Appendix H

Traffic Impact Analysis

Traffic Impact Analysis

NISQUALLY QUIEMUTH VILLAGE MIXED-USE PROJECT

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June 2023

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Introduction

This traffic impact analysis (TIA) identifies potential transportation-related impacts associated with the construction of the Nisqually Quiemuth Village Mixed Use Project (referred to as the Village) proposed west of Marvin Rd NE and south of Britton Pkwy NE, located in the city of Lacey, Washington. The Project Site is owned by the Tribe, and once taken into trust, it will be under Tribal and Federal jurisdiction only. As necessary and defined by local agency standards, mitigation measures are identified that would reduce or offset transportation related impacts that the project may have on the surrounding transportation system.

Project Description

The approximately 174-acre project site is located in Thurston County in the City of Lacey, along the west side of Marvin Road NE. Figure 1 shows the site vicinity of the project site. Two development alternatives are being considered for the Village. These alternatives are described in Table 1. Access to the site for each alternative is the same and is proposed via multiple locations along Britton Pkwy NE, Marvin Rd NE, and the I-5 collector-distributor (CD) road along the southern project frontage. Access to the CD has been established through a Memorandum of Understanding (MOU) between the City of Lacey and Washington State Department of Transportation (WSDOT). A copy of the MOU for reference is included in Appendix A. The site vicinity is shown on Figure 1. A preliminary site plan for Alternatives 1 and 2 are shown in Figures 2 and 3, respectively. The project is anticipated to be constructed and fully occupied by 2026 regardless of the Alternative.

Table 1. Alternatives Descriptions

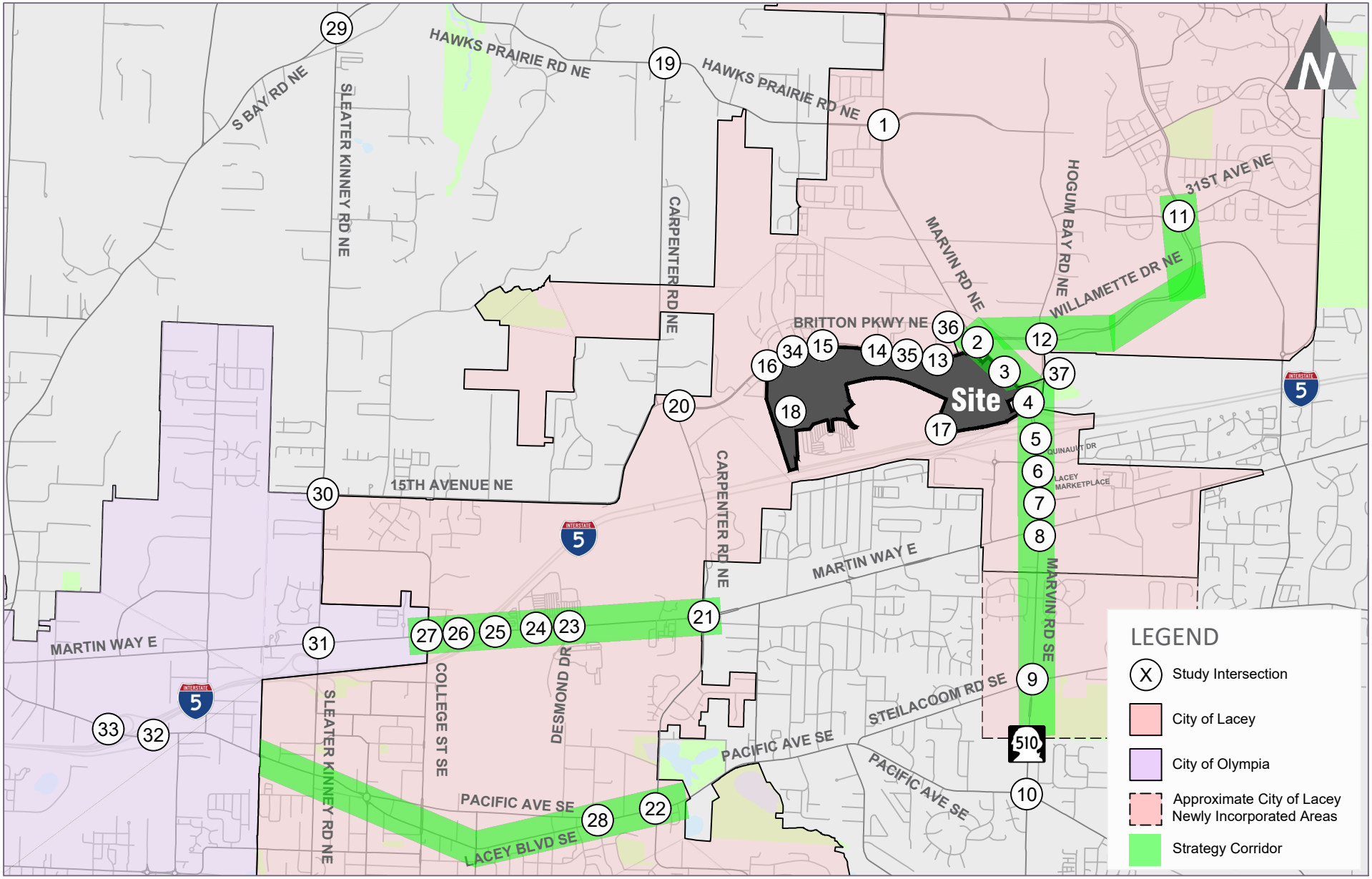
Facilities	Unit	Facility Sizes for Different Alternatives	
		Alternative 1	Alternative 2
Retail/Office Commercial	sf	863,500	368,500
Hotel	rooms	200	200
Residential	du	320	320
Truck Stop	VFP/sf	26 / 36,000	-
Convenience Store/Gas Station	VFP/sf	-	10 / 10,000
Car Dealership	sf	30,000	10,000
Top Golf	bays	93	93
School K-8	students	-	150 to 200
Athletic Complex	sf/fields	-	8 softball/4 soccer fields + 200,000 sf indoor recreation

Notes: sf = square feet, du = dwelling units, VFP = vehicle fueling positions

Previous Site Planning

This project site has been studied under multiple land use scenarios over the past decade or more. Most recently a plan entitled “Lacey Gateway Town Center” was conducted in 2010. A Final Supplemental Environmental Impact Statement (FSEIS) was prepared for the Lacey Gateway Town Center in 2010. The TIA of the FSEIS studied 27 intersections based on the associated trip generation and the City’s requirements. The study evaluated a land use scenario for this specific property that included 1,026,000 sf of shopping center, 100,000 sf General Office, 30,000 sf Civic (Library), 119 Hotel rooms with Conference Center, and 500 Residential Townhouses as the first phase of development, with additional phases to follow on the site. Compared to the previous work, the proposed mixed use project includes fewer units and smaller building areas when comparing retail, general office, hotel rooms, and residential units individually. However, additional uses such as TopGolf, a Truck Stop, a K-8 school, Recreational

Ball Fields and Athletic Complexes are proposed under the various Village alternatives. Overall, the anticipated trip generation from the Project Site is forecast to be lower than what was presented in the 2010 Lacey Gateway Town Center study. As noted previously, access to the I-5 Collector-Distributor ramp was also established as part of this prior planning process, anticipating development of this level.



Site Vicinity and Study Intersections

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 1

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Preliminary Site Plan - Village Alternative 1

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 2

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Preliminary Site Plan - Village Alternative 2

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 3

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Study Approach

Coordination for this project occurred primarily with the City of Lacey. Input was also sought from Thurston County and City of Olympia in various stages to identify the scope of work for this analysis. The following intersections were selected and approved for analysis:

1. Marvin Rd NE/Hawks Prairie Rd NE
2. Marvin Rd NE/Britton Pkwy NE
3. Marvin Rd NE/Main St NE
4. Marvin Rd NE/I-5 SB Ramp
5. Marvin Rd NE/I-5 NB Ramp
6. Marvin Rd NE (SR 510)/Quinault Dr NE
7. Marvin Rd NE (SR 510)/Lacey Marketplace
8. Marvin Rd NE (SR 510)/Martin Way E
9. Marvin Rd SE (SR 510)/Steilacoom Rd SE
10. Marvin Rd SE (SR 510)/Pacific Rd SE
11. Willamette Drive NE/31st Ave NE
12. Hogum Bay Rd NE/Willamette Dr NE
13. Eastern Pkwy NE/Britton Pkwy NE
14. Central Pkwy NE/Britton Pkwy NE
15. Gateway Blvd NE/Britton Pkwy NE
16. Britton Parkway NE/Western Pkwy NE
19. Hawks Prairie Rd NE/Carpenter Rd NE
20. Carpenter Rd NE/Britton Pkwy NE
21. Carpenter Rd NE/Martin Way E
22. Pacific Avenue SE/Carpenter Rd SE
23. Martin Way E/Desmond Dr
24. Martin Way E/Regal Cinemas
25. Martin Way E/I-5 NB Ramps
26. Martin Way E/I-5 SB Ramps
27. Martin Way E/College St
28. Pacific Ave SE/Lacey Blvd SE
29. Sleater Kinney Rd NE/South Bay Rd NE
30. Sleater Kinney Rd NE/15th Ave NE
31. Martin Way E/Sleater Kinney Rd
32. Pacific Ave SE/I-5 NB Ramps
33. Pacific Ave SE/I-5 SB Ramps

In addition to the intersections listed above, the following locations are also studied under the future with-project conditions:

17. I-5 RIRO Ramp/I-5 CD Rd
18. I-5 CD Road/Western Pkwy NE
34. Dwy A/Britton Pkwy NE
35. Dwy B/Britton Pkwy NE
    (does not exist under Alternative 2)
36. Dwy C/Britton Pkwy NE
37. Marvin Rd NE/Dwy D

Note that the 4 driveways proposed along Britton Parkway NE and Marvin Road NE are limited access right-in/right-out (RIRO) side street stop-controlled intersections.

The scope of the analysis included a review of existing (2023) and future 2026 and 2045 without-project conditions in the vicinity of the project site under weekday PM peak hour conditions. The horizon year of 2026 was identified consistent with the anticipated buildout of the project. In addition, a future 2045 scenario was identified as part of the NEPA process being conducted for this project. The year 2045 was used because it is the future horizon year for the Thurston Regional Planning Council's travel demand model. Both the 2026 opening year and 2045 horizon year results are presented in this report.

The Nisqually Quiemuth Casino Resort Project is being proposed adjacent to the Village under a separate application. Although it is being processed under a separate application, the Casino Resort will utilize the same access points being proposed with this development primarily 3. Marvin Rd NE/Main St NE, 15. Gateway Blvd NE/Britton Pkwy NE, 17. I-5 RIRO Ramp/I-5 CD Rd, and 37. Marvin Rd NE/Dwy D. As such, this report also presents a combined analysis with both projects.

The project's impacts on the surrounding transportation system were identified by comparing the future with-project conditions to the future without-project conditions. Improvements are identified for all locations that are found to be operating below agency standards.

Existing and Future Without-Project Conditions

This section describes both existing and future 2026 and 2045 without-project conditions within the identified study area. Characteristics are provided for the roadway network, transit service, non-motorized facilities, traffic volumes, traffic operations, and traffic safety.

Roadway Network

The following sections describe the existing street network within the vicinity of the Project Site, define City of Lacey's strategy corridors, and identifies anticipated changes resulting from planned improvements.

Existing

The primary roadways within the study area and their characteristics near study intersections are described in Table 2.

Table 2. Existing Conditions Summary

Roadway	Street Classification[1][2]	Speed Limit	No. of Lanes	Pedestrian Facilities	Bicycle Facilities
Marvin Rd NE (SR 510)	Arterial	35	2-6[2]	Sidewalks	Bicycle Lanes
Martin Way E	Arterial	40	5/6[3]	Intermittent Sidewalks	Intermittent Bicycle Lanes
Britton Pkwy NE	Boulevard	40	2/4[4]	Sidewalks	Bicycle Lanes
Hogum Bay Rd NE	Arterial	35	2/3[5]	Sidewalks	Bicycle Lanes
Willamette Dr NE	Boulevard	35	4	Sidewalks	Bicycle Lanes
Gateway Blvd NE	Collector	25/30[6]	3/4[6]	Sidewalks	None
Carpenter Rd NE	Arterial	35/50[7]	2	None	None
Pacific Ave SE	Arterial	35	5	Sidewalks	Bicycle Lanes
Sleater Kinney Rd NE	Arterial	25/30	3/4/5	Sidewalks	Bicycle Lanes
College St SE	Collector/Arterial[11]	35	4/5[8]	Sidewalks	None
Steilacoom Rd SE	Collector	35	2	Intermittent	Intermittent
Quinault Dr NE	Collector	30	3	Sidewalks	None
Hawks Prairie Rd NE[9]	Collector	35	2	Sidewalks	Bicycle Lanes

1. Based on City of Lacey Functional Classification Plan.
2. Marvin Rd NE includes 2 lanes from 31st Ave NE to Evelyne Ln NE, 4 lanes between Evelyne Ln NE and the I-5 SB Ramps, 6 lanes between the I-5 SB Ramps and I-5 NB Ramps, and 4-6 lanes south of the I-5 NB ramps including turn lanes at intersections.
3. Martin Way E has 6 lanes west of Carpenter Rd NE and 5 lanes east of it.
4. Britton Pkwy NE has 2 lanes west of Western Blvd NE, 3 lanes between Western Blvd NE and Gateway Blvd NE, and 4 lanes east of Gateway Blvd NE.
5. Gateway Blvd NE includes 3 lanes with a posted speed limit of 25 mph north of Britton Pkwy NE, and it changes to 4 lanes with a posted speed limit of 30 mph south of Britton Pkwy NE.
6. Carpenter Rd NE includes 3 lanes with a posted speed limit of 50 mph north of Britton Pkwy NE, and it changes to 2 lanes with a posted speed limit of 35 mph south of Britton Pkwy NE.
7. Sleater Kinney Rd NE includes 4 lanes with a 30-mph speed limit south of Pacific Ave SE, 4-5 lanes between Pacific Ave SE and Martin Way E, and 3 lanes north of Martin Way E.
8. College St SE is classified as a Collector with 4 lanes north of Martin Way E and Arterial with 5 lanes south of Martin Way E.
9. Portion of roadway that is inside City of Lacey boundaries (east of Hepburn St NE)

Strategy Corridors

City of Lacey also defines "Strategy Corridors". According to the City of Lacey's 2030 Transportation Comprehensive Plan,

"*Strategy corridors are those streets or intersections which typically have been constructed or improved to four or five lanes in width between intersections, or are streets or intersections bounded by existing land use or environmental features that preclude further widening. These*

strategy corridors are in areas where growth is encouraged and typically coincide with the designation of a high density corridor, city center, core area or activity center where a concentration of commercial and other uses is desired, especially when that growth increases densities and proximity of different types of land uses. Peak hour vehicular congestion in these corridors is likely to exceed levels of service, which would otherwise be acceptable within the transportation system."

The following corridors are identified as strategy corridors based on the City's 2030 Transportation Comprehensive Plan that are located in the study area:

- Willamette Drive NE between Marvin Road NE and 31st Ave NE
- Marvin Road between Willamette Drive NE and south city limit line
- Martin Way from the west city limit line to Carpenter Road
- Martin Way from Galaxy Drive NE to Marvin Road
- College Street between Martin Way and Yelm Highway SE
- Pacific Avenue SE from the west city limit line to east city limit line
- Lacey Boulevard SE from Golf Club Road SE to Homann Drive SE
- Sleater-Kinney Road SE from Interstate 5 to Pacific Avenue SE

The strategy corridors are identified on Figure 1. Additional detail related to strategy corridors is provided in the subsequent operational discussion.

Planned Improvements

The *Thurston County and City of Lacey 2023-2028 Transportation Improvement Plan (TIP)* were reviewed as well as discussions with City staff through the scoping of the project to determine planned improvements in the vicinity of the Project Site. The following projects were identified that are anticipated to be funded and in place by 2026.

Martin Way East Roadway Improvements – Galaxy Drive to River Ridge Drive, access management, bike lanes, sidewalks, and other urban amenities

Sleater Kinney Road NE/15th Avenue NE – Installation of a traffic signal at the existing stop-controlled intersection. The channelization will include a northbound through and right turn lane, southbound through and left turn lanes, and a westbound left and right turn lane. This change in traffic control was assumed in the future (2026 and 2045) operational analyses under the without-project condition.

Carpenter Road NE/Britton Parkway NE – Installation of a roundabout at the existing stop-controlled intersection. This change in traffic control was assumed in the future (2026 and 2045) operational analyses under the without-project condition.

Carpenter Road Pedestrian Improvement – **Regional Transition Center**– An ADA-compliant sidewalk will be built from the Martin Way bus stop next to Carpenter Road to the location of the future Regional Transition Center, north on Carpenter, as part of this project. This project does not result in changes to the operational analyses.

In addition to the above projects, the following projects were also identified in the vicinity; however, the projects are not fully funded and/or the timing is currently unknown and therefore were not included in the analysis.

Carpenter Road Capacity and Safety Improvements – Widening roadway to taper from 5 lane section to 3-lane section from Pacific Avenue SE to Shady Lane with bike lanes and sidewalks realign 14th Avenue.

Marvin Road from Britton Parkway to Columbia Drive – Widening Marvin Road from 2 lanes to 5 lanes to Hawks Prairie Rd then transition to 3 lane section with bike lanes and sidewalks.

Martin Way / I-5 Interchange Improvements – Constructing interchange per approved IJR from MP109 to MP 109.

Carpenter Road Widening from Martin Way to Britton Parkway – Widening roadway to 5 lanes with auxiliary turn lanes, bike lanes, sidewalks, and other urban amenities.

Britton Parkway -- Phase II – Widening remaining portion of Britton Parkway to 4 lane boulevard.

Transit Service

Transit service in the study area is provided by Intercity Transit. There are multiple bus stops along Britton Pkwy NE that are within walking distance of the site. There are two stops at Britton Pkwy NE/Gateway Blvd NE (one eastbound and one westbound), one westbound stop at Britton Pkwy NE/Callison Rd NE, and two stops at Britton Pkwy NE/Marvin Rd NE (one eastbound and one westbound). These stops are served by bus route 65 that passes through Britton Pkwy NE with service between Lacey Transit Center to Marvin Rd at Spencer Ave, operating with 30-minute headways throughout the weekdays and weekends.

In addition to those noted above, there is another bus stop at Britton Pkwy NE/Marvin Rd NE served by Route 62A with service between Orion Dr NE/Willamette Dr NE and the Olympia Transit Center, with half-hour headways throughout the day on both the weekdays and weekends. This route stops at this location only in its westbound direction heading to downtown Olympia, and does not travel close to the site in its eastbound heading.

Non-Motorized Facilities

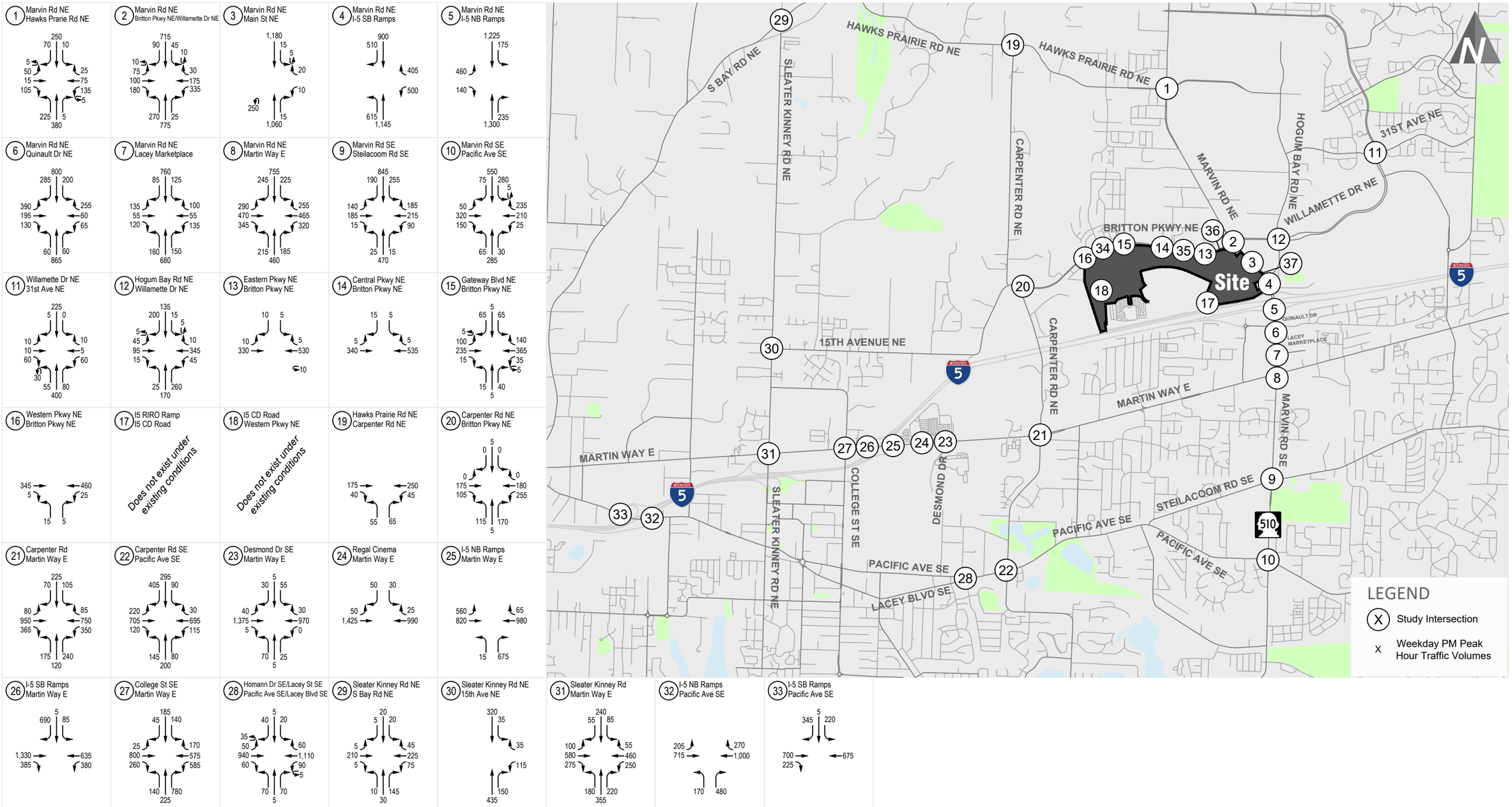
Most of the roadways around the project area include sidewalks on both sides of the roadway. Marvin Road NE and Britton Pkwy NE include intermittent sidewalks along the study area and Carpenter Rd NE does not include any pedestrian facilities. Signalized crossings are provided at all of the intersections along the Marvin Rd NE and at the intersection of Carpenter Rd NE/Martin Way E.

