volume (veh/h)	6	330	341	43	334	21	298	242	37	28	123	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	359	371	47	363	23	324	263	40	30	134	16
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	385	397	194	847	54	431	404	61	253	194	23
Arrive On Green	0.01	0.46	0.46	0.04	0.49	0.49	0.17	0.25	0.25	0.03	0.12	0.12
Sat Flow, veh/h	1781	843	871	1781	1740	110	1781	1586	241	1781	1639	196
Grp Volume(v), veh/h	7	0	730	47	0	386	324	0	303	30	0	150
Grp Sat Flow(s),veh/h/ln	1781	0	1714	1781	0	1851	1781	0	1827	1781	0	1835
Q Serve(g_s), s	0.2	0.0	34.0	1.1	0.0	11.4	13.0	0.0	12.5	1.2	0.0	6.6
Cycle Q Clear(g_c), s	0.2	0.0	34.0	1.1	0.0	11.4	13.0	0.0	12.5	1.2	0.0	6.6
Prop In Lane	1.00		0.51	1.00		0.06	1.00		0.13	1.00		0.11
Lane Grp Cap(c), veh/h	452	0	782	194	0	901	431	0	465	253	0	218
V/C Ratio(X)	0.02	0.00	0.93	0.24	0.00	0.43	0.75	0.00	0.65	0.12	0.00	0.69
Avail Cap(c_a), veh/h	542	0	864	229	0	933	431	0	465	306	0	218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	21.7	18.3	0.0	14.0	25.2	0.0	28.1	31.1	0.0	35.7
Incr Delay (d2), s/veh	0.0	0.0	15.7	0.5	0.0	0.2	7.0	0.0	2.9	0.2	0.0	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	15.9	0.4	0.0	4.5	6.1	0.0	5.7	0.5	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	0.0	37.4	18.8	0.0	14.3	32.2	0.0	31.0	31.2	0.0	43.9
LnGrp LOS	B	A	D	B	A	B	C	A	C	C	A	D
Approach Vol, veh/h		737			433			627				180
Approach Delay, s/veh		37.2			14.7			31.6				41.8
Approach LOS		D			B			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	44.0	18.0	15.0	4.8	46.6	6.5	26.5				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	42.5	14.0	10.0	5.0	42.5	5.0	19.0				
Max Q Clear Time (g_c+I1), s	3.1	36.0	15.0	8.6	2.2	13.4	3.2	14.5				
Green Ext Time (p_c), s	0.0	2.5	0.0	0.1	0.0	2.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM Signalized Intersection Capacity Analysis

1: SW 124th Avenue & Highway 99W

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑↑	↑↓	↑↓
Traffic Volume (vph)	1234	635	1075	921	143	326
Future Volume (vph)	1234	635	1075	921	143	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1568	3400	3438	3183	2472
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1568	3400	3438	3183	2472
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1371	706	1194	1023	159	362
RTOR Reduction (vph)	0	192	0	0	0	0
Lane Group Flow (vph)	1371	514	1194	1023	159	362
Confl. Peds. (#/hr)						3
Heavy Vehicles (%)	5%	3%	3%	5%	10%	15%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	47.8	47.8	42.0	93.8	14.2	60.2
Effective Green, g (s)	49.8	49.8	43.6	95.8	16.2	61.5
Actuated g/C Ratio	0.43	0.43	0.38	0.83	0.14	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1475	673	1277	2839	444	1310
v/s Ratio Prot	c0.40		c0.35	0.30	c0.05	0.15
v/s Ratio Perm		0.33				
v/c Ratio	0.93	0.76	0.94	0.36	0.36	0.28
Uniform Delay, d1	31.4	28.1	34.8	2.5	45.2	15.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	4.9	12.6	0.1	0.4	0.1
Delay (s)	42.0	33.0	47.4	2.6	45.6	15.1
Level of Service	D	C	D	A	D	B
Approach Delay (s)	38.9			26.7	24.4	
Approach LOS	D			C	C	

Intersection Summary

HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	242	243	71	950	738
Future Volume (vph)	46	242	243	71	950	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1556	1524	3085	1387	1769	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.48	1.00
Satd. Flow (perm)	1556	1524	3085	1387	888	3471
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	52	272	273	80	1067	829
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	52	272	273	80	1067	829
Confl. Peds. (#/hr)				1	1	
Heavy Vehicles (%)	16%	6%	17%	14%	2%	4%
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)	10.0	19.2	12.4	12.4	25.6	25.6
Effective Green, g (s)	11.0	21.2	13.4	13.4	26.6	26.6
Actuated g/C Ratio	0.25	0.49	0.31	0.31	0.61	0.61
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	392	845	948	426	747	2117
v/s Ratio Prot	0.03	c0.08	0.09		c0.33	0.24
v/s Ratio Perm		0.10		0.06	c0.54	
v/c Ratio	0.13	0.32	0.29	0.19	1.43	0.39
Uniform Delay, d1	12.6	6.8	11.5	11.1	6.9	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.1	0.2	200.5	0.1
Delay (s)	12.7	7.0	11.6	11.3	207.4	4.4
Level of Service	B	A	B	B	F	A
Approach Delay (s)	7.9		11.5			118.7
Approach LOS	A		B			F

Intersection Summary

HCM 2000 Control Delay	90.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	242	243	71	950	738
Future Volume (veh/h)	46	242	243	71	950	738
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1663	1811	1648	1693	1870	1841
Adj Flow Rate, veh/h	52	272	273	80	1067	829
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	16	6	17	14	2	4
Cap, veh/h	344	777	730	334	888	2131
Arrive On Green	0.22	0.22	0.23	0.23	0.29	0.61
Sat Flow, veh/h	1584	1535	3214	1431	1781	3589
Grp Volume(v), veh/h	52	272	273	80	1067	829
Grp Sat Flow(s),veh/h/ln	1584	1535	1566	1431	1781	1749
Q Serve(g_s), s	0.9	3.7	2.5	1.6	10.0	4.2
Cycle Q Clear(g_c), s	0.9	3.7	2.5	1.6	10.0	4.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	344	777	730	334	888	2131
V/C Ratio(X)	0.15	0.35	0.37	0.24	1.20	0.39
Avail Cap(c_a), veh/h	871	1288	1721	787	888	2131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	5.1	11.1	10.8	8.0	3.5
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.3	101.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.9	0.6	0.3	25.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	5.3	11.4	11.0	109.6	3.5
LnGrp LOS	B	A	B	B	F	A
Approach Vol, veh/h	324		353			1896
Approach Delay, s/veh	6.2		11.3			63.2
Approach LOS	A		B			E
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.1		10.5	13.0	11.1
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		6.2		5.7	12.0	4.5
Green Ext Time (p_c), s		7.5		1.1	0.0	2.4
Intersection Summary						
HCM 6th Ctrl Delay			48.9			
HCM 6th LOS			D			

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔			↔	
Traffic Vol, veh/h	64	706	183	76	226	132	16	4	11	41	2	30
Future Vol, veh/h	64	706	183	76	226	132	16	4	11	41	2	30
Conflicting Peds, #/hr	1	0	1	1	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	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	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, %	3	2	5	5	9	7	15	2	15	10	2	14
Mvmt Flow	70	767	199	83	246	143	17	4	12	45	2	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	390	0	0	967	0	0	1509	1564	868	1500	1592	319
Stage 1	-	-	-	-	-	-	1008	1008	-	485	485	-
Stage 2	-	-	-	-	-	-	501	556	-	1015	1107	-
Critical Hdwy	4.13	-	-	4.15	-	-	7.25	6.52	6.35	7.2	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.52	-	6.2	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.52	-	6.2	5.52	-
Follow-up Hdwy	2.227	-	-	2.245	-	-	3.635	4.018	3.435	3.59	4.018	3.426
Pot Cap-1 Maneuver	1163	-	-	700	-	-	92	112	333	96	107	695
Stage 1	-	-	-	-	-	-	274	318	-	549	552	-
Stage 2	-	-	-	-	-	-	529	513	-	278	286	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1162	-	-	699	-	-	75	93	333	77	88	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	93	-	77	88	-
Stage 1	-	-	-	-	-	-	257	299	-	516	486	-
Stage 2	-	-	-	-	-	-	442	451	-	248	269	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			1.9			46.6			77.6		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	197	1162	-	-	699	-	-	122
HCM Lane V/C Ratio	0.232	0.083	0.06	-	-	0.118	-	-	0.65
HCM Control Delay (s)	66.9	24.9	8.3	-	-	10.8	-	-	77.6
HCM Lane LOS	F	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.8	0.3	0.2	-	-	0.4	-	-	3.4

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	728	413	10	19	7
Future Vol, veh/h	5	728	413	10	19	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	20	3	9	20	6	2
Mvmt Flow	5	758	430	10	20	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	446	0	-	0	1209 441
Stage 1	-	-	-	-	441 -
Stage 2	-	-	-	-	768 -
Critical Hdwy	4.3	-	-	-	6.46 6.22
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.38	-	-	-	3.554 3.318
Pot Cap-1 Maneuver	1025	-	-	-	198 616
Stage 1	-	-	-	-	640 -
Stage 2	-	-	-	-	451 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1019	-	-	-	195 612
Mov Cap-2 Maneuver	-	-	-	-	324 -
Stage 1	-	-	-	-	633 -
Stage 2	-	-	-	-	448 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1019	-	-	-	371
HCM Lane V/C Ratio	0.005	-	-	-	0.073
HCM Control Delay (s)	8.6	-	-	-	15.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↑	↑	↑	
Traffic Vol, veh/h	765	38	39	365	62	5
Future Vol, veh/h	765	38	39	365	62	5
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	15	9	9	2	33
Mvmt Flow	805	40	41	384	65	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	847	0	1293 828
Stage 1	-	-	-	-	827 -
Stage 2	-	-	-	-	466 -
Critical Hdwy	-	-	4.19	-	6.42 6.53
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.281	-	3.518 3.597
Pot Cap-1 Maneuver	-	-	761	-	180 328
Stage 1	-	-	-	-	430 -
Stage 2	-	-	-	-	632 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	760	-	170 327
Mov Cap-2 Maneuver	-	-	-	-	302 -
Stage 1	-	-	-	-	429 -
Stage 2	-	-	-	-	598 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	-	-	760	-
HCM Lane V/C Ratio	0.232	-	-	0.054	-
HCM Control Delay (s)	20.4	-	-	10	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	67	77	0
Future Vol, veh/h	0	0	0	67	77	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	71	81	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	152	81	81	0	0
Stage 1	81	-	-	-	-
Stage 2	71	-	-	-	-
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	840	979	1517	-	-
Stage 1	942	-	-	-	-
Stage 2	952	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	840	979	1517	-	-
Mov Cap-2 Maneuver	840	-	-	-	-
Stage 1	942	-	-	-	-
Stage 2	952	-	-	-	-

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)	1517	-	-	-	-	-
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 6th TWSC
 8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	112	66	68	9
Future Vol, veh/h	1	16	112	66	68	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	17	118	69	72	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	382	77	81	0	0
Stage 1	77	-	-	-	-
Stage 2	305	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	620	984	1517	-	-
Stage 1	946	-	-	-	-
Stage 2	748	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	570	984	1517	-	-
Mov Cap-2 Maneuver	570	-	-	-	-
Stage 1	869	-	-	-	-
Stage 2	748	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	4.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1517	-	570	984	-	-
HCM Lane V/C Ratio	0.078	-	0.002	0.017	-	-
HCM Control Delay (s)	7.6	0	11.3	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0	0.1	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	1	5	34	239	71	9
Future Vol, veh/h	1	5	34	239	71	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	36	252	75	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	404	80	84	0	0
Stage 1	80	-	-	-	-
Stage 2	324	-	-	-	-
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	603	980	1513	-	-
Stage 1	943	-	-	-	-
Stage 2	733	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	586	980	1513	-	-
Mov Cap-2 Maneuver	586	-	-	-	-
Stage 1	917	-	-	-	-
Stage 2	733	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1513	-	586	980	-	-
HCM Lane V/C Ratio	0.024	-	0.002	0.005	-	-
HCM Control Delay (s)	7.4	0	11.2	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

HCM Signalized Intersection Capacity Analysis
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗		
Traffic Volume (vph)	5	99	33	12	6	39	26	272	76	151	615	24	
Future Volume (vph)	5	99	33	12	6	39	26	272	76	151	615	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
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	0.99		1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Frt	1.00	0.96		1.00	0.87		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)	1770	1758		1444	1490		1612	3010		1768	3372		
Flt Permitted	0.72	1.00		0.55	1.00		0.23	1.00		0.40	1.00		
Satd. Flow (perm)	1346	1758		830	1490		398	3010		749	3372		
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
Adj. Flow (vph)	6	116	39	14	7	46	31	320	89	178	724	28	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	6	155	0	14	53	0	31	409	0	178	752	0	
Confl. Peds. (#/hr)									3	3			
Heavy Vehicles (%)	2%	2%	10%	25%	17%	10%	12%	18%	6%	2%	6%	18%	
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)	18.7	16.6		22.3	18.4		27.3	19.7		30.7	21.4		
Effective Green, g (s)	20.7	17.6		24.3	19.4		29.3	20.7		32.7	22.4		
Actuated g/C Ratio	0.32	0.27		0.37	0.30		0.45	0.32		0.50	0.34		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5		
Lane Grp Cap (vph)	445	472		353	441		337	951		534	1153		
v/s Ratio Prot	0.00	c0.09		c0.00	0.04		0.01	0.14		c0.05	c0.22		
v/s Ratio Perm	0.00			0.01			0.03			0.11			
v/c Ratio	0.01	0.33		0.04	0.12		0.09	0.43		0.33	0.65		
Uniform Delay, d1	15.4	19.2		13.2	16.8		10.6	17.7		9.3	18.3		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.0	0.3		0.0	0.1		0.1	0.2		0.3	1.2		
Delay (s)	15.4	19.5		13.2	16.9		10.7	18.0		9.6	19.4		
Level of Service	B	B		B	B		B	B		A	B		
Approach Delay (s)		19.4			16.1			17.4			17.6		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			17.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.45										
Actuated Cycle Length (s)			65.5									Sum of lost time (s)	12.0
Intersection Capacity Utilization			41.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	5	99	33	12	6	39	26	272	76	151	615	24
Future Volume (veh/h)	5	99	33	12	6	39	26	272	76	151	615	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1752	1530	1648	1752	1722	1633	1811	1870	1811	1633
Adj Flow Rate, veh/h	6	116	39	14	7	46	31	320	89	178	724	28
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	10	25	17	10	12	18	6	2	6	18
Cap, veh/h	453	214	72	352	32	207	451	773	211	645	1321	51
Arrive On Green	0.04	0.16	0.13	0.04	0.17	0.14	0.06	0.32	0.29	0.13	0.39	0.36
Sat Flow, veh/h	1781	1339	450	1457	188	1237	1640	2405	658	1781	3377	131
Grp Volume(v), veh/h	6	0	155	14	0	53	31	205	204	178	369	383
Grp Sat Flow(s),veh/h/ln	1781	0	1789	1457	0	1425	1640	1552	1511	1781	1721	1787
Q Serve(g_s), s	0.1	0.0	2.8	0.3	0.0	1.1	0.4	3.6	3.7	2.0	5.7	5.8
Cycle Q Clear(g_c), s	0.1	0.0	2.8	0.3	0.0	1.1	0.4	3.6	3.7	2.0	5.7	5.8
Prop In Lane	1.00		0.25	1.00		0.87	1.00		0.44	1.00		0.07
Lane Grp Cap(c), veh/h	453	0	286	352	0	239	451	499	486	645	673	699
V/C Ratio(X)	0.01	0.00	0.54	0.04	0.00	0.22	0.07	0.41	0.42	0.28	0.55	0.55
Avail Cap(c_a), veh/h	906	0	983	710	0	783	829	853	830	932	946	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	13.5	11.2	0.0	12.8	6.9	9.2	9.4	5.5	8.2	8.2
Incr Delay (d2), s/veh	0.0	0.0	1.2	0.0	0.0	0.3	0.0	0.4	0.4	0.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.9	0.1	0.0	0.3	0.1	0.8	0.8	0.3	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	14.7	11.2	0.0	13.2	7.0	9.6	9.8	5.6	8.7	8.7
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		161			67			440			930	
Approach Delay, s/veh		14.5			12.8			9.5			8.1	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	14.1	4.5	8.5	5.0	16.5	4.2	8.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	4.0	5.7	2.3	4.8	2.4	7.8	2.1	3.1				
Green Ext Time (p_c), s	0.2	2.8	0.0	0.4	0.0	4.6	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	19	271	16	9	41	1	11	3	33	0	2	3
Future Vol, veh/h	19	271	16	9	41	1	11	3	33	0	2	3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	19	20	8	100	18	2	13	2	2	33
Mvmt Flow	23	327	19	11	49	1	13	4	40	0	2	4
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	10.1	8.2	8.2	7.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	6%	18%	0%
Vol Thru, %	6%	89%	80%	40%
Vol Right, %	70%	5%	2%	60%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	306	51	5
LT Vol	11	19	9	0
Through Vol	3	271	41	2
RT Vol	33	16	1	3
Lane Flow Rate	57	369	61	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.075	0.417	0.082	0.008
Departure Headway (Hd)	4.788	4.07	4.782	4.598
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	752	874	753	782
Service Time	2.794	2.149	2.79	2.607
HCM Lane V/C Ratio	0.076	0.422	0.081	0.008
HCM Control Delay	8.2	10.1	8.2	7.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.2	2.1	0.3	0

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	1	291	41	3	1	2
Future Vol, veh/h	1	291	41	3	1	2
Conflicting Peds, #/hr	4	0	0	4	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	79	79	79	79	79	79
Heavy Vehicles, %	2	3	15	4	15	17
Mvmt Flow	1	368	52	4	1	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	60	0	-	0	428 58
Stage 1	-	-	-	-	58 -
Stage 2	-	-	-	-	370 -
Critical Hdwy	4.12	-	-	-	6.55 6.37
Critical Hdwy Stg 1	-	-	-	-	5.55 -
Critical Hdwy Stg 2	-	-	-	-	5.55 -
Follow-up Hdwy	2.218	-	-	-	3.635 3.453
Pot Cap-1 Maneuver	1544	-	-	-	560 967
Stage 1	-	-	-	-	932 -
Stage 2	-	-	-	-	671 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1538	-	-	-	555 963
Mov Cap-2 Maneuver	-	-	-	-	555 -
Stage 1	-	-	-	-	927 -
Stage 2	-	-	-	-	668 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1538	-	-	-	555	963
HCM Lane V/C Ratio	0.001	-	-	-	0.002	0.003
HCM Control Delay (s)	7.3	0	-	-	11.5	8.7
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	71	225	40	68	7	10
Future Vol, veh/h	71	225	40	68	7	10
Conflicting Peds, #/hr	15	0	0	15	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	78	78	78	78	78	78
Heavy Vehicles, %	2	4	7	4	2	2
Mvmt Flow	91	288	51	87	9	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	153	0	-	0	580 110
Stage 1	-	-	-	-	110 -
Stage 2	-	-	-	-	470 -
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	1428	-	-	-	477 943
Stage 1	-	-	-	-	915 -
Stage 2	-	-	-	-	629 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1408	-	-	-	428 930
Mov Cap-2 Maneuver	-	-	-	-	428 -
Stage 1	-	-	-	-	833 -
Stage 2	-	-	-	-	620 -

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1408	-	-	-	428	930
HCM Lane V/C Ratio	0.065	-	-	-	0.021	0.014
HCM Control Delay (s)	7.7	0	-	-	13.6	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0

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	2	188	28	16	98	2	10	0	5	1	0	2
Future Vol, veh/h	2	188	28	16	98	2	10	0	5	1	0	2
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	7	2	2	4	6	2	2	2	50	2	50
Mvmt Flow	2	214	32	18	111	2	11	0	6	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	246	0	0	383	400	230	402	415	129
Stage 1	-	-	-	-	-	-	234	234	-	165	165	-
Stage 2	-	-	-	-	-	-	149	166	-	237	250	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.12	6.52	6.22	7.6	6.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.518	4.018	3.318	3.95	4.018	3.75
Pot Cap-1 Maneuver	1443	-	-	1320	-	-	575	538	809	482	528	807
Stage 1	-	-	-	-	-	-	769	711	-	736	762	-
Stage 2	-	-	-	-	-	-	854	761	-	670	700	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1420	-	-	1320	-	-	566	520	809	465	511	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	566	520	-	465	511	-
Stage 1	-	-	-	-	-	-	767	710	-	723	738	-
Stage 2	-	-	-	-	-	-	839	737	-	664	699	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.1			10.9			10.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	629	1420	-	-	1320	-	-	642
HCM Lane V/C Ratio	0.027	0.002	-	-	0.014	-	-	0.005
HCM Control Delay (s)	10.9	7.5	0	-	7.8	0	-	10.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

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

06/28/2024

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	160	58	82	187	43	31
Future Vol, veh/h	160	58	82	187	43	31
Conflicting Peds, #/hr	1	1	19	0	0	19
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	88	88	88	88	88	88
Heavy Vehicles, %	8	2	5	5	10	12
Mvmt Flow	182	66	93	213	49	35