Traffic Volumes

The following sections summarize existing and future 2026 and 2045 without-project traffic volumes within the study area.

Existing

Traffic counts were collected for the existing weekday PM peak period (4:00 – 6:00 PM) in January and February 2023. The PM peak hour is an hour with the highest traffic volumes within the PM peak period. The existing PM peak hour traffic volumes are shown on Figure 4, rounded to the nearest 5 vehicles. Detailed traffic counts are provided in Appendix B.



Existing Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 4

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2026 Horizon Year Opening Year Without-Project Traffic Volumes

2026 without-project traffic volumes are comprised of background traffic growth and traffic generated from the planned “pipeline” developments. To estimate the future background growth in traffic a 4.0 percent annual growth rate was applied to the existing traffic counts per City of Lacey standards. Increases in traffic associated with specific pipeline development projects to be included in the report were also provided by City of Lacey staff.

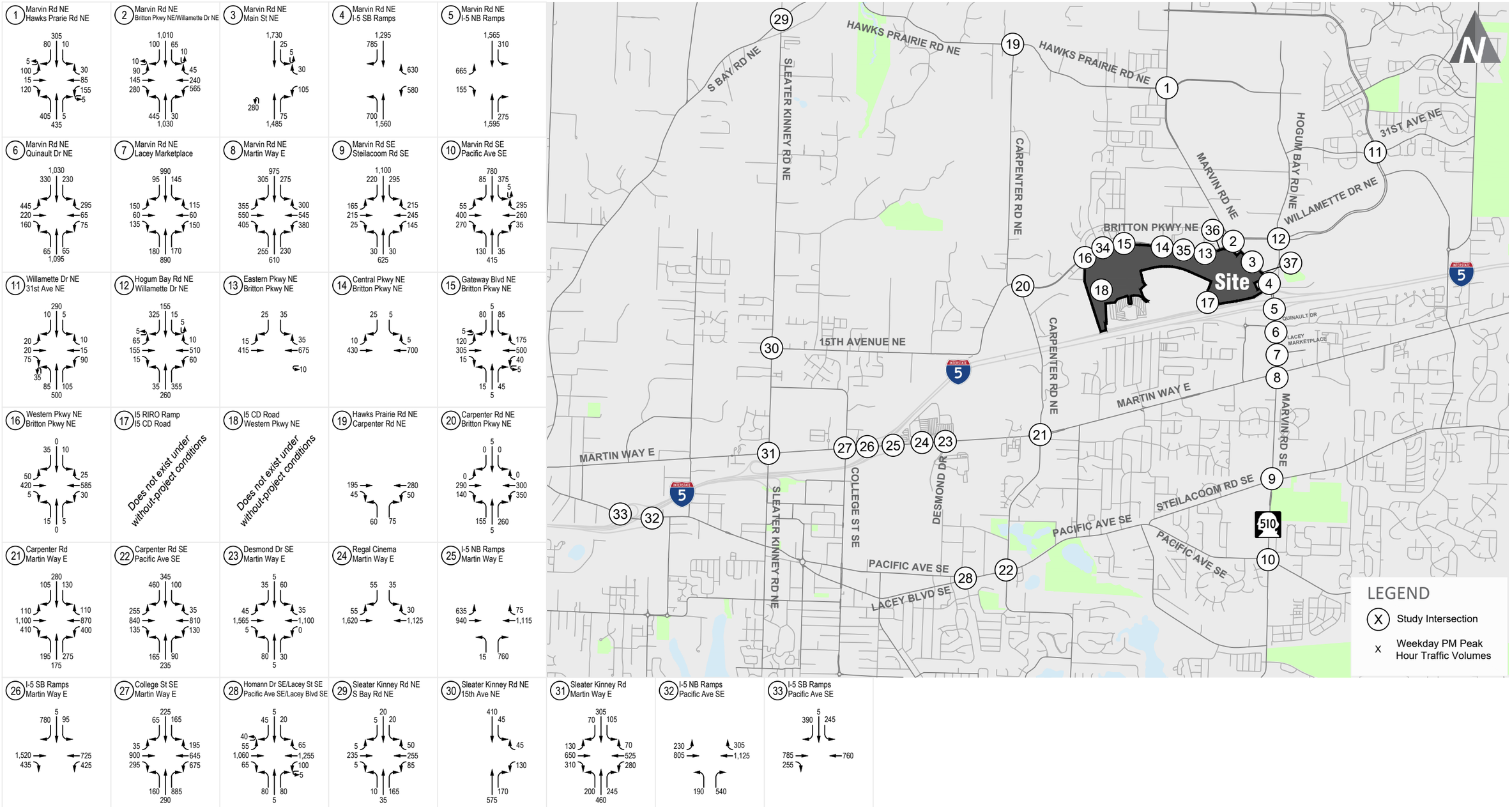
The forecast future 2026 without-project weekday peak hour traffic volumes are shown in Figure 5.

2045 Horizon Year Without-Project Traffic Volumes

The year 2045 without-project traffic volumes were developed in coordination with the Thurston Regional Planning Council (TRPC). TRPC has developed a regional year 2045 travel demand model and provided the 2045 without-project volumes, excluding any trips as a result of the Village or Casino Resort projects. The 2045 without-project volumes as well as the 2018 model base year volumes were provided at all study intersection locations except for Martin Way E/Desmond Dr and Martin Way E/Regal Cinemas. The volumes at these two locations were interpolated based on the growth from adjacent intersections per direction from TRPC. The TRPC 2018 and 2045 model volumes are provided in Appendix C.

2045 forecasts were developed by applying the growth from the 2018 and 2045 TRPC model to the existing traffic volumes. The 27-year growth identified in the TRPC model was prorated to the 22 year equivalent (factored by 22 years divided by 27) to account for the 2023 existing traffic counts. Model growth volumes were also checked for reasonability and any necessary adjustments were made to the volumes to assure the model results were consistent with anticipated growth areas. The growth from the model was added to the existing PM peak hour traffic counts. The resulting forecast future 2045 without-project weekday peak hour traffic volumes are shown in Figure 6.

The methodology used to forecast the 2045 volumes is different than that utilized for the 2026 horizon year. The 2045 forecasts consider development of the area consistent with the land use plans identified in the comprehensive plans, regional travel patterns, and trip generation attributes of existing and future land uses. Because of this different methodology there are some locations where the 2045 volumes are lower than the 2026 volumes during the weekday PM peak hour. These forecasts represent a more wholistic review of the future volumes due to land use changes over time when compared to the application of a static growth rate as used in the development of the 2026 without-project traffic forecasts.



2026 Without-Project Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **5**

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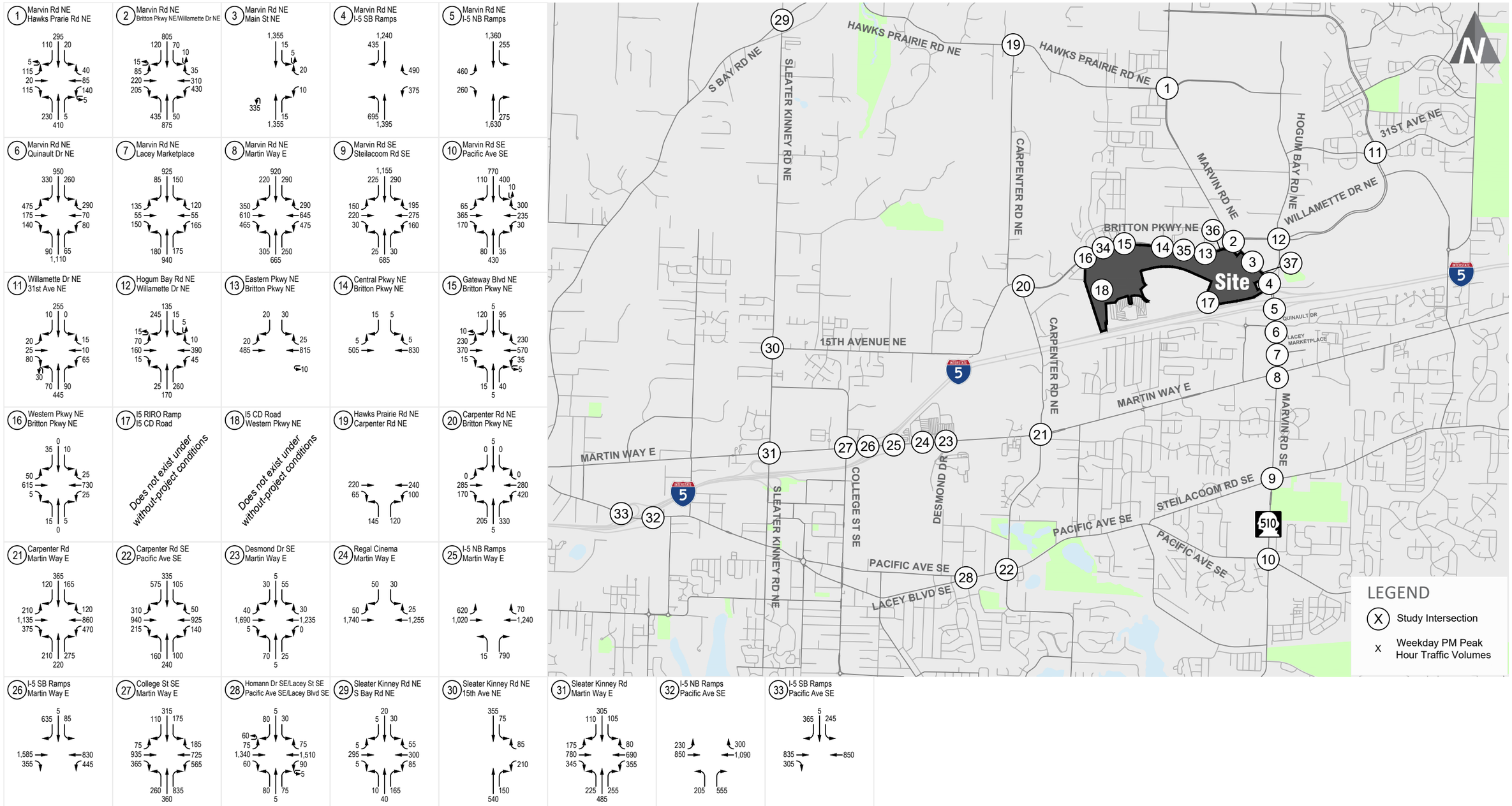

2045 Without-Project Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 6

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Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized, all-way stop-controlled, and roundabout-controlled intersections, LOS is measured in average control delay per vehicle and is reported using the intersection delay. Traffic operations and average vehicle delay can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix D contains a detailed explanation of LOS criteria and definitions.

Level of service standards of the respective jurisdictions in the study area include:

Lacey: City of Lacey has adopted an LOS D standard, except for the core area[1] where LOS E is acceptable and on strategy corridors where the LOS may exceed standards. The strategy corridors are shown on Figure 1 and study intersections that are on the strategy corridors are shaded in the LOS summary table.

Olympia: Urban corridors (which include Martin Way and Pacific Avenue) have an adopted LOS E standard as defined in the City of Olympia Transportation Plan and shown in the Transportation Corridors map.

WSDOT: WSDOT has adopted an LOS D standard at the I-5 ramp and SR 510 intersections within the study area.

In addition to intersection level of service for roundabout controlled intersections, a volume to capacity (v/c) ratio of 1.0 or less for each lane group is recommended per WSDOT guidance.

Weekday PM peak hour traffic operations for existing and 2026 without-project conditions were evaluated based on the procedures identified in the *Highway Capacity Manual* (HCM 2016) using *Synchro 11* for stop-controlled and signalized intersections. *Synchro 11* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delay. The roundabouts were evaluated using *SIDRA Intersection* 9, and the WSDOT SIDRA protocol was followed to implement the correct parameters and environment factors.

Signal timing was obtained from the City of Lacey and City of Olympia for all intersections in the study area. Adjustments to the existing conditions for the future (2026) without project conditions included:

- The inclusion of the planned improvements as described previously, which result in updates at the following study intersections:
    20. Carpenter Rd NE/Britton Pkwy NE – installation of a roundabout
    30. Sleater Kinney Rd NE/15th Ave NE – installation of traffic signal
- Signal timing optimization for actuated signals. Cycle lengths along coordinated corridors were maintained.

The adjustments as noted for the 2026 condition were also applied to the 2045 without-project condition, as well as an adjustment of the peak hour factors (PHF). The PHFs at the study intersections were adjusted to be 1.0 (reflecting a consistent flow of traffic throughout the hour) which is consistent with the guidance of WSDOT for the design year condition for both Synchro and Sidra analyses.

[1] "*The Lacey Core Area is defined as the area bounded by the northerly right-of-way line of Martin Way on the north, the southerly right-of-way line of Lacey Boulevard on the south, the westerly city limit line on the west and the easterly right-of-way line of Carpenter Road on the east." From City of Lacey Development Guidelines and Public Works Standards – Chapter 4: Transportation, 08/2017.*

Results for the existing and future (2026 and 2045) without-project operations analyses are summarized in Table 3. The detailed LOS worksheets are included in Appendix E. Table 3 shows that all intersections are operating at LOS D or better under existing conditions during the PM peak hour except for the Carpenter Rd NE/Britton Pkwy NE intersection. The northbound left turn stop-controlled movement at the Carpenter Rd NE/Britton Pkwy NE currently operates at LOS F during the weekday PM peak hour in its current intersection configuration. However, with the construction of the planned roundabout in the future year (per the City of Lacey Plan), the intersection is forecast to improve to operate at LOS A under both future 2026 and 2045 conditions during the weekday PM peak hour.

Under future without-project conditions, 2 intersections are forecast to operate below standard during each of the horizon years. The intersections operating below standard are discussed in greater detail below.

2026:

- **Marvin Road NE/Britton Parkway NE** – This roundabout controlled intersection is forecast to operate at LOS C under future (2026) without-project conditions, but with a v/c ratio of 1.09, exceeding the identified threshold of 1.0. This intersection is on the Marvin Road strategy corridor in the City of Lacey, such that the intersection is exempt from the level of service standards. Based on the City's travel demand model, future traffic volume shifts by 2045 result in decreases in traffic volumes along the Marvin Rd NE corridor compared to the 2026 without-project forecasts such that the v/c ratio is forecast to decrease to acceptable levels.
- **Marvin Road SE (SR 510)/Steilacoom Road SE** – This signalized intersection is forecast to operate at LOS E under future (2026) without-project conditions during the weekday PM peak hour, exceeding the LOS D standard; however, this intersection is on the Marvin Road strategy corridor in the City of Lacey, such that the intersection is exempt from the level of service standards.

2045:

- **Marvin Road NE (SR 510)/Martin Way E** - This signalized intersection is forecast to operate at LOS E under future (2045) without-project conditions during the weekday PM peak hour, exceeding the LOS D standard for City of Lacey and WSDOT along SR 510; however, this intersection is also located on the Marvin Road strategy corridor in the City of Lacey, such that the intersection is exempt from the level of service standards.
- **Pacific Avenue SE/Carpenter Road SE** - This signalized intersection is forecast to operate at LOS F under future (2045) without-project conditions during the weekday PM peak hour, exceeding the LOS E standard for City of Lacey's Core Area; however, this intersection is also located on the Pacific Avenue SE strategy corridor in the City of Lacey, such that the intersection is exempt from the level of service standards.

Table 3. Existing and Future Without-Project PM Peak Hour LOS Summary

Intersection	Jurisdiction	LOS Standard	Current / *Future* Traffic Control	Existing			2026 Without-Project			2045 Without-Project		
				LOS[1]	Delay[2]	WM[3] or V/C[4]	LOS	Delay	WM or V/C	LOS	Delay	WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	Lacey	D	RAB	A	7	0.29	A	8	0.38	A	7	0.30
2. Marvin Rd NE/Britton Pkwy NE	Lacey	D/SC	RAB	A	8	0.52	**C**	**31**	**1.09**	B	11	0.75
3. Marvin Rd NE/Main St NE	Lacey	D/SC	RAB	A	6	0.51	A	9	0.83	A	6	0.56
4. Marvin Rd NE/I-5 SB Ramp	Lacey/WSDOT	D/SC	Signal*	B	17	-	D	35	-	C	24	-
5. Marvin Rd NE/I-5 NB Ramp	Lacey/WSDOT	D/SC	Signal*	C	21	-	B	20	-	B	20	-
6. Marvin Rd NE (SR 510)/Quinault Dr NE	Lacey/WSDOT	D/SC	Signal	D	38	-	D	48	-	D	46	-
7. Marvin Rd NE (SR 510)/Lacey Marketplace	Lacey/WSDOT	D/SC	Signal	D	47	-	D	49	-	D	50	-
8. Marvin Rd NE (SR 510)/Martin Way E	Lacey/WSDOT	D/SC	Signal	D	52	-	D	51	-	**E**	**58**	**-**
9. Marvin Road SE (SR 510)/Steilacoom Rd SE	Lacey/WSDOT	D/SC	Signal	C	35	-	**E**	**58**	**-**	D	50	-
10. Marvin Road SE (SR 510)/Pacific Rd SE	WSDOT	D	RAB	A	7	0.43	B	10	0.69	A	8	0.53
11. Willamette Dr NE/31st Ave NE	Lacey	D/SC	RAB	A	5	0.19	A	6	0.27	A	6	0.21
12. Hogum Bay Rd NE/Willamette Dr NE	Lacey	D/SC	RAB	A	6	0.47	A	7	0.72	A	6	0.46
13. Eastern Pkwy NE/Britton Pkwy NE	Lacey	D	TWSC	B	12	SB	C	20	SB	C	22	SB
14. Central Pkwy NE/Britton Pkwy NE	Lacey	D	TWSC	B	12	SB	B	13	SB	B	14	SB
15. Gateway Blvd NE/Britton Pkwy NE	Lacey	D	RAB	A	6	0.21	A	6	0.28	A	6	0.32
16. Britton Pkwy NE/Western Pkwy NE	Lacey	D	TWSC	C	17	NBL	D	26	SBL	D	26	NBL
18. I-5 CD Rd/Western Parkway NE	Lacey	D	TWSC	Intersection with project			Intersection with project			Intersection with project		
19. Hawks Prairie Rd NE/Carpenter Rd NE	Lacey	D	TWSC	B	13	NB	B	14	NB	C	21	NB
20. Carpenter Rd NE/Britton Pkwy NE	Lacey	D	TWSC/*RAB*	**F**	**126**	**NBL**	A	8	0.62	A	7	0.47
21. Carpenter Rd NE/Martin Way E	Lacey	E/SC	Signal	D	35	-	D	41	-	E	57	-
22. Pacific Ave SE/Carpenter Rd SE	Lacey	E/SC	Signal	D	46	-	E	64	-	**F**	**91**	**-**
23. Martin Way E/Desmond Dr	Lacey	E/SC	Signal	A	7	-	A	8	-	A	7	-
24. Martin Way E/Regal Cinemas	Lacey	E/SC	Signal	B	16	-	B	14	-	B	14	-
25. Martin Way E/I-5 NB Ramps	Lacey	E/SC	Signal	D	38	-	D	50	-	C	35	-
26. Martin Way E/I-5 SB Ramps	Lacey	E/SC	Signal*	D	42	-	D	38	-	D	39	-
27. Martin Way E/College St	Lacey	E/SC	Signal	D	38	-	D	47	-	D	48	-
28. Pacific Ave SE/Lacey Blvd SE	Lacey	E/SC	RAB	A	5	0.44	A	5	0.50	A	5	0.58
29. Sleater Kinney Rd NE/South Bay Rd NE	Lacey	D	AWSC	B	12	-	B	14	-	B	14	-
30. Sleater Kinney Rd NE/15th Ave NE	Lacey	D	TWSC/*Signal*	C	23	WB	A	9	-	B	12	-
31. Martin Way E/Sleater Kinney Rd	Olympia	E	Signal	C	34	-	D	45	-	D	51	-
32. Pacific Ave SE/I-5 NB Ramps	Olympia/WSDOT	D	Signal	B	17	-	B	19	-	B	17	-
33. Pacific Ave SE/I-5 SB Ramps	Olympia/WSDOT	D	Signal	B	17	-	B	19	-	B	17	-

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout. SC = strategy corridor.
* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*
BOLD *indicates intersection operating below respective LOS or v/c standard.*
Shading indicates intersection is on City of Lacey Strategy Corridor

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

Traffic Safety

The five most recent years of collision records (January 1, 2017 to December 31, 2021) provided by the Washington State Department of Transportation (WSDOT) were reviewed within the study area to identify any existing traffic safety issues at the study intersections. A summary of the total and average annual number of reported collisions at the study intersections are provided in Table 4 along with a summary of the severity of the reported collisions.

As shown in Table 4, the greatest number of collisions within the study area occurred at the intersections along Marvin Road SE at Britton Parkway, Martin Way and Pacific Road SE each of which had an annual average of 18 to 30 collisions. Both Britton Parkway and Pacific Road intersections along Marvin Road SE are roundabout controlled and although there was a high quantity of collisions reported, over 90 percent of the collisions were property damage only (PDO) and low severity. At the signalized Martin Way/Marvin Road SE intersection, approximately 75 percent of the collisions were PDO with the remaining 25 percent resulting in injury or possible injury. Within the study area, 1 percent of the overall reported collisions during the 5 year review period involved a pedestrian or bicyclist and 1 collision resulted in a fatality. The fatality occurred at the Martin Way E/Sleater Kinney Road signalized intersection when a truck taking an eastbound left turn struck a motorcycle traveling westbound through the intersection.

Of the 5 existing intersections along the project frontages of Marvin Road SE and Britton Parkway, there were 32 total collisions reported or an annual average of 3 or fewer collisions per year with only 5 total collisions resulting in an injury (approximately 15 percent). No existing mitigation for safety conditions were identified as necessary adjacent to the project site.

Table 4. Five-Year Collision Summary (2017-2021)

Location	Current/ *Future* Traffic Control	Number of Collisions							Severity		
		2017	2018	2019	2020	2021	Total	Annual Average	PDO[1]	Injury	Fatality
1. Marvin Rd NE/Hawks Prairie Rd NE	RAB	1	2	1	2	1	7	1.4	5	2	0
2. Marvin Rd NE/Britton Pkwy NE	RAB	39	25	34	27	25	150	30.0	140	10	0
3. Marvin Rd NE/Main St NE	RAB	4	2	3	3	5	17	3.4	13	4	0
4. Marvin Rd NE/I-5 SB Ramp	Signal	5	4	6	6	10	31	6.2	27	4	0
5. Marvin Rd NE/I-5 NB Ramp	Signal	3	5	8	4	7	27	5.4	20	7	0
6. Marvin Rd NE (SR 510)/Quinault Dr NE	Signal	12	10	8	7	5	42	8.4	28	14	0
7. Marvin Rd NE (SR 510)/Lacey Marketplace	Signal	4	2	2	4	3	15	3.0	10	5	0
8. Marvin Rd NE (SR 510)/Martin Way E	Signal	24	17	14	15	24	94	18.8	71	23	0
9. Marvin Road SE (SR 510)/Steilacoom Rd SE	Signal	14	3	4	3	6	30	6.0	21	9	0
10. Marvin Road SE (SR 510)/Pacific Rd SE	RAB	20	29	19	12	10	90	18.0	82	8	0
11. Willamette Dr NE/31st Ave NE	RAB	0	1	2	1	4	8	1.6	6	2	0
12. Hogum Bay Rd NE/Willamette Dr NE	RAB	4	2	2	3	0	11	2.2	11	0	0
13. Eastern Pkwy NE/Britton Pkwy NE	TWSC	0	0	0	0	0	0	0.0	0	0	0
14. Central Pkwy NE/Britton Pkwy NE	TWSC	1	1	0	0	0	2	0.4	2	0	0
15. Gateway Blvd NE/Britton Pkwy NE	RAB	2	3	2	3	3	13	2.6	12	1	0
16. Britton Pkwy NE/Western Pkwy NE	TWSC	0	0	0	0	0	0	0.0	0	0	0
19. Hawks Prairie Rd NE/Carpenter Rd NE	TWSC	2	0	1	3	1	7	1.4	3	4	0
20. Carpenter Rd NE/Britton Pkwy NE	TWSC/ *RAB*	3	0	5	4	3	15	3.0	11	4	0
21. Carpenter Rd NE/Martin Way E	Signal	8	8	9	6	7	38	7.6	28	10	0
22. Pacific Ave SE/Carpenter Rd SE	Signal	6	11	10	8	5	40	8.0	30	10	0
23. Martin Way E/Desmond Dr	Signal	15	9	12	0	5	41	8.2	27	14	0
24. Martin Way E/Regal Cinemas	Signal	5	3	0	1	0	9	1.8	6	3	0
25. Martin Way E/I-5 NB Ramps	Signal	10	7	7	6	3	33	6.6	23	10	0
26. Martin Way E/I-5 SB Ramps	Signal	15	13	14	9	9	60	12.0	42	18	0
27. Martin Way E/College St	Signal	7	9	4	3	8	31	6.2	21	10	0
28. Pacific Ave SE/Lacey Blvd SE	RAB	12	16	7	7	6	48	9.6	43	5	0
29. Sleater Kinney Rd NE/South Bay Rd NE	AWSC	1	0	1	0	1	3	0.6	3	0	0
30. Sleater Kinney Rd NE/15th Ave NE	TWSC/ *Signal*	5	4	6	6	8	29	5.8	21	8	0
31. Martin Way E/Sleater Kinney Rd	Signal	14	11	9	6	14	54	10.8	43	10	1
32. Pacific Ave SE/I-5 NB Ramps	Signal	14	14	11	12	8	59	11.8	47	12	0
33. Pacific Ave SE/I-5 SB Ramps	Signal	3	5	6	4	1	19	3.8	13	6	0

Source: WSDOT September 2022
1. PDO = Property Damage Only.

Village Alternative 1 Project Impacts

The Village has two different build alternatives, and this section summarizes the analysis results for Alternative 1. Traffic volumes generated by Alternative 1 are estimated and then distributed and assigned to adjacent roadways within the study area. Next, project trips are added to 2026 without-project traffic volumes for an opening year analysis and to 2045 without-project traffic volumes for a horizon year analysis. In addition to the review of off-site intersection impacts, the results of the site access analysis are summarized.

Trip Generation

Trip generation information presented in this report was previously presented to, reviewed, and approved by agency staff during the scoping process. Trip generation estimates for the project are based on trip rates using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021) as available. The land uses used include Shopping Center (>150k sf) (LU #821), Hotel (LU #310), Multifamily Housing Mid-Rise (LU #221), General Office (LU #710), Truck Stop (LU #950), and Car Dealership (LU #840). One specific use known to be proposed for the site is Topgolf which is an entertainment facility. There is not an applicable ITE land use for the specific Topgolf facility. Transpo recently completed a TIA[2] for a Topgolf site in Renton, WA. Rates for several existing sites were provided to support that study and have been utilized in these estimates. Only rates for the PM peak hour were available in this study. To forecast AM peak hour and total daily trips, a 2016 study for a Topgolf facility in El Segundo, CA was used to find the relationship between the number of AM peak hour and daily trips and the number of PM peak hour trips. The daily trips and AM peak hour trips were respectively 9.07 times and 0.21 times the number of PM peak hour trips. Related pages from the study are made available in Appendix F. Note that these ratios are applied to the gross trip rate, and the net new primary trips shown in Table 5 are after internal trip reductions and may not follow the same ratios.

Table 5 summarizes the resulting weekday daily, AM and PM peak hour vehicle trip generation for Alternative 1. Detailed trip generation calculations including reductions for pass-by, diverted and internal trips are provided in Appendix G.

Table 5. Estimated New Primary Weekday Vehicle Trip Generation for Alternative 1

Land Uses	Size	ITE LU Number[1]	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Shopping Center (>150k sf)	863,500 sf	820	24,294	361	198	559	1,050	1,147	2,197
Hotel	200 rooms	310	1,396	52	33	85	48	49	97
Multifamily Housing Mid-Rise	320 du	221	1,068	26	89	115	37	25	62
General Office	30,000 sf	710	230	27	4	31	2	22	24
Truck Stop	26 VFP / 36,000 sf	950	1,456	40	47	87	63	38	101
Car Dealership	30,000	840	812	40	15	55	28	42	70
Topgolf	93 bays	per Topgolf Study[2]	1,340	32	4	36	67	58	125
Total			***30,596***	***578***	***390***	***968***	***1,295***	***1,381***	***2,676***

Note: du = dwelling unit, sf = square-feet, VFP = vehicle fueling position.
1. ITE's Land Use Number per the *Trip Generation Manual* (11th Edition, 2021)
2. Topgolf rates per a traffic impact analysis (TIA) completed by Transpo Group in 2019 for a Topgolf site in Renton, WA

As shown in the table, Alternative 1 of the proposed development is anticipated to generate 30,596 daily, 968 AM peak hour, and 2,676 PM peak hour weekday trips.

[2] *Topgolf Renton Transportation Impact Analysis* (Transpo Group, July 2019).

As noted previously in this report, the project site has had extensive studies prepared over the years. A Final Supplemental Environmental Impact Statement (FSEIS) was prepared for Phase 1 of the Lacey Gateway Town Center in 2010. The TIA for the FSEIS studied 27 intersections based on the associated trip generation and the City's requirements. According to the TIA, The Thurston County Travel Demand Model was used to produce site-generated traffic volumes, and the results were also validated using the ITE Trip Generation Manual. There were similar uses between the Lacey Gateway Town Center and the proposed Village such as retail, theaters, office, and civic areas/libraries. The Land use assumptions in the travel demand model for Phase 1 of the Lacey Gateway Site were: 1,026,000 sf of shopping center, 100,000 sf General Office, 30,000 sf Civic (Library), 119 Hotel rooms with Conference Center, and 500 Residential Townhouses. The PM peak hour trip generation for Phase 1 of the Lacey Gateway Town Center was 2,874 trips, which is higher than the PM Peak hour trip generation for Alternative 1 of the Village by approximately 200 trips, as also shown in Table 6. It should be noted that Alternative 1 has a higher density of development compared to Alternative 2 and generates more trips (as will be shown later in the report).

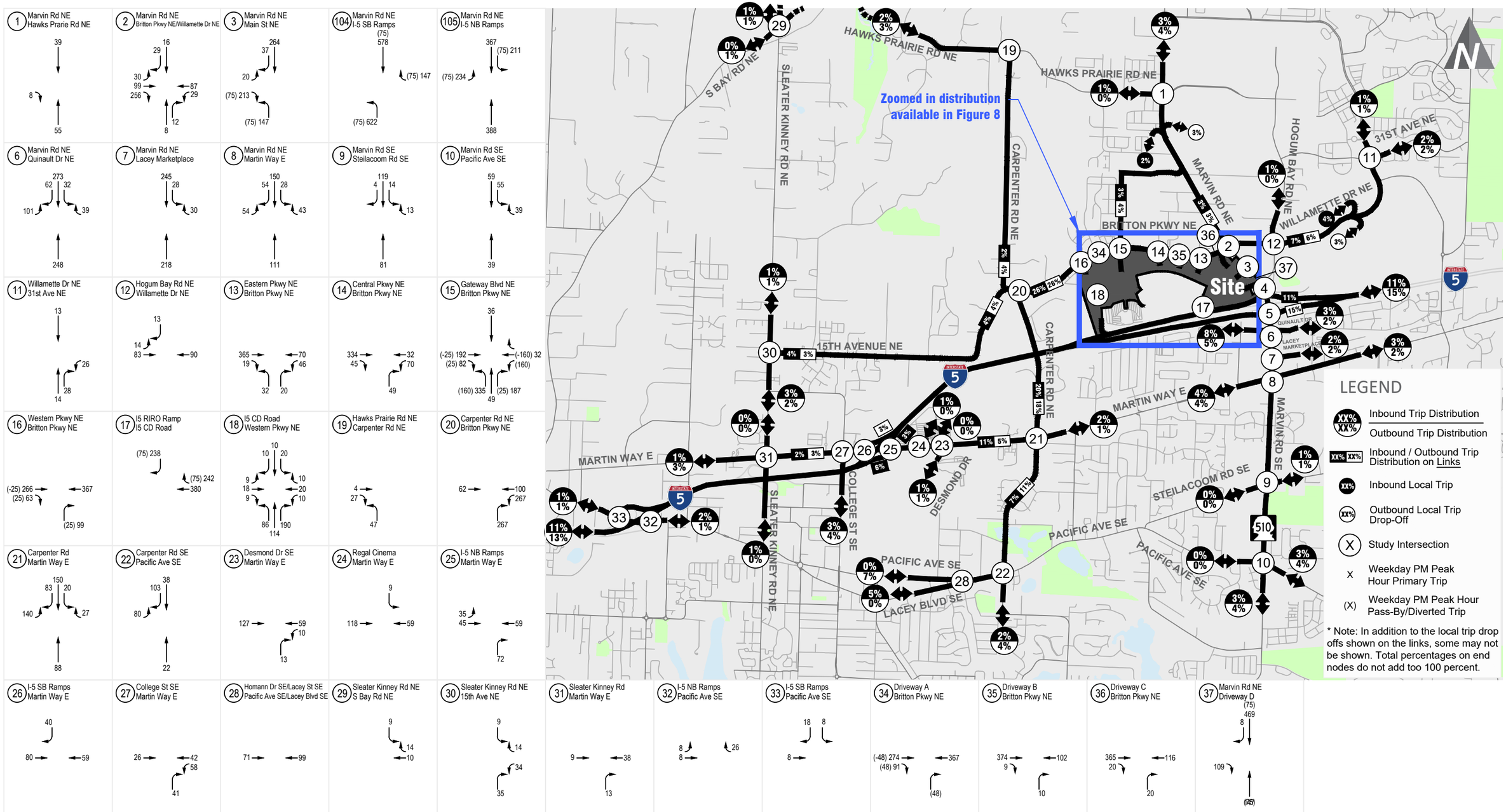
Table 6. Weekday Vehicle Trip Generation Comparison between Village Alternative 1 and Lacey Gateway Town Center Phase 1

Project	New Primary Weekday PM Peak Hour Trips		
	In	Out	Total
Nisqually Quiemuth Village Mixed Use Alternative 1	1,295	1,381	2,676
Lacey Gateway Town Center Phase 1 (per 2010 FSEIS TIA)	1,211	1,663	2,874

Trip Distribution & Assignment

The Thurston County Regional Traffic Demand model was utilized to identify trip distribution patterns in the area. The site includes three Traffic Analysis Zones (TAZs): one zone for the Casino Resort project, one for the eastern portions of the Village, and one for the western portions of the Village. Three model plots were provided by TRPC, one for each TAZ. The model results included specific trips from the project that were assigned to the roadway network. This information was reviewed and approved by City staff during the scoping efforts. While the TRPC distribution provides the broader distribution patterns for the site generated traffic, the localized assignment of traffic at the site driveways was based on overall density and location of parking on the site as well as inbound/outbound travel patterns. The project trip distribution and assignment is displayed in Figure 7 and a more localized version of the trip distribution that highlights the areas surrounding the site and the access is included in Figure 8. The model plot provided by TRPC is included in Appendix H.

To calculate 2026 with-project traffic volumes, PM peak hour project trips were added to the 2026 without-project traffic volumes. The 2026 with-project volumes are displayed in Figure 9. 2045 with-project traffic volumes were similarly calculated by adding the PM peak hour project trips to the 2045 without-project traffic volumes and are shown in Figure 10.

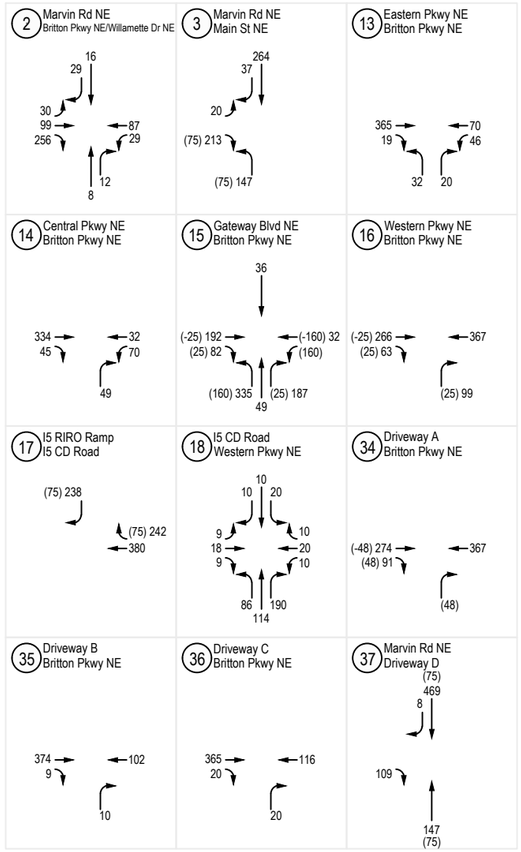


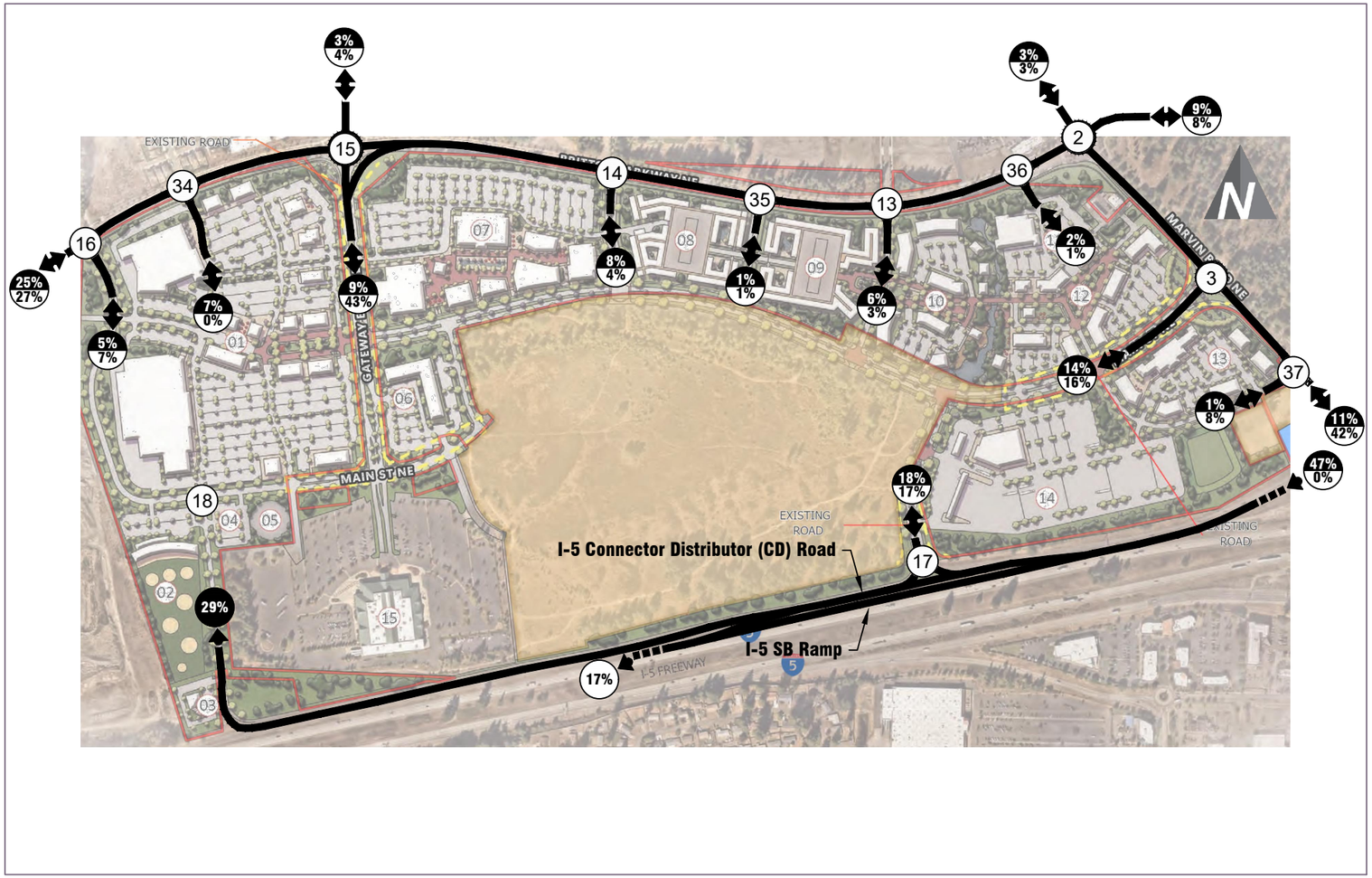
Project (Village Alternative 1) PM Peak Hour Trip Distribution and Assignment