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	486	87	103	0	0
Stage 1	86	-	-	-	-
Stage 2	400	-	-	-	-
Critical Hdwy	6.48	6.22	4.15	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-
Follow-up Hdwy	3.572	3.318	2.245	-	-
Pot Cap-1 Maneuver	530	971	1470	-	-
Stage 1	922	-	-	-	-
Stage 2	664	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	474	953	1443	-	-
Mov Cap-2 Maneuver	474	-	-	-	-
Stage 1	839	-	-	-	-
Stage 2	652	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.9	2.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1443	-	547	-	-
HCM Lane V/C Ratio	0.065	-	0.453	-	-
HCM Control Delay (s)	7.7	0	16.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.3	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (vph)	14	365	242	274	67	10
Future Volume (vph)	14	365	242	274	67	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1399	1557	1598		1504	1468
Flt Permitted	0.23	1.00	1.00		0.95	1.00
Satd. Flow (perm)	340	1557	1598		1504	1468
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	16	424	281	319	78	12
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	16	424	600	0	78	12
Confl. Peds. (#/hr)	3			3		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	29%	22%	12%	6%	20%	10%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	35.8	35.8	26.3		12.5	12.5
Effective Green, g (s)	37.2	37.2	27.7		15.0	15.0
Actuated g/C Ratio	0.66	0.66	0.49		0.27	0.27
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	354	1028	786		400	391
v/s Ratio Prot	0.01	c0.27	c0.38		c0.05	0.01
v/s Ratio Perm	0.02					
v/c Ratio	0.05	0.41	0.76		0.20	0.03
Uniform Delay, d1	5.1	4.5	11.6		16.0	15.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	4.2		0.2	0.0
Delay (s)	5.2	4.7	15.9		16.2	15.3
Level of Service	A	A	B		B	B
Approach Delay (s)		4.7	15.9		16.0	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	6.7
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↔		↙	↘
Traffic Volume (veh/h)	14	365	242	274	67	10
Future Volume (veh/h)	14	365	242	274	67	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1470	1574	1722	1811	1604	1752
Adj Flow Rate, veh/h	16	424	281	319	78	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	29	22	12	6	20	10
Cap, veh/h	505	1116	406	461	235	228
Arrive On Green	0.06	0.71	0.56	0.51	0.15	0.15
Sat Flow, veh/h	1400	1574	726	824	1527	1485
Grp Volume(v), veh/h	16	424	0	600	78	12
Grp Sat Flow(s),veh/h/ln	1400	1574	0	1550	1527	1485
Q Serve(g_s), s	0.1	3.2	0.0	8.6	1.4	0.2
Cycle Q Clear(g_c), s	0.1	3.2	0.0	8.6	1.4	0.2
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	505	1116	0	867	235	228
V/C Ratio(X)	0.03	0.38	0.00	0.69	0.33	0.05
Avail Cap(c_a), veh/h	902	1116	0	1003	1045	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.4	1.7	0.0	5.1	11.3	10.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	1.5	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.2	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.4	1.9	0.0	6.6	11.9	10.9
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h		440	600		90	
Approach Delay, s/veh		1.9	6.6		11.8	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.9		6.1	4.5	19.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.2		3.4	2.1	10.6
Green Ext Time (p_c), s		5.1		0.2	0.0	4.7
Intersection Summary						
HCM 6th Ctrl Delay			5.2			
HCM 6th LOS			A			

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

06/28/2024

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	622	167	65	325	77	59
Future Vol, veh/h	622	167	65	325	77	59
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	2	5	7	15	21
Mvmt Flow	655	176	68	342	81	62

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	833	0	1223	745
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	478	-
Critical Hdwy	-	-	4.15	-	6.55	6.41
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.245	-	3.635	3.489
Pot Cap-1 Maneuver	-	-	787	-	186	385
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	598	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	786	-	169	384
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	32.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	169	384	-	-	786	-
HCM Lane V/C Ratio	0.48	0.162	-	-	0.087	-
HCM Control Delay (s)	44.5	16.2	-	-	10	-
HCM Lane LOS	E	C	-	-	B	-
HCM 95th %tile Q(veh)	2.3	0.6	-	-	0.3	-

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Road

06/28/2024

Intersection

Int Delay, s/veh 9.6

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	27	12	0	0	106	110
Future Vol, veh/h	27	12	0	0	106	110
Conflicting Peds, #/hr	0	37	37	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	25	7	6	4	5
Mvmt Flow	42	19	0	0	166	172

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	98	0	91	89
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	2	-
Critical Hdwy	-	-	4.17	-	6.44	6.25
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.263	-	3.536	3.345
Pot Cap-1 Maneuver	-	-	1464	-	904	961
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	1016	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1412	-	872	927
Mov Cap-2 Maneuver	-	-	-	-	872	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	1016	-

Approach EB WB NB

HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	899	-	-	1412	-
HCM Lane V/C Ratio	0.375	-	-	-	-
HCM Control Delay (s)	11.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Road

06/28/2024

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	170	1500	24	0	0
Future Vol, veh/h	0	170	1500	24	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	0	189	1667	27	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	835	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0	309	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	309	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	309
HCM Lane V/C Ratio	-	-	0.611
HCM Control Delay (s)	-	-	33.4
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	3.8

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	304	316	62	331	24	317	131	33	19	228	6
Future Volume (vph)	8	304	316	62	331	24	317	131	33	19	228	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1844		1770	1806		1770	1855	
Flt Permitted	0.45	1.00		0.10	1.00		0.28	1.00		0.64	1.00	
Satd. Flow (perm)	838	1720		190	1844		517	1806		1201	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	330	343	67	360	26	345	142	36	21	248	7
RTOR Reduction (vph)	0	41	0	0	3	0	0	9	0	0	1	0
Lane Group Flow (vph)	9	632	0	67	383	0	345	169	0	21	254	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.7	36.8		43.3	39.6		36.1	30.3		18.7	16.9	
Effective Green, g (s)	37.7	36.8		43.3	39.6		36.1	30.3		18.7	16.9	
Actuated g/C Ratio	0.41	0.40		0.48	0.43		0.40	0.33		0.21	0.19	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	355	694		154	801		413	600		257	344	
v/s Ratio Prot	0.00	c0.37		c0.02	0.21		c0.14	0.09		0.00	0.14	
v/s Ratio Perm	0.01			0.19			c0.19			0.02		
v/c Ratio	0.03	0.91		0.44	0.48		0.84	0.28		0.08	0.74	
Uniform Delay, d1	15.9	25.6		18.4	18.4		21.6	22.4		29.1	35.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	16.1		1.4	0.3		13.4	0.2		0.1	7.6	
Delay (s)	15.9	41.7		19.8	18.7		35.0	22.6		29.2	42.6	
Level of Service	B	D		B	B		D	C		C	D	
Approach Delay (s)		41.4			18.9			30.8			41.6	
Approach LOS		D			B			C			D	

Intersection Summary		
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	91.1	Sum of lost time (s) 18.5
Intersection Capacity Utilization	84.8%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	8	304	316	62	331	24	317	131	33	19	228	6
Future Volume (veh/h)	8	304	316	62	331	24	317	131	33	19	228	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	330	343	67	360	26	345	142	36	21	248	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	349	363	189	774	56	421	448	114	310	285	8
Arrive On Green	0.01	0.42	0.42	0.05	0.45	0.45	0.18	0.31	0.31	0.02	0.16	0.16
Sat Flow, veh/h	1781	840	873	1781	1723	124	1781	1440	365	1781	1810	51
Grp Volume(v), veh/h	9	0	673	67	0	386	345	0	178	21	0	255
Grp Sat Flow(s),veh/h/ln	1781	0	1713	1781	0	1848	1781	0	1805	1781	0	1861
Q Serve(g_s), s	0.3	0.0	34.1	1.9	0.0	13.1	13.9	0.0	6.8	0.9	0.0	12.1
Cycle Q Clear(g_c), s	0.3	0.0	34.1	1.9	0.0	13.1	13.9	0.0	6.8	0.9	0.0	12.1
Prop In Lane	1.00		0.51	1.00		0.07	1.00		0.20	1.00		0.03
Lane Grp Cap(c), veh/h	403	0	712	189	0	830	421	0	562	310	0	293
V/C Ratio(X)	0.02	0.00	0.95	0.36	0.00	0.46	0.82	0.00	0.32	0.07	0.00	0.87
Avail Cap(c_a), veh/h	482	0	751	207	0	830	423	0	562	369	0	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	25.4	20.5	0.0	17.3	24.5	0.0	23.7	30.7	0.0	37.1
Incr Delay (d2), s/veh	0.0	0.0	20.0	0.8	0.0	0.3	11.7	0.0	0.2	0.1	0.0	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	17.0	0.8	0.0	5.4	7.0	0.0	2.9	0.4	0.0	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	45.3	21.4	0.0	17.6	36.2	0.0	23.9	30.7	0.0	58.4
LnGrp LOS	B	A	D	C	A	B	D	A	C	C	A	E
Approach Vol, veh/h		682			453			523				276
Approach Delay, s/veh		45.0			18.1			32.0				56.3
Approach LOS		D			B			C				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	42.9	19.9	19.2	5.0	46.0	6.0	33.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	39.5	16.0	15.0	5.0	39.5	5.0	26.0				
Max Q Clear Time (g_c+I1), s	3.9	36.1	15.9	14.1	2.3	15.1	2.9	8.8				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.1	0.0	2.0	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			36.8									
HCM 6th LOS			D									

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

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	920	232	540	1195	730	885
Future Volume (vph)	920	232	540	1195	730	885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1538	3367	3438	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1538	3367	3438	3433	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	979	247	574	1271	777	941
RTOR Reduction (vph)	0	136	0	0	0	0
Lane Group Flow (vph)	979	111	574	1271	777	941
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	2%	5%	4%	5%	2%	2%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	47.2	47.2	25.8	77.0	33.0	62.8
Effective Green, g (s)	49.2	49.2	27.4	79.0	35.0	64.1
Actuated g/C Ratio	0.42	0.42	0.23	0.67	0.30	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1475	641	781	2301	1018	1513
v/s Ratio Prot	c0.28		c0.17	0.37	c0.23	0.34
v/s Ratio Perm		0.07				
v/c Ratio	0.66	0.17	0.73	0.55	0.76	0.62
Uniform Delay, d1	27.7	21.6	41.9	10.2	37.7	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.6	3.4	1.0	3.3	0.7
Delay (s)	30.1	22.2	45.3	11.2	41.0	19.3
Level of Service	C	C	D	B	D	B
Approach Delay (s)	28.5			21.8	29.1	
Approach LOS	C			C	C	

Intersection Summary

HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	803	823	52	399	415
Future Volume (vph)	54	803	823	52	399	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1687	1583	3539	1549	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.24	1.00
Satd. Flow (perm)	1687	1583	3539	1549	449	3406
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	56	828	848	54	411	428
RTOR Reduction (vph)	0	22	0	34	0	0
Lane Group Flow (vph)	56	806	848	20	411	428
Confl. Peds. (#/hr)	6			2	2	
Heavy Vehicles (%)	7%	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)	2.3	12.1	12.6	12.6	26.4	26.4
Effective Green, g (s)	3.3	14.1	13.6	13.6	27.4	27.4
Actuated g/C Ratio	0.09	0.38	0.37	0.37	0.75	0.75
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	151	737	1311	574	723	2542
v/s Ratio Prot	0.03	c0.32	0.24		0.17	0.13
v/s Ratio Perm		0.19		0.01	c0.26	
v/c Ratio	0.37	1.09	0.65	0.03	0.57	0.17
Uniform Delay, d1	15.7	11.3	9.6	7.4	3.1	1.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	61.8	1.0	0.0	0.8	0.0
Delay (s)	16.8	73.1	10.5	7.4	3.9	1.4
Level of Service	B	E	B	A	A	A
Approach Delay (s)	69.6		10.4			2.6
Approach LOS	E		B			A

Intersection Summary

HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	36.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	803	823	52	399	415
Future Volume (veh/h)	54	803	823	52	399	415
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1870	1870	1870	1870	1811
Adj Flow Rate, veh/h	56	828	848	54	411	428
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	2	2	2	2	6
Cap, veh/h	581	822	1140	507	514	1904
Arrive On Green	0.34	0.34	0.32	0.32	0.18	0.55
Sat Flow, veh/h	1711	1585	3647	1580	1781	3532
Grp Volume(v), veh/h	56	828	848	54	411	428
Grp Sat Flow(s),veh/h/ln	1711	1585	1777	1580	1781	1721
Q Serve(g_s), s	1.3	19.0	11.9	1.3	7.8	3.6
Cycle Q Clear(g_c), s	1.3	19.0	11.9	1.3	7.8	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	581	822	1140	507	514	1904
V/C Ratio(X)	0.10	1.01	0.74	0.11	0.80	0.22
Avail Cap(c_a), veh/h	581	822	1207	537	514	1904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	13.5	16.9	13.4	10.9	6.4
Incr Delay (d2), s/veh	0.1	33.3	2.3	0.1	8.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	26.5	4.2	0.4	3.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.7	46.8	19.2	13.4	19.4	6.4
LnGrp LOS	B	F	B	B	B	A
Approach Vol, veh/h	884		902			839
Approach Delay, s/veh	44.7		18.9			12.8
Approach LOS	D		B			B
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.0		22.0	13.0	21.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.6		21.0	9.8	13.9
Green Ext Time (p_c), s		4.3		0.0	0.0	3.0
Intersection Summary						
HCM 6th Ctrl Delay			25.6			
HCM 6th LOS			C			

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↔			↔	
Traffic Vol, veh/h	49	383	16	18	626	250	129	37	78	21	2	23
Future Vol, veh/h	49	383	16	18	626	250	129	37	78	21	2	23
Conflicting Peds, #/hr	4	0	0	0	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	14	5	2	17
Mvmt Flow	52	403	17	19	659	263	136	39	82	22	2	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	926	0	0	420	0	0	1359	1480	412	1409	1357	796
Stage 1	-	-	-	-	-	-	516	516	-	833	833	-
Stage 2	-	-	-	-	-	-	843	964	-	576	524	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.34	7.15	6.52	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.426	3.545	4.018	3.453
Pot Cap-1 Maneuver	738	-	-	1139	-	-	~126	125	615	114	149	365
Stage 1	-	-	-	-	-	-	542	534	-	359	384	-
Stage 2	-	-	-	-	-	-	358	334	-	497	530	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	735	-	-	1139	-	-	~108	114	615	68	136	363
Mov Cap-2 Maneuver	-	-	-	-	-	-	~108	114	-	68	136	-
Stage 1	-	-	-	-	-	-	504	496	-	332	376	-
Stage 2	-	-	-	-	-	-	326	327	-	369	492	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.2			101.7			54.6		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	108	186	735	-	-	1139	-	-	119
HCM Lane V/C Ratio	0.838	0.894	0.07	-	-	0.017	-	-	0.407
HCM Control Delay (s)	119.8	91.9	10.3	-	-	8.2	-	-	54.6
HCM Lane LOS	F	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	4.8	6.8	0.2	-	-	0.1	-	-	1.7

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

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	478	944	14	8	2
Future Vol, veh/h	12	478	944	14	8	2
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	2	7	2	2
Mvmt Flow	13	531	1049	16	9	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1068	0	-	0	1619 1060
Stage 1	-	-	-	-	1060 -
Stage 2	-	-	-	-	559 -
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	653	-	-	-	114 272
Stage 1	-	-	-	-	333 -
Stage 2	-	-	-	-	572 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	651	-	-	-	111 271
Mov Cap-2 Maneuver	-	-	-	-	235 -
Stage 1	-	-	-	-	325 -
Stage 2	-	-	-	-	570 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	651	-	-	-	241
HCM Lane V/C Ratio	0.02	-	-	-	0.046
HCM Control Delay (s)	10.6	-	-	-	20.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	438	39	10	881	48	23
Future Vol, veh/h	438	39	10	881	48	23
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	476	42	11	958	52	25

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	519	0	1478 498
Stage 1	-	-	-	-	498 -
Stage 2	-	-	-	-	980 -
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	-	-	1047	-	139 572
Stage 1	-	-	-	-	611 -
Stage 2	-	-	-	-	364 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1046	-	137 571
Mov Cap-2 Maneuver	-	-	-	-	263 -
Stage 1	-	-	-	-	610 -
Stage 2	-	-	-	-	360 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1046	-
HCM Lane V/C Ratio	0.242	-	-	0.01	-
HCM Control Delay (s)	19.8	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	71	49	0
Future Vol, veh/h	0	0	0	71	49	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	77	53	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	130	53	53	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	77	-	-	-	-	-
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	864	1014	1553	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	864	1014	1553	-	-	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	946	-	-	-	-	-

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)	1553	-	-	-	-	-
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 6th TWSC
 8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	104	21	58	47	2
Future Vol, veh/h	8	104	21	58	47	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	9	113	23	63	51	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	161	52	53	0	0
Stage 1	52	-	-	-	-
Stage 2	109	-	-	-	-
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	830	1016	1553	-	-
Stage 1	970	-	-	-	-
Stage 2	916	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	818	1016	1553	-	-
Mov Cap-2 Maneuver	818	-	-	-	-
Stage 1	955	-	-	-	-
Stage 2	916	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1553	-	818	1016	-	-
HCM Lane V/C Ratio	0.015	-	0.011	0.111	-	-
HCM Control Delay (s)	7.4	0	9.4	9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.4	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	8	32	7	65	185	2
Future Vol, veh/h	8	32	7	65	185	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	9	35	8	71	201	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	289	202	203	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	87	-	-	-	-	-
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	702	839	1369	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	839	1369	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	936	-	-	-	-	-























Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1369	-	698	839	-	-
HCM Lane V/C Ratio	0.006	-	0.012	0.041	-	-
HCM Control Delay (s)	7.6	0	10.2	9.5	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

HCM Signalized Intersection Capacity Analysis

10: SW 124th Avenue & SW Leveton Drive

06/28/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	14	16	72	2	218	5	630	20	47	410	6
Future Volume (vph)	20	14	16	72	2	218	5	630	20	47	410	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.85		1.00	1.00		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)	1770	1666		1770	1579		1128	3509		1656	3424	
Flt Permitted	0.62	1.00		0.50	1.00		0.49	1.00		0.28	1.00	
Satd. Flow (perm)	1146	1666		938	1579		580	3509		480	3424	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	22	15	18	79	2	240	5	692	22	52	451	7
RTOR Reduction (vph)	0	15	0	0	187	0	0	2	0	0	1	0
Lane Group Flow (vph)	22	18	0	79	55	0	5	712	0	52	457	0
Heavy Vehicles (%)	2%	2%	7%	2%	50%	2%	60%	2%	15%	9%	5%	17%
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)	6.3	5.5		12.5	8.6		16.8	16.1		19.0	17.2	
Effective Green, g (s)	8.3	6.5		14.4	9.6		18.8	17.1		21.0	18.2	
Actuated g/C Ratio	0.19	0.15		0.33	0.22		0.43	0.39		0.48	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	245	250		406	350		273	1385		308	1439	
v/s Ratio Prot	0.00	0.01		c0.02	0.03		0.00	c0.20		c0.01	0.13	
v/s Ratio Perm	0.01			c0.04			0.01			0.07		
v/c Ratio	0.09	0.07		0.19	0.16		0.02	0.51		0.17	0.32	
Uniform Delay, d1	14.3	15.8		10.2	13.6		7.0	9.9		6.2	8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.2	0.2		0.0	0.2		0.2	0.1	
Delay (s)	14.4	15.9		10.4	13.7		7.0	10.2		6.4	8.5	
Level of Service	B	B		B	B		A	B		A	A	
Approach Delay (s)		15.3			12.9			10.2			8.3	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.3				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			43.3				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			48.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	20	14	16	72	2	218	5	630	20	47	410	6
Future Volume (veh/h)	20	14	16	72	2	218	5	630	20	47	410	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1159	1870	1011	1870	1678	1767	1826	1648
Adj Flow Rate, veh/h	22	15	18	79	2	240	5	692	22	52	451	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	7	2	50	2	60	2	15	9	5	17
Cap, veh/h	324	209	250	651	2	297	319	1122	36	376	1246	19
Arrive On Green	0.04	0.27	0.25	0.08	0.30	0.28	0.03	0.32	0.30	0.06	0.36	0.33
Sat Flow, veh/h	1781	774	929	1781	8	975	963	3515	112	1682	3497	54
Grp Volume(v), veh/h	22	0	33	79	0	242	5	350	364	52	224	234
Grp Sat Flow(s),veh/h/ln	1781	0	1703	1781	0	983	963	1777	1850	1682	1735	1816
Q Serve(g_s), s	0.4	0.0	0.7	1.3	0.0	10.2	0.2	7.5	7.5	0.9	4.3	4.3
Cycle Q Clear(g_c), s	0.4	0.0	0.7	1.3	0.0	10.2	0.2	7.5	7.5	0.9	4.3	4.3
Prop In Lane	1.00		0.55	1.00		0.99	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	324	0	459	651	0	299	319	567	591	376	618	647
V/C Ratio(X)	0.07	0.00	0.07	0.12	0.00	0.81	0.02	0.62	0.62	0.14	0.36	0.36
Avail Cap(c_a), veh/h	644	0	723	909	0	417	508	754	785	642	736	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	12.4	9.6	0.0	14.9	9.7	12.9	12.9	9.1	10.6	10.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	7.0	0.0	0.8	0.8	0.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.4	0.0	2.4	0.0	2.3	2.4	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	0.0	12.4	9.7	0.0	21.8	9.7	13.7	13.7	9.3	10.9	10.9
LnGrp LOS	B	A	B	A	A	C	A	B	B	A	B	B
Approach Vol, veh/h		55			321			719			510	
Approach Delay, s/veh		12.1			18.8			13.7			10.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	17.3	6.5	15.1	4.2	19.0	5.0	16.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	2.9	9.5	3.3	2.7	2.2	6.3	2.4	12.2				
Green Ext Time (p_c), s	0.0	3.8	0.1	0.1	0.0	3.0	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection