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 7

transpogroup





LEGEND

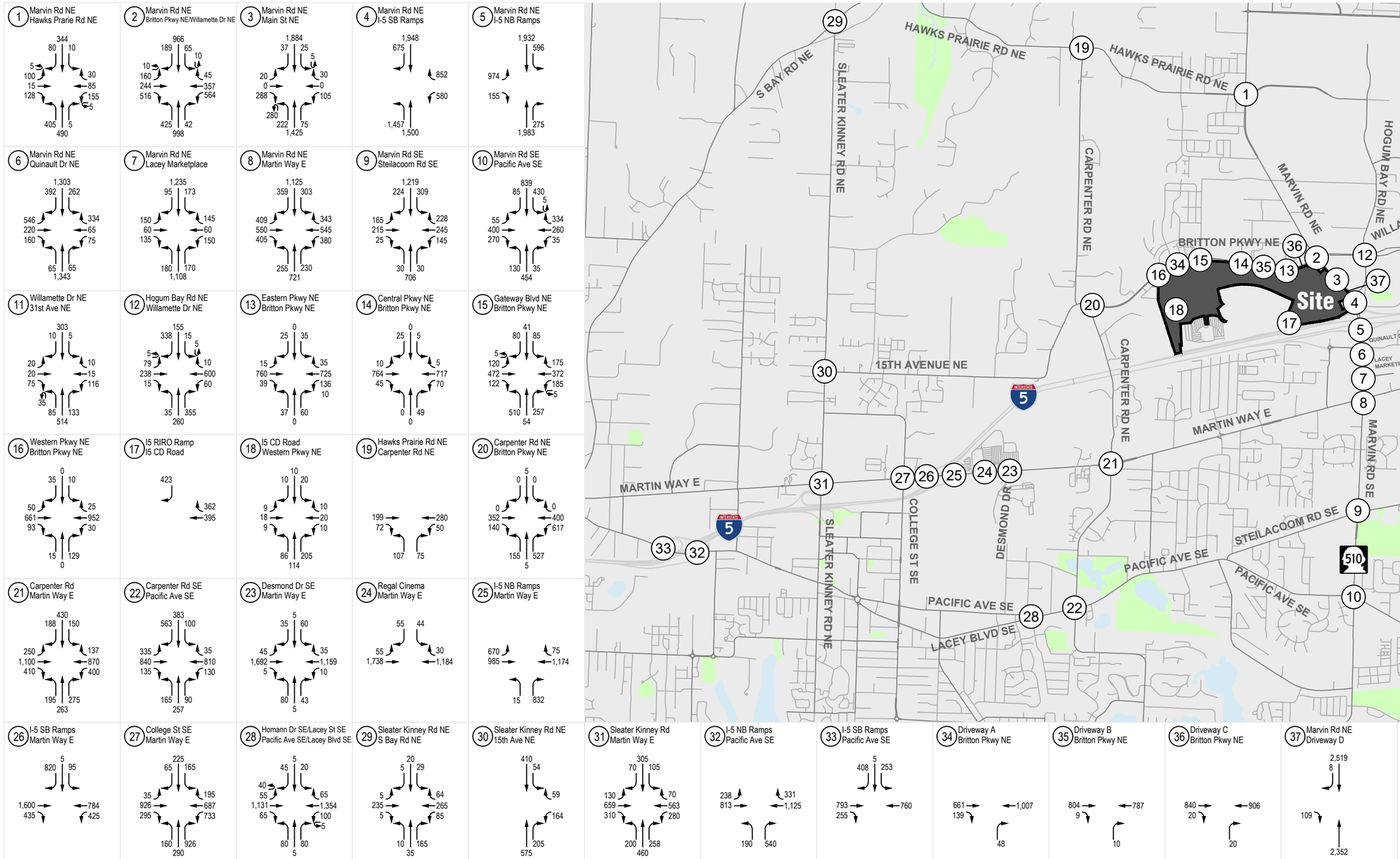
- XX% / XX% — Inbound Trip Distribution / Outbound Trip Distribution
- (X) — Study Intersection
- X — Weekday PM Peak Hour Primary Trip
- (X) — Weekday PM Peak Hour Pass-By/Diverted Trip

Project (Village Alternative 1) PM Peak Hour Trip Distribution and Assignment (Site Level Zoom)

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 8

transpogroup

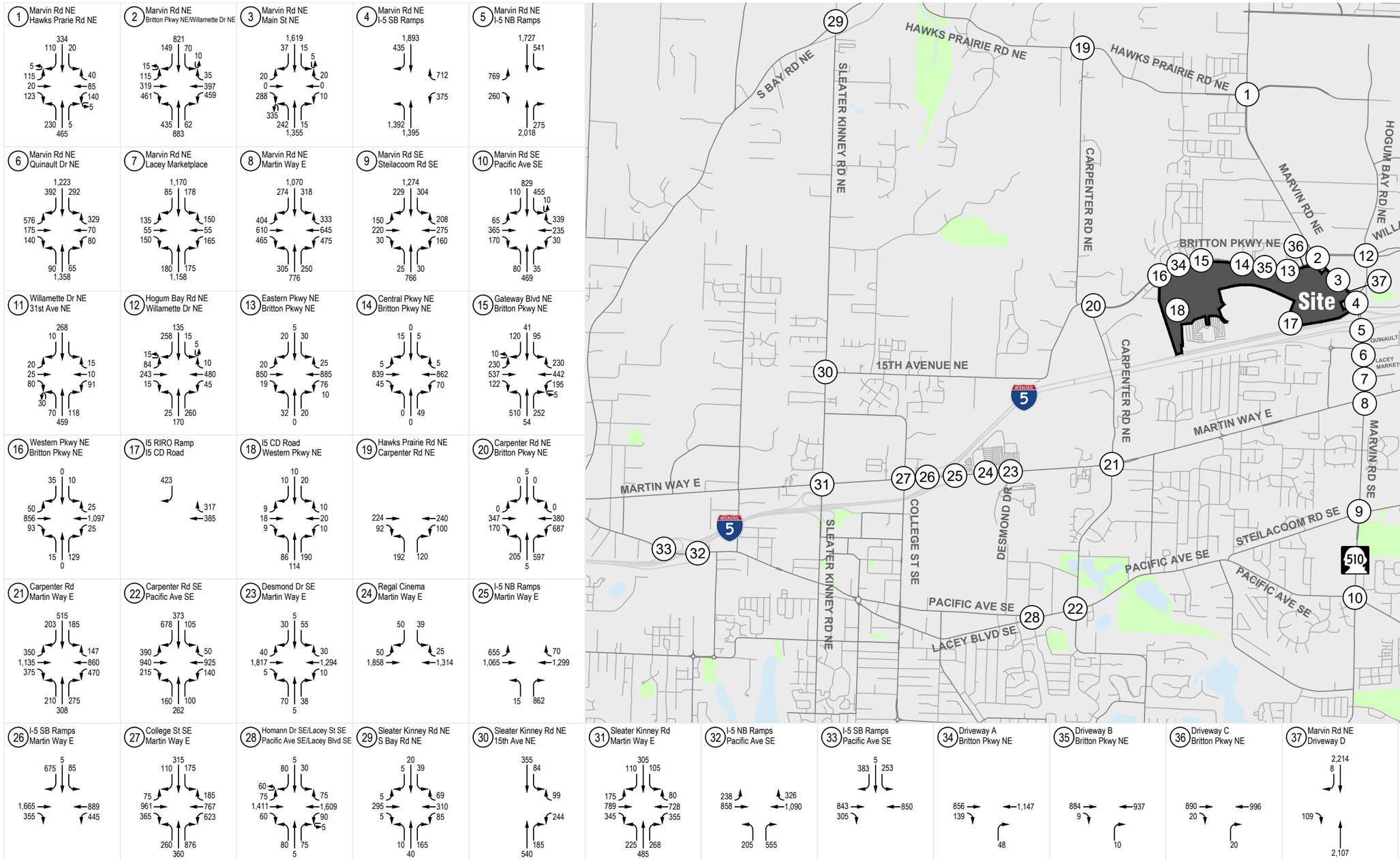


2026 With-Project Alternative 1 Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 9

transpogroup



2045 With-Project Alternative 1 Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

transpogroup

FIGURE **10**

Traffic Operations Impact

The following sections summarize future (2026 and 2045) Alternative 1 traffic operations within the study area including the intersection level of service and the future I-5 Ramp interchange. The same methodologies for the intersection LOS were applied as described for existing and future without-project conditions. Results for both the 2026 and 2045 analysis years are provided.

Future (2026) Alternative 1 Intersection LOS

The future (2026) Alternative 1 with-project level of service analysis was conducted for the weekday PM peak hour to analyze the traffic impacts. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2026) without-project conditions with the exception of the added site accesses. A comparison of 2026 without-project and with-project weekday peak hour traffic operations is summarized in Table 7. Detailed LOS worksheets are provided in Appendix E.

As shown in Table 7, with the development of Alternative 1 of the Village under future (2026) conditions, there are 8 intersections forecast to operate below the respective standards during the weekday PM peak hour. The intersections operating below standard are either a site access or located on a strategy corridor. Each intersection forecast to operate below the respective standards is discussed below.

Site Access Intersections: 3 intersections serving as site accesses for the project are forecast to operate below standard.

- **Eastern Parkway NE/Britton Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS C without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access. A roundabout is proposed at this site access to mitigate this deficiency. Additional discussion and review of mitigation is provided in the subsequent section.
- **Britton Parkway NE/Western Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS D without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access. A restriction of both northbound and southbound left-turns is proposed at this location to mitigate the deficiency. With this restriction, drivers would be able to utilize the adjacent roundabout controlled intersections to turn around as needed. Additional discussion and review of mitigation is provided in the subsequent section.
- **Driveway D/Marvin Road NE** – The eastbound right-turn movement at the proposed right-in/right-out (RIRO) driveway is forecast to operate at LOS F with the project with a 95th percentile queue of up to 6 vehicles outbound from the site. The delay is related to the high southbound through volumes along Marvin Road (forecast to exceed 2,500 vehicles during the PM peak hour under future (2026) with-project conditions). As this delay is for the outbound movement from the site and does not result in off-site impacts, no mitigation at this location is proposed.

Table 7. Future (2026) Village Alternative 1 Weekday PM Peak Hour LOS Summary

Intersection	LOS Standard	Traffic Control	2026 Without-Project LOS[1]	2026 Without-Project Delay[2]	2026 Without-Project WM[3] or V/C[4]	2026 With-Project Village Alt 1 LOS	2026 With-Project Village Alt 1 Delay	2026 With-Project Village Alt 1 WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	D	RAB	A	8	0.38	A	8	0.39
2. Marvin Rd NE/Britton Pkwy NE	D/SC	RAB	**C**	**31**	**1.09**	**D**	**45**	**1.22**
3. Marvin Rd NE/Main St NE	D/SC	RAB	A	9	0.83	**D**	**42**	**1.14**
4. Marvin Rd NE/I-5 SB Ramp	D/SC	Signal*	D	35	-	**F**	**138**	**-**
5. Marvin Rd NE/I-5 NB Ramp	D/SC	Signal*	B	20	-	D	42	-
6. Marvin Rd NE (SR 510)/Quinault Dr NE	D/SC	Signal	D	48	-	D	54	-
7. Marvin Rd NE (SR 510)/Lacey Marketplace	D/SC	Signal	D	49	-	D	54	-
8. Marvin Rd NE (SR 510)/Martin Way E	D/SC	Signal	D	51	-	D	55	-
9. Marvin Rd SE (SR 510)/Steilacoom Rd SE	D/SC	Signal	**E**	**58**	**-**	**E**	**67**	**-**
10. Marvin Road SE (SR 510)/Pacific Rd SE	D	RAB	B	10	0.69	B	12	0.76
11. Willamette Dr NE/31st Ave NE	D/SC	RAB	A	6	0.27	A	6	0.28
12. Hogum Bay Rd NE/Willamette Dr NE	D/SC	RAB	A	7	0.72	A	8	0.76
13. Eastern Pkwy NE/Britton Pkwy NE	D	TWSC	C	20	SB	**F**	**103**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	D	TWSC	B	13	SB	C	18	SB
15. Gateway Blvd NE/Britton Pkwy NE	D	RAB	A	6	0.28	A	9	0.54
16. Britton Pkwy NE/Western Pkwy NE	D	TWSC	D	26	SBL	**F**	**82**	**SBL**
18. I-5 CD Rd/Western Parkway NE	D	TWSC	Intersection with project			B	13	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	D	TWSC	B	14	NB	C	18	NB
20. Carpenter Rd NE/Britton Pkwy NE	D	RAB	A	8	0.62	B	11	0.87
21. Carpenter Rd NE/Martin Way E	E/SC	Signal	D	41	-	E	68	-
22. Pacific Ave SE/Carpenter Rd SE	E/SC	Signal	E	64	-	**F**	**90**	**-**
23. Martin Way E/Desmond Dr	E/SC	Signal	A	8	-	A	8	-
24. Martin Way E/Regal Cinemas	E/SC	Signal	B	14	-	B	14	-
25. Martin Way E/I-5 NB Ramps	E/SC	Signal	D	50	-	E	58	-
26. Martin Way E/I-5 SB Ramps	E/SC	Signal*	D	38	-	D	47	-
27. Martin Way E/College St	E/SC	Signal	D	47	-	D	47	-
28. Pacific Ave SE/Lacey Blvd SE	E/SC	RAB	A	5	0.50	A	5	0.54
29. Sleater Kinney Rd NE/South Bay Rd NE	D	AWSC	B	14	-	B	15	-
30. Sleater Kinney Rd NE/15th Ave NE	D	Signal	A	9	-	B	11	-
31. Martin Way E/Sleater Kinney Rd	E	Signal	D	45	-	D	47	-
32. Pacific Ave SE/I-5 NB Ramps	D	Signal	B	19	-	B	19	-
33. Pacific Ave SE/I-5 SB Ramps	D	Signal	B	19	-	B	20	-
34. Driveway A/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	12	NBR
35. Driveway B/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	11	NBR
36. Driveway C/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	12	NBR
37. Driveway D/Marvin Rd NE	D	TWSC	RIRO Site Access			**F**	**119**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, SC = strategy corridor, RIRO = right-in/right-out. Location 17 evaluated in subsequent section.

* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*

***BOLD** indicates intersection operating below respective LOS or v/c standard.*

Shading indicates intersection is on City of Lacey Strategy Corridor.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

City of Lacey Strategy Corridor Intersections: The following intersections are located on a strategy corridor.

- **Marvin Road NE/Britton Parkway NE** – This roundabout controlled intersection is forecast to operate at LOS C with a v/c ratio of 1.09 under future (2026) without-project conditions and further degrade with the project to operating at LOS D with a v/c ratio of 1.22, exceeding the identified threshold of 1.0.
- **Marvin Road NE/Main Street NE** – This roundabout controlled intersection is forecast to degrade to operating at LOS D with the project with a v/c ratio of 1.14, exceeding the identified threshold of 1.0.
- **Marvin Road NE/I-5 SB Ramp** – This is the northern intersection of the I-5 Diverging Diamond Interchange that was installed at this location in 2020 and is forecast to operate at LOS F with the project.
- **Pacific Avenue SE/Carpenter Road SE** – This signalized intersection is forecast to operate at LOS E under future (2026) without-project conditions during the weekday PM peak hour and degrade to operating at LOS F with the project.
- **Marvin Road SE (SR 510)/Steilacoom Road SE** – This signalized intersection is forecast to operate at LOS E under future (2026) PM peak hour conditions both without and with Alternative 1.

The 2030 Lacey Transportation Plan states, “Strategy Corridors are exempt from the above level of service standards, however, may require strategies tailored to the specific needs of each roadway.” “Such strategies should include an appropriate mix of:

1. High quality and fully-integrated bike, pedestrian, carpool, vanpool, and transit facilities and services;
2. Complete and connected street grids;
3. Transportation technology measures that improve overall system operating efficiency and safety;
4. Access management;
5. Parking management;
6. Aggressive travel demand management strategies.

And additionally,

7. Land use intensification; consideration of more compact high density and mixed use alternatives;
8. Improvements to adjacent pedestrian connections and consideration of specialized improvements to key pedestrian intersections designed to encourage pedestrian use.”

Additional discussion of the City of Lacey Strategy Corridors is provided in the mitigation section of the report.

Future (2045) Alternative 1 Intersection LOS

The future (2045) Alternative 1 with-project level of service analysis was conducted for the weekday PM peak hour. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2045) without-project conditions with the exception of the added site accesses. A comparison of 2045 without-project and with-project weekday peak hour traffic operations is summarized in Table 8. Detailed LOS worksheets are provided in Appendix E.

Table 8. Future (2045) Village Alternative 1 Weekday PM Peak Hour LOS Summary

Intersection	LOS Standard	Traffic Control	2045 Without-Project			2045 With-Project Village Alt 1		
			LOS[1]	Delay[2]	WM[3] or V/C[4]	LOS	Delay	WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	D	RAB	A	7	0.30	A	7	0.31
2. Marvin Rd NE/Britton Pkwy NE	D/SC	RAB	B	11	0.75	B	14	0.87
3. Marvin Rd NE/Main St NE	D/SC	RAB	A	6	0.56	A	10	0.82
4. Marvin Rd NE/I-5 SB Ramp	D/SC	Signal*	C	24	-	**F**	**109**	**-**
5. Marvin Rd NE/I-5 NB Ramp	D/SC	Signal*	B	20	-	D	35	-
6. Marvin Rd NE/Quinault Dr NE	D/SC	Signal	D	46	-	D	52	-
7. Marvin Rd NE/Lacey Marketplace	D/SC	Signal	D	50	-	D	54	-
8. Marvin Rd NE/Martin Way E	D/SC	Signal	**E**	**58**	**-**	**E**	**66**	**-**
9. Marvin Road SE/Steilacoom Road SE	D/SC	Signal	D	50	-	**E**	**57**	**-**
10. Marvin Road SE/Pacific Road SE	D	RAB	A	8	0.53	A	9	0.58
11. Willamette Dr NE/31st Ave NE	D/SC	RAB	A	6	0.21	A	6	0.22
12. Hogum Bay Rd NE/Willamette Dr NE	D/SC	RAB	A	6	0.46	A	6	0.49
13. Eastern Pkwy NE/Britton Pkwy NE	D	TWSC	C	22	SB	**F**	**82**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	D	TWSC	B	14	SB	C	22	SB
15. Gateway Blvd NE/Britton Pkwy NE	D	RAB	A	6	0.32	A	10	0.53
16. Britton Pkwy NE/Western Pkwy NE	D	TWSC	D	26	NBL	**F**	**116**	**SBL**
18. I-5 CD Rd/Western Parkway NE	D	TWSC	Intersection with project			B	12	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	D	TWSC	C	21	NB	D	29	NB
20. Carpenter Rd NE/Britton Pkwy NE	D	RAB	A	7	0.47	A	8	0.62
21. Carpenter Rd NE/Martin Way E	E/SC	Signal	E	57	-	**F**	**103**	**-**
22. Pacific Ave SE/Carpenter Rd SE	E/SC	Signal	**F**	**91**	**-**	**F**	**123**	**-**
23. Martin Way E/Desmond Dr	E/SC	Signal	A	7	-	A	7	-
24. Martin Way E/Regal Cinemas	E/SC	Signal	B	14	-	B	13	-
25. Martin Way E/I-5 NB Ramps	E/SC	Signal	C	35	-	D	45	-
26. Martin Way E/I-5 SB Ramps	E/SC	Signal*	D	39	-	D	43	-
27. Martin Way E/College St	E/SC	Signal	D	48	-	D	48	-
28. Pacific Ave SE/Lacey Blvd SE	E/SC	RAB	A	5	0.58	A	5	0.62
29. Sleater Kinney Rd NE/South Bay Rd NE	D	AWSC	B	14	-	B	15	-
30. Sleater Kinney Rd NE/15th Ave NE	D	Signal	B	12	-	B	13	-
31. Martin Way E/Sleater Kinney Rd	E	Signal	D	51	-	D	52	-
32. Pacific Ave SE/I-5 NB Ramps	D	Signal	B	17	-	B	18	-
33. Pacific Ave SE/I-5 SB Ramps	D	Signal	B	17	-	B	18	-
34. Driveway A/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	13	NBR
35. Driveway B/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	12	NBR
36. Driveway C/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	12	NBR
37. Driveway D/Marvin Rd NE	D	TWSC	RIRO Site Access			**F**	**55**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, RIRO = right-in/right-out. Location 17 evaluated in subsequent section.

* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*

***BOLD** indicates intersection operating below respective LOS or v/c standard.*

Shading indicates intersection is on City of Lacey Strategy Corridor.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

As shown in Table 8, with the development of Alternative 1 of the Village under future (2045) conditions, there are 8 intersections forecast to operate below the respective standards during the weekday PM peak hour. The intersections operating below standard are either a site access or located on a strategy corridor. Each intersection forecast to operate below the respective standards is discussed below.

Site Access Intersections: 3 intersections serving as site accesses for the project are forecast to operate below standard, consistent with the 2026 condition.

- **Eastern Parkway NE/Britton Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS C without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access.
- **Britton Parkway NE/Western Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS D without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access.
- **Driveway D/Marvin Road NE** – The eastbound right-turn movement at the proposed right-in/right-out (RIRO) driveway is forecast to operate at LOS F with the project with a 95th percentile queue of up to 4 vehicles outbound from the site. The delay is related to the high southbound through volumes along Marvin Road (forecast to exceed 2,200 vehicles during the PM peak hour under future (2045) with-project conditions).

City of Lacey Strategy Corridor Intersections: The following intersections are located on a strategy corridor.

- **Marvin Road NE/I-5 SB Ramp** – This is the northern intersection of the I-5 Diverging Diamond Interchange that was installed at this location in 2020 and is forecast to operate at LOS F with the project.
- **Marvin Road NE/Martin Way E** – This signalized intersection is forecast to operate at LOS E under future (2045) without-project and with-project conditions during the weekday PM peak hour, exceeding the LOS D standard for City of Lacey and WSDOT along SR 510.
- **Marvin Road SE (SR 510)/Steilacoom Road SE** – This signalized intersection is forecast to operate at LOS E under future (2045) with-project PM peak hour conditions.
- **Carpenter Rd NE/Martin Way E** – This signalized intersection is forecast to operate at LOS F under future (2045) with-project conditions during the weekday PM peak hour, degrading from LOS D under future (2045) without-project conditions.
- **Pacific Avenue SE/Carpenter Road SE** – This signalized intersection is forecast to operate at LOS F under future (2045) without-project and with-project conditions during the weekday PM peak hour, exceeding the LOS E standard for City of Lacey's Core Area.

Interstate 5 (I-5) RIRO/CD Road Interchange Operations

As part of the Marvin Road interchange project a collector-distributor road was constructed along the site frontage. In September 2018 a memorandum of understanding between the City of Lacey and WSDOT was agreed upon whereby a traffic analysis of the local network that demonstrates additional capacity is required for the access points to open. As this study demonstrates that capacity is needed as the Marvin Road corridor is heavily congested. Additionally, the future (2026 and 2045) Alternative 1 weekday PM peak hour operational performance at the future I-5 RIRO Ramp at the I-5 CD Road was determined based on the procedures identified in the *Highway Capacity Manual (HCM)* (6th Edition) and was evaluated using the *Highway Capacity Software (HCS7)* program. The performance of this ramp was evaluated based on weaving analysis[3]. The weaving section is shown in Figure 11.

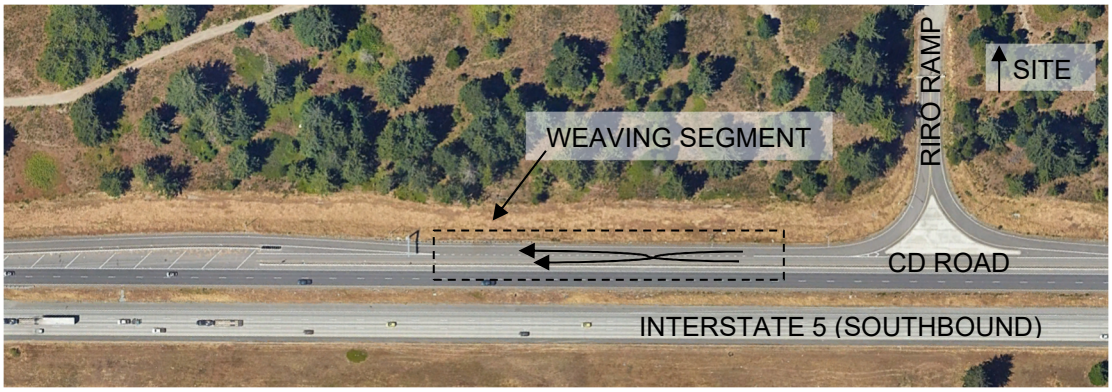


Figure 11. I-5 RIRO Ramp at the I-5 CD Road Evaluation Segment

Table 9 provides a summary of the weaving and ramp operations for the existing weekday AM and PM peak hours. LOS worksheets are included in Appendix I.

Table 9. Village Alternative 1 Weekday PM Peak Hour Interchange LOS Summary

		2026 With-Project Village Alt 1		2045 With-Project Village Alt 1	
Location	**LOS Standard**	**LOS[1]**	**Density (pc/mi/ln)[2]**	**LOS**	**Density (pc/mi/ln)**
I-5 RIRO Ramp at the I-5 CD Road	D	B	17.5	B	16.6

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition*.
2. pc/mi/ln = passenger cars per mile per lane.

As shown in the table, the proposed ramp is forecast to operate acceptably at LOS B with the Alternative 1 development during the weekday PM peak hour under both future 2026 and 2045 conditions.

[3] A weaving analysis evaluates the operation of a highway segment where there is the crossing of two or more traffic streams traveling in the same direction without the aid of traffic control devices.

Village Alternative 2 Project Impacts

The following sections summarize the Alternative 2's impacts on the surrounding street system. Traffic volumes generated by Alternative 2 are estimated and then distributed and assigned to adjacent roadways within the study area. Next, project trips are added to 2026 without-project traffic volumes for an opening year analysis and to 2045 without-project traffic volumes for a horizon year analysis. In addition to the review of off-site intersection impacts, the results of the site access analysis are summarized.

Trip Generation

Trip generation information presented in this report was previously presented to, reviewed, and approved by agency staff during the scoping process. Trip generation estimates for the project are based on trip rates using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (2021) as available. The ITE land uses used include Shopping Center (>150k sf) (LU #821), Hotel (LU #310), Multifamily Housing Mid-Rise (LU #221), General Office (LU #710), Private School (K-8) (LU #530), Recreational Community Center (LU #495), Athletic Complex (LU #488), Convenience Store/Gas Station (LU #945), and Car Dealership (LU #840). Consistent with Alternative 1, one specific use known to be proposed for the site is Topgolf which is an entertainment facility. Transpo recently completed a TIA for a Topgolf site in Renton, WA. Rates for several existing sites were provided to support the estimates. Only rates for the PM peak hour were available in this study. To forecast AM peak hour and total daily trips, a 2016 study for a Topgolf facility in El Segundo, CA was used to find the relationship between the number of AM peak hour and daily trips and the number of PM peak hour trips. The daily trips and AM peak hour trips were respectively 9.07 times and 0.21 times the number of PM peak hour trips. Related pages from the study are made available in Appendix F. Note that these ratios are applied to the gross trip rate, and the net new primary trips shown in Table 10 are after internal trip reductions and may not follow the same ratios.

Table 10 summarizes the resulting weekday daily, AM and PM peak hour vehicle trip generation for Alternative 2. Detailed trip generation calculations including reductions for pass-by, diverted and internal trips are provided in Appendix G.

Table 10. Estimated New Primary Weekday Vehicle Trip Generation for Alternative 2

Land Uses	Size	ITE LU Number[1]	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Shopping Center (>150k sf)	338,500 sf	820	9,560	145	80	225	402	438	840
Hotel	200 rooms	310	1,396	52	33	85	48	49	97
Multifamily Housing Mid-Rise	320 du	221	1,068	26	89	115	37	25	62
General Office	30,000 sf	710	230	27	4	31	2	22	24
Private School (K-8)	200 students	530	822	113	89	202	24	28	52
Recreational Community Center	200,000 sf	495	5,556	252	130	382	220	244	464
Athletic Complex	12 fields	488	826	7	5	12	121	62	183
Convenience Store/Gas Station (GFA (5.5-10k)	10 VFP	950	816	36	39	75	32	29	61
Car Dealership	30,000	840	266	14	5	19	9	13	22
Topgolf	93 bays	per Topgolf Study[2]	1,490	32	4	36	85	73	158
Total			***22,030***	***704***	***478***	***1,182***	***980***	***983***	***1,963***

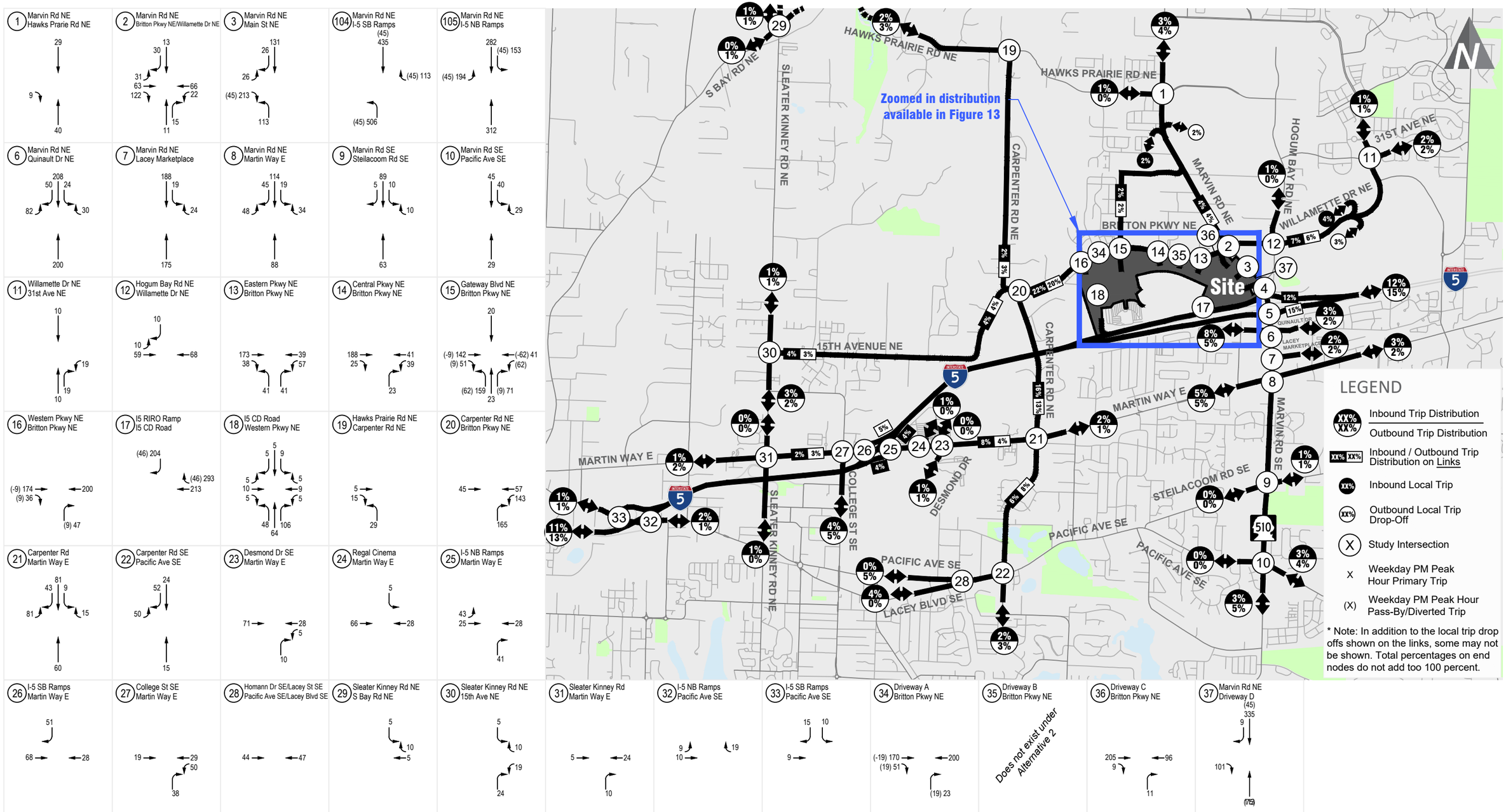
Note: du = dwelling unit, sf = square-feet, VFP = vehicle fueling position.
1. ITE's Land Use Number per the *Trip Generation Manual* (11th Edition, 2021)
2. Topgolf rates per a traffic impact analysis (TIA) completed by Transpo Group in 2019 for a Topgolf site in Renton, WA

Table 10 shows Alternative 2 of the Village is anticipated to generate 22,030 daily, 1,182 AM peak hour, and 1,963 PM peak hour weekday trips.

Trip Distribution & Assignment

The off-site trip distribution for Alternative 2 is consistent with Alternative 1 with slight adjustments to the site driveways to reflect the different site layouts. The project trip distribution and assignment is displayed in **Error! Reference source not found.** and a zoomed in version of the trip distribution that highlights the areas surrounding the site and the access is included in Figure 13.

To calculate 2026 with-project traffic volumes, PM peak hour project trips were added to the 2026 without-project traffic volumes. The 2026 with-project volumes are displayed in Figure 14. 2045 with-project traffic volumes were similarly calculated by adding the PM peak hour project trips to the 2045 without-project traffic volumes and are shown in Figure 15.

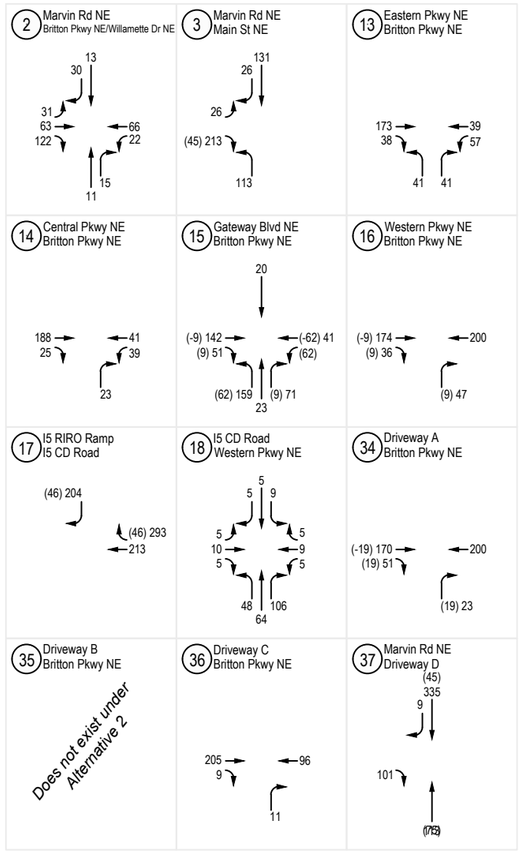


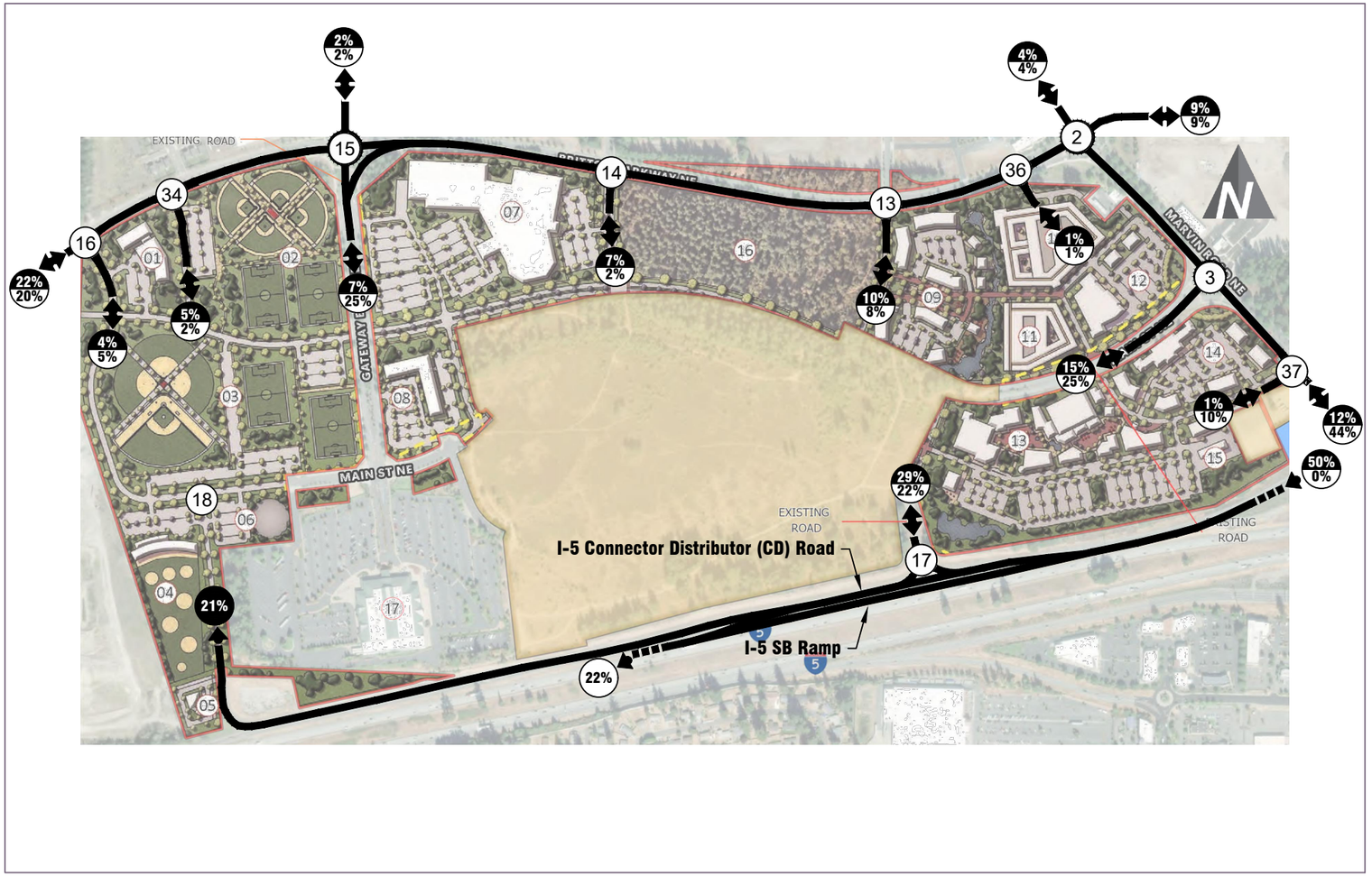
Project (Village Alternative 2) PM Peak Hour Trip Distribution and Assignment

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **12**

transpogroup





LEGEND

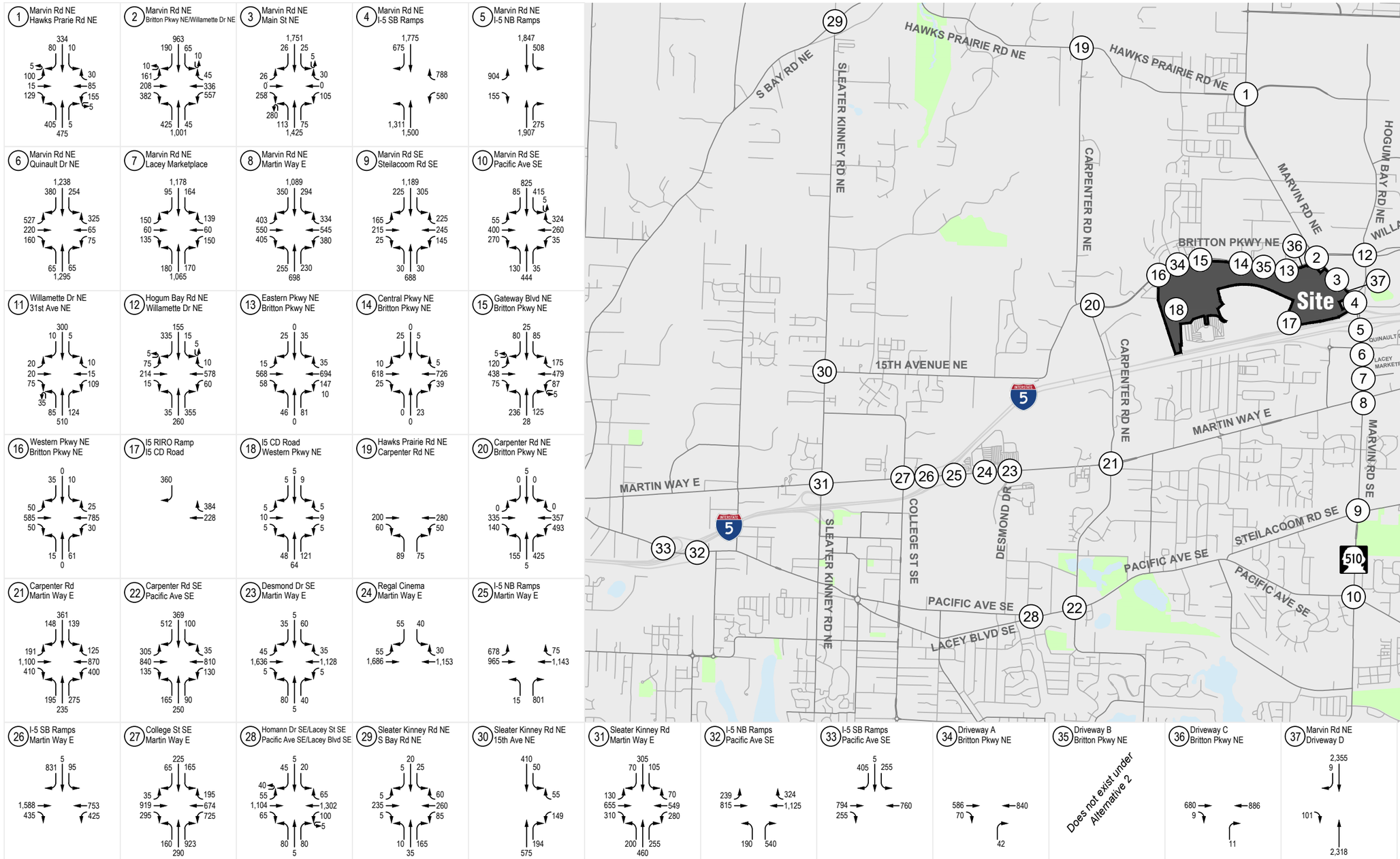
- XX% / XX% — Inbound Trip Distribution / Outbound Trip Distribution
- (X) — Study Intersection
- X — Weekday PM Peak Hour Primary Trip
- (X) — Weekday PM Peak Hour Pass-By/Diverted Trip

Project (Village Alternative 2) PM Peak Hour Trip Distribution and Assignment (Site Level Zoom)