Intersection Delay, s/veh 10.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	56	9	34	271	2	21	3	12	0	2	13
Future Vol, veh/h	6	56	9	34	271	2	21	3	12	0	2	13
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	2	6	11	2	2	2	5	2	25	2	2	2
Mvmt Flow	8	76	12	46	366	3	28	4	16	0	3	18
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	8.1	11.1	8.4	7.7
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	8%	11%	0%
Vol Thru, %	8%	79%	88%	13%
Vol Right, %	33%	13%	1%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	71	307	15
LT Vol	21	6	34	0
Through Vol	3	56	271	2
RT Vol	12	9	2	13
Lane Flow Rate	49	96	415	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.068	0.119	0.478	0.026
Departure Headway (Hd)	5.053	4.465	4.144	4.607
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	806	855	780
Service Time	3.062	2.476	2.24	2.618
HCM Lane V/C Ratio	0.069	0.119	0.485	0.026
HCM Control Delay	8.4	8.1	11.1	7.7
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.4	2.6	0.1

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	1	66	306	0	2	0
Future Vol, veh/h	1	66	306	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	10	10	2	2	3	2
Mvmt Flow	1	87	403	0	3	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	403	0	-	0	492
Stage 1	-	-	-	-	403
Stage 2	-	-	-	-	89
Critical Hdwy	4.2	-	-	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	2.29	-	-	-	3.527
Pot Cap-1 Maneuver	1114	-	-	-	534
Stage 1	-	-	-	-	673
Stage 2	-	-	-	-	932
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1114	-	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	533
Stage 1	-	-	-	-	672
Stage 2	-	-	-	-	932

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1114	-	-	-	533	-
HCM Lane V/C Ratio	0.001	-	-	-	0.005	-
HCM Control Delay (s)	8.2	0	-	-	11.8	0
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	17	63	213	16	72	88
Future Vol, veh/h	17	63	213	16	72	88
Conflicting Peds, #/hr	15	0	0	15	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	77	77	77	77	77	77
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	22	82	277	21	94	114

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	313	0	-	0	429 303
Stage 1	-	-	-	-	303 -
Stage 2	-	-	-	-	126 -
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	1247	-	-	-	583 737
Stage 1	-	-	-	-	749 -
Stage 2	-	-	-	-	900 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1229	-	-	-	556 726
Mov Cap-2 Maneuver	-	-	-	-	556 -
Stage 1	-	-	-	-	724 -
Stage 2	-	-	-	-	887 -

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1229	-	-	-	556	726
HCM Lane V/C Ratio	0.018	-	-	-	0.168	0.157
HCM Control Delay (s)	8	0	-	-	12.8	10.9
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0.6

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	130	8	6	181	0	27	0	14	0	0	0
Future Vol, veh/h	0	130	8	6	181	0	27	0	14	0	0	0
Conflicting Peds, #/hr	15	0	4	4	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	3	2	2	3	2	2	2	2	2	2	2
Mvmt Flow	0	173	11	8	241	0	36	0	19	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	256	0	0	188	0	0	440	455	183	460	460	256
Stage 1	-	-	-	-	-	-	183	183	-	272	272	-
Stage 2	-	-	-	-	-	-	257	272	-	188	188	-
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	1309	-	-	1386	-	-	527	501	859	512	498	783
Stage 1	-	-	-	-	-	-	819	748	-	734	685	-
Stage 2	-	-	-	-	-	-	748	685	-	814	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1290	-	-	1381	-	-	522	488	856	491	486	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	522	488	-	491	486	-
Stage 1	-	-	-	-	-	-	816	745	-	724	671	-
Stage 2	-	-	-	-	-	-	743	671	-	796	742	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			11.6			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	602	1290	-	-	1381	-	-	-
HCM Lane V/C Ratio	0.091	-	-	-	0.006	-	-	-
HCM Control Delay (s)	11.6	0	-	-	7.6	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	22	142	29	49	149	131
Future Vol, veh/h	22	142	29	49	149	131
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	6	2	3	9	7	2
Mvmt Flow	29	184	38	64	194	170

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	420	280	365	0	0
Stage 1	280	-	-	-	-
Stage 2	140	-	-	-	-
Critical Hdwy	6.46	6.22	4.13	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-
Follow-up Hdwy	3.554	3.318	2.227	-	-
Pot Cap-1 Maneuver	582	759	1188	-	-
Stage 1	758	-	-	-	-
Stage 2	877	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	562	758	1187	-	-
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	732	-	-	-	-
Stage 2	876	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1187	-	724	-	-
HCM Lane V/C Ratio	0.032	-	0.294	-	-
HCM Control Delay (s)	8.1	0	12	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	311	451	72	280	20
Future Volume (vph)	7	311	451	72	280	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	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)	1570	1776	1738		1770	1524
Flt Permitted	0.25	1.00	1.00		0.95	1.00
Satd. Flow (perm)	413	1776	1738		1770	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	338	490	78	304	22
RTOR Reduction (vph)	0	0	8	0	0	15
Lane Group Flow (vph)	8	338	560	0	304	7
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	15%	7%	7%	7%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	24.9	24.9	20.0		11.7	11.7
Effective Green, g (s)	26.3	26.3	21.4		14.2	14.2
Actuated g/C Ratio	0.59	0.59	0.48		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	303	1047	833		563	485
v/s Ratio Prot	0.00	c0.19	c0.32		c0.17	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.03	0.32	0.67		0.54	0.01
Uniform Delay, d1	5.1	4.6	8.9		12.5	10.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	2.0		0.8	0.0
Delay (s)	5.1	4.8	10.9		13.3	10.4
Level of Service	A	A	B		B	B
Approach Delay (s)		4.8	10.9		13.1	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			9.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			44.6		Sum of lost time (s)	6.7
Intersection Capacity Utilization			50.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶		↶	↷
Traffic Volume (veh/h)	7	311	451	72	280	20
Future Volume (veh/h)	7	311	451	72	280	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1678	1796	1796	1796	1870	1811
Adj Flow Rate, veh/h	8	338	490	78	304	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	7	7	7	2	6
Cap, veh/h	442	1063	709	113	520	448
Arrive On Green	0.05	0.59	0.47	0.43	0.29	0.29
Sat Flow, veh/h	1598	1796	1507	240	1781	1535
Grp Volume(v), veh/h	8	338	0	568	304	22
Grp Sat Flow(s),veh/h/ln	1598	1796	0	1747	1781	1535
Q Serve(g_s), s	0.1	3.3	0.0	9.1	5.2	0.4
Cycle Q Clear(g_c), s	0.1	3.3	0.0	9.1	5.2	0.4
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	442	1063	0	822	520	448
V/C Ratio(X)	0.02	0.32	0.00	0.69	0.58	0.05
Avail Cap(c_a), veh/h	836	1063	0	959	1033	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.0	3.6	0.0	7.4	10.7	9.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	1.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	2.3	1.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.0	3.8	0.0	9.0	11.5	9.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		346	568		326	
Approach Delay, s/veh		3.8	9.0		11.3	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.5		11.8	4.3	19.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.3		7.2	2.1	11.1
Green Ext Time (p_c), s		4.0		1.0	0.0	4.2
Intersection Summary						
HCM 6th Ctrl Delay			8.1			
HCM 6th LOS			A			

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

06/28/2024

Intersection

Int Delay, s/veh 4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	364	104	44	734	153	68
Future Vol, veh/h	364	104	44	734	153	68
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	7	2	3	6
Mvmt Flow	400	114	48	807	168	75

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	515
Stage 1	-	-	458
Stage 2	-	-	903
Critical Hdwy	-	4.17	6.43
Critical Hdwy Stg 1	-	-	5.43
Critical Hdwy Stg 2	-	-	5.43
Follow-up Hdwy	-	2.263	3.527
Pot Cap-1 Maneuver	-	1026	~ 163
Stage 1	-	-	635
Stage 2	-	-	394
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1025	~ 155
Mov Cap-2 Maneuver	-	-	279
Stage 1	-	-	634
Stage 2	-	-	375

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	28.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	594	-	-	1025	-
HCM Lane V/C Ratio	0.603	0.126	-	-	0.047	-
HCM Control Delay (s)	35.7	11.9	-	-	8.7	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	3.6	0.4	-	-	0.1	-

Notes

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

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Rd

06/28/2024

Intersection

Int Delay, s/veh 11.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	12	0	0	275	20
Future Vol, veh/h	10	12	0	0	275	20
Conflicting Peds, #/hr	0	43	43	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	13	3	2	11
Mvmt Flow	14	16	0	0	372	27

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	73	66
Stage 1	-	-	-	65
Stage 2	-	-	-	1
Critical Hdwy	-	-	4.23	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	-	-	2.317	3.518
Pot Cap-1 Maneuver	-	-	1460	939
Stage 1	-	-	-	958
Stage 2	-	-	-	1022
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	901
Mov Cap-2 Maneuver	-	-	-	901
Stage 1	-	-	-	919
Stage 2	-	-	-	1022

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	903	-	-	1400	-
HCM Lane V/C Ratio	0.441	-	-	-	-
HCM Control Delay (s)	12.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	2.3	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Rd

06/28/2024

Intersection

Int Delay, s/veh 46.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗	↗		↗↗
Traffic Vol, veh/h	0	368	1679	24	0	0
Future Vol, veh/h	0	368	1679	24	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	4	2	2
Mvmt Flow	0	400	1825	26	0	0

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	914	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.96	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.33	-
Pot Cap-1 Maneuver	0 ~ 274	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	- ~ 274	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	260.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 274	-
HCM Lane V/C Ratio	-	- 1.46	-
HCM Control Delay (s)	-	- 260.7	-
HCM Lane LOS	-	- F	-
HCM 95th %tile Q(veh)	-	- 22.4	-

Notes

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

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	348	366	43	337	21	301	242	37	28	123	15
Future Volume (vph)	6	348	366	43	337	21	301	242	37	28	123	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1719		1770	1846		1770	1826		1770	1833	
Flt Permitted	0.46	1.00		0.10	1.00		0.45	1.00		0.58	1.00	
Satd. Flow (perm)	856	1719		185	1846		829	1826		1072	1833	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	378	398	47	366	23	327	263	40	30	134	16
RTOR Reduction (vph)	0	45	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	7	731	0	47	386	0	327	297	0	30	146	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.3	38.4		42.9	40.2		30.0	23.3		15.8	13.1	
Effective Green, g (s)	39.3	38.4		42.9	40.2		30.0	23.3		15.8	13.1	
Actuated g/C Ratio	0.46	0.45		0.50	0.47		0.35	0.27		0.18	0.15	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	402	771		142	866		432	497		219	280	
v/s Ratio Prot	0.00	c0.43		c0.01	0.21		c0.11	0.16		0.00	0.08	
v/s Ratio Perm	0.01			0.15			c0.15			0.02		
v/c Ratio	0.02	0.95		0.33	0.45		0.76	0.60		0.14	0.52	
Uniform Delay, d1	12.7	22.6		17.3	15.2		22.4	27.1		28.9	33.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	20.5		1.0	0.3		7.1	1.6		0.2	1.3	
Delay (s)	12.7	43.1		18.3	15.5		29.5	28.7		29.2	34.7	
Level of Service	B	D		B	B		C	C		C	C	
Approach Delay (s)		42.8			15.8			29.1			33.8	
Approach LOS		D			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	85.6	Sum of lost time (s) 18.5
Intersection Capacity Utilization	77.8%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	348	366	43	337	21	301	242	37	28	123	15
Future Volume (veh/h)	6	348	366	43	337	21	301	242	37	28	123	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	378	398	47	366	23	327	263	40	30	134	16
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	475	399	420	185	885	56	400	377	57	229	191	23
Arrive On Green	0.01	0.48	0.48	0.04	0.51	0.51	0.15	0.24	0.24	0.03	0.12	0.12
Sat Flow, veh/h	1781	834	878	1781	1741	109	1781	1586	241	1781	1639	196
Grp Volume(v), veh/h	7	0	776	47	0	389	327	0	303	30	0	150
Grp Sat Flow(s),veh/h/ln	1781	0	1712	1781	0	1851	1781	0	1827	1781	0	1835
Q Serve(g_s), s	0.2	0.0	37.2	1.1	0.0	11.2	13.0	0.0	13.0	1.3	0.0	6.8
Cycle Q Clear(g_c), s	0.2	0.0	37.2	1.1	0.0	11.2	13.0	0.0	13.0	1.3	0.0	6.8
Prop In Lane	1.00		0.51	1.00		0.06	1.00		0.13	1.00		0.11
Lane Grp Cap(c), veh/h	475	0	819	185	0	941	400	0	434	229	0	213
V/C Ratio(X)	0.01	0.00	0.95	0.25	0.00	0.41	0.82	0.00	0.70	0.13	0.00	0.70
Avail Cap(c_a), veh/h	563	0	866	219	0	941	400	0	434	280	0	213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	21.4	18.9	0.0	13.2	27.5	0.0	29.9	31.9	0.0	36.6
Incr Delay (d2), s/veh	0.0	0.0	18.4	0.5	0.0	0.2	12.3	0.0	4.6	0.2	0.0	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	17.8	0.4	0.0	4.4	7.0	0.0	6.1	0.5	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	39.9	19.4	0.0	13.4	39.8	0.0	34.5	32.1	0.0	45.9
LnGrp LOS	B	A	D	B	A	B	D	A	C	C	A	D
Approach Vol, veh/h		783			436			630				180
Approach Delay, s/veh		39.6			14.0			37.2				43.6
Approach LOS		D			B			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	46.6	17.0	15.0	4.8	49.2	6.6	25.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	43.5	13.0	10.0	5.0	43.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.1	39.2	15.0	8.8	2.2	13.2	3.3	15.0				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.1	0.0	2.1	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM Signalized Intersection Capacity Analysis

1: SW 124th Avenue & Highway 99W

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	1270	660	1128	948	149	338
Future Volume (vph)	1270	660	1128	948	149	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1568	3400	3438	3183	2472
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1568	3400	3438	3183	2472
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1411	733	1253	1053	166	376
RTOR Reduction (vph)	0	191	0	0	0	0
Lane Group Flow (vph)	1411	542	1253	1053	166	376
Confl. Peds. (#/hr)						3
Heavy Vehicles (%)	5%	3%	3%	5%	10%	15%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	48.0	48.0	42.0	94.0	14.6	60.6
Effective Green, g (s)	50.0	50.0	43.6	96.0	16.6	61.9
Actuated g/C Ratio	0.43	0.43	0.37	0.82	0.14	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1474	672	1271	2830	453	1312
v/s Ratio Prot	c0.41		c0.37	0.31	c0.05	0.15
v/s Ratio Perm		0.35				
v/c Ratio	0.96	0.81	0.99	0.37	0.37	0.29
Uniform Delay, d1	32.3	29.1	36.2	2.6	45.2	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.4	6.8	21.7	0.1	0.4	0.1
Delay (s)	46.7	35.9	57.9	2.7	45.6	15.2
Level of Service	D	D	E	A	D	B
Approach Delay (s)	43.0			32.7	24.5	
Approach LOS	D			C	C	
Intersection Summary						
HCM 2000 Control Delay			36.2		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.88			
Actuated Cycle Length (s)			116.6		Sum of lost time (s)	7.4
Intersection Capacity Utilization			82.6%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	254	250	77	1005	759
Future Volume (vph)	47	254	250	77	1005	759
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1556	1524	3085	1387	1769	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.41	1.00
Satd. Flow (perm)	1556	1524	3085	1387	760	3471
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	53	285	281	87	1129	853
RTOR Reduction (vph)	0	152	0	67	0	0
Lane Group Flow (vph)	53	133	281	20	1129	853
Confl. Peds. (#/hr)				1	1	
Heavy Vehicles (%)	16%	6%	17%	14%	2%	4%
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)	2.2	11.8	5.8	5.8	19.4	19.4
Effective Green, g (s)	3.2	13.8	6.8	6.8	20.4	20.4
Actuated g/C Ratio	0.11	0.47	0.23	0.23	0.69	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	168	864	708	318	885	2392
v/s Ratio Prot	c0.03	0.06	0.09		c0.46	0.25
v/s Ratio Perm		0.03		0.01	c0.42	
v/c Ratio	0.32	0.15	0.40	0.06	1.28	0.36
Uniform Delay, d1	12.2	4.5	9.7	8.9	4.4	1.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.3	0.1	132.9	0.1
Delay (s)	13.0	4.6	9.9	9.0	137.3	2.0
Level of Service	B	A	A	A	F	A
Approach Delay (s)	5.9		9.7			79.0
Approach LOS	A		A			E

Intersection Summary

HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	29.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	254	250	77	1005	759
Future Volume (veh/h)	47	254	250	77	1005	759
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1663	1811	1648	1693	1870	1841
Adj Flow Rate, veh/h	53	285	281	87	1129	853
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	16	6	17	14	2	4
Cap, veh/h	354	781	734	336	874	2117
Arrive On Green	0.22	0.22	0.23	0.23	0.29	0.61
Sat Flow, veh/h	1584	1535	3214	1431	1781	3589
Grp Volume(v), veh/h	53	285	281	87	1129	853
Grp Sat Flow(s),veh/h/ln	1584	1535	1566	1431	1781	1749
Q Serve(g_s), s	0.9	3.9	2.6	1.7	10.0	4.5
Cycle Q Clear(g_c), s	0.9	3.9	2.6	1.7	10.0	4.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	354	781	734	336	874	2117
V/C Ratio(X)	0.15	0.36	0.38	0.26	1.29	0.40
Avail Cap(c_a), veh/h	858	1269	1696	775	874	2117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	5.2	11.3	10.9	8.2	3.6
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.3	139.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.2	0.6	0.4	34.9	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	5.4	11.5	11.2	147.8	3.7
LnGrp LOS	B	A	B	B	F	A
Approach Vol, veh/h	338		368			1982
Approach Delay, s/veh	6.3		11.5			85.8
Approach LOS	A		B			F
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.2		10.8	13.0	11.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		6.5		5.9	12.0	4.6
Green Ext Time (p_c), s		7.6		1.2	0.0	2.5
Intersection Summary						
HCM 6th Ctrl Delay			65.6			
HCM 6th LOS			E			

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔			↔	
Traffic Vol, veh/h	66	726	220	97	233	136	21	6	15	42	2	31
Future Vol, veh/h	66	726	220	97	233	136	21	6	15	42	2	31
Conflicting Peds, #/hr	1	0	1	1	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	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	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, %	3	2	5	5	9	7	15	2	15	10	2	14
Mvmt Flow	72	789	239	105	253	148	23	7	16	46	2	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	402	0	0	1029	0	0	1609	1666	910	1602	1711	328
Stage 1	-	-	-	-	-	-	1054	1054	-	538	538	-
Stage 2	-	-	-	-	-	-	555	612	-	1064	1173	-
Critical Hdwy	4.13	-	-	4.15	-	-	7.25	6.52	6.35	7.2	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.52	-	6.2	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.52	-	6.2	5.52	-
Follow-up Hdwy	2.227	-	-	2.245	-	-	3.635	4.018	3.435	3.59	4.018	3.426
Pot Cap-1 Maneuver	1151	-	-	663	-	-	78	97	315	82	91	687
Stage 1	-	-	-	-	-	-	258	303	-	513	522	-
Stage 2	-	-	-	-	-	-	494	484	-	260	266	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1150	-	-	662	-	-	61	76	315	61	72	686
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	76	-	61	72	-
Stage 1	-	-	-	-	-	-	241	284	-	480	438	-
Stage 2	-	-	-	-	-	-	393	407	-	226	249	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			2.4			62.9			127.1		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	61	166	1150	-	-	662	-	-	98
HCM Lane V/C Ratio	0.374	0.138	0.062	-	-	0.159	-	-	0.832
HCM Control Delay (s)	95.7	30.1	8.3	-	-	11.5	-	-	127.1
HCM Lane LOS	F	D	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.4	0.5	0.2	-	-	0.6	-	-	4.6

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	753	444	10	20	7
Future Vol, veh/h	5	753	444	10	20	7
Conflicting Peds, #/hr	6	0	0	6	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	20	3	9	20	6	2
Mvmt Flow	5	784	463	10	21	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	479	0	-	0	1268 474
Stage 1	-	-	-	-	474 -
Stage 2	-	-	-	-	794 -
Critical Hdwy	4.3	-	-	-	6.46 6.22
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.38	-	-	-	3.554 3.318
Pot Cap-1 Maneuver	996	-	-	-	182 590
Stage 1	-	-	-	-	618 -
Stage 2	-	-	-	-	438 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	990	-	-	-	179 587
Mov Cap-2 Maneuver	-	-	-	-	310 -
Stage 1	-	-	-	-	611 -
Stage 2	-	-	-	-	435 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	990	-	-	-	353
HCM Lane V/C Ratio	0.005	-	-	-	0.08
HCM Control Delay (s)	8.7	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	788	42	40	379	79	5
Future Vol, veh/h	788	42	40	379	79	5
Conflicting Peds, #/hr	0	2	2	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	15	9	9	2	33
Mvmt Flow	829	44	42	399	83	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	875	0	1336
Stage 1	-	-	-	-	853
Stage 2	-	-	-	-	483
Critical Hdwy	-	-	4.19	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.281	-	3.518
Pot Cap-1 Maneuver	-	-	743	-	169
Stage 1	-	-	-	-	418
Stage 2	-	-	-	-	620
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	742	-	159
Mov Cap-2 Maneuver	-	-	-	-	292
Stage 1	-	-	-	-	417
Stage 2	-	-	-	-	585

Approach	EB	WB	NB
HCM Control Delay, s	0	1	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	293	-	-	742	-
HCM Lane V/C Ratio	0.302	-	-	0.057	-
HCM Control Delay (s)	22.5	-	-	10.1	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	84	82	0
Future Vol, veh/h	0	0	0	84	82	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	88	86	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	174	86	86	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	88	-	-	-	-	-
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	816	973	1510	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	816	973	1510	-	-	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	935	-	-	-	-	-

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)	1510	-	-	-	-	-
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 6th TWSC
8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	112	83	73	9
Future Vol, veh/h	1	16	112	83	73	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	17	118	87	77	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	405	82	86	0	0
Stage 1	82	-	-	-	-
Stage 2	323	-	-	-	-
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	602	978	1510	-	-
Stage 1	941	-	-	-	-
Stage 2	734	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	553	978	1510	-	-
Mov Cap-2 Maneuver	553	-	-	-	-
Stage 1	864	-	-	-	-
Stage 2	734	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	4.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1510	-	553	978	-	-
HCM Lane V/C Ratio	0.078	-	0.002	0.017	-	-
HCM Control Delay (s)	7.6	0	11.5	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0	0.1	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	1	5	34	258	76	9
Future Vol, veh/h	1	5	34	258	76	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	36	272	80	9

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	429	85	89	0	0
Stage 1	85	-	-	-	-
Stage 2	344	-	-	-	-
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	583	974	1506	-	-
Stage 1	938	-	-	-	-
Stage 2	718	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	567	974	1506	-	-
Mov Cap-2 Maneuver	567	-	-	-	-
Stage 1	912	-	-	-	-
Stage 2	718	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1506	-	567	974	-	-
HCM Lane V/C Ratio	0.024	-	0.002	0.005	-	-
HCM Control Delay (s)	7.4	0	11.4	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

HCM Signalized Intersection Capacity Analysis

10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	106	34	14	6	40	27	283	81	157	631	25
Future Volume (vph)	5	106	34	14	6	40	27	283	81	157	631	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.87		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)	1770	1762		1444	1489		1612	3010		1768	3372	
Flt Permitted	0.72	1.00		0.58	1.00		0.36	1.00		0.40	1.00	
Satd. Flow (perm)	1345	1762		880	1489		610	3010		749	3372	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	6	125	40	16	7	47	32	333	95	185	742	29
RTOR Reduction (vph)	0	19	0	0	39	0	0	32	0	0	3	0
Lane Group Flow (vph)	6	146	0	16	15	0	32	396	0	185	768	0
Confl. Peds. (#/hr)									3	3		
Heavy Vehicles (%)	2%	2%	10%	25%	17%	10%	12%	18%	6%	2%	6%	18%
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		7.9	7.1		17.2	16.4		26.0	21.2	
Effective Green, g (s)	9.7	8.0		9.9	8.1		19.2	17.4		27.0	22.2	
Actuated g/C Ratio	0.21	0.17		0.22	0.18		0.42	0.38		0.59	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	300	307		212	263		295	1143		588	1634	
v/s Ratio Prot	0.00	c0.08		c0.00	0.01		0.00	0.13		c0.05	c0.23	
v/s Ratio Perm	0.00			0.01			0.04			0.14		
v/c Ratio	0.02	0.48		0.08	0.06		0.11	0.35		0.31	0.47	
Uniform Delay, d1	14.3	17.0		14.2	15.7		7.9	10.1		4.5	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.8		0.1	0.1		0.1	0.1		0.2	0.2	
Delay (s)	14.3	17.9		14.3	15.7		8.0	10.3		4.8	8.0	
Level of Service	B	B		B	B		A	B		A	A	
Approach Delay (s)		17.7			15.4			10.1			7.4	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			9.6				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			45.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			43.2%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	106	34	14	6	40	27	283	81	157	631	25
Future Volume (veh/h)	5	106	34	14	6	40	27	283	81	157	631	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1752	1530	1648	1752	1722	1633	1811	1870	1811	1633
Adj Flow Rate, veh/h	6	125	40	16	7	47	32	333	95	185	742	29
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	10	25	17	10	12	18	6	2	6	18
Cap, veh/h	458	225	72	349	32	218	441	764	214	634	1321	52
Arrive On Green	0.03	0.17	0.14	0.04	0.18	0.15	0.06	0.32	0.29	0.13	0.39	0.36
Sat Flow, veh/h	1781	1358	434	1457	185	1240	1640	2389	671	1781	3375	132
Grp Volume(v), veh/h	6	0	165	16	0	54	32	214	214	185	378	393
Grp Sat Flow(s),veh/h/ln	1781	0	1792	1457	0	1425	1640	1552	1508	1781	1721	1787
Q Serve(g_s), s	0.1	0.0	3.0	0.3	0.0	1.2	0.4	3.9	4.0	2.1	6.1	6.1
Cycle Q Clear(g_c), s	0.1	0.0	3.0	0.3	0.0	1.2	0.4	3.9	4.0	2.1	6.1	6.1
Prop In Lane	1.00		0.24	1.00		0.87	1.00		0.44	1.00		0.07
Lane Grp Cap(c), veh/h	458	0	297	349	0	250	441	496	482	634	674	700
V/C Ratio(X)	0.01	0.00	0.56	0.05	0.00	0.22	0.07	0.43	0.44	0.29	0.56	0.56
Avail Cap(c_a), veh/h	900	0	963	696	0	766	809	834	811	905	925	960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	13.7	11.3	0.0	12.9	7.2	9.5	9.7	5.6	8.4	8.4
Incr Delay (d2), s/veh	0.0	0.0	1.2	0.0	0.0	0.3	0.1	0.4	0.5	0.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.0	0.1	0.0	0.3	0.1	0.8	0.9	0.3	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	0.0	14.9	11.3	0.0	13.2	7.2	9.9	10.2	5.8	8.9	8.9
LnGrp LOS	B	A	B	B	A	B	A	A	B	A	A	A
Approach Vol, veh/h		171			70			460			956	
Approach Delay, s/veh		14.8			12.8			9.9			8.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	14.3	4.6	8.9	5.1	16.8	4.2	9.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	4.1	6.0	2.3	5.0	2.4	8.1	2.1	3.2				
Green Ext Time (p_c), s	0.2	2.9	0.0	0.4	0.0	4.6	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	287	16	10	44	1	11	3	37	0	2	3
Future Vol, veh/h	20	287	16	10	44	1	11	3	37	0	2	3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	19	20	8	100	18	2	13	2	2	33
Mvmt Flow	24	346	19	12	53	1	13	4	45	0	2	4
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	10.4	8.3	8.3	7.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	6%	18%	0%
Vol Thru, %	6%	89%	80%	40%
Vol Right, %	73%	5%	2%	60%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	323	55	5
LT Vol	11	20	10	0
Through Vol	3	287	44	2
RT Vol	37	16	1	3
Lane Flow Rate	61	389	66	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.082	0.442	0.089	0.008
Departure Headway (Hd)	4.829	4.085	4.818	4.665
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	745	868	747	770
Service Time	2.835	2.17	2.829	2.675
HCM Lane V/C Ratio	0.082	0.448	0.088	0.008
HCM Control Delay	8.3	10.4	8.3	7.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.3	2.3	0.3	0

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	1	307	43	3	1	2
Future Vol, veh/h	1	307	43	3	1	2
Conflicting Peds, #/hr	4	0	0	4	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	79	79	79	79	79	79
Heavy Vehicles, %	2	3	15	4	15	17
Mvmt Flow	1	389	54	4	1	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	62	0	-	0	451 60
Stage 1	-	-	-	-	60 -
Stage 2	-	-	-	-	391 -
Critical Hdwy	4.12	-	-	-	6.55 6.37
Critical Hdwy Stg 1	-	-	-	-	5.55 -
Critical Hdwy Stg 2	-	-	-	-	5.55 -
Follow-up Hdwy	2.218	-	-	-	3.635 3.453
Pot Cap-1 Maneuver	1541	-	-	-	543 965
Stage 1	-	-	-	-	930 -
Stage 2	-	-	-	-	656 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1535	-	-	-	538 961
Mov Cap-2 Maneuver	-	-	-	-	538 -
Stage 1	-	-	-	-	925 -
Stage 2	-	-	-	-	653 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1535	-	-	-	538	961
HCM Lane V/C Ratio	0.001	-	-	-	0.002	0.003
HCM Control Delay (s)	7.3	0	-	-	11.7	8.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	83	229	42	80	9	12
Future Vol, veh/h	83	229	42	80	9	12
Conflicting Peds, #/hr	15	0	0	15	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	78	78	78	78	78	78
Heavy Vehicles, %	2	4	7	4	2	2
Mvmt Flow	106	294	54	103	12	15

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	172	0	-	0	627 121
Stage 1	-	-	-	-	121 -
Stage 2	-	-	-	-	506 -
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	-	-	-	447 930
Stage 1	-	-	-	-	904 -
Stage 2	-	-	-	-	606 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1385	-	-	-	395 917
Mov Cap-2 Maneuver	-	-	-	-	395 -
Stage 1	-	-	-	-	810 -
Stage 2	-	-	-	-	598 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1385	-	-	-	395	917
HCM Lane V/C Ratio	0.077	-	-	-	0.029	0.017
HCM Control Delay (s)	7.8	0	-	-	14.4	9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.1

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	2	192	28	16	113	2	10	0	5	1	0	2
Future Vol, veh/h	2	192	28	16	113	2	10	0	5	1	0	2
Conflicting Peds, #/hr	17	0	0	0	0	17	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	7	2	2	4	6	2	2	2	50	2	50
Mvmt Flow	2	218	32	18	128	2	11	0	6	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	147	0	0	250	0	0	404	421	234	423	436	146
Stage 1	-	-	-	-	-	-	238	238	-	182	182	-
Stage 2	-	-	-	-	-	-	166	183	-	241	254	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.12	6.52	6.22	7.6	6.52	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.518	4.018	3.318	3.95	4.018	3.75
Pot Cap-1 Maneuver	1423	-	-	1316	-	-	557	524	805	466	514	789
Stage 1	-	-	-	-	-	-	765	708	-	720	749	-
Stage 2	-	-	-	-	-	-	836	748	-	667	697	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1400	-	-	1316	-	-	548	507	805	449	497	776
Mov Cap-2 Maneuver	-	-	-	-	-	-	548	507	-	449	497	-
Stage 1	-	-	-	-	-	-	763	707	-	707	726	-
Stage 2	-	-	-	-	-	-	821	725	-	661	696	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.9			11			10.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	613	1400	-	-	1316	-	-	624
HCM Lane V/C Ratio	0.028	0.002	-	-	0.014	-	-	0.005
HCM Control Delay (s)	11	7.6	0	-	7.8	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

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

06/28/2024

Intersection						
Int Delay, s/veh	8.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	161	62	97	205	47	32
Future Vol, veh/h	161	62	97	205	47	32
Conflicting Peds, #/hr	1	1	19	0	0	19
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	88	88	88	88	88	88
Heavy Vehicles, %	8	2	5	5	10	12
Mvmt Flow	183	70	110	233	53	36

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	544	91	108	0	0
Stage 1	90	-	-	-	-
Stage 2	454	-	-	-	-
Critical Hdwy	6.48	6.22	4.15	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-
Follow-up Hdwy	3.572	3.318	2.245	-	-
Pot Cap-1 Maneuver	490	967	1464	-	-
Stage 1	919	-	-	-	-
Stage 2	627	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	431	949	1438	-	-
Mov Cap-2 Maneuver	431	-	-	-	-
Stage 1	823	-	-	-	-
Stage 2	616	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1438	-	508	-	-
HCM Lane V/C Ratio	0.077	-	0.499	-	-
HCM Control Delay (s)	7.7	0	18.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.7	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘		↙	↘
Traffic Volume (vph)	14	376	249	308	73	10
Future Volume (vph)	14	376	249	308	73	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1399	1557	1596		1504	1468
Flt Permitted	0.30	1.00	1.00		0.95	1.00
Satd. Flow (perm)	439	1557	1596		1504	1468
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	16	437	290	358	85	12
RTOR Reduction (vph)	0	0	42	0	0	10
Lane Group Flow (vph)	16	437	606	0	85	2
Confl. Peds. (#/hr)	3			3		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	29%	22%	12%	6%	20%	10%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	33.3	33.3	28.2		4.8	4.8
Effective Green, g (s)	34.7	34.7	29.6		7.3	7.3
Actuated g/C Ratio	0.75	0.75	0.64		0.16	0.16
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	382	1171	1024		238	232
v/s Ratio Prot	0.00	c0.28	c0.38		c0.06	0.00
v/s Ratio Perm	0.03					
v/c Ratio	0.04	0.37	0.59		0.36	0.01
Uniform Delay, d1	2.4	2.0	4.8		17.3	16.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	0.8		0.7	0.0
Delay (s)	2.4	2.1	5.5		18.0	16.4
Level of Service	A	A	A		B	B
Approach Delay (s)		2.1	5.5		17.8	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	6.7
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↗	↖		↘	↗
Traffic Volume (veh/h)	14	376	249	308	73	10
Future Volume (veh/h)	14	376	249	308	73	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1470	1574	1722	1811	1604	1752
Adj Flow Rate, veh/h	16	437	290	358	85	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	29	22	12	6	20	10
Cap, veh/h	471	1123	392	484	235	228
Arrive On Green	0.06	0.71	0.57	0.52	0.15	0.15
Sat Flow, veh/h	1400	1574	691	853	1527	1485
Grp Volume(v), veh/h	16	437	0	648	85	12
Grp Sat Flow(s),veh/h/ln	1400	1574	0	1544	1527	1485
Q Serve(g_s), s	0.1	3.4	0.0	9.9	1.5	0.2
Cycle Q Clear(g_c), s	0.1	3.4	0.0	9.9	1.5	0.2
Prop In Lane	1.00			0.55	1.00	1.00
Lane Grp Cap(c), veh/h	471	1123	0	876	235	228
V/C Ratio(X)	0.03	0.39	0.00	0.74	0.36	0.05
Avail Cap(c_a), veh/h	855	1123	0	968	1012	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	1.8	0.0	5.3	11.7	11.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	2.5	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	1.6	0.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.8	1.9	0.0	7.9	12.4	11.2
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h		453	648		97	
Approach Delay, s/veh		2.0	7.9		12.3	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.7		6.3	4.5	20.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.4		3.5	2.1	11.9
Green Ext Time (p_c), s		5.2		0.2	0.0	4.2
Intersection Summary						
HCM 6th Ctrl Delay			6.0			
HCM 6th LOS			A			

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

06/28/2024

Intersection

Int Delay, s/veh 4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	641	172	67	338	79	61
Future Vol, veh/h	641	172	67	338	79	61
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	2	5	7	15	21
Mvmt Flow	675	181	71	356	83	64

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	858	0	1266
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	498
Critical Hdwy	-	-	4.15	-	6.55
Critical Hdwy Stg 1	-	-	-	-	5.55
Critical Hdwy Stg 2	-	-	-	-	5.55
Follow-up Hdwy	-	-	2.245	-	3.635
Pot Cap-1 Maneuver	-	-	770	-	175
Stage 1	-	-	-	-	436
Stage 2	-	-	-	-	585
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	769	-	159
Mov Cap-2 Maneuver	-	-	-	-	159
Stage 1	-	-	-	-	435
Stage 2	-	-	-	-	531

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	35.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	159	372	-	-	769	-
HCM Lane V/C Ratio	0.523	0.173	-	-	0.092	-
HCM Control Delay (s)	50.1	16.7	-	-	10.2	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	2.6	0.6	-	-	0.3	-

HCM 6th TWSC
 18: SW 115th Avenue & SW Hazelbrook Road

06/28/2024

Intersection						
Int Delay, s/veh	9.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	12	0	0	111	113
Future Vol, veh/h	28	12	0	0	111	113
Conflicting Peds, #/hr	0	37	37	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	25	7	6	4	5
Mvmt Flow	44	19	0	0	173	177

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	100	0	93 91
Stage 1	-	-	-	-	91 -
Stage 2	-	-	-	-	2 -
Critical Hdwy	-	-	4.17	-	6.44 6.25
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	-	-	2.263	-	3.536 3.345
Pot Cap-1 Maneuver	-	-	1462	-	902 958
Stage 1	-	-	-	-	928 -
Stage 2	-	-	-	-	1016 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1410	-	870 924
Mov Cap-2 Maneuver	-	-	-	-	870 -
Stage 1	-	-	-	-	896 -
Stage 2	-	-	-	-	1016 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	896	-	-	1410	-
HCM Lane V/C Ratio	0.391	-	-	-	-
HCM Control Delay (s)	11.6	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Road

06/28/2024

Intersection

Int Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	177	1543	25	0	0
Future Vol, veh/h	0	177	1543	25	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	8	2	2	2
Mvmt Flow	0	197	1714	28	0	0

Major/Minor

	Minor1	Major1	Major2		
Conflicting Flow All	-	858	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0	298	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	298	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach

	WB	NB	SB
HCM Control Delay, s	37.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt

	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	298
HCM Lane V/C Ratio	-	-	0.66
HCM Control Delay (s)	-	-	37.7
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	4.3

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	315	328	64	351	25	342	135	34	20	235	6
Future Volume (vph)	8	315	328	64	351	25	342	135	34	20	235	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1844		1770	1807		1770	1855	
Flt Permitted	0.43	1.00		0.10	1.00		0.25	1.00		0.64	1.00	
Satd. Flow (perm)	802	1720		187	1844		462	1807		1195	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	342	357	70	382	27	372	147	37	22	255	7
RTOR Reduction (vph)	0	43	0	0	3	0	0	9	0	0	1	0
Lane Group Flow (vph)	9	656	0	70	406	0	372	175	0	22	261	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.9	37.0		43.7	39.9		35.2	29.3		17.9	16.0	
Effective Green, g (s)	37.9	37.0		43.7	39.9		35.2	29.3		17.9	16.0	
Actuated g/C Ratio	0.42	0.41		0.48	0.44		0.39	0.32		0.20	0.18	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	345	703		156	812		399	585		248	327	
v/s Ratio Prot	0.00	c0.38		c0.02	0.22		c0.16	0.10		0.00	0.14	
v/s Ratio Perm	0.01			0.20			c0.21			0.02		
v/c Ratio	0.03	0.93		0.45	0.50		0.93	0.30		0.09	0.80	
Uniform Delay, d1	15.6	25.6		18.5	18.1		22.5	22.9		29.5	35.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	19.3		1.5	0.4		28.5	0.2		0.1	12.4	
Delay (s)	15.6	44.9		20.0	18.5		51.0	23.1		29.6	48.1	
Level of Service	B	D		C	B		D	C		C	D	
Approach Delay (s)		44.5			18.7			41.8			46.6	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	315	328	64	351	25	342	135	34	20	235	6
Future Volume (veh/h)	8	315	328	64	351	25	342	135	34	20	235	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	342	357	70	382	27	372	147	37	22	255	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	357	373	187	797	56	393	424	107	301	267	7
Arrive On Green	0.01	0.43	0.43	0.05	0.46	0.46	0.17	0.29	0.29	0.02	0.15	0.15
Sat Flow, veh/h	1781	838	875	1781	1726	122	1781	1442	363	1781	1812	50
Grp Volume(v), veh/h	9	0	699	70	0	409	372	0	184	22	0	262
Grp Sat Flow(s),veh/h/ln	1781	0	1713	1781	0	1848	1781	0	1805	1781	0	1861
Q Serve(g_s), s	0.3	0.0	34.9	1.9	0.0	13.5	15.0	0.0	7.1	0.9	0.0	12.3
Cycle Q Clear(g_c), s	0.3	0.0	34.9	1.9	0.0	13.5	15.0	0.0	7.1	0.9	0.0	12.3
Prop In Lane	1.00		0.51	1.00		0.07	1.00		0.20	1.00		0.03
Lane Grp Cap(c), veh/h	403	0	730	187	0	853	393	0	530	301	0	274
V/C Ratio(X)	0.02	0.00	0.96	0.37	0.00	0.48	0.95	0.00	0.35	0.07	0.00	0.96
Avail Cap(c_a), veh/h	484	0	748	206	0	853	393	0	530	359	0	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	24.5	20.2	0.0	16.4	25.8	0.0	24.5	30.7	0.0	37.3
Incr Delay (d2), s/veh	0.0	0.0	22.6	0.9	0.0	0.3	31.7	0.0	0.3	0.1	0.0	41.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	17.8	0.8	0.0	5.5	9.7	0.0	3.0	0.4	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	47.1	21.1	0.0	16.7	57.5	0.0	24.8	30.8	0.0	79.2
LnGrp LOS	B	A	D	C	A	B	E	A	C	C	A	E
Approach Vol, veh/h		708			479			556			284	
Approach Delay, s/veh		46.7			17.4			46.7			75.5	
Approach LOS		D			B			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	43.1	19.0	18.0	5.0	46.2	6.1	30.9				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	38.5	15.0	13.0	5.0	38.5	5.0	23.0				
Max Q Clear Time (g_c+I1), s	3.9	36.9	17.0	14.3	2.3	15.5	2.9	9.1				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	2.1	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

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

06/28/2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	947	239	558	1230	761	924
Future Volume (vph)	947	239	558	1230	761	924
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	2.0	2.4	2.0	2.0	2.7
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1538	3367	3438	3433	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1538	3367	3438	3433	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1007	254	594	1309	810	983
RTOR Reduction (vph)	0	138	0	0	0	0
Lane Group Flow (vph)	1007	116	594	1309	810	983
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	2%	5%	4%	5%	2%	2%
Turn Type	NA	Perm	Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	4	14
Permitted Phases		2				
Actuated Green, G (s)	46.2	46.2	25.9	76.1	34.4	64.3
Effective Green, g (s)	48.2	48.2	27.5	78.1	36.4	65.6
Actuated g/C Ratio	0.41	0.41	0.23	0.66	0.31	0.55
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	1439	625	781	2265	1054	1542
v/s Ratio Prot	c0.28		c0.18	0.38	c0.24	0.35
v/s Ratio Perm		0.08				
v/c Ratio	0.70	0.19	0.76	0.58	0.77	0.64
Uniform Delay, d1	29.1	22.6	42.4	11.1	37.2	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.7	4.2	1.1	3.3	0.8
Delay (s)	32.0	23.2	46.6	12.2	40.5	19.0
Level of Service	C	C	D	B	D	B
Approach Delay (s)	30.2			23.0	28.7	
Approach LOS	C			C	C	
Intersection Summary						
HCM 2000 Control Delay			26.9		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			118.5		Sum of lost time (s)	7.4
Intersection Capacity Utilization			73.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Edition does not allow existing right turn type.