Nisqually Quiemuth Village Mixed-Use Project

FIGURE 13

transpogroup



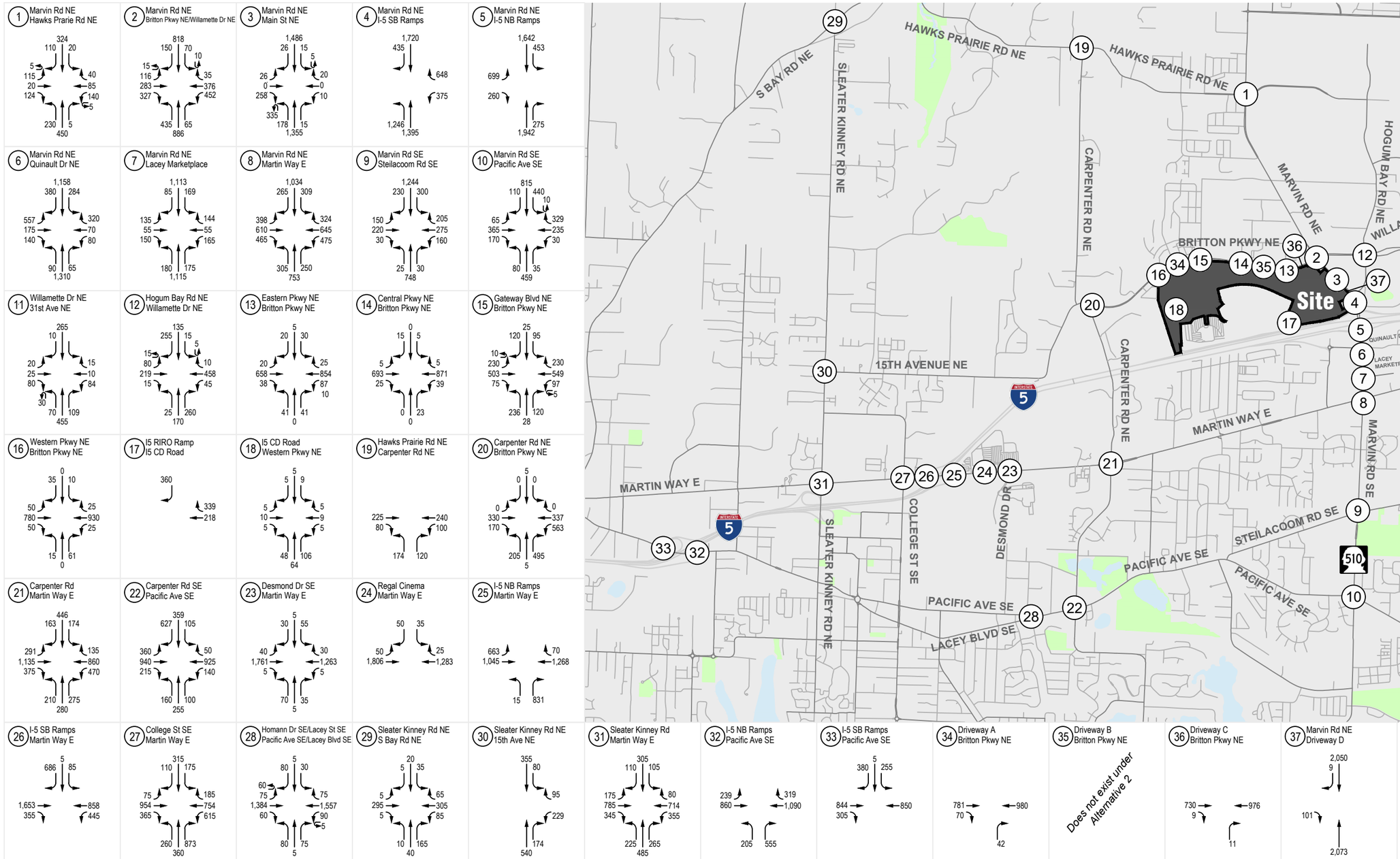
2026 With-Project Alternative 2 Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **14**

transpogroup

Jun 28, 2023 - 12:53pm bornaa M:\21\1.21359.00 - Nisqually Tribe Lacey Project\Graphics\DWG\2. Village TIA\Graphics_21359_TIA.dwg Layout: 14.WP-Alt2-2026



2045 With-Project Alternative 2 Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **15**

transpogroup

Traffic Operations Impact

The following sections summarize future (2026 and 2045) Alternative 2 traffic operations within the study area including the intersection level of service and the future I-5 Ramp interchange. The same methodologies for the intersection LOS were applied as described for existing and future without-project conditions. Results for both the 2026 and 2045 analysis years are provided.

Future (2026) Alternative 2 Intersection LOS

The future (2026) Alternative 2 with-project level of service analysis was conducted for the weekday PM peak hour to analyze the traffic impacts. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2026) without-project conditions with the exception of the added site accesses. A comparison of 2026 without-project and with-project weekday peak hour traffic operations is summarized in Table 11. Detailed LOS worksheets are provided in Appendix E.

As shown in Table 11, with the development of Alternative 2 of the Village under future (2026) conditions, there are 6 intersections forecast to operate below the respective standards during the weekday PM peak hour. The intersections operating below standard are either a site access or located on a strategy corridor. Each intersection forecast to operate below the respective standards is discussed below.

Site Access Intersections: 3 intersections serving as site accesses for the project are forecast to operate below standard.

- **Eastern Parkway NE/Britton Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS C without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access. A roundabout is proposed at this site access to mitigate this deficiency. Additional discussion and review of mitigation is provided in the subsequent section.
- **Britton Parkway NE/Western Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS E under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS D without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access. A restriction of both northbound and southbound left-turns is proposed at this location to mitigate the deficiency. With this restriction, drivers would be able to utilize the adjacent roundabout controlled intersections to turn around as needed. Additional discussion and review of mitigation is provided in the subsequent section.
- **Driveway D/Marvin Road NE** – The eastbound right-turn movement at the proposed right-in/right-out (RIRO) driveway is forecast to operate at LOS F with the project with a 95th percentile queue of approximately 4 vehicles outbound from the site. The delay is related to the high southbound through volumes along Marvin Road (forecast to exceed 2,300 vehicles during the PM peak hour under future (2026) with-project conditions). As this delay is for the outbound movement from the site and does not result in off-site impacts, no mitigation at this location is proposed.

Table 11. Future (2026) Village Alternative 2 Weekday PM Peak Hour LOS Summary

Intersection	LOS Standard	Traffic Control	2026 Without-Project LOS[1]	2026 Without-Project Delay[2]	2026 Without-Project WM[3] or V/C[4]	2026 With-Project Village Alt 2 LOS	2026 With-Project Village Alt 2 Delay	2026 With-Project Village Alt 2 WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	D	RAB	A	8	0.38	A	8	0.39
2. Marvin Rd NE/Britton Pkwy NE	D/SC	RAB	**C**	**31**	**1.09**	**D**	**42**	**1.19**
3. Marvin Rd NE/Main St NE	D/SC	RAB	A	9	0.83	B	15	0.95
4. Marvin Rd NE/I-5 SB Ramp	D/SC	Signal*	D	35	-	**F**	**109**	**-**
5. Marvin Rd NE/I-5 NB Ramp	D/SC	Signal*	B	20	-	C	32	-
6. Marvin Rd NE/Quinault Dr NE	D/SC	Signal	D	48	-	D	52	-
7. Marvin Rd NE/Lacey Marketplace	D/SC	Signal	D	49	-	D	52	-
8. Marvin Rd NE/Martin Way E	D/SC	Signal	D	51	-	D	52	-
9. Marvin Road SE/Steilacoom Road SE	D/SC	Signal	**E**	**58**	**-**	**E**	**65**	**-**
10. Marvin Road SE/Pacific Road SE	D	RAB	B	10	0.69	B	11	0.74
11. Willamette Dr NE/31st Ave NE	D/SC	RAB	A	6	0.27	A	6	0.28
12. Hogum Bay Rd NE/Willamette Dr NE	D/SC	RAB	A	7	0.72	A	8	0.75
13. Eastern Pkwy NE/Britton Pkwy NE	D	TWSC	C	20	SB	**F**	**73**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	D	TWSC	B	13	SB	C	15	SB
15. Gateway Blvd NE/Britton Pkwy NE	D	RAB	A	6	0.28	A	7	0.35
16. Britton Pkwy NE/Western Pkwy NE	D	TWSC	D	26	SBL	**E**	**46**	**SBL**
18. I-5 CD Rd/Western Parkway NE	D	TWSC	Intersection with project				10	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	D	TWSC	B	14	NB	C	16	NB
20. Carpenter Rd NE/Britton Pkwy NE	D	RAB	A	8	0.62	A	9	0.76
21. Carpenter Rd NE/Martin Way E	E/SC	Signal	D	41	-	D	52	-
22. Pacific Ave SE/Carpenter Rd SE	E/SC	Signal	E	64	-	E	77	-
23. Martin Way E/Desmond Dr	E/SC	Signal	A	8	-	A	8	-
24. Martin Way E/Regal Cinemas	E/SC	Signal	B	14	-	B	14	-
25. Martin Way E/I-5 NB Ramps	E/SC	Signal	D	50	-	E	60	-
26. Martin Way E/I-5 SB Ramps	E/SC	Signal*	D	38	-	D	48	-
27. Martin Way E/College St	E/SC	Signal	D	47	-	D	47	-
28. Pacific Ave SE/Lacey Blvd SE	E/SC	RAB	A	5	0.50	A	5	0.52
29. Sleater Kinney Rd NE/South Bay Rd NE	D	AWSC	B	14	-	B	14	-
30. Sleater Kinney Rd NE/15th Ave NE	D	Signal	A	9	-	B	10	-
31. Martin Way E/Sleater Kinney Rd	E	Signal	D	45	-	D	46	-
32. Pacific Ave SE/I-5 NB Ramps	D	Signal	B	19	-	B	19	-
33. Pacific Ave SE/I-5 SB Ramps	D	Signal	B	19	-	B	20	-
34. Driveway A/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	11	NBR
36. Driveway C/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	11	NBR
37. Driveway D/Marvin Rd NE	D	TWSC	RIRO Site Access			**F**	**77**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, SC = strategy corridor, RIRO = right-in/right-out. Location 17 evaluated in subsequent section.
* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*
BOLD *indicates intersection operating below respective LOS or v/c standard.*
Shading indicates intersection is on City of Lacey Strategy Corridor.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

City of Lacey Strategy Corridor Intersections: The following intersections are located on a strategy corridor.

- **Marvin Road NE/Britton Parkway NE** – This roundabout controlled intersection is forecast to operate at LOS C with a v/c ratio of 1.09 under future (2026) without-project conditions and further degrade with the project to operating at LOS D with a v/c ratio of 1.19, exceeding the identified threshold of 1.0.
- **Marvin Road NE/I-5 SB Ramp** – This is the northern intersection of the I-5 Diverging Diamond Interchange that was installed at this location in 2020 and is forecast to operate at LOS F with the project.
- **Marvin Road SE (SR 510)/Steilacoom Road SE** – This signalized intersection is forecast to operate at LOS E under future (2026) PM peak hour conditions both without and with Alternative 2.

Additional discussion of the City of Lacey Strategy Corridors is provided in the mitigation section of the report.

Future (2045) Alternative 2 Intersection LOS

The future (2045) Alternative 2 with-project level of service analysis was conducted for the weekday PM peak hour. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2045) without-project conditions with the exception of the added site accesses. A comparison of 2045 without-project and with-project weekday peak hour traffic operations is summarized in Table 12. Detailed LOS worksheets are provided in Appendix E.

As shown in Table 12, with the development of Alternative 2 of the Village under future (2045) conditions, there are 7 intersections forecast to operate below the respective standards during the weekday PM peak hour. The intersections operating below standard are either a site access or located on a strategy corridor. Each intersection forecast to operate below the respective standards is discussed below.

Site Access Intersections: 3 intersections serving as site accesses for the project are forecast to operate below standard, consistent with the 2026 condition.

- **Eastern Parkway NE/Britton Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS C without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access.
- **Britton Parkway NE/Western Parkway NE** – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F under future (2026) Alternative 1 conditions during the weekday PM peak hour, exceeding the LOS D standard, degrading form LOS D without the project. Note that the southbound movement is forecast to have the greatest delay, however, the northbound approach serves as the site access.
- **Driveway D/Marvin Road NE** – The eastbound right-turn movement at the proposed right-in/right-out (RIRO) driveway is forecast to operate at LOS E with the project with a 95th percentile queue of up to 3 vehicles outbound from the site. The delay is related to the high southbound through volumes along Marvin Road (forecast to exceed 2,000 vehicles during the PM peak hour under future (2045) with-project conditions).

Table 12. Future (2045) Village Alternative 2 Weekday PM Peak Hour LOS Summary

Intersection	LOS Standard	Traffic Control	2045 Without-Project			2045 With-Project Village Alt 2		
			LOS[1]	Delay[2]	WM[3] or V/C[4]	LOS	Delay	WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	D	RAB	A	7	0.30	A	8	0.35
2. Marvin Rd NE/Britton Pkwy NE	D/SC	RAB	B	11	0.75	B	17	0.94
3. Marvin Rd NE/Main St NE	D/SC	RAB	A	6	0.56	B	10	0.83
4. Marvin Rd NE/I-5 SB Ramp	D/SC	Signal*	C	24	-	**F**	**81**	**-**
5. Marvin Rd NE/I-5 NB Ramp	D/SC	Signal*	B	20	-	C	30	-
6. Marvin Rd NE/Quinault Dr NE	D/SC	Signal	D	46	-	D	50	-
7. Marvin Rd NE/Lacey Marketplace	D/SC	Signal	D	50	-	D	52	-
8. Marvin Rd NE/Martin Way E	D/SC	Signal	**E**	**58**	**-**	**E**	**63**	**-**
9. Marvin Road SE/Steilacoom Road SE	D/SC	Signal	D	50	-	**E**	**56**	**-**
10. Marvin Road SE/Pacific Road SE	D	RAB	A	8	0.53	A	10	0.68
11. Willamette Dr NE/31st Ave NE	D/SC	RAB	A	6	0.21	A	6	0.24
12. Hogum Bay Rd NE/Willamette Dr NE	D/SC	RAB	A	6	0.46	A	7	0.53
13. Eastern Pkwy NE/Britton Pkwy NE	D	TWSC	C	22	SB	**F**	**63**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	D	TWSC	B	14	SB	C	19	SB
15. Gateway Blvd NE/Britton Pkwy NE	D	RAB	A	6	0.32	A	8	0.46
16. Britton Pkwy NE/Western Pkwy NE	D	TWSC	D	26	NBL	**F**	**63**	**SBL**
18. I-5 CD Rd/Western Parkway NE	D	TWSC	Intersection with project				10	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	D	TWSC	C	21	NB	D	25	NB
20. Carpenter Rd NE/Britton Pkwy NE	D	RAB	A	7	0.47	A	9	0.73
21. Carpenter Rd NE/Martin Way E	E/SC	Signal	E	57	-	E	80	-
22. Pacific Ave SE/Carpenter Rd SE	E/SC	Signal	**F**	**91**	**-**	**F**	**107**	**-**
23. Martin Way E/Desmond Dr	E/SC	Signal	A	7	-	A	7	-
24. Martin Way E/Regal Cinemas	E/SC	Signal	B	14	-	B	13	-
25. Martin Way E/I-5 NB Ramps	E/SC	Signal	C	35	-	D	43	-
26. Martin Way E/I-5 SB Ramps	E/SC	Signal*	D	39	-	D	46	-
27. Martin Way E/College St	E/SC	Signal	D	48	-	D	48	-
28. Pacific Ave SE/Lacey Blvd SE	E/SC	RAB	A	5	0.58	A	5	0.63
29. Sleater Kinney Rd NE/South Bay Rd NE	D	AWSC	B	14	-	B	14	-
30. Sleater Kinney Rd NE/15th Ave NE	D	Signal	B	12	-	B	13	-
31. Martin Way E/Sleater Kinney Rd	E	Signal	D	51	-	D	51	-
32. Pacific Ave SE/I-5 NB Ramps	D	Signal	B	17	-	B	18	-
33. Pacific Ave SE/I-5 SB Ramps	D	Signal	B	17	-	B	18	-
34. Driveway A/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	12	NBR
36. Driveway C/Britton Pkwy NE	D	TWSC	RIRO Site Access			B	11	NBR
37. Driveway D/Marvin Rd NE	D	TWSC	RIRO Site Access			**E**	**41**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, RIRO = right-in/right-out. Location 17 evaluated in subsequent section.

* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*

***BOLD** indicates intersection operating below respective LOS or v/c standard.*

Shading indicates intersection is on City of Lacey Strategy Corridor.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

City of Lacey Strategy Corridor Intersections: The following intersections are located on a strategy corridor.

- **Marvin Road NE/I-5 SB Ramp** – This is the northern intersection of the I-5 Diverging Diamond Interchange that was installed at this location in 2020 and is forecast to operate at LOS F with the project.
- **Marvin Road NE/Martin Way E** – This signalized intersection is forecast to operate at LOS E under future (2045) without-project and with-project conditions during the weekday PM peak hour, exceeding the LOS D standard for City of Lacey and WSDOT along SR 510.
- **Marvin Road SE (SR 510)/Steilacoom Road SE** – This signalized intersection is forecast to operate at LOS E under future (2045) with-project PM peak hour conditions.
- **Pacific Avenue SE/Carpenter Road SE** – This signalized intersection is forecast to operate at LOS F under future (2045) without-project and with-project conditions during the weekday PM peak hour, exceeding the LOS E standard for City of Lacey's Core Area.

I-5 RIRO/CD Road Interchange Operations

The future (2026 and 2045) Alternative 2 weekday PM peak hour operational performance at the future I-5 RIRO Ramp at the I-5 CD Road was determined consistent with the methodology as described above for Alternative 1. Table 13 provides a summary of the weaving and ramp operations for the existing weekday AM and PM peak hours. LOS worksheets are included in Appendix I.

Table 13. Village Alternative 2 Weekday PM Peak Hour Interchange LOS Summary

		2026 With-Project Village Alt 2		2045 With-Project Village Alt 2	
Location	**LOS Standard**	**LOS[1]**	**Density (pc/mi/ln)[2]**	**LOS**	**Density (pc/mi/ln)**
I-5 RIRO Ramp at the I-5 CD Road	D	B	12.9	B	12.1

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition*.
2. pc/mi/ln = passenger cars per mile per lane.

As shown in the table, the proposed ramp is forecast to operate acceptably at LOS B with the Alternative 2 development during the weekday PM peak hour under both future 2026 and 2045 conditions.

Combined Development Project Impacts (Village Alternative 1 and Casino Alternative A)

The following sections summarize the impacts on the surrounding street system for the Combined Development scenario which assumes the Village Alternative 1 development as well as the adjacent Casino Alternative A development that is planned to be constructed.[4] As identified in the Study Approach section above, the Casino Resort will utilize the same access points as the proposed Village development, primarily 3. Marvin Rd NE/Main St NE, 15. Gateway Blvd NE/Britton Pkwy NE, 17. I-5 RIRO Ramp/I-5 CD Rd, and 37. Marvin Rd NE/Dwy D; however, the Casino Resort is being processed under a separate application. The Casino Resort is included in the analysis as a pipeline project.

Trip Generation

Trip generation estimates for the project are consistent with Alternative 1 land uses and methodology as described above with additional reductions for internal capture associated with the adjacent Casino Resort that is included as part of the Combined Development condition as previously approved. Table 14 summarizes the resulting weekday daily, AM and PM peak hour vehicle trip generation for the Village Alternative 1 under the Combined Development. Detailed trip generation calculations including reductions for pass-by, diverted and internal trips are provided in Appendix G.