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	55	852	846	54	414	427
Future Volume (vph)	55	852	846	54	414	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
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)	1687	1583	3539	1548	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1687	1583	3539	1548	433	3406
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	57	878	872	56	427	440
RTOR Reduction (vph)	0	19	0	35	0	0
Lane Group Flow (vph)	57	859	872	21	427	440
Confl. Peds. (#/hr)	6			2	2	
Heavy Vehicles (%)	7%	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)	2.3	12.0	13.2	13.2	26.9	26.9
Effective Green, g (s)	3.3	14.0	14.2	14.2	27.9	27.9
Actuated g/C Ratio	0.09	0.38	0.38	0.38	0.75	0.75
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	149	723	1350	590	709	2554
v/s Ratio Prot	0.03	c0.34	0.25		0.17	0.13
v/s Ratio Perm		0.20		0.01	c0.28	
v/c Ratio	0.38	1.19	0.65	0.04	0.60	0.17
Uniform Delay, d1	16.0	11.6	9.4	7.2	3.3	1.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	98.0	0.9	0.0	1.2	0.0
Delay (s)	17.2	109.6	10.4	7.2	4.5	1.4
Level of Service	B	F	B	A	A	A
Approach Delay (s)	104.0		10.2			2.9
Approach LOS	F		B			A

Intersection Summary

HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

2: SW 124th Avenue & SW Tualatin Road

06/28/2024



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	852	846	54	414	427
Future Volume (veh/h)	55	852	846	54	414	427
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1870	1870	1870	1870	1811
Adj Flow Rate, veh/h	57	878	872	56	427	440
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	2	2	2	2	6
Cap, veh/h	579	819	1148	510	508	1908
Arrive On Green	0.34	0.34	0.32	0.32	0.18	0.55
Sat Flow, veh/h	1711	1585	3647	1580	1781	3532
Grp Volume(v), veh/h	57	878	872	56	427	440
Grp Sat Flow(s),veh/h/ln	1711	1585	1777	1580	1781	1721
Q Serve(g_s), s	1.3	19.0	12.4	1.4	8.2	3.7
Cycle Q Clear(g_c), s	1.3	19.0	12.4	1.4	8.2	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	579	819	1148	510	508	1908
V/C Ratio(X)	0.10	1.07	0.76	0.11	0.84	0.23
Avail Cap(c_a), veh/h	579	819	1203	535	508	1908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	13.6	17.0	13.3	11.1	6.4
Incr Delay (d2), s/veh	0.1	52.6	2.6	0.1	11.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	12.0	4.4	0.4	3.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	66.2	19.6	13.4	22.9	6.4
LnGrp LOS	B	F	B	B	C	A
Approach Vol, veh/h	935		928			867
Approach Delay, s/veh	62.9		19.3			14.6
Approach LOS	E		B			B
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.1		22.0	13.0	21.1
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.7		21.0	10.2	14.4
Green Ext Time (p_c), s		4.4		0.0	0.0	2.7
Intersection Summary						
HCM 6th Ctrl Delay			32.7			
HCM 6th LOS			C			

Intersection												
Int Delay, s/veh	34.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↔			↔	
Traffic Vol, veh/h	50	394	21	21	644	257	158	45	99	22	2	24
Future Vol, veh/h	50	394	21	21	644	257	158	45	99	22	2	24
Conflicting Peds, #/hr	4	0	0	0	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	14	5	2	17
Mvmt Flow	53	415	22	22	678	271	166	47	104	23	2	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	953	0	0	437	0	0	1404	1529	426	1470	1405	819
Stage 1	-	-	-	-	-	-	532	532	-	862	862	-
Stage 2	-	-	-	-	-	-	872	997	-	608	543	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.34	7.15	6.52	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.426	3.545	4.018	3.453
Pot Cap-1 Maneuver	721	-	-	1123	-	-	~117	117	604	104	139	353
Stage 1	-	-	-	-	-	-	531	526	-	346	372	-
Stage 2	-	-	-	-	-	-	345	322	-	478	520	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	718	-	-	1123	-	-	~100	106	604	52	126	351
Mov Cap-2 Maneuver	-	-	-	-	-	-	~100	106	-	52	126	-
Stage 1	-	-	-	-	-	-	492	487	-	319	363	-
Stage 2	-	-	-	-	-	-	312	314	-	331	482	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.2			185.3			79.6		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	100	176	718	-	-	1123	-	-	95
HCM Lane V/C Ratio	1.109	1.176	0.073	-	-	0.02	-	-	0.532
HCM Control Delay (s)	201.7	176.5	10.4	-	-	8.3	-	-	79.6
HCM Lane LOS	F	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	7.2	11	0.2	-	-	0.1	-	-	2.4

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

HCM 6th TWSC
5: SW Tualatin Road & SW 112th Avenue

06/28/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	511	974	14	8	2
Future Vol, veh/h	12	511	974	14	8	2
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	2	7	2	2
Mvmt Flow	13	568	1082	16	9	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1101	0	-	0	1689 1093
Stage 1	-	-	-	-	1093 -
Stage 2	-	-	-	-	596 -
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	634	-	-	-	103 261
Stage 1	-	-	-	-	321 -
Stage 2	-	-	-	-	550 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	632	-	-	-	100 260
Mov Cap-2 Maneuver	-	-	-	-	223 -
Stage 1	-	-	-	-	313 -
Stage 2	-	-	-	-	548 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	632	-	-	-	230
HCM Lane V/C Ratio	0.021	-	-	-	0.048
HCM Control Delay (s)	10.8	-	-	-	21.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

HCM 6th TWSC
6: SW 108th Avenue & SW Tualatin Road

06/28/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	454	55	10	908	51	24
Future Vol, veh/h	454	55	10	908	51	24
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	493	60	11	987	55	26

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	554	0	1533 524
Stage 1	-	-	-	-	524 -
Stage 2	-	-	-	-	1009 -
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	-	-	1016	-	128 553
Stage 1	-	-	-	-	594 -
Stage 2	-	-	-	-	352 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1015	-	126 552
Mov Cap-2 Maneuver	-	-	-	-	252 -
Stage 1	-	-	-	-	593 -
Stage 2	-	-	-	-	348 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	21.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	-	-	1015	-
HCM Lane V/C Ratio	0.267	-	-	0.011	-
HCM Control Delay (s)	21.1	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0	-

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

06/28/2024

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	75	65	0
Future Vol, veh/h	0	0	0	75	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	82	71	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	153	71	71	0	-	0
Stage 1	71	-	-	-	-	-
Stage 2	82	-	-	-	-	-
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	839	991	1529	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	839	991	1529	-	-	-
Mov Cap-2 Maneuver	839	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	941	-	-	-	-	-

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 6th TWSC
 8: SW 108th Avenue & Center 108th Access

06/28/2024

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	8	104	21	61	63	2
Future Vol, veh/h	8	104	21	61	63	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	9	113	23	66	68	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	181	69	70	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	112	-	-	-	-	-
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	808	994	1531	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	795	994	1531	-	-	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	913	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1531	-	795	994	-	-
HCM Lane V/C Ratio	0.015	-	0.011	0.114	-	-
HCM Control Delay (s)	7.4	0	9.6	9.1	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.4	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	32	7	68	202	2
Future Vol, veh/h	8	32	7	68	202	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	9	35	8	74	220	2























Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	311	221	222	0	0
Stage 1	221	-	-	-	-
Stage 2	90	-	-	-	-
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	681	819	1347	-	-
Stage 1	816	-	-	-	-
Stage 2	934	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	677	819	1347	-	-
Mov Cap-2 Maneuver	677	-	-	-	-
Stage 1	811	-	-	-	-
Stage 2	934	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1347	-	677	819	-	-
HCM Lane V/C Ratio	0.006	-	0.013	0.042	-	-
HCM Control Delay (s)	7.7	0	10.4	9.6	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

HCM Signalized Intersection Capacity Analysis
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	21	15	16	81	2	225	5	648	21	48	421	6	
Future Volume (vph)	21	15	16	81	2	225	5	648	21	48	421	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95		
Frt	1.00	0.92		1.00	0.85		1.00	1.00		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)	1770	1671		1770	1580		1128	3509		1656	3425		
Flt Permitted	0.62	1.00		0.50	1.00		0.48	1.00		0.27	1.00		
Satd. Flow (perm)	1146	1671		937	1580		573	3509		462	3425		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	23	16	18	89	2	247	5	712	23	53	463	7	
RTOR Reduction (vph)	0	15	0	0	192	0	0	2	0	0	1	0	
Lane Group Flow (vph)	23	19	0	89	57	0	5	733	0	53	469	0	
Heavy Vehicles (%)	2%	2%	7%	2%	50%	2%	60%	2%	15%	9%	5%	17%	
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)	6.3	5.5		12.5	8.6		16.9	16.2		19.1	17.3		
Effective Green, g (s)	8.3	6.5		14.4	9.6		18.9	17.2		21.1	18.3		
Actuated g/C Ratio	0.19	0.15		0.33	0.22		0.44	0.40		0.49	0.42		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5		
Lane Grp Cap (vph)	245	250		404	349		271	1390		301	1444		
v/s Ratio Prot	0.00	0.01		c0.02	0.04		0.00	c0.21		c0.01	0.14		
v/s Ratio Perm	0.01			c0.05			0.01			0.07			
v/c Ratio	0.09	0.07		0.22	0.16		0.02	0.53		0.18	0.32		
Uniform Delay, d1	14.4	15.9		10.3	13.7		6.9	10.0		6.3	8.4		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.1		0.2	0.2		0.0	0.3		0.2	0.1		
Delay (s)	14.5	16.0		10.5	13.8		7.0	10.3		6.5	8.5		
Level of Service	B	B		B	B		A	B		A	A		
Approach Delay (s)		15.4			12.9			10.3			8.3		
Approach LOS		B			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			10.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			43.4									Sum of lost time (s)	12.0
Intersection Capacity Utilization			49.4%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 10: SW 124th Avenue & SW Leveton Drive

06/28/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (veh/h)	21	15	16	81	2	225	5	648	21	48	421	6
Future Volume (veh/h)	21	15	16	81	2	225	5	648	21	48	421	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1159	1870	1011	1870	1678	1767	1826	1648
Adj Flow Rate, veh/h	23	16	18	89	2	247	5	712	23	53	463	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	7	2	50	2	60	2	15	9	5	17
Cap, veh/h	319	219	246	655	2	302	313	1126	36	366	1252	19
Arrive On Green	0.04	0.27	0.25	0.08	0.31	0.29	0.03	0.32	0.30	0.06	0.36	0.34
Sat Flow, veh/h	1781	804	904	1781	8	976	963	3513	113	1682	3498	53
Grp Volume(v), veh/h	23	0	34	89	0	249	5	360	375	53	229	241
Grp Sat Flow(s),veh/h/ln	1781	0	1708	1781	0	983	963	1777	1850	1682	1735	1816
Q Serve(g_s), s	0.4	0.0	0.7	1.5	0.0	10.8	0.2	7.9	7.9	0.9	4.5	4.5
Cycle Q Clear(g_c), s	0.4	0.0	0.7	1.5	0.0	10.8	0.2	7.9	7.9	0.9	4.5	4.5
Prop In Lane	1.00		0.53	1.00		0.99	1.00		0.06	1.00		0.03
Lane Grp Cap(c), veh/h	319	0	465	655	0	304	313	569	593	366	621	650
V/C Ratio(X)	0.07	0.00	0.07	0.14	0.00	0.82	0.02	0.63	0.63	0.14	0.37	0.37
Avail Cap(c_a), veh/h	628	0	707	899	0	407	496	736	766	624	718	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	12.6	9.6	0.0	15.1	9.9	13.3	13.3	9.4	10.9	10.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	8.4	0.0	0.9	0.8	0.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.5	0.0	2.7	0.0	2.4	2.5	0.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	12.6	9.7	0.0	23.5	9.9	14.2	14.2	9.5	11.2	11.2
LnGrp LOS	B	A	B	A	A	C	A	B	B	A	B	B
Approach Vol, veh/h		57			338			740			523	
Approach Delay, s/veh		12.3			19.9			14.1			11.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	17.7	6.7	15.5	4.2	19.4	5.0	17.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	18.0	9.0	18.0	9.0	18.0	9.0	18.0				
Max Q Clear Time (g_c+I1), s	2.9	9.9	3.5	2.7	2.2	6.5	2.4	12.8				
Green Ext Time (p_c), s	0.0	3.8	0.1	0.1	0.0	3.0	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

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	58	9	38	287	2	22	3	13	0	2	13
Future Vol, veh/h	6	58	9	38	287	2	22	3	13	0	2	13
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	2	6	11	2	2	2	5	2	25	2	2	2
Mvmt Flow	8	78	12	51	388	3	30	4	18	0	3	18
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	8.1	11.6	8.5	7.8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	8%	12%	0%
Vol Thru, %	8%	79%	88%	13%
Vol Right, %	34%	12%	1%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	73	327	15
LT Vol	22	6	38	0
Through Vol	3	58	287	2
RT Vol	13	9	2	13
Lane Flow Rate	51	99	442	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.073	0.123	0.51	0.026
Departure Headway (Hd)	5.116	4.506	4.154	4.68
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	704	798	853	768
Service Time	3.123	2.517	2.254	2.691
HCM Lane V/C Ratio	0.072	0.124	0.518	0.026
HCM Control Delay	8.5	8.1	11.6	7.8
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.4	3	0.1

HCM 6th TWSC
 12: SW Leveton Drive & West Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	1	69	322	0	2	0
Future Vol, veh/h	1	69	322	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	10	10	2	2	3	2
Mvmt Flow	1	91	424	0	3	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	424	0	-	0	517 424
Stage 1	-	-	-	-	424 -
Stage 2	-	-	-	-	93 -
Critical Hdwy	4.2	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.29	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1094	-	-	-	517 630
Stage 1	-	-	-	-	658 -
Stage 2	-	-	-	-	928 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1094	-	-	-	516 630
Mov Cap-2 Maneuver	-	-	-	-	516 -
Stage 1	-	-	-	-	657 -
Stage 2	-	-	-	-	928 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1094	-	-	-	516	-
HCM Lane V/C Ratio	0.001	-	-	-	0.005	-
HCM Control Delay (s)	8.3	0	-	-	12	0
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-

HCM 6th TWSC
 13: SW Leveton Drive & Center Leveton Access

06/28/2024

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	19	66	217	18	84	100
Future Vol, veh/h	19	66	217	18	84	100
Conflicting Peds, #/hr	15	0	0	15	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	77	77	77	77	77	77
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	25	86	282	23	109	130

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	320	0	-	0	445 309
Stage 1	-	-	-	-	309 -
Stage 2	-	-	-	-	136 -
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	1240	-	-	-	571 731
Stage 1	-	-	-	-	745 -
Stage 2	-	-	-	-	890 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1222	-	-	-	544 721
Mov Cap-2 Maneuver	-	-	-	-	544 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	878 -

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1222	-	-	-	544	721
HCM Lane V/C Ratio	0.02	-	-	-	0.201	0.18
HCM Control Delay (s)	8	0	-	-	13.3	11.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0.7

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	146	8	6	185	0	27	0	14	0	0	0
Future Vol, veh/h	0	146	8	6	185	0	27	0	14	0	0	0
Conflicting Peds, #/hr	15	0	4	4	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	3	2	2	3	2	2	2	2	2	2	2
Mvmt Flow	0	195	11	8	247	0	36	0	19	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	210	0	0	468	483	205	488	488	262
Stage 1	-	-	-	-	-	-	205	205	-	278	278	-
Stage 2	-	-	-	-	-	-	263	278	-	210	210	-
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	1302	-	-	1361	-	-	505	483	836	490	480	777
Stage 1	-	-	-	-	-	-	797	732	-	728	680	-
Stage 2	-	-	-	-	-	-	742	680	-	792	728	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1283	-	-	1356	-	-	500	471	833	469	468	766
Mov Cap-2 Maneuver	-	-	-	-	-	-	500	471	-	469	468	-
Stage 1	-	-	-	-	-	-	794	729	-	718	666	-
Stage 2	-	-	-	-	-	-	737	666	-	774	725	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			11.9			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	579	1283	-	-	1356	-	-	-
HCM Lane V/C Ratio	0.094	-	-	-	0.006	-	-	-
HCM Control Delay (s)	11.9	0	-	-	7.7	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

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

06/28/2024

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	23	159	32	52	166	132
Future Vol, veh/h	23	159	32	52	166	132
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	6	2	3	9	7	2
Mvmt Flow	30	206	42	68	216	171

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	455	303	388	0	-	0
Stage 1	303	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.46	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	556	737	1165	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	534	736	1164	-	-	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	712	-	-	-	-	-
Stage 2	865	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	3.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1164	-	702	-	-
HCM Lane V/C Ratio	0.036	-	0.337	-	-
HCM Control Delay (s)	8.2	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.5	-	-

HCM Signalized Intersection Capacity Analysis

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	320	464	77	315	21
Future Volume (vph)	7	320	464	77	315	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.6	2.6	2.6		1.5	1.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	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)	1570	1776	1736		1770	1524
Flt Permitted	0.23	1.00	1.00		0.95	1.00
Satd. Flow (perm)	375	1776	1736		1770	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	348	504	84	342	23
RTOR Reduction (vph)	0	0	8	0	0	15
Lane Group Flow (vph)	8	348	580	0	342	8
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	15%	7%	7%	7%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	24.6	24.6	19.7		12.3	12.3
Effective Green, g (s)	26.0	26.0	21.1		14.8	14.8
Actuated g/C Ratio	0.58	0.58	0.47		0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	278	1028	815		583	502
v/s Ratio Prot	0.00	c0.20	c0.33		c0.19	0.00
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.34	0.71		0.59	0.02
Uniform Delay, d1	5.5	4.9	9.5		12.5	10.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	2.7		1.3	0.0
Delay (s)	5.5	5.1	12.2		13.8	10.1
Level of Service	A	A	B		B	B
Approach Delay (s)		5.1	12.2		13.5	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			44.9		Sum of lost time (s)	6.7
Intersection Capacity Utilization			53.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

16: SW Herman Road & SW 108th Avenue

06/28/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	320	464	77	315	21
Future Volume (veh/h)	7	320	464	77	315	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1678	1796	1796	1796	1870	1811
Adj Flow Rate, veh/h	8	348	504	84	342	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	7	7	7	2	6
Cap, veh/h	409	1043	694	116	551	475
Arrive On Green	0.05	0.58	0.46	0.43	0.31	0.31
Sat Flow, veh/h	1598	1796	1496	249	1781	1535
Grp Volume(v), veh/h	8	348	0	588	342	23
Grp Sat Flow(s),veh/h/ln	1598	1796	0	1745	1781	1535
Q Serve(g_s), s	0.1	3.7	0.0	10.2	6.1	0.4
Cycle Q Clear(g_c), s	0.1	3.7	0.0	10.2	6.1	0.4
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	409	1043	0	810	551	475
V/C Ratio(X)	0.02	0.33	0.00	0.73	0.62	0.05
Avail Cap(c_a), veh/h	783	1043	0	911	983	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	4.1	0.0	8.1	11.0	9.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	2.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	2.9	1.8	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	4.2	0.0	10.5	11.8	9.0
LnGrp LOS	A	A	A	B	B	A
Approach Vol, veh/h		356	588		365	
Approach Delay, s/veh		4.2	10.5		11.6	
Approach LOS		A	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.2		13.0	4.3	19.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0		18.0	9.0	18.0
Max Q Clear Time (g_c+I1), s		5.7		8.1	2.1	12.2
Green Ext Time (p_c), s		4.0		1.1	0.0	3.7
Intersection Summary						
HCM 6th Ctrl Delay			9.1			
HCM 6th LOS			A			

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

06/28/2024

Intersection

Int Delay, s/veh 4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	378	106	45	756	157	70
Future Vol, veh/h	378	106	45	756	157	70
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	7	2	3	6
Mvmt Flow	415	116	49	831	173	77

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	532
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.17
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.263
Pot Cap-1 Maneuver	-	-	1011
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1010
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	31.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	269	581	-	-	1010	-
HCM Lane V/C Ratio	0.641	0.132	-	-	0.049	-
HCM Control Delay (s)	39.5	12.1	-	-	8.7	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	4	0.5	-	-	0.2	-

Notes

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

Intersection						
Int Delay, s/veh	11.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	12	0	0	290	21
Future Vol, veh/h	10	12	0	0	290	21
Conflicting Peds, #/hr	0	43	43	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	13	3	2	11
Mvmt Flow	14	16	0	0	392	28

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	73	0	66
Stage 1	-	-	-	-	65
Stage 2	-	-	-	-	1
Critical Hdwy	-	-	4.23	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.317	-	3.518
Pot Cap-1 Maneuver	-	-	1460	-	939
Stage 1	-	-	-	-	958
Stage 2	-	-	-	-	1022
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-	901
Mov Cap-2 Maneuver	-	-	-	-	901
Stage 1	-	-	-	-	919
Stage 2	-	-	-	-	1022

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	903	-	-	1400	-
HCM Lane V/C Ratio	0.465	-	-	-	-
HCM Control Delay (s)	12.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	2.5	-	-	0	-

HCM 6th TWSC
 19: Pacific Hwy W & SW Hazelbrook Rd

06/28/2024

Intersection						
Int Delay, s/veh	57.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗	↗		↗↗
Traffic Vol, veh/h	0	386	1726	25	0	0
Future Vol, veh/h	0	386	1726	25	0	0
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	300	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	4	2	2
Mvmt Flow	0	420	1876	27	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	939	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-
Pot Cap-1 Maneuver	0 ~ 263	-	-	0	-
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	- ~ 263	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	319.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 263	-
HCM Lane V/C Ratio	-	- 1.595	-
HCM Control Delay (s)	-	- \$ 319.3	-
HCM Lane LOS	-	- F	-
HCM 95th %tile Q(veh)	-	- 25.7	-

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

HCM Signalized Intersection Capacity Analysis

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	369	391	44	348	22	311	249	38	29	127	15
Future Volume (vph)	6	369	391	44	348	22	311	249	38	29	127	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1719		1770	1846		1770	1826		1770	1834	
Flt Permitted	0.46	1.00		0.09	1.00		0.42	1.00		0.57	1.00	
Satd. Flow (perm)	848	1719		170	1846		775	1826		1063	1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	401	425	48	378	24	338	271	41	32	138	16
RTOR Reduction (vph)	0	43	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	7	783	0	48	399	0	338	306	0	32	150	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	42.9	42.0		46.7	43.9		29.9	23.1		15.5	12.7	
Effective Green, g (s)	42.9	42.0		46.7	43.9		29.9	23.1		15.5	12.7	
Actuated g/C Ratio	0.48	0.47		0.52	0.49		0.34	0.26		0.17	0.14	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	417	809		139	908		407	472		206	261	
v/s Ratio Prot	0.00	c0.46		c0.01	0.22		c0.12	0.17		0.00	0.08	
v/s Ratio Perm	0.01			0.17			c0.16			0.02		
v/c Ratio	0.02	0.97		0.35	0.44		0.83	0.65		0.16	0.57	
Uniform Delay, d1	12.2	22.9		18.2	14.7		25.0	29.4		31.0	35.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	23.7		1.1	0.2		13.2	2.7		0.3	2.5	
Delay (s)	12.3	46.6		19.3	14.9		38.2	32.1		31.3	38.2	
Level of Service	B	D		B	B		D	C		C	D	
Approach Delay (s)		46.3			15.4			35.3			37.0	
Approach LOS		D			B			D			D	

Intersection Summary

HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	18.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary

20: SW Teton Avenue & SW Herman Road

07/01/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	369	391	44	348	22	311	249	38	29	127	15
Future Volume (veh/h)	6	369	391	44	348	22	311	249	38	29	127	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	401	425	48	378	24	338	271	41	32	138	16
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	480	409	433	163	908	58	382	364	55	211	186	22
Arrive On Green	0.01	0.49	0.49	0.04	0.52	0.52	0.15	0.23	0.23	0.03	0.11	0.11
Sat Flow, veh/h	1781	831	881	1781	1740	110	1781	1587	240	1781	1645	191
Grp Volume(v), veh/h	7	0	826	48	0	402	338	0	312	32	0	154
Grp Sat Flow(s),veh/h/ln	1781	0	1712	1781	0	1850	1781	0	1827	1781	0	1836
Q Serve(g_s), s	0.2	0.0	41.9	1.1	0.0	11.7	13.0	0.0	14.0	1.4	0.0	7.2
Cycle Q Clear(g_c), s	0.2	0.0	41.9	1.1	0.0	11.7	13.0	0.0	14.0	1.4	0.0	7.2
Prop In Lane	1.00		0.51	1.00		0.06	1.00		0.13	1.00		0.10
Lane Grp Cap(c), veh/h	480	0	842	163	0	966	382	0	419	211	0	208
V/C Ratio(X)	0.01	0.00	0.98	0.29	0.00	0.42	0.88	0.00	0.74	0.15	0.00	0.74
Avail Cap(c_a), veh/h	565	0	842	194	0	966	382	0	419	257	0	208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	22.1	20.5	0.0	12.9	29.7	0.0	31.7	33.1	0.0	38.0
Incr Delay (d2), s/veh	0.0	0.0	26.3	0.7	0.0	0.2	20.7	0.0	6.8	0.2	0.0	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	21.5	0.5	0.0	4.6	8.3	0.0	6.8	0.6	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	0.0	48.4	21.3	0.0	13.1	50.4	0.0	38.5	33.3	0.0	50.7
LnGrp LOS	B	A	D	C	A	B	D	A	D	C	A	D
Approach Vol, veh/h		833			450			650				186
Approach Delay, s/veh		48.1			14.0			44.7				47.7
Approach LOS		D			B			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	49.0	17.0	15.0	4.8	51.7	6.7	25.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.0	4.0	5.5	4.0	5.0				
Max Green Setting (Gmax), s	5.0	43.5	13.0	10.0	5.0	43.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.1	43.9	15.0	9.2	2.2	13.7	3.4	16.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

APPENDIX I.
**MITIGATED
OPERATIONS
CALCULATIONS**

HCM Signalized Intersection Capacity Analysis

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	706	183	76	226	132	16	4	11	41	2	30
Future Volume (vph)	64	706	183	76	226	132	16	4	11	41	2	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	0.94		1.00	0.89			0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1751	1786		1719	1644		1570	1509			1566	
Flt Permitted	0.52	1.00		0.12	1.00		0.78	1.00			0.82	
Satd. Flow (perm)	955	1786		211	1644		1288	1509			1315	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	767	199	83	246	143	17	4	12	45	2	33
RTOR Reduction (vph)	0	9	0	0	19	0	0	11	0	0	29	0
Lane Group Flow (vph)	70	957	0	83	370	0	17	5	0	0	51	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	3%	2%	5%	5%	9%	7%	15%	2%	15%	10%	2%	14%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			6				2
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	46.8	42.6		50.0	44.2		8.1	8.1				8.1
Effective Green, g (s)	46.8	42.6		50.0	44.2		8.1	8.1				8.1
Actuated g/C Ratio	0.68	0.62		0.73	0.65		0.12	0.12				0.12
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0				4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5				2.5
Lane Grp Cap (vph)	701	1110		281	1060		152	178				155
v/s Ratio Prot	0.01	c0.54		c0.02	0.22			0.00				
v/s Ratio Perm	0.06			0.19			0.01					c0.04
v/c Ratio	0.10	0.86		0.30	0.35		0.11	0.03				0.33
Uniform Delay, d1	3.6	10.6		9.1	5.6		27.0	26.7				27.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00				1.00
Incremental Delay, d2	0.0	7.0		0.4	0.1		0.2	0.1				0.9
Delay (s)	3.6	17.6		9.6	5.7		27.2	26.8				28.6
Level of Service	A	B		A	A		C	C				C
Approach Delay (s)		16.6			6.4			27.0				28.6
Approach LOS		B			A			C				C

Intersection Summary		
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	B
Actuated Cycle Length (s)	68.5	Sum of lost time (s)
Intersection Capacity Utilization	73.4%	12.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	706	183	76	226	132	16	4	11	41	2	30
Future Volume (veh/h)	64	706	183	76	226	132	16	4	11	41	2	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1826	1826	1767	1796	1678	1870	1678	1752	1870	1693
Adj Flow Rate, veh/h	70	767	199	83	246	143	17	4	12	45	2	33
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
Percent Heavy Veh, %	3	2	5	5	9	7	15	2	15	10	2	14
Cap, veh/h	728	883	229	334	649	377	273	38	115	179	13	58
Arrive On Green	0.05	0.62	0.62	0.05	0.62	0.62	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1767	1425	370	1739	1038	604	1232	412	1236	745	140	621
Grp Volume(v), veh/h	70	0	966	83	0	389	17	0	16	80	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1794	1739	0	1642	1232	0	1648	1506	0	0
Q Serve(g_s), s	0.7	0.0	22.8	0.8	0.0	6.0	0.0	0.0	0.5	2.1	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	22.8	0.8	0.0	6.0	0.5	0.0	0.5	2.6	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.37	1.00		0.75	0.56		0.41
Lane Grp Cap(c), veh/h	728	0	1112	334	0	1026	273	0	154	250	0	0
V/C Ratio(X)	0.10	0.00	0.87	0.25	0.00	0.38	0.06	0.00	0.10	0.32	0.00	0.00
Avail Cap(c_a), veh/h	950	0	1776	544	0	1625	588	0	576	628	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.3	0.0	8.1	8.8	0.0	4.8	21.4	0.0	21.4	22.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.4	0.3	0.0	0.2	0.1	0.0	0.2	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	5.6	0.3	0.0	1.2	0.2	0.0	0.2	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	0.0	10.5	9.1	0.0	4.9	21.5	0.0	21.6	22.9	0.0	0.0
LnGrp LOS	A	A	B	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		1036			472			33				80
Approach Delay, s/veh		10.0			5.7			21.5				22.9
Approach LOS		A			A			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.8	6.5	36.2		8.8	6.8	35.9				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	51.0		18.0	9.0	51.0				
Max Q Clear Time (g_c+I1), s		4.6	2.7	8.0		2.5	2.8	24.8				
Green Ext Time (p_c), s		0.2	0.0	2.2		0.1	0.1	7.1				
Intersection Summary												
HCM 6th Ctrl Delay			9.6									
HCM 6th LOS			A									

HCM Signalized Intersection Capacity Analysis

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	383	16	18	626	250	129	37	78	21	2	23
Future Volume (vph)	49	383	16	18	626	250	129	37	78	21	2	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.90			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1850		1770	1768		1766	1550			1545	
Flt Permitted	0.13	1.00		0.48	1.00		0.73	1.00			0.85	
Satd. Flow (perm)	251	1850		901	1768		1349	1550			1348	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	403	17	19	659	263	136	39	82	22	2	24
RTOR Reduction (vph)	0	1	0	0	14	0	0	67	0	0	20	0
Lane Group Flow (vph)	52	419	0	19	908	0	136	54	0	0	28	0
Confl. Peds. (#/hr)	4					4	1					1
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	14%	5%	2%	17%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			6				2
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	47.5	44.6		45.1	43.4		12.6	12.6				12.6
Effective Green, g (s)	47.5	44.6		45.1	43.4		12.6	12.6				12.6
Actuated g/C Ratio	0.67	0.63		0.64	0.61		0.18	0.18				0.18
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0				4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5				2.5
Lane Grp Cap (vph)	230	1163		593	1082		239	275				239
v/s Ratio Prot	c0.01	0.23		0.00	c0.51			0.03				
v/s Ratio Perm	0.14			0.02			c0.10					0.02
v/c Ratio	0.23	0.36		0.03	0.84		0.57	0.19				0.12
Uniform Delay, d1	9.2	6.3		4.8	11.0		26.7	24.8				24.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00				1.00
Incremental Delay, d2	0.4	0.1		0.0	5.7		2.5	0.3				0.2
Delay (s)	9.6	6.4		4.8	16.7		29.2	25.1				24.6
Level of Service	A	A		A	B		C	C				C
Approach Delay (s)		6.8			16.5			27.3				24.6
Approach LOS		A			B			C				C

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

HCM 6th Signalized Intersection Summary

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	383	16	18	626	250	129	37	78	21	2	23
Future Volume (veh/h)	49	383	16	18	626	250	129	37	78	21	2	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1693	1826	1870	1648
Adj Flow Rate, veh/h	52	403	17	19	659	263	136	39	82	22	2	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	14	5	2	17
Cap, veh/h	313	1116	47	669	763	305	340	68	143	138	37	75
Arrive On Green	0.04	0.63	0.63	0.02	0.61	0.61	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	1780	75	1781	1261	503	1381	536	1127	302	290	592
Grp Volume(v), veh/h	52	0	420	19	0	922	136	0	121	48	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	0	1765	1381	0	1662	1185	0	0
Q Serve(g_s), s	0.6	0.0	5.8	0.2	0.0	22.8	0.2	0.0	3.6	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	5.8	0.2	0.0	22.8	3.9	0.0	3.6	3.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.29	1.00		0.68	0.46		0.50
Lane Grp Cap(c), veh/h	313	0	1163	669	0	1068	340	0	212	250	0	0
V/C Ratio(X)	0.17	0.00	0.36	0.03	0.00	0.86	0.40	0.00	0.57	0.19	0.00	0.00
Avail Cap(c_a), veh/h	545	0	2141	940	0	2037	634	0	566	555	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.8	0.0	4.7	4.0	0.0	8.6	21.8	0.0	21.7	20.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.0	0.0	1.7	0.6	0.0	1.8	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.3	0.0	0.0	5.7	1.5	0.0	1.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	0.0	4.9	4.0	0.0	10.3	22.4	0.0	23.5	21.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	B	C	A	C	C	A	A
Approach Vol, veh/h		472			941			257				48
Approach Delay, s/veh		5.3			10.2			22.9				21.0
Approach LOS		A			B			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.7	6.1	36.0		10.7	5.0	37.1				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	61.0		18.0	9.0	61.0				
Max Q Clear Time (g_c+I1), s		5.7	2.6	24.8		5.9	2.2	7.8				
Green Ext Time (p_c), s		0.1	0.0	7.1		0.7	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				11.0								
HCM 6th LOS				B								

HCM Signalized Intersection Capacity Analysis

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	726	220	97	233	136	21	6	15	42	2	31
Future Volume (vph)	66	726	220	97	233	136	21	6	15	42	2	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	0.94		1.00	0.90			0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1751	1776		1719	1644		1570	1532			1565	
Flt Permitted	0.51	1.00		0.10	1.00		0.75	1.00			0.81	
Satd. Flow (perm)	945	1776		183	1644		1235	1532			1309	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	789	239	105	253	148	23	7	16	46	2	34
RTOR Reduction (vph)	0	10	0	0	18	0	0	14	0	0	27	0
Lane Group Flow (vph)	72	1018	0	105	383	0	23	9	0	0	55	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	3%	2%	5%	5%	9%	7%	15%	2%	15%	10%	2%	14%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	53.8	49.5		57.6	51.4		8.7	8.7			8.7	
Effective Green, g (s)	53.8	49.5		57.6	51.4		8.7	8.7			8.7	
Actuated g/C Ratio	0.70	0.65		0.75	0.67		0.11	0.11			0.11	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5			2.5	
Lane Grp Cap (vph)	710	1150		262	1106		140	174			149	
v/s Ratio Prot	0.01	c0.57		c0.03	0.23			0.01				
v/s Ratio Perm	0.07			0.27			0.02				c0.04	
v/c Ratio	0.10	0.89		0.40	0.35		0.16	0.05			0.37	
Uniform Delay, d1	3.5	11.1		11.7	5.3		30.6	30.2			31.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	8.4		0.7	0.1		0.4	0.1			1.1	
Delay (s)	3.5	19.5		12.5	5.5		31.0	30.3			32.4	
Level of Service	A	B		B	A		C	C			C	
Approach Delay (s)		18.4			6.9			30.6				32.4
Approach LOS		B			A			C				C

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	726	220	97	233	136	21	6	15	42	2	31
Future Volume (veh/h)	66	726	220	97	233	136	21	6	15	42	2	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1826	1826	1767	1796	1678	1870	1678	1752	1870	1693
Adj Flow Rate, veh/h	72	789	239	105	253	148	23	7	16	46	2	34
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
Percent Heavy Veh, %	3	2	5	5	9	7	15	2	15	10	2	14
Cap, veh/h	740	891	270	312	683	399	254	46	106	160	14	56
Arrive On Green	0.05	0.65	0.65	0.06	0.66	0.66	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1767	1370	415	1739	1036	606	1231	506	1156	711	149	610
Grp Volume(v), veh/h	72	0	1028	105	0	401	23	0	23	82	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1785	1739	0	1642	1231	0	1662	1470	0	0
Q Serve(g_s), s	0.8	0.0	28.1	1.1	0.0	6.5	0.0	0.0	0.8	2.4	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	28.1	1.1	0.0	6.5	0.8	0.0	0.8	3.2	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.37	1.00		0.70	0.56		0.41
Lane Grp Cap(c), veh/h	740	0	1161	312	0	1082	254	0	152	229	0	0
V/C Ratio(X)	0.10	0.00	0.89	0.34	0.00	0.37	0.09	0.00	0.15	0.36	0.00	0.00
Avail Cap(c_a), veh/h	926	0	1839	480	0	1691	515	0	505	543	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	8.5	11.0	0.0	4.6	24.8	0.0	24.8	25.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.9	0.5	0.0	0.2	0.1	0.0	0.3	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	7.3	0.7	0.0	1.4	0.3	0.0	0.3	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	0.0	11.5	11.5	0.0	4.7	24.9	0.0	25.1	26.6	0.0	0.0
LnGrp LOS	A	A	B	B	A	A	C	A	C	C	A	A
Approach Vol, veh/h		1100			506			46			82	
Approach Delay, s/veh		10.9			6.1			25.0			26.6	
Approach LOS		B			A			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.4	6.8	43.0		9.4	7.3	42.5				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	61.0		18.0	9.0	61.0				
Max Q Clear Time (g_c+I1), s		5.2	2.8	8.5		2.8	3.1	30.1				
Green Ext Time (p_c), s		0.2	0.0	2.3		0.1	0.1	8.4				
Intersection Summary												
HCM 6th Ctrl Delay			10.6									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	394	21	21	644	257	158	45	99	22	2	24
Future Volume (vph)	50	394	21	21	644	257	158	45	99	22	2	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.90			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1847		1770	1768		1766	1545			1545	
Flt Permitted	0.12	1.00		0.47	1.00		0.82	1.00			0.85	
Satd. Flow (perm)	230	1847		871	1768		1522	1545			1337	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	415	22	22	678	271	166	47	104	23	2	25
RTOR Reduction (vph)	0	2	0	0	14	0	0	71	0	0	20	0
Lane Group Flow (vph)	53	435	0	22	935	0	166	80	0	0	30	0
Confl. Peds. (#/hr)	4					4	1					1
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	14%	5%	2%	17%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			6				2
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	52.5	49.6		50.1	48.4		14.7	14.7				14.7
Effective Green, g (s)	52.5	49.6		50.1	48.4		14.7	14.7				14.7
Actuated g/C Ratio	0.67	0.64		0.64	0.62		0.19	0.19				0.19
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0				4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5				2.5
Lane Grp Cap (vph)	212	1174		579	1097		286	291				251
v/s Ratio Prot	c0.01	0.24		0.00	c0.53			0.05				
v/s Ratio Perm	0.16			0.02			c0.11					0.02
v/c Ratio	0.25	0.37		0.04	0.85		0.58	0.28				0.12
Uniform Delay, d1	10.7	6.8		5.2	11.9		28.8	27.1				26.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00				1.00
Incremental Delay, d2	0.5	0.1		0.0	6.5		2.5	0.4				0.2
Delay (s)	11.2	6.9		5.2	18.4		31.3	27.5				26.4
Level of Service	B	A		A	B		C	C				C
Approach Delay (s)		7.4			18.1			29.5				26.4
Approach LOS		A			B			C				C

Intersection Summary

HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: Quakenbush Lane/SW 115th Avenue & SW Tualatin Road

06/24/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	394	21	21	644	257	158	45	99	22	2	24
Future Volume (veh/h)	50	394	21	21	644	257	158	45	99	22	2	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1693	1826	1870	1648
Adj Flow Rate, veh/h	53	415	22	22	678	271	166	47	104	23	2	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	14	5	2	17
Cap, veh/h	277	1104	59	640	769	307	339	82	181	133	35	83
Arrive On Green	0.04	0.63	0.63	0.02	0.61	0.61	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	1758	93	1781	1261	504	1380	517	1143	303	221	524
Grp Volume(v), veh/h	53	0	437	22	0	949	166	0	151	50	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1851	1781	0	1765	1380	0	1660	1048	0	0
Q Serve(g_s), s	0.7	0.0	7.1	0.3	0.0	28.2	1.6	0.0	5.2	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	7.1	0.3	0.0	28.2	6.9	0.0	5.2	5.3	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.29	1.00		0.69	0.46		0.50
Lane Grp Cap(c), veh/h	277	0	1163	640	0	1076	339	0	263	251	0	0
V/C Ratio(X)	0.19	0.00	0.38	0.03	0.00	0.88	0.49	0.00	0.57	0.20	0.00	0.00
Avail Cap(c_a), veh/h	466	0	2116	862	0	2018	521	0	481	436	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	0.0	5.6	4.6	0.0	10.2	24.9	0.0	24.2	22.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.0	0.0	1.9	0.8	0.0	1.5	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.9	0.1	0.0	8.0	2.3	0.0	2.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	5.8	4.6	0.0	12.2	25.7	0.0	25.7	23.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	C	C	A	A
Approach Vol, veh/h		490			971			317				50
Approach Delay, s/veh		6.4			12.0			25.7				23.0
Approach LOS		A			B			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.8	6.4	41.9		13.8	5.3	43.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	9.0	71.0		18.0	9.0	71.0				
Max Q Clear Time (g_c+I1), s		7.3	2.7	30.2		8.9	2.3	9.1				
Green Ext Time (p_c), s		0.1	0.0	7.7		0.8	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.2								
HCM 6th LOS				B								