Table 14. Estimated New Primary Weekday Vehicle Trip Generation for Village Alternative 1 under the Combined Development

Land Uses	Size	ITE LU Number[1]	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Shopping Center (>150k sf)	863,500 sf	820	23,966	361	198	559	1,019	1,118	2,137
Hotel	200 rooms	310	1,396	52	33	85	48	49	97
Multifamily Housing Mid-Rise	320 du	221	1,068	26	89	115	37	25	62
General Office	30,000 sf	710	230	27	4	31	2	22	24
Truck Stop	26 VFP / 36,000 sf	950	1,456	40	47	87	63	38	101
Car Dealership	30,000	840	800	40	15	55	27	41	68
Topgolf	93 bays	per Topgolf Study[2]	1,422	32	4	36	76	67	143
Total			**30,338**	**578**	**390**	**968**	**1,272**	**1,360**	**2,632**

Note: du = dwelling unit, sf = square-feet, VFP = vehicle fueling position.
1. ITE's Land Use Number per the *Trip Generation Manual* (11th Edition, 2021)
2. Topgolf rates per a traffic impact analysis (TIA) completed by Transpo Group in 2019 for a Topgolf site in Renton, WA

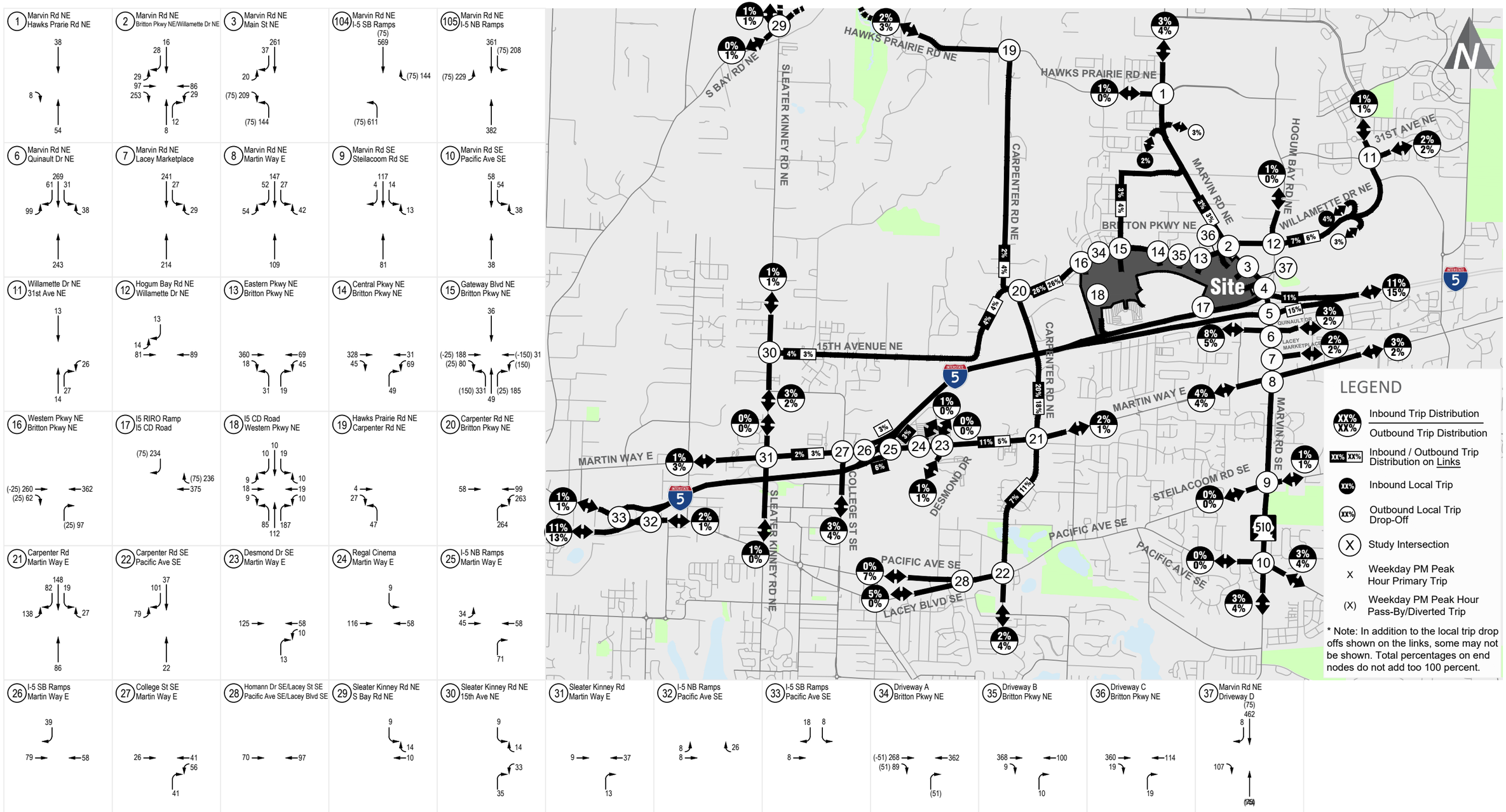
As shown in the table, the Village Alternative 1 is anticipated to generate 30,338 daily, 968 AM peak hour, and 2,632 PM peak hour weekday trips under the Combined Development.

Trip Distribution & Assignment

The distribution of project trips is consistent with Alternative 1 as presented in the section above. Under the Combined Development, the trip generation is slightly lower than the standalone Village Alternative 1 due to the internal capture between the Village and the Casino Resort. The project trip distribution and assignment is displayed in Figure 16. To calculate 2026 with-project traffic volumes, PM peak hour project trips were added to the 2026 without-project traffic volumes

[4] There are two other alternatives (B and C) for the Casino Resort, and they both generate fewer trips than Alternative A. Alternative 1 for the Village and Alternative A for the Casino Resort each reflect the highest density development conditions for each project, providing a worst-case scenario for the Combined Development review.

(inclusive of the Casino Resort as a pipeline project). The 2026 with-project volumes are displayed in Figure 17. 2045 with-project traffic volumes were similarly calculated by adding the PM peak hour project trips to the 2045 without-project traffic volumes and are shown in Figure 18.

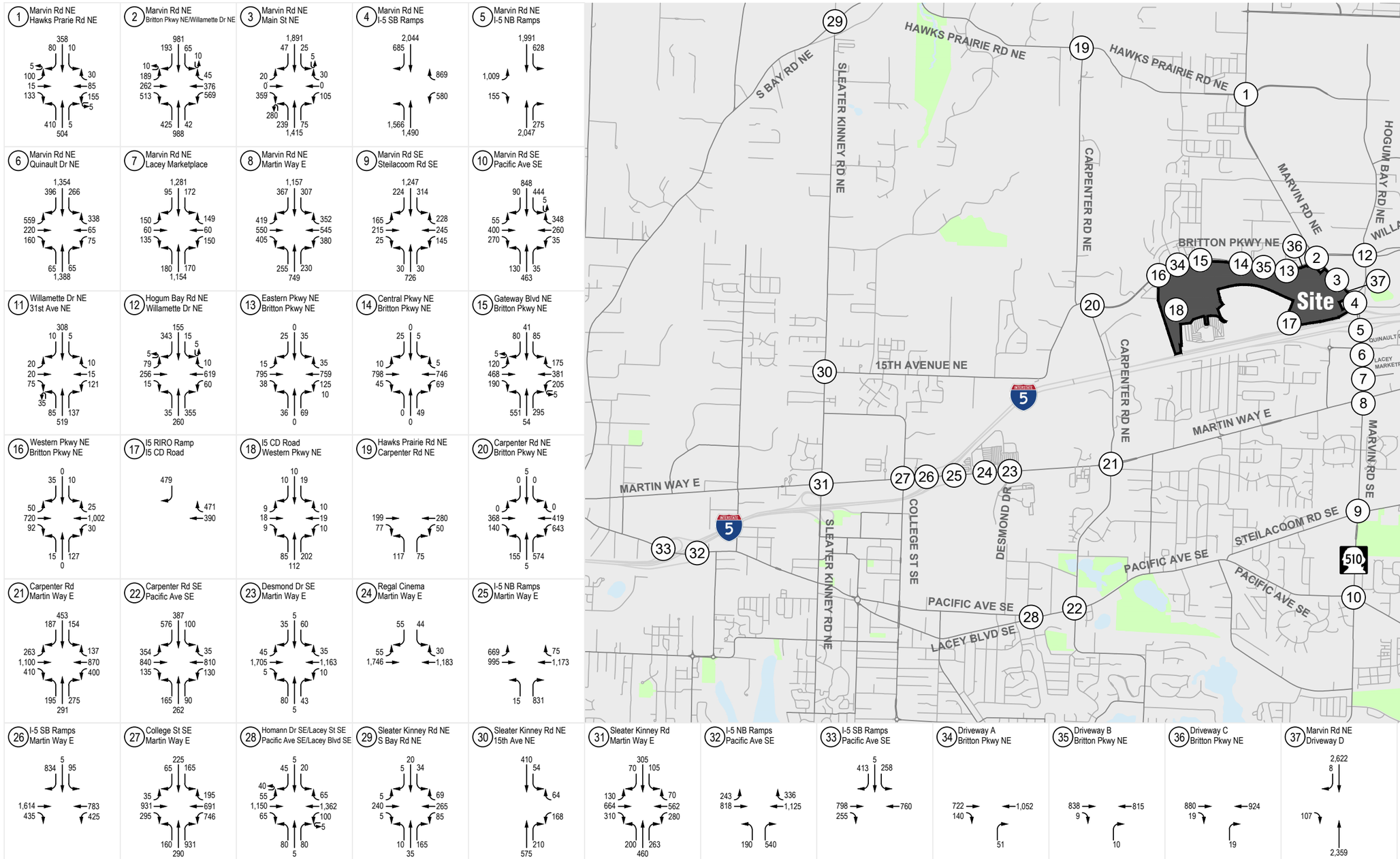


Project (Village Alternative 1) PM Peak Hour Trip Distribution and Assignment Under Combined Development

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **16**

transpogroup

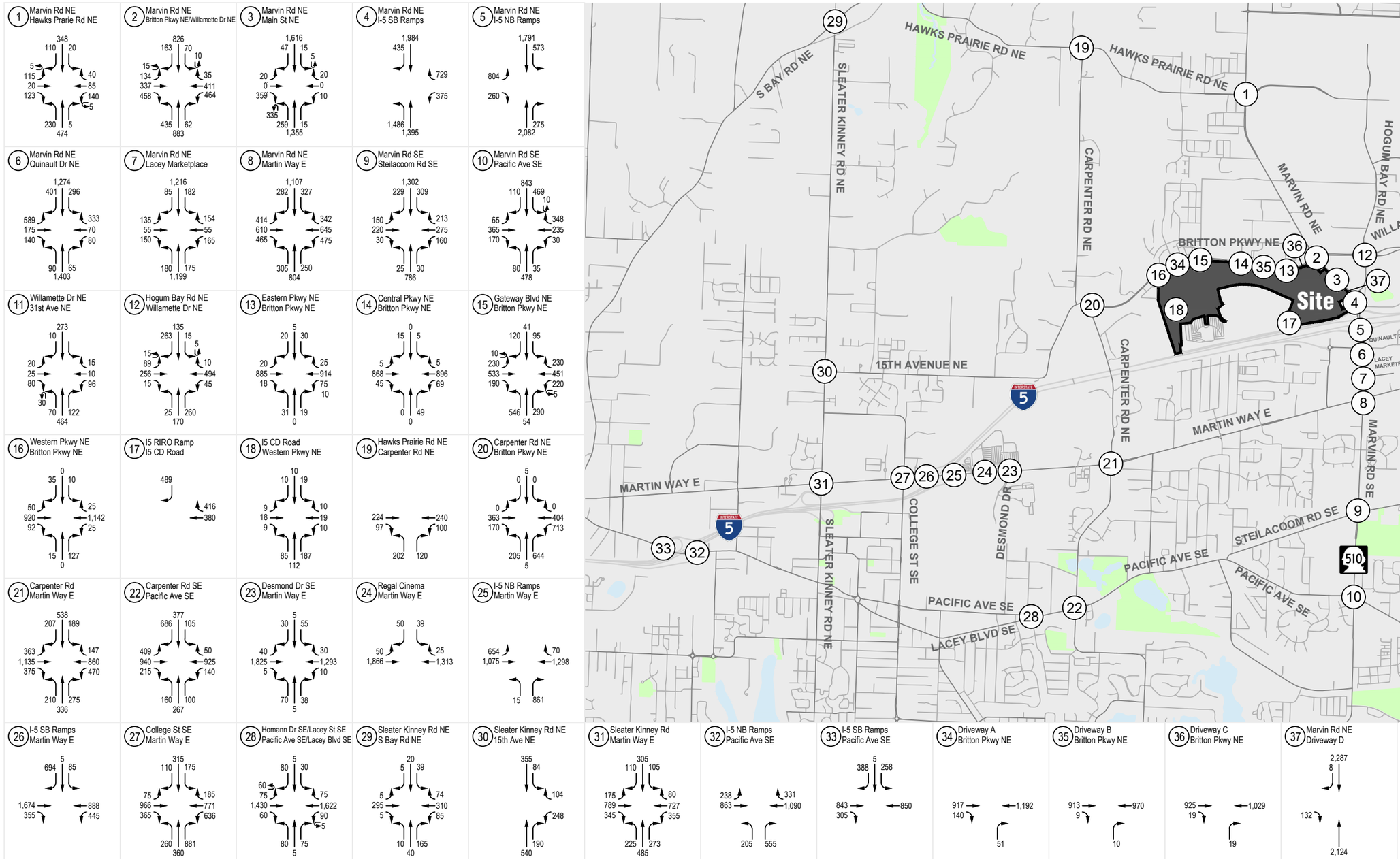


2026 With-Project Combined Development Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

transpogroup

FIGURE
17



2045 With-Project Combined Development Weekday PM Peak Hour Traffic Volumes

Nisqually Quiemuth Village Mixed-Use Project

FIGURE **18**

transpogroup

Traffic Operations Impact

The following sections summarize future (2026 and 2045) Combined Development traffic operations within the study area. The same methodologies were applied as described for existing and future without-project conditions. Results for both the 2026 and 2045 analysis years are provided.

Future (2026) Combined Development Intersection LOS

The future (2026) Combined Development level of service analysis was conducted for the weekday PM peak hour. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2026) without-project conditions. A comparison of 2026 without-project, Village Alternative 1, and Combined Development weekday PM peak hour traffic operations is summarized in Table 16. Detailed LOS worksheets are provided in Appendix E. As shown in Table 16, the intersections are forecast to generally operate at the same LOS under the Combined Development condition relative to the Alternative 1 condition, with the same 8 study intersections as described above in the Alternative 1 project impact section forecast to operate below the respective standard. Increases in delay with the Combined Development relative to Alternative 1 are up to 24 seconds under future (2026) weekday PM peak hour conditions.

Future (2045) Combined Development Intersection LOS

The future (2045) Combined Development level of service analysis was conducted for the weekday PM peak hour. All intersection parameters such as channelization, intersection control, and signal timing were consistent with those used in the evaluation of future (2045) without-project conditions. A comparison of 2045 without-project, Alternative 1, and Combined Development weekday PM peak hour traffic operations is summarized in Table 17. Detailed LOS worksheets are provided in Appendix E. As shown in Table 17, the intersections are forecast to generally operate at the same LOS under the Combined Development relative to the Alternative 1 condition, with the same 7 study intersections as described above in the Alternative 1 project impact section forecast to operate below the respective standard. Increases in delay with the Combined Development relative to Alternative 1 are up to 48 seconds under future (2045) weekday PM peak hour conditions.

I-5 RIRO/CD Road Interchange Operations

The future (2026 and 2045) Combined Development weekday PM peak hour operational performance at the future I-5 RIRO Ramp at the I-5 CD Road was determined using methodology consistent to that described above for Alternative 1. Table 15 provides a summary of the weaving and ramp operations for the existing weekday AM and PM peak hours. LOS worksheets are included in Appendix I.

Table 15. Future (2026 and 2045) Weekday PM Peak Hour Interchange LOS Summary

		2026		2045	
Scenario	**LOS Standard**	**LOS[1]**	**Density (pc/mi/ln)[2]**	**LOS**	**Density (pc/mi/ln)**
With-Project Village Alternative 1	D	B	17.5	B	16.6
With-Project Combined Development	D	B	19.7	B	18.8

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition*.
2. pc/mi/ln = passenger cars per mile per lane.

As shown in the table, the proposed ramp is forecast to operate acceptably at LOS C or better with both the Alternative 1 and Combined Development scenarios during the weekday PM peak hour under both future 2026 and 2045 conditions.

Table 16. Future (2026) Combined Development Weekday PM Peak Hour LOS Summary

Intersection	2026 Without-Project			2026 With-Project Village Alt 1			2026 Combined Development		
	LOS[1]	Delay[2]	WM[3] or V/C[4]	LOS	Delay	WM or V/C	LOS	Delay	WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	A	8	0.38	A	8	0.39	A	8	0.39
2. Marvin Rd NE/Britton Pkwy NE	**C**	**31**	**1.09**	**D**	**45**	**1.22**	**D**	**53**	**1.27**
3. Marvin Rd NE/Main St NE	A	9	0.83	**D**	**42**	**1.14**	**E**	**66**	**1.28**
4. Marvin Rd NE/I-5 SB Ramp	D	35	-	**F**	**138**	**-**	**F**	**157**	**-**
5. Marvin Rd NE/I-5 NB Ramp	B	20	-	D	42	-	D	51	-
6. Marvin Rd NE/Quinault Dr NE	D	48	-	D	54	-	D	54	-
7. Marvin Rd NE/Lacey Marketplace	D	49	-	D	55	-	D	55	-
8. Marvin Rd NE/Martin Way E	D	51	-	D	55	-	D	55	-
9. Marvin Road SE/Steilacoom Road SE	**E**	**58**	**-**	**E**	**67**	**-**	**E**	**69**	**-**
10. Marvin Road SE/Pacific Road SE	B	10	0.69	B	12	0.76	B	12	0.77
11. Willamette Dr NE/31st Ave NE	A	6	0.27	A	6	0.28	A	6	0.28
12. Hogum Bay Rd NE/Willamette Dr NE	A	7	0.72	A	8	0.76	A	8	0.77
13. Eastern Pkwy NE/Britton Pkwy NE	C	20	SB	**F**	**103**	**SB**	**F**	**118**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	B	13	SB	C	18	NB	C	18	SB
15. Gateway Blvd NE/Britton Pkwy NE	A	6	0.28	A	9	0.54	A	10	0.59
16. Britton Pkwy NE/Western Pkwy NE	D	26	SBL	**F**	**82**	**SBL**	**F**	**98**	**SBL**
18. I-5 CD Rd/Western Parkway NE	Intersection with project			B	13	NB	B	12	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	B	14	NB	C	18	NB	C	19	NB
20. Carpenter Rd NE/Britton Pkwy NE	A	8	0.62	B	11	0.87	B	12	0.92
21. Carpenter Rd NE/Martin Way E	D	41	-	E	68	-	E	72	-
22. Pacific Ave SE/Carpenter Rd SE	E	64	-	**F**	**90**	**-**	**F**	**96**	**-**
23. Martin Way E/Desmond Dr	A	8	-	A	8	-	A	8	-
24. Martin Way E/Regal Cinemas	B	14	-	B	14	-	B	14	-
25. Martin Way E/I-5 NB Ramps	D	50	-	E	58	-	E	57	-
26. Martin Way E/I-5 SB Ramps	D	38	-	D	47	-	D	50	-
27. Martin Way E/College St	D	47	-	D	47	-	D	47	-
28. Pacific Ave SE/Lacey Blvd SE	A	5	0.50	A	5	0.54	A	5	0.54
29. Sleater Kinney Rd NE/South Bay Rd NE	B	14	-	B	15	-	C	15	-
30. Sleater Kinney Rd NE/15th Ave NE	A	9	-	B	11	-	B	11	-
31. Martin Way E/Sleater Kinney Rd	D	45	-	D	47	-	D	47	-
32. Pacific Ave SE/I-5 NB Ramps	B	19	-	B	19	-	B	19	-
33. Pacific Ave SE/I-5 SB Ramps	B	19	-	B	20	-	B	20	-
34. Driveway A/Britton Pkwy NE	RIRO Site Access			B	12	NBR	B	12	NBR
35. Driveway B/Britton Pkwy NE	RIRO Site Access			B	11	NBR	B	12	NBR
36. Driveway C/Britton Pkwy NE	RIRO Site Access			B	12	NBR	B	12	NBR
37. Driveway D/Marvin Rd NE	RIRO Site Access			**F**	**119**	**EBR**	**F**	**141**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, RIRO = right-in/right-out.
Location 17 evaluated in subsequent section.
* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*
BOLD *indicates intersection operating below respective LOS or v/c standard.*
Shading indicates intersection is on City of Lacey Strategy Corridor

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

Table 17. Future (2045) Combined Development Weekday PM Peak Hour LOS Summary

Intersection	2045 Without-Project			2045 With-Project Village Alt 1			2045 Combined Development		
	LOS[1]	Delay[2]	WM[3] or V/C[4]	LOS	Delay	WM or V/C	LOS	Delay	WM or V/C
1. Marvin Rd NE/Hawks Prairie Rd NE	A	7	0.30	A	7	0.31	A	7	0.31
2. Marvin Rd NE/Britton Pkwy NE	B	11	0.75	B	14	0.87	B	15	0.91
3. Marvin Rd NE/Main St NE	A	6	0.56	A	10	0.82	B	13	0.92
4. Marvin Rd NE/I-5 SB Ramp	C	24	-	**F**	**109**	**-**	**F**	**157**	**-**
5. Marvin Rd NE/I-5 NB Ramp	B	20	-	D	35	-	D	51	-
6. Marvin Rd NE/Quinault Dr NE	D	46	-	D	52	-	D	54	-
7. Marvin Rd NE/Lacey Marketplace	D	50	-	D	54	-	D	55	-
8. Marvin Rd NE/Martin Way E	**E**	**58**	**-**	**E**	**66**	**-**	**E**	**69**	**-**
9. Marvin Road SE/Steilacoom Road SE	D	50	-	**E**	**57**	**-**	**E**	**59**	**-**
10. Marvin Road SE/Pacific Road SE	A	8	0.53	A	9	0.58	A	9	0.59
11. Willamette Dr NE/31st Ave NE	A	6	0.21	A	6	0.22	A	6	0.23
12. Hogum Bay Rd NE/Willamette Dr NE	A	6	0.46	A	6	0.49	A	6	0.49
13. Eastern Pkwy NE/Britton Pkwy NE	C	22	SB	**F**	**82**	**SB**	**F**	**94**	**SB**
14. Central Pkwy NE/Britton Pkwy NE	B	14	SB	C	22	SB	C	24	SB
15. Gateway Blvd NE/Britton Pkwy NE	A	6	0.32	A	10	0.53	B	11	0.58
16. Britton Pkwy NE/Western Pkwy NE	D	26	NBL	**F**	**116**	**SBL**	**F**	**135**	**SBL**
18. I-5 CD Rd/Western Parkway NE	Intersection with project			B	12	NB	B	12	NB
19. Hawks Prairie Rd NE/Carpenter Rd NE	C	21	NB	D	29	NB	D	31	NB
20. Carpenter Rd NE/Britton Pkwy NE	A	7	0.47	A	8	0.62	A	8	0.67
21. Carpenter Rd NE/Martin Way E	E	57	-	**F**	**103**	**-**	**F**	**109**	**-**
22. Pacific Ave SE/Carpenter Rd SE	**F**	**91**	**-**	**F**	**123**	**-**	**F**	**128**	**-**
23. Martin Way E/Desmond Dr	A	7	-	A	7	-	A	7	-
24. Martin Way E/Regal Cinemas	B	14	-	B	13	-	B	13	-
25. Martin Way E/I-5 NB Ramps	C	35	-	D	45	-	D	45	-
26. Martin Way E/I-5 SB Ramps	D	39	-	D	43	-	D	44	-
27. Martin Way E/College St	D	48	-	D	48	-	D	48	-
28. Pacific Ave SE/Lacey Blvd SE	A	5	0.58	A	5	0.62	A	5	0.62
29. Sleater Kinney Rd NE/South Bay Rd NE	B	14	-	B	15	-	B	15	-
30. Sleater Kinney Rd NE/15th Ave NE	B	12	-	B	13	-	B	13	-
31. Martin Way E/Sleater Kinney Rd	D	51	-	D	52	-	D	52	-
32. Pacific Ave SE/I-5 NB Ramps	B	17	-	B	18	-	B	18	-
33. Pacific Ave SE/I-5 SB Ramps	B	17	-	B	18	-	B	18	-
34. Driveway A/Britton Pkwy NE	RIRO Site Access			B	13	NBR	B	13	NBR
35. Driveway B/Britton Pkwy NE	RIRO Site Access			B	12	NBR	B	12	NBR
36. Driveway C/Britton Pkwy NE	RIRO Site Access			B	12	NBR	B	12	NBR
37. Driveway D/Marvin Rd NE	RIRO Site Access			**F**	**55**	**EBR**	**F**	**81**	**EBR**

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; RAB = Roundabout, RIRO = right-in/right-out.
Location 17 evaluated in subsequent section.
* *Asterisk next to the "Signal" traffic control means results are reported based on HCM 2000.*
BOLD *indicates intersection operating below respective LOS or v/c standard.*
Shading indicates intersection is on City of Lacey Strategy Corridor

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition* for stop-controlled intersections and signalized intersections and based on *Highway Capacity Manual 2000* for signalized intersections not supported by *HCM 6th Edition* methodology.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.
3. Worst movement or approach reported for side-street stop-controlled intersections.
4. Volume to capacity ratio reported for roundabouts.