APPENDIX J.
QUEUING ANALYSIS

Queuing and Blocking Report
2024 Existing

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R
Maximum Queue (ft)	628	618	385	815	816	627	590	118	124	27
Average Queue (ft)	307	286	204	555	378	201	189	40	39	1
95th Queue (ft)	497	480	357	873	803	685	603	91	90	20
Link Distance (ft)	1307	1307						485	485	
Upstream Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			225	700	700					300
Storage Blk Time (%)		14	6	19	13	6				
Queuing Penalty (veh)		82	38	92	63	63				

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)	77	87	66	125	83	290	238	81
Average Queue (ft)	27	42	18	45	27	140	16	19
95th Queue (ft)	64	74	52	99	62	255	101	60
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				0	0	3		
Queuing Penalty (veh)				0	0	11		

Queuing and Blocking Report
2024 Existing

07/01/2024

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	48	66	61	80
Average Queue (ft)	15	4	10	39
95th Queue (ft)	43	30	45	74
Link Distance (ft)			373	667
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	50		
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	1	1		

Network Summary

Network wide Queuing Penalty: 2

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	16	57
Average Queue (ft)	0	19
95th Queue (ft)	5	47
Link Distance (ft)		220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	55	44
Average Queue (ft)	15	5
95th Queue (ft)	44	25
Link Distance (ft)		276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Intersection: 7: SW 108th Avenue

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: 8: SW 108th Avenue & Center 108th 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: 9: SW 108th Avenue & South 108th 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: 10: 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)	30	113	66	68	52	53	111	90	94	108
Average Queue (ft)	5	46	8	23	14	13	48	41	24	38
95th Queue (ft)	22	81	39	55	41	42	99	73	70	84
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0							0	
Queuing Penalty (veh)		0							0	

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	81	67	65	48
Average Queue (ft)	48	20	18	5
95th Queue (ft)	72	52	50	25
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	45	14	36	65
Average Queue (ft)	12	0	4	14
95th Queue (ft)	39	6	23	47
Link Distance (ft)	1022	849	565	565
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	30	6	24	31
Average Queue (ft)	2	0	2	4
95th Queue (ft)	13	4	15	21
Link Distance (ft)	849	355	498	498
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	61	12	61
Average Queue (ft)	9	1	6
95th Queue (ft)	39	8	32
Link Distance (ft)	355	204	306
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	74	57
Average Queue (ft)	33	9
95th Queue (ft)	57	34
Link Distance (ft)	570	808
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	61	122	135	83	45
Average Queue (ft)	8	30	37	28	8
95th Queue (ft)	36	86	96	63	32
Link Distance (ft)		1338	1027		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	48	75	105	126
Average Queue (ft)	3	30	50	39
95th Queue (ft)	25	63	92	85
Link Distance (ft)	941	827		1693
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			16	3
Queuing Penalty (veh)			9	3

Intersection: 18: SW 115th Avenue & SW Hazelbrook Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	124
Average Queue (ft)	48
95th Queue (ft)	84
Link Distance (ft)	1340
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Road

Movement	WB
Directions Served	R
Maximum Queue (ft)	202
Average Queue (ft)	76
95th Queue (ft)	146
Link Distance (ft)	1299
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
 2024 Existing

06/28/2024

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	127	408	132	200	138	189	99	184
Average Queue (ft)	7	196	33	92	77	53	11	91
95th Queue (ft)	55	351	80	160	135	130	49	162
Link Distance (ft)		1027		931		528		1693
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		24	0	5	14	3	0	22
Queuing Penalty (veh)		2	0	3	23	7	1	4

Zone Summary

Zone wide Queuing Penalty: 405

Queuing and Blocking Report
2024 Existing

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	352	309	136	282	258	279	272	312	298	177	212
Average Queue (ft)	223	192	53	190	158	163	165	177	187	49	87
95th Queue (ft)	312	277	99	269	246	246	247	276	278	168	223
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		3							1		
Queuing Penalty (veh)		7							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)	91	451	288	418	238	287	199	137
Average Queue (ft)	33	194	129	202	41	132	28	33
95th Queue (ft)	72	348	228	335	150	260	126	107
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		2		22		4	0	
Queuing Penalty (veh)		1		11		8	0	

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	76	6	18	16	46	73
Average Queue (ft)	25	0	1	1	9	27
95th Queue (ft)	60	4	11	6	34	61
Link Distance (ft)		480		800	373	1343
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	2		0			
Queuing Penalty (veh)	7		0			

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	31	6	32	39
Average Queue (ft)	7	0	2	10
95th Queue (ft)	28	5	16	34
Link Distance (ft)		800	1069	220
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	67
Average Queue (ft)	4	27
95th Queue (ft)	20	53
Link Distance (ft)		276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 7: SW 108th Avenue & North 108th 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)

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 8: SW 108th Avenue & Center 108th 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: 9: SW 108th Avenue & South 108th 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: 10: 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)	42	62	53	102	51	123	187	68	137	146
Average Queue (ft)	10	17	22	56	4	51	69	17	37	57
95th Queue (ft)	33	47	50	90	27	95	132	48	98	116
Link Distance (ft)		1001		1233		590	590		1034	1034
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: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	83	60	40
Average Queue (ft)	27	44	22	12
95th Queue (ft)	52	68	49	34
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	34	85	82
Average Queue (ft)	2	33	43
95th Queue (ft)	15	62	69
Link Distance (ft)	1022	565	565
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	24	45	57
Average Queue (ft)	1	16	21
95th Queue (ft)	11	43	47
Link Distance (ft)	849	498	498
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	35	72
Average Queue (ft)	6	32
95th Queue (ft)	25	57
Link Distance (ft)	204	306
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	63	34
Average Queue (ft)	37	2
95th Queue (ft)	56	15
Link Distance (ft)	570	808
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	36	127	190	124	62
Average Queue (ft)	5	58	90	63	13
95th Queue (ft)	24	106	159	107	41
Link Distance (ft)		1338	1026		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	15	76	124	212
Average Queue (ft)	1	16	76	62
95th Queue (ft)	7	51	128	180
Link Distance (ft)	941	827		1692
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			36	1
Queuing Penalty (veh)			24	2

Intersection: 18: SW 115th Avenue & SW Hazelbrook Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	79
Average Queue (ft)	47
95th Queue (ft)	70
Link Distance (ft)	1343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Rd

Movement	WB
Directions Served	R
Maximum Queue (ft)	445
Average Queue (ft)	199
95th Queue (ft)	385
Link Distance (ft)	1292
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2024 Existing

06/28/2024

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	127	360	88	205	139	228	78	170
Average Queue (ft)	7	189	24	100	91	90	14	53
95th Queue (ft)	55	341	61	174	147	191	45	116
Link Distance (ft)		1026		981		722		1692
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		25		6	17	9	0	9
Queuing Penalty (veh)		2		2	46	25	0	3

Zone Summary

Zone wide Queuing Penalty: 143

Queuing and Blocking Report
2027 Pre-Development

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R
Maximum Queue (ft)	653	706	425	839	894	796	751	106	113	82
Average Queue (ft)	364	352	283	699	629	453	414	46	48	3
95th Queue (ft)	572	591	454	980	1100	1130	1003	89	96	36
Link Distance (ft)	1307	1307						485	485	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			225	700	700					300
Storage Blk Time (%)		21	13	39	35	20				
Queuing Penalty (veh)		136	82	184	166	216				

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)	89	81	69	123	70	288	204	74
Average Queue (ft)	31	47	24	57	25	135	21	19
95th Queue (ft)	69	76	54	103	59	242	114	56
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				0		3		
Queuing Penalty (veh)				0		11		

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	59	19	43	4	51	108
Average Queue (ft)	18	1	4	0	4	40
95th Queue (ft)	49	14	24	3	25	77
Link Distance (ft)		243		1456	373	667
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	0		0			
Queuing Penalty (veh)	3		1			

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	25	44
Average Queue (ft)	1	18
95th Queue (ft)	10	46
Link Distance (ft)		220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	10	60	23	54
Average Queue (ft)	0	21	1	8
95th Queue (ft)	5	50	11	35
Link Distance (ft)	1069		941	276
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		1	0	
Queuing Penalty (veh)		2	0	

Intersection: 7: SW 108th Avenue

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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	12	36	39
Average Queue (ft)	0	12	7
95th Queue (ft)	6	36	30
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	18	31	36
Average Queue (ft)	1	6	3
95th Queue (ft)	9	25	19
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	30	110	68	63	46	59	162	131	81	101
Average Queue (ft)	4	52	10	26	13	18	63	57	24	41
95th Queue (ft)	21	89	43	54	39	49	123	101	66	80
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		1						0		
Queuing Penalty (veh)		0						0		

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	101	67	67	41
Average Queue (ft)	57	26	24	7
95th Queue (ft)	84	55	54	29
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	56	13	39	64
Average Queue (ft)	15	1	6	12
95th Queue (ft)	45	8	27	43
Link Distance (ft)	1022	849	565	565
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	52	22	24	31
Average Queue (ft)	6	1	1	4
95th Queue (ft)	28	8	12	22
Link Distance (ft)	849	355	498	498
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	29	35	39
Average Queue (ft)	2	11	3
95th Queue (ft)	18	36	20
Link Distance (ft)	570	204	306
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	110	62	10
Average Queue (ft)	57	13	0
95th Queue (ft)	93	41	5
Link Distance (ft)	570	808	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	56	147	184	77	50
Average Queue (ft)	8	41	60	33	10
95th Queue (ft)	35	108	141	63	36
Link Distance (ft)		1338	1027		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	33	67	116	123
Average Queue (ft)	3	28	51	42
95th Queue (ft)	17	61	99	86
Link Distance (ft)	941	827		1693
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			16	4
Queuing Penalty (veh)			9	3

Intersection: 18: SW 115th Avenue & SW Hazelbrook Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	102
Average Queue (ft)	47
95th Queue (ft)	79
Link Distance (ft)	1340
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Road

Movement	WB
Directions Served	R
Maximum Queue (ft)	163
Average Queue (ft)	78
95th Queue (ft)	144
Link Distance (ft)	1299
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	92	550	124	204	138	242	99	204
Average Queue (ft)	10	256	29	110	91	71	14	95
95th Queue (ft)	65	485	74	184	145	182	58	166
Link Distance (ft)		1027		931		528		1693
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		34	0	10	20	3	0	24
Queuing Penalty (veh)		3	0	6	33	9	0	5

Zone Summary

Zone wide Queuing Penalty: 867

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	342	325	172	316	267	253	241	316	317	228	251
Average Queue (ft)	232	209	66	196	160	165	156	204	209	95	133
95th Queue (ft)	318	303	126	285	247	241	230	288	291	231	261
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		5							0		0
Queuing Penalty (veh)		13							4		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)	330	483	188	293	164	239	95	76
Average Queue (ft)	57	236	87	160	26	120	11	14
95th Queue (ft)	224	447	154	256	85	208	52	51
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		12		15		1		
Queuing Penalty (veh)		5		7		3		

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	61	37	24	46	61	69
Average Queue (ft)	23	1	2	2	9	30
95th Queue (ft)	52	17	12	19	35	61
Link Distance (ft)		480		800	373	1343
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		50			
Storage Blk Time (%)	1	0	0	0		
Queuing Penalty (veh)	3	0	0	0		

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	31	29	34	34
Average Queue (ft)	5	1	2	9
95th Queue (ft)	24	16	18	32
Link Distance (ft)		800	1069	220
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	75
Average Queue (ft)	3	34
95th Queue (ft)	19	63
Link Distance (ft)		276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 7: SW 108th Avenue & North 108th 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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	31	77	24
Average Queue (ft)	7	38	1
95th Queue (ft)	29	63	10
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	31	58	25
Average Queue (ft)	7	23	1
95th Queue (ft)	28	52	9
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	38	41	62	110	25	92	175	70	85	98
Average Queue (ft)	14	15	34	60	2	42	72	26	27	45
95th Queue (ft)	38	40	57	98	16	82	135	58	67	84
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	57	123	63	35
Average Queue (ft)	31	57	21	11
95th Queue (ft)	50	97	51	32
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	36	4	87	111
Average Queue (ft)	3	0	36	47
95th Queue (ft)	20	3	65	82
Link Distance (ft)	1022	849	565	565
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	30	40	60
Average Queue (ft)	3	19	22
95th Queue (ft)	17	45	50
Link Distance (ft)	849	498	498
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	18	53
Average Queue (ft)	1	25
95th Queue (ft)	10	51
Link Distance (ft)	570	204
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	100	44	9
Average Queue (ft)	43	8	0
95th Queue (ft)	71	32	5
Link Distance (ft)	570	808	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	62	147	210	134	54
Average Queue (ft)	6	62	104	67	12
95th Queue (ft)	38	118	180	109	40
Link Distance (ft)		1338	1026		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	4	60	123	174
Average Queue (ft)	0	13	77	50
95th Queue (ft)	3	41	122	119
Link Distance (ft)	941	827		1692
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			37	1
Queuing Penalty (veh)			25	2

Intersection: 18: SW 115th Avenue & SW Hazelbrook Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	83
Average Queue (ft)	46
95th Queue (ft)	72
Link Distance (ft)	1343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Rd

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	793	384
Average Queue (ft)	445	14
95th Queue (ft)	863	281
Link Distance (ft)	1292	1852
Upstream Blk Time (%)		0
Queuing Penalty (veh)		2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	127	607	102	217	139	282	77	135
Average Queue (ft)	9	333	27	111	99	101	16	58
95th Queue (ft)	70	612	78	183	152	206	51	108
Link Distance (ft)		1026		981		722		1692
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		43	0	7	21	10	0	13
Queuing Penalty (veh)		3	0	3	60	30	0	4

Zone Summary

Zone wide Queuing Penalty: 166

Queuing and Blocking Report
2027 Post-Development

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	775	775	425	850	946	947	934	129	115	52	63
Average Queue (ft)	426	416	307	769	745	631	565	51	48	3	4
95th Queue (ft)	713	732	479	1016	1191	1264	1151	103	97	33	44
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)	0	0									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		29	15	59	55	25					
Queuing Penalty (veh)		188	96	273	256	279					

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)	88	101	66	174	80	296	315	78
Average Queue (ft)	31	47	24	65	29	175	32	19
95th Queue (ft)	68	86	57	128	67	294	170	59
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				1		6		
Queuing Penalty (veh)				0		20		

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	60	23	75	4	55	57	104
Average Queue (ft)	17	1	32	0	14	16	43
95th Queue (ft)	47	9	62	3	46	47	84
Link Distance (ft)		474		793	372	372	1340
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	0		2				
Queuing Penalty (veh)	2		9				

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	6	51
Average Queue (ft)	0	19
95th Queue (ft)	5	47
Link Distance (ft)		220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	17	51	10	111
Average Queue (ft)	1	15	0	40
95th Queue (ft)	9	42	7	77
Link Distance (ft)	1069		941	276
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	

Intersection: 7: SW 108th Avenue

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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	19	31	36
Average Queue (ft)	1	12	7
95th Queue (ft)	8	37	29
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	12	31	28
Average Queue (ft)	0	5	2
95th Queue (ft)	6	23	15
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	30	105	68	91	61	57	187	83	94	109
Average Queue (ft)	4	45	14	28	17	16	58	36	26	43
95th Queue (ft)	19	78	48	62	46	49	129	70	70	84
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	78	64	66	44
Average Queue (ft)	46	29	30	4
95th Queue (ft)	70	57	55	24
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	SB	SB
Directions Served	L	R
Maximum Queue (ft)	18	44
Average Queue (ft)	1	4
95th Queue (ft)	8	23
Link Distance (ft)	565	565
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	53	10	31	31
Average Queue (ft)	10	1	5	7
95th Queue (ft)	37	8	23	28
Link Distance (ft)	849	355	498	498
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	12	28	36	39
Average Queue (ft)	0	3	15	4
95th Queue (ft)	6	17	41	27
Link Distance (ft)	355	570	204	306
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	124	49
Average Queue (ft)	55	7
95th Queue (ft)	97	31
Link Distance (ft)	570	808
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	65	123	159	78	52
Average Queue (ft)	10	38	61	34	10
95th Queue (ft)	40	95	137	64	36
Link Distance (ft)		1338	1027		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	34	85	114	182
Average Queue (ft)	3	29	50	43
95th Queue (ft)	17	62	96	105
Link Distance (ft)	941	827		1693
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			15	2
Queuing Penalty (veh)			9	2

Intersection: 18: SW 115th Avenue & SW Hazelbrook Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	87
Average Queue (ft)	46
95th Queue (ft)	74
Link Distance (ft)	1340
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Road

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	172	4
Average Queue (ft)	79	0
95th Queue (ft)	141	3
Link Distance (ft)	1299	1823
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
 2027 Post-Development

06/28/2024

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	128	429	116	235	139	272	72	201
Average Queue (ft)	9	228	33	116	99	81	10	90
95th Queue (ft)	64	394	80	200	151	206	40	161
Link Distance (ft)		1027		931		528		1693
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		31	0	10	26	2	0	24
Queuing Penalty (veh)		3	0	6	42	7	0	4

Zone Summary

Zone wide Queuing Penalty: 1197

Queuing and Blocking Report
2030 Post-Development

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	1064	1086	425	850	956	955	951	128	122	65	104
Average Queue (ft)	535	539	321	837	891	846	782	53	51	3	4
95th Queue (ft)	981	1029	502	903	1101	1199	1151	101	100	39	45
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)	1	3									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		35	18	76	75	34					
Queuing Penalty (veh)		232	116	358	358	386					

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)	82	108	78	158	83	298	336	79
Average Queue (ft)	29	48	25	65	35	171	29	17
95th Queue (ft)	64	86	61	121	70	298	171	56
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				1		6		
Queuing Penalty (veh)				0		24		

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	49	36	95	43	60	71	107
Average Queue (ft)	16	2	36	2	17	21	46
95th Queue (ft)	43	12	71	27	46	55	88
Link Distance (ft)		474		793	372	372	1340
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	0	0	4				
Queuing Penalty (veh)	3	0	15				

Queuing and Blocking Report
 2030 Post-Development

06/28/2024

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	25	52
Average Queue (ft)	1	19
95th Queue (ft)	11	45
Link Distance (ft)		220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (ft)	68	6	99
Average Queue (ft)	17	0	41
95th Queue (ft)	51	7	75
Link Distance (ft)		941	276
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	1	0	
Queuing Penalty (veh)	3	0	

Intersection: 7: SW 108th Avenue

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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	24	40	36
Average Queue (ft)	1	14	8
95th Queue (ft)	11	40	30
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	12	32	31
Average Queue (ft)	1	7	2
95th Queue (ft)	9	27	16
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	30	107	65	73	56	82	165	82	88	110
Average Queue (ft)	4	50	12	24	15	18	60	38	24	45
95th Queue (ft)	20	86	44	54	41	49	124	71	67	86
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	62	74	54
Average Queue (ft)	50	30	28	5
95th Queue (ft)	78	55	56	28
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	SB	SB
Directions Served	L	R
Maximum Queue (ft)	25	36
Average Queue (ft)	1	3
95th Queue (ft)	9	17
Link Distance (ft)	565	565
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	69	22	35	31
Average Queue (ft)	10	1	6	11
95th Queue (ft)	41	10	26	35
Link Distance (ft)	849	355	498	498
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	29	36	53
Average Queue (ft)	2	14	4
95th Queue (ft)	16	39	27
Link Distance (ft)	570	204	306
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	125	49	10
Average Queue (ft)	57	11	0
95th Queue (ft)	93	37	5
Link Distance (ft)	570	808	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	68	137	221	105	53
Average Queue (ft)	10	50	70	38	8
95th Queue (ft)	42	116	148	77	33
Link Distance (ft)		1338	1027		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)	0	1		0	
Queuing Penalty (veh)	0	0		0	

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	36	75	116	132
Average Queue (ft)	3	29	50	40
95th Queue (ft)	17	62	96	88
Link Distance (ft)	941	827		1693
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			17	3
Queuing Penalty (veh)			10	2

Intersection: 18: SW 115th Avenue & SW Hazelbrook Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	83
Average Queue (ft)	43
95th Queue (ft)	68
Link Distance (ft)	1340
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Road

Movement	WB
Directions Served	R
Maximum Queue (ft)	189
Average Queue (ft)	85
95th Queue (ft)	162
Link Distance (ft)	1299
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
 2030 Post-Development

06/28/2024

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	128	724	132	256	139	344	88	218
Average Queue (ft)	15	289	39	126	102	96	13	99
95th Queue (ft)	90	566	96	217	154	250	52	172
Link Distance (ft)		1027		931		528		1693
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		38	0	11	29	3	0	25
Queuing Penalty (veh)		3	0	7	49	11	0	5

Zone Summary

Zone wide Queuing Penalty: 1583

Queuing and Blocking Report
2027 Post-Development

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	381	362	132	314	246	272	259	303	304	216	233
Average Queue (ft)	235	209	60	198	157	159	158	200	200	72	111
95th Queue (ft)	333	312	104	287	242	243	237	276	275	207	246
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		6						0	0	0	0
Queuing Penalty (veh)		14						2	0	0	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)	400	999	166	267	101	240	99	73
Average Queue (ft)	184	553	75	135	25	123	8	13
95th Queue (ft)	484	1126	132	223	67	210	56	49
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		55		8		1	0	
Queuing Penalty (veh)		30		4		3	1	

Queuing and Blocking Report
 2027 Post-Development

07/01/2024

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	LTR	LTR
Maximum Queue (ft)	58	10	31	41	161	238	110
Average Queue (ft)	25	1	7	3	53	87	40
95th Queue (ft)	54	9	27	18	103	196	97
Link Distance (ft)		237		1449	372	372	656
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	2	0	0	0			
Queuing Penalty (veh)	7	0	0	0			

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	31	6	27	35
Average Queue (ft)	7	0	1	11
95th Queue (ft)	27	4	9	35
Link Distance (ft)		800	1069	220
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	31	94
Average Queue (ft)	3	35
95th Queue (ft)	17	68
Link Distance (ft)		276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 7: SW 108th Avenue & North 108th 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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	31	76	24
Average Queue (ft)	5	39	1
95th Queue (ft)	25	61	11
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	46	52	18
Average Queue (ft)	7	20	1
95th Queue (ft)	31	48	10
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	38	50	69	111	49	89	150	66	75	77
Average Queue (ft)	13	18	32	51	5	33	58	26	22	37
95th Queue (ft)	37	44	57	82	27	66	120	56	56	72
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)					0					
Queuing Penalty (veh)					0					

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	85	60	36
Average Queue (ft)	32	49	23	10
95th Queue (ft)	58	74	53	31
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	SB
Directions Served	LT	L
Maximum Queue (ft)	6	31
Average Queue (ft)	0	3
95th Queue (ft)	5	17
Link Distance (ft)	1022	565
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	30	62	80
Average Queue (ft)	4	31	36
95th Queue (ft)	20	53	61
Link Distance (ft)	849	498	498
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	18	64
Average Queue (ft)	1	25
95th Queue (ft)	8	53
Link Distance (ft)	570	204
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	74	47	6
Average Queue (ft)	40	10	0
95th Queue (ft)	63	34	5
Link Distance (ft)	570	808	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	31	144	215	136	50
Average Queue (ft)	6	59	102	74	12
95th Queue (ft)	26	112	181	119	37
Link Distance (ft)		1338	1026		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	29	64	145	137
Average Queue (ft)	1	18	76	44
95th Queue (ft)	14	50	128	100
Link Distance (ft)	941			1692
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50	50	
Storage Blk Time (%)		0	37	3
Queuing Penalty (veh)		3	25	4

Intersection: 18: SW 115th Avenue & SW Hazelbrook Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	168
Average Queue (ft)	63
95th Queue (ft)	155
Link Distance (ft)	1343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Rd

Movement	WB	NB	NB	NB
Directions Served	R	T	T	R
Maximum Queue (ft)	918	776	769	7
Average Queue (ft)	553	28	27	0
95th Queue (ft)	1078	405	404	5
Link Distance (ft)	1292	1852	1852	
Upstream Blk Time (%)	3	0	0	
Queuing Penalty (veh)	8	3	3	
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	197	659	111	220	139	232	99	130
Average Queue (ft)	15	357	25	106	89	98	19	54
95th Queue (ft)	94	693	72	178	148	194	53	107
Link Distance (ft)		1026		981		722		1692
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		42	0	7	20	8	0	11
Queuing Penalty (veh)		3	0	3	57	25	0	3

Zone Summary

Zone wide Queuing Penalty: 198

Queuing and Blocking Report
2030 Post-Development

06/28/2024

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

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	360	326	147	362	319	253	257	314	304	235	224
Average Queue (ft)	245	217	60	212	171	162	163	201	207	77	121
95th Queue (ft)	333	308	117	319	271	237	237	273	277	212	251
Link Distance (ft)	1307	1307						485	485		
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			225	700	700					300	300
Storage Blk Time (%)		6							0		
Queuing Penalty (veh)		16							2		

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)	400	1143	155	266	136	232	90	99
Average Queue (ft)	265	846	84	145	26	120	11	19
95th Queue (ft)	567	1318	134	234	78	204	52	65
Link Distance (ft)		1891	1034	1034			485	485
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		83		12		1		
Queuing Penalty (veh)		45		6		2		

Intersection: 4: Lam Access/SW 115th Avenue & SW Tualatin Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	LTR	LTR
Maximum Queue (ft)	66	35	31	32	271	329	84
Average Queue (ft)	28	1	5	3	85	143	32
95th Queue (ft)	56	18	23	17	213	308	67
Link Distance (ft)		237		1449	372	372	656
Upstream Blk Time (%)					2	3	
Queuing Penalty (veh)					0	0	
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	2		0	0			
Queuing Penalty (veh)	9		0	0			

Intersection: 5: SW Tualatin Road & SW 112th Avenue

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	38	17	41	34
Average Queue (ft)	8	1	2	9
95th Queue (ft)	31	12	19	31
Link Distance (ft)		800	1069	220
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	1	0		

Intersection: 6: SW 108th Avenue & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	36	104
Average Queue (ft)	3	41
95th Queue (ft)	20	83
Link Distance (ft)		276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 7: SW 108th Avenue & North 108th 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: 8: SW 108th Avenue & Center 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	31	65	24
Average Queue (ft)	9	36	2
95th Queue (ft)	31	61	12
Link Distance (ft)	406	406	275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW 108th Avenue & South 108th Access

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	31	52	29
Average Queue (ft)	8	23	1
95th Queue (ft)	29	49	13
Link Distance (ft)	497	497	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: 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)	43	56	70	93	54	94	169	73	82	100
Average Queue (ft)	14	17	33	50	3	39	64	26	22	43
95th Queue (ft)	38	44	56	81	22	74	130	58	60	81
Link Distance (ft)		1001		1233		590	590		1034	1034
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 11: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	102	56	26
Average Queue (ft)	31	51	21	9
95th Queue (ft)	57	77	47	28
Link Distance (ft)	1233	1022	657	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: SW Leveton Drive & West Leveton Access

Movement	EB	SB
Directions Served	LT	L
Maximum Queue (ft)	5	25
Average Queue (ft)	0	2
95th Queue (ft)	4	14
Link Distance (ft)	1022	565
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: SW Leveton Drive & Center Leveton Access

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	30	6	101	82
Average Queue (ft)	3	0	35	39
95th Queue (ft)	17	4	66	66
Link Distance (ft)	849	355	498	498
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Calmax Driveway/East Leveton Access & SW Leveton Drive

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	12	69
Average Queue (ft)	1	27
95th Queue (ft)	8	54
Link Distance (ft)	570	204
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	81	53	4
Average Queue (ft)	40	11	0
95th Queue (ft)	64	38	3
Link Distance (ft)	570	808	284
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	38	157	288	150	39
Average Queue (ft)	5	62	117	79	10
95th Queue (ft)	23	120	214	128	33
Link Distance (ft)		1338	1026		808
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		1	
Queuing Penalty (veh)		0		0	

Intersection: 17: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	24	63	147	173
Average Queue (ft)	2	16	81	51
95th Queue (ft)	15	48	138	134
Link Distance (ft)	941			1692
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50	50	
Storage Blk Time (%)		0	39	2
Queuing Penalty (veh)		3	27	3

Intersection: 18: SW 115th Avenue & SW Hazelbrook Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	132
Average Queue (ft)	57
95th Queue (ft)	118
Link Distance (ft)	1343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Pacific Hwy W & SW Hazelbrook Rd

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	1168	5
Average Queue (ft)	688	0
95th Queue (ft)	1229	4
Link Distance (ft)	1292	1852
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	4	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: SW Teton Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	163	824	90	225	140	313	69	152
Average Queue (ft)	19	484	24	113	104	116	18	62
95th Queue (ft)	110	801	57	191	157	250	53	123
Link Distance (ft)		1026		981		722		1692
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		65		50	
Storage Blk Time (%)		54		10	25	11	0	13
Queuing Penalty (veh)		3		4	73	33	0	4

Zone Summary

Zone wide Queuing Penalty: 231

APPENDIX K.
WARRANTS

INTERSECTION INFORMATION						
City:	Tualatin		Condition:	2027 Post-Development		
Population:	28,000					
Intersection Location: (Rural/Urban)	Urban					
Major Street Name:	SW Tualatin Road		Minor Street Name:	SW 115th Avenue/Site Acce		
Number of Moving Lanes for Each Approach:	1		Number of Moving Lanes for Each Approach:	1		
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			6:00 AM			0
7:00 AM			7:00 AM			0
8:00 AM	953	434	8:00 AM	31	73	1,491
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	448	894	4:00 PM	244	46	1,632
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	1,401	1,328	24-hour Total	275	119	3,123

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		Max	Calculated Threshold (B)	A-2&3	B
	EB	WB	Total	NB	SB				
4:00 PM	448	894	1,342	244	46	244	118	Y	Y
8:00 AM	953	434	1,387	31	73	73	111	N	N
12:00 AM	0	0	0	0	0	0	885	N	N
12:00 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

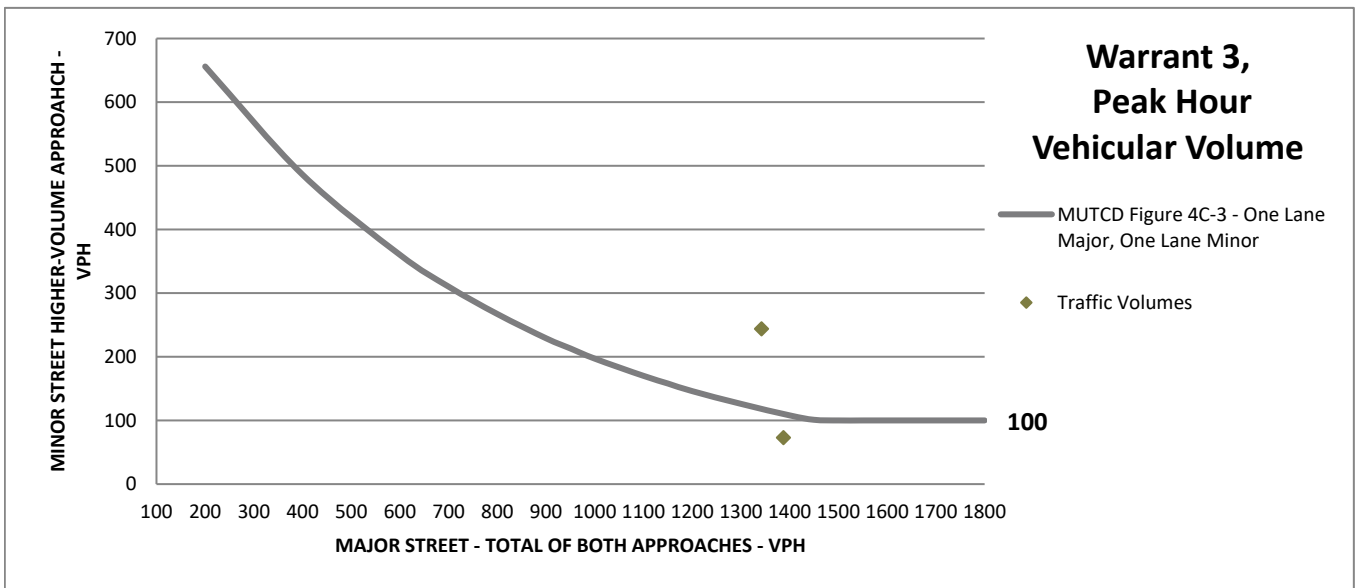
CONDITION A-3 - Total Approach Volume
 Minimum Volume of Total Approaches: 800

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? YES

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



TRAFFIC SIGNAL WARRANTS - BASED ON 2009 MUTCD

7/1/2024

INTERSECTION INFORMATION						
City:	Tualatin		Condition:	2030 Post-Development		
Population:	28,000					
Intersection Location: (Rural/Urban)	Urban					
Major Street Name:	SW Tualatin Road		Minor Street Name:	SW 115th Avenue/Site Acce		
Number of Moving Lanes for Each Approach:	1		Number of Moving Lanes for Each Approach:	1		
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			6:00 AM			0
7:00 AM			7:00 AM			0
8:00 AM	1,012	466	8:00 AM	42	75	1,595
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	465	922	4:00 PM	302	48	1,737
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	1,477	1,388	24-hour Total	344	123	3,332

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	A-2&3	B
	EB	WB	Total	NB	SB	Max	Threshold (B)		
4:00 PM	465	922	1,387	302	48	302	111	Y	Y
8:00 AM	1,012	466	1,478	42	75	75	100	N	N
12:00 AM	0	0	0	0	0	0	885	N	N
12:00 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

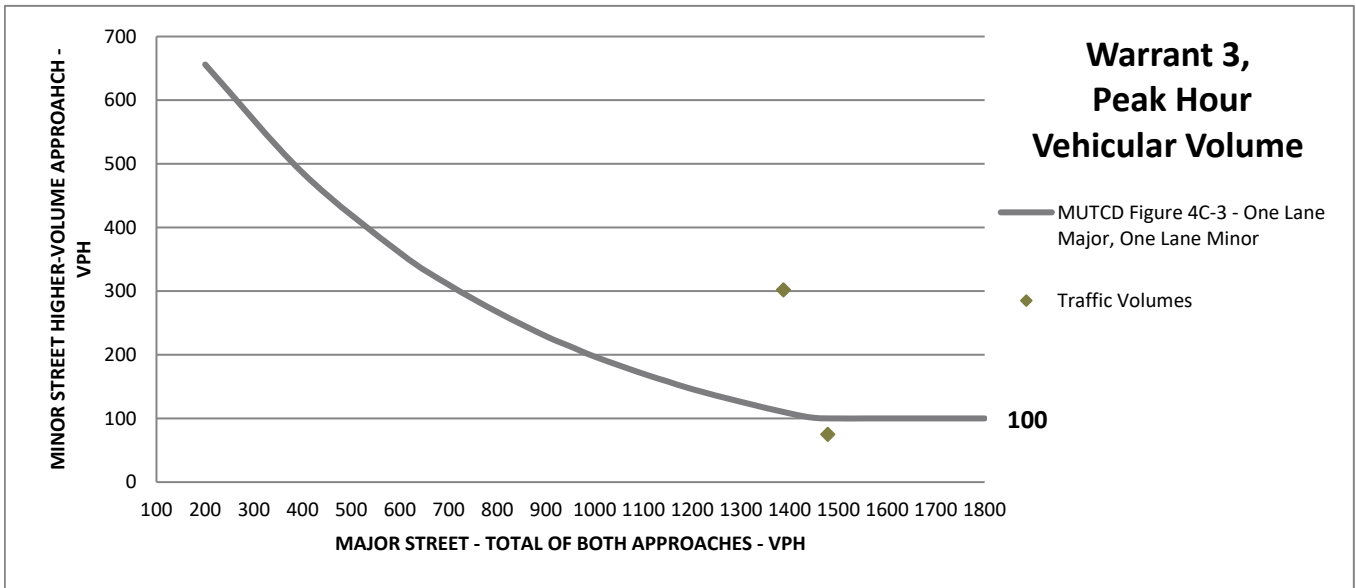
CONDITION A-3 - Total Approach Volume
 Minimum Volume of Total Approaches: 800

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.

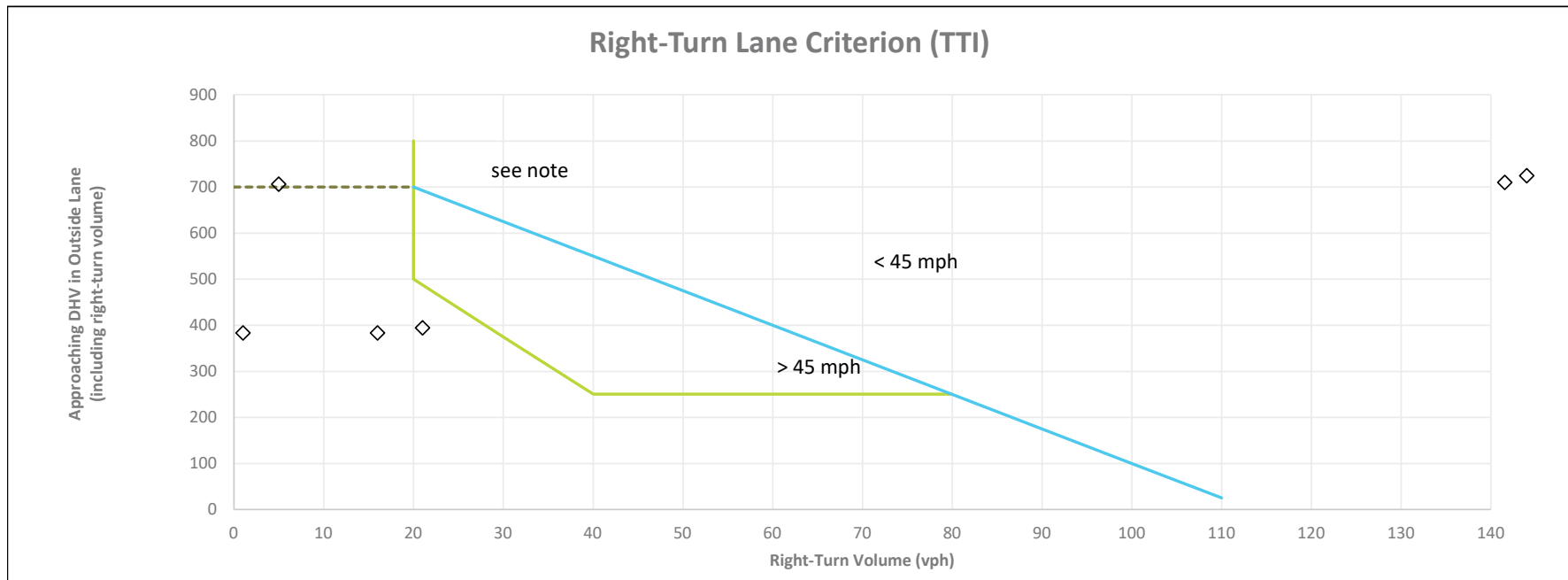
IS CONDITION B OF SIGNAL WARRANT 3 MET? YES

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



Project: Lam TUX
Job #: 2240022.00
Date: 6/25/2024
Subject: EB Right-Turn Lane Evaluation - Tualatin/115th Site Access

Condition	Posted Speed	AM Peak Hour			PM Peak Hour		
		Volume		Result	Volume		Result
		Approaching	Right		Approaching	Right	
2027 Pre-Development	35	706	5	Possible Shoulder	383	1	None
2027 Post-Development	35	706	183	Possible Lane	383	16	None
2030 Post-Development	35	726	220	Possible Lane	394	21	None



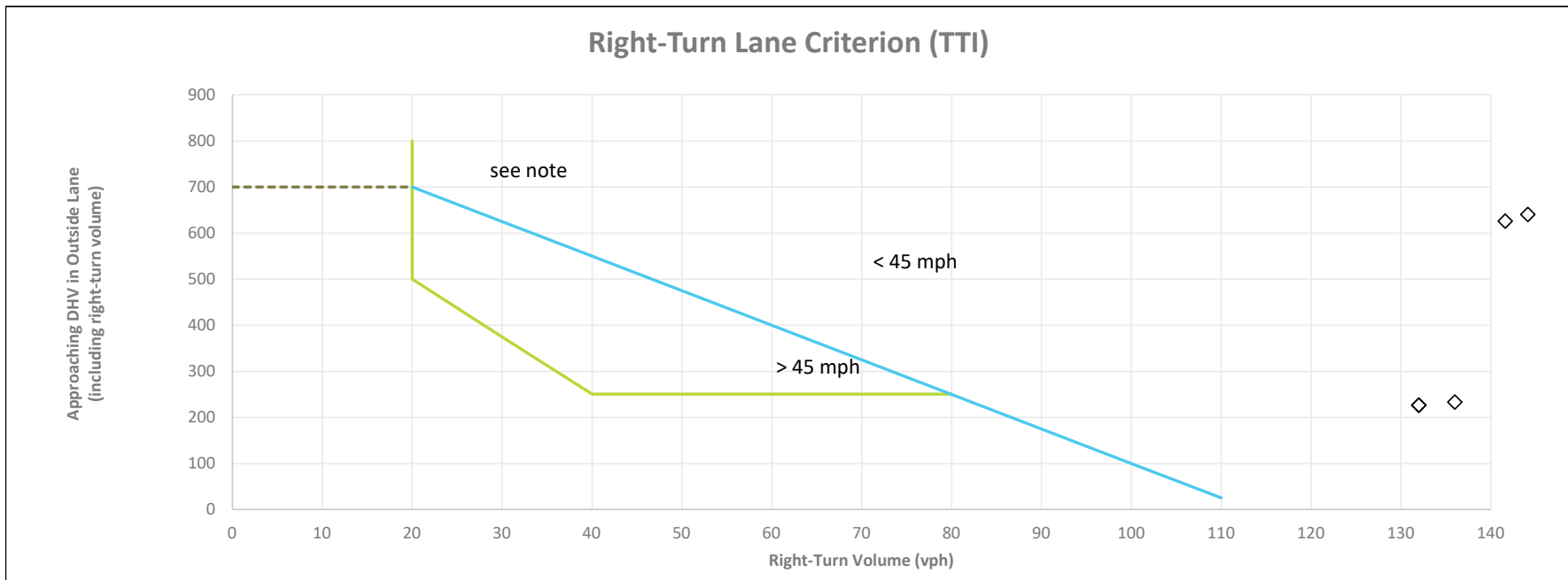
Source: Texas Transportation Institute

Note: If there is no right-turn lane, a shoulder needs to be provided.
 If this intersection is in a rural area and is a connection to a public street, a right-turn lane is needed.



Project: Lam TUX
Job #: 2240022.00
Date: 6/25/2024
Subject: WB Right-Turn Lane Evaluation - Tualatin/115th Site Access

Condition	Posted Speed	AM Peak Hour			PM Peak Hour		
		Volume		Result	Volume		Result
		Approaching	Right		Approaching	Right	
2027 Pre-Development	35	226	132	Possible Lane	626	250	Possible Lane
2027 Post-Development	35	226	132	Possible Lane	626	250	Possible Lane
2030 Post-Development	35	233	136	Possible Lane	644	257	Possible Lane



Source: Texas Transportation Institute

Note: If there is no right-turn lane, a shoulder needs to be provided.
 If this intersection is in a rural area and is a connection to a public street, a right-turn lane is needed.