Mitigation

This section summarizes recommended mitigation measures at the study intersections and reviews the required Traffic Impact Fees.

Transportation Improvements

Two intersections are forecast to exceed the standards as presented in the operational analysis above for the 2026 with-project (Alternative 1 and/or Alternative 2) condition, excluding the study intersections on the City of Lacey Strategy Corridors which are discussed separately below. These 2 intersections and proposed mitigation include:

13. **Eastern Parkway NE/Britton Parkway NE** – Install a multi-lane roundabout, with two lanes on the east/west approaches and a single-lane approach on the north/south sides, in place of the two-way stop-controlled existing traffic control. A layout of the proposed roundabout is available in Appendix E. The northbound approach serves as a site access.
16. **Britton Parkway NE/Western Parkway NE** – Restrict the northbound and southbound left movements at the existing two-way stop-controlled intersection. The northbound approach serves as a site access. Roundabouts exist both east and west of this location and can be used to more safely and efficiently facilitate the desired left-turns from this location.

The traffic operations at each intersection with the proposed mitigation needed for the 2026 condition is summarized in Table 18 below.

Table 18. Weekday With-Project PM Peak Hour LOS Mitigation Summary

	Without Mitigation			With Mitigation			
Intersection	**LOS[1]**	**Delay[2]**	**WM[3]**	***Proposed Mitigation***	**LOS**	**Delay**	**WM**
2026							
Alternative 1							
13. Eastern Pkwy NE/Britton Pkwy NE	**F**	**103**	**SB**	*Roundabout*	*A*	*5*	*0.32*
16. Britton Pkwy NE/Western Pkwy NE	**F**	**82**	**SBL**	*Restrict NBL/SBL movements*	*B*	*13*	*SBR*
Alternative 2							
13. Eastern Pkwy NE/Britton Pkwy NE	**F**	**73**	**SB**	*Roundabout*	*A*	*5*	*0.31*
16. Britton Pkwy NE/Western Pkwy NE	**E**	**46**	**SBL**	*Restrict NBL/SBL movements*	*B*	*12*	*SBR*
Combined Development							
13. Eastern Pkwy NE/Britton Pkwy NE	**F**	**118**	**SB**	*Roundabout*	*A*	*5*	*0.33*
16. Britton Pkwy NE/Western Pkwy NE	**F**	**98**	**SBL**	*Restrict NBL/SBL movements*	*B*	*14*	*NBR*
2045							
Alternative 1							
13. Eastern Pkwy NE/Britton Pkwy NE	**F**	**82**	**SB**	*Roundabout*	*A*	*5*	*0.35*
16. Britton Pkwy NE/Western Pkwy NE	**F**	**116**	**SBL**	*Restrict NBL/SBL movements*	*B*	*14*	*NBR*
Alternative 2							
13. Eastern Pkwy NE/Britton Pkwy NE	**E**	**63**	**SB**	*Roundabout*	*A*	*5*	*0.34*
16. Britton Pkwy NE/Western Pkwy NE	**E**	**63**	**SBL**	*Restrict NBL/SBL movements*	*B*	*13*	*SBR*
Combined Development							
13. Eastern Pkwy NE/Britton Pkwy NE	**F**	**94**	**SB**	*Roundabout*	*A*	*5*	*0.36*
16. Britton Pkwy NE/Western Pkwy NE	**F**	**135**	**SBL**	*Restrict NBL/SBL movements*	*B*	*15*	*NBR*

1. Level of Service (A – F) as defined by the *Highway Capacity Manual, 6th Edition*.
2. Average delay per vehicle reported in seconds for signalized, all-way stop-controlled, and roundabout intersections. Worst movement delay reported for side-street stop-controlled intersections.

3. Worst movement or approach reported for side-street stop-controlled intersections. SB = southbound, SBL = southbound left-turn, NBL = northbound left-turn, SBR = southbound right-turn, NBR = northbound right-turn.

As shown in Table 18, the proposed mitigation would result in the intersections operating acceptably at LOS D or better under both future 2026 and 2045 conditions as well as under all with project conditions (Alternative 1, Alternative 2, and the Combined Development). Note that the timing of all identified mitigation would be in place prior to operation of the project given the mitigation being at a site driveway.

City of Lacey Strategy Corridors: The following strategy corridors were evaluated and forecast to have one or multiple intersections operating below the typical standard:

- Marvin Road NE
- Pacific Avenue SE
- Martin Way

The 2030 Lacey Transportation Plan states, “Strategy Corridors are exempt from the above level of service standards, however, may require strategies tailored to the specific needs of each roadway.” “Such strategies should include an appropriate mix of:

1. High quality and fully-integrated bike, pedestrian, carpool, vanpool, and transit facilities and services;
2. Complete and connected street grids;
3. Transportation technology measures that improve overall system operating efficiency and safety;
4. Access management;
5. Parking management;
6. Aggressive travel demand management strategies.

And additionally,

7. Land use intensification; consideration of more compact high density and mixed use alternatives;
8. Improvements to adjacent pedestrian connections and consideration of specialized improvements to key pedestrian intersections designed to encourage pedestrian use.”

In compliance with the Strategy Corridor requirements, the Tribe will be working with the City to implement necessary “transportation technology measures” and “travel demand management strategies”. The project itself has compact high density housing and is a mixed use development consistent with those strategies identified by the City of Lacey.

Traffic Impact Fees

The project is responsible for paying Traffic Impact Fees (TIF) to mitigate impacts to planned transportation improvement projects in the area. TIF were estimated for both Alternatives 1 and 2 per City of Lacey *2022/2023 Transportation Improvement Mitigation List* which identifies a cost per trip specific to their project list. As shown in Table 19, the preliminary estimate of the City of Lacey TIF is approximately $1.8 and $1.2 million for Alternative 1 and Alternative 2, respectively.

Table 19. Preliminary City of Lacey Traffic Impact Fees Calculation for Village Alternatives 1 and 2

Project	City of Lacey Cost Per Trip[1]	Alternative 1		Alternative 2	
		Trips	Fee	Trips	Fee
Completed					
45th Avenue and College Street Improvements	$ 433.02	-	-	-	-
Marvin Rd and Britton Pkwy Intersection Improvements	$ 118.42	715	$84,670.30	548	$64,894.16
Golf Club Road Extension	$ 201.18	-	-		-
Martin Way / Hoh Street Intersection Improvements	$ 268.23	71	$19,044.33	53	$14,216.19
Willamette Drive / 31st Ave Intersection Improvements	$ 335.29	81	$27,158.49	58	$19,446.82
Fixed Completed					
Mullen Rd Capacity/Safety Improvements East of Ruddell	$ 1,477.88	-	-		-
6th Avenue / Sleater Kinney Improvements	$ 1,477.88	-	-		-
Fixed					
Carpenter Rd from Martin Way to Britton Parkway	$ 1,477.88	534	$789,187.92	308	$455,187.04
College St Reconstruction -- Lacey Blvd to 37th Ave	$ 1,477.88	99	$146,310.12	88	$130,053.44
Marvin Road-- Britton to Columbia Drive NE	$ 1,477.88	83	$122,664.04	85	$125,619.80
Yelm Hwy Improvements Ruddell Rd to East City Limits	$ 1,477.88	-	-		-
Hogum Bay Road Improvements	$ 1,477.88	27	$39,902.76	20	$29,557.60
31st Avenue Extension Hogum Bay to Marvin Road	$ 1,477.88	-	-		-
Martin Way & I-5 Interchange Improvements	$ 1,477.88	139	$205,425.32	96	$141,876.48
Active					
College Street Extension NE	$ 1,149.34	-	-		-
Carpenter Rd Capacity /Safety Improvements Pacific to Shady Ln	$ 1,340.90	-	-		-
Rainier Rd from Yelm Hwy to City Limits (near Beckonridge)	$ 871.58	-	-		-
Carpenter Rd/Mullen Rd Intersection Improvements	$ 390.31	30	$11,709.30	20	$7,806.20
Britton Pkwy/Carpenter Rd Intersection Improvements	$ 432.86	696	$301,270.56	410	$177,472.60
Willamette Drive / Campus Glen Dr Roundabout	$ 571.43	27	$15,428.61	20	$11,428.60
Total			***$1,762,771.75***		***$1,177,558.93***

1. Cost per trip per City of Lacey *2022/2023 TRANSPORTATION IMPROVEMENT MITIGATION LIST*, Table 14T-15

Findings and Recommendations

This TIA summarizes the transportation impacts associated with the construction of the Nisqually Quiemuth Village Mixed Use Project (referred to as the Village) proposed west of Marvin Rd NE and south of Britton Pkwy NE, located in the city of Lacey, Washington. General findings and recommendations include:

- **Project Description –**
  - This Nisqually Quiemuth Village Mixed Use Project (the Village) is anticipated to be constructed and fully occupied by 2026. Two alternatives are being considered for the Village.
    - Alternative 1 is a mix of retail, office, hotel, and residential uses including other specific uses such as a truck stop, car dealership, and a Topgolf facility. This alternative has a higher retail density (approximately 2.5 times the gross floor area) compared to Alternative 2.
    - Alternative 2 is a mix of retail, office, hotel, residential, and recreational uses such as an indoor recreation facility and softball and soccer fields. Other specific uses include a car dealership, gas station, a Topgolf facility, and K-8 school. This alternative has a lower GFA of retail planned compared to Alternative 1.
  - 11 site accesses are proposed for Alternative 1, and 10 accesses are proposed for Alternative 2. Three site access points exist today, namely Western Pkwy NE/Britton Pkwy NE, Gateway Blvd NE/Britton Pkwy NE, and Main St NE/Marvin Blvd NE. Figure 8 and 13 display the locations of all site accesses.
  - The Nisqually Quiemuth Casino Resort Project is being proposed adjacent to the Village under a separate application. Although it is being processed under a separate application, the Casino Resort will utilize the same access points being proposed with this development. As such, this report also presents a combined analysis with both projects. The Casino Resort has three alternatives and Alternative A is used in the Combined Development scenario due to having the highest density of uses and representing a “worst-case” condition of traffic.

- **Trip Generation –**
  - Alternative 1: Under this alternative, the Village is anticipated to generate 30,596 daily, 968 weekday AM peak hour, and 2,676 weekday PM peak hour trips.
  - Alternative 2: Under this alternative, the Village is anticipated to generate 22,030 daily, weekday 1,182 AM peak hour, and 1,963 weekday PM peak hour trips.
  - Combined Development: Under the Combined Development scenario, due to the internal capture between the Village and Casino Resort, the Village is anticipated to generate 30,338 daily, 968 weekday AM peak hour, and 2,632 weekday PM peak hour trips.

- **Traffic Operations** –
  - Under existing conditions, out of 33 study intersections, only one operates below the City of Lacey’s LOS D standard at LOS F (*Carpenter Rd NE/Britton Pkwy NE*) under the weekday PM peak hour condition. Note that with the construction of the planned roundabout in the future year (per the City of Lacey Plan), the intersection is forecast to improve to operate acceptably.
  - Without the project, under 2026 conditions and with the completion of the planned improvements, two intersections are forecast to operate below the

respective jurisdictions' LOS standards. One location is forecast to operate at LOS E (Marvin Road SE SR 510/Steilacoom Rd SE) and a roundabout is forecast to operate at LOS C with a V/C ratio of 1.09 (Marvin Rd NE/Britton Pkwy NE). With continued growth in the area and anticipated shifts in travel patterns, the two intersections are forecast to operate below the respective jurisdictions' LOS standards under the 2045 horizon year without-project conditions. The Marvin Rd NE SR 510/Martin Way E and Pacific Ave SE/Carpenter Rd SE intersections are forecast to operate at LOS E and F, respectively. Note that all intersections operating below standard under both the 2026 and 2045 conditions are in City of Lacey Strategy Corridors.

- Under all development scenarios reviewed (Alternative 1, Alternative 2, and Combined Development) all intersections are forecast to meet the respective jurisdiction standards with the exception of some study intersections in City of Lacey Strategy Corridors and some site accesses. For each development condition the intersections operating below standard include:
  - Alternative 1: 8 total intersections are forecast to operate below standard under both 2026 and 2045 conditions during the weekday PM peak hour. Five are on City of Lacey Strategy Corridors and three are site accesses (*Eastern Parkway NE/Britton Parkway NE*, *Britton Parkway NE/Western Parkway NE and Driveway D/Marvin Road NE)*.
  - Alternative 2: 6 and 7 total intersections are forecast to operate below standard under 2026 and 2045 conditions, respectively during the weekday PM peak hour. Three are site accesses (*Eastern Parkway NE/Britton Parkway NE*, *Britton Parkway NE/Western Parkway NE and Driveway D/Marvin Road NE)* and the remaining are on City of Lacey Strategy Corridors.
  - Combined Development: 8 total intersections are forecast to operate below standard under both 2026 and 2045 conditions during the weekday PM peak hour, consistent with Alternative 1. Five are on City of Lacey Strategy Corridors and three are site accesses (*Eastern Parkway NE/Britton Parkway NE*, *Britton Parkway NE/Western Parkway NE and Driveway D/Marvin Road NE)*.
  - Note that under all development scenarios the eastbound right-turn movement at the proposed right-in/right-out (RIRO) Driveway D/Marvin Road NE access is forecast to operate at LOS F with the project. The 95th percentile queue is forecast to be 6 vehicles or less. The delay is related to the high southbound through volumes along Marvin Road. As this delay is for the outbound movement from the site and does not result in off-site impacts, no mitigation at this location is proposed.

Mitigation –

Mitigation is proposed at two of the site access along Britton Parkway NE. These intersections and the proposed mitigation include:

13. **Eastern Parkway NE/Britton Parkway NE** – Install a roundabout in place of the two-way stop-controlled existing traffic control. The northbound approach serves as a site access.
16. **Britton Parkway NE/Western Parkway NE** – Restrict the northbound and southbound left movements at the existing two-way stop-controlled intersection. The northbound approach serves as a site access. Roundabouts exist both east and west of this location such that the left-turns can still be accommodated with the added restriction.

Additionally, three strategy corridors are forecast to have an intersection operating below the typical standard which include Marvin Road NE, Pacific Avenue SE, and Martin Way. Consistent with the City of Lacey strategies identified in the 2030 Lacey Transportation Plan, the Tribe will be working with the City to implement necessary “transportation technology measures” and “travel demand management strategies” to reduce impacts at those locations. The project itself has compact high density housing and is a mixed use development consistent with those strategies identified by the City of Lacey.

In addition to the proposed mitigation, the project is responsible for paying Traffic Impact Fees (TIF) to mitigate impacts to planned transportation improvement projects in the area. TIF were estimated for both Alternatives 1 and 2 per City of Lacey *2022/2023 Transportation Improvement Mitigation List* which identifies a cost per trip specific to their project list. As shown in Table 19, the preliminary estimate of the City of Lacey TIF is approximately $1.8 and $1.2 million for Alternative 1 and Alternative 2, respectively.

Appendix A: Memorandum of Understanding (MOU) Between City of Lacey and WSDOT

Washington State Department of Transportation

Olympic Region
5720 Capitol Boulevard, Tumwater
P.O. Box 47440
Olympia, WA 98504-7440
360-357-2600 / FAX: 360-357-2601
TTY: 1-800-833-6388
www.wsdot.wa.gov

September 4, 2018

City of Lacey
Attn: Roger Schoessel
420 College St. SE
Lacey, WA 98509

Re: I-5/SR 510 Interchange – Reconstruction Interchange Project
Memorandum of Understanding

Dear Roger,

Enclosed for your record is the City's original of the above mentioned agreement.

If you have any questions please call me at (360) 704-3263.

Sincerely,

Roscoe Ames
Olympic Region Plans Office
Agreements Liaison

RDA:rda

cc: Kim Mueller
File

Memorandum of Understanding
between
City of Lacey
and
Washington State Department of Transportation (WSDOT)
for the
I-5/SR 510 Interchange – Reconstruct Interchange Project

I. Purpose

This memorandum of understanding is to document the conversations and agreements that WSDOT and the City of Lacey have agreed to during the design phase of the I-5/SR 510 Interchange - Reconstruct Interchange Project.

II. Maintenance Responsibilities

In coordination with the City of Lacey, WSDOT created Exhibit 1, Marvin Road Maintenance, which highlights the portion of SR 510 Marvin Rd within I-5 Limited Access that the City of Lacey has some maintenance responsibilities. This is in accordance with the City Streets as Part of State Highways guidelines and RCW 47.24.020. The City of Lacey has also agreed to maintain the special concrete islands requested by the City. The State will maintain the bridge structure and approach slabs. The parties expect to negotiate a comprehensive maintenance agreement to further define City maintenance responsibilities within state owned right of way.

III. Future Turn Back Lines

With the construction of the collector-distributor and the frontage road, the project will add two access points to the planned city street network. Since WSDOT will build the access points prior to the City of Lacey's street network, the turnback agreement couldn't be finalized. WSDOT and the City of Lacey have agreed on the location of the turnback lines for when the city street network is complete, see Exhibit 2.

IV. Opening the Frontage Road to Traffic

The I-5/ SR 510 Interchange project will construct the frontage road and access points; however, WSDOT will place temporary concrete barrier to prevent traffic from entering the constructed frontage road until all the requirements from the Interchange Justification Report (IJR) Amendment (November 2017) have been met. The IJR Amendment states:

> The frontage road and access points will be opened to traffic concurrently when:
> 1. The local network connections to both access points are open to traffic.
> 2. A traffic analysis of the local network shows additional capacity is needed and addressed by the access points from the frontage road.

The local network connections shall be city streets, not private roads. Once these items have been satisfied, the turn back lines and the R/W plan will be finalized and WSDOT will allow opening the frontage road. The City will be responsible for the work to open the frontage road. This work includes, but is not limited to (see Exhibit 3):

- Traffic analysis showing additional capacity is needed
- Acquire all necessary permits, including a general permit from the State
- Remove concrete barrier and type 3 barricades for both access points
- Deliver all removed traffic control devices to WSDOT Maintenance
- Remove stripe as required for the new traffic movement
- Apply striping not completed in the WSDOT contract
- Install guide signs for the frontage road

The City will also coordinate with WSDOT for review and approval of final striping and signing plans. All work shall meet WSDOT standards and specifications.

V. New Permanent Signs Within City

As part of the design, WSDOT has determined that guide signs in conjunction with Interstate 5 shield pavement markings are necessary along Marvin Road southbound, north of the interchange, to help drivers move into the appropriate lane to minimize weaving at the DDI crossover intersection. This will add approximately 5 guide signs north of the interchange outside of limited access. On Quinault Drive NE, WSDOT will remove 6 Motorist Information and guide signs and relocate them to the northbound off ramp since WSDOT will not be restricting right turn movements onto Marvin Rd any more. Other regulatory signs in the project area will be removed and replaced in kind. Locations for the signs are shown on Exhibit 4.

VI. Authorization

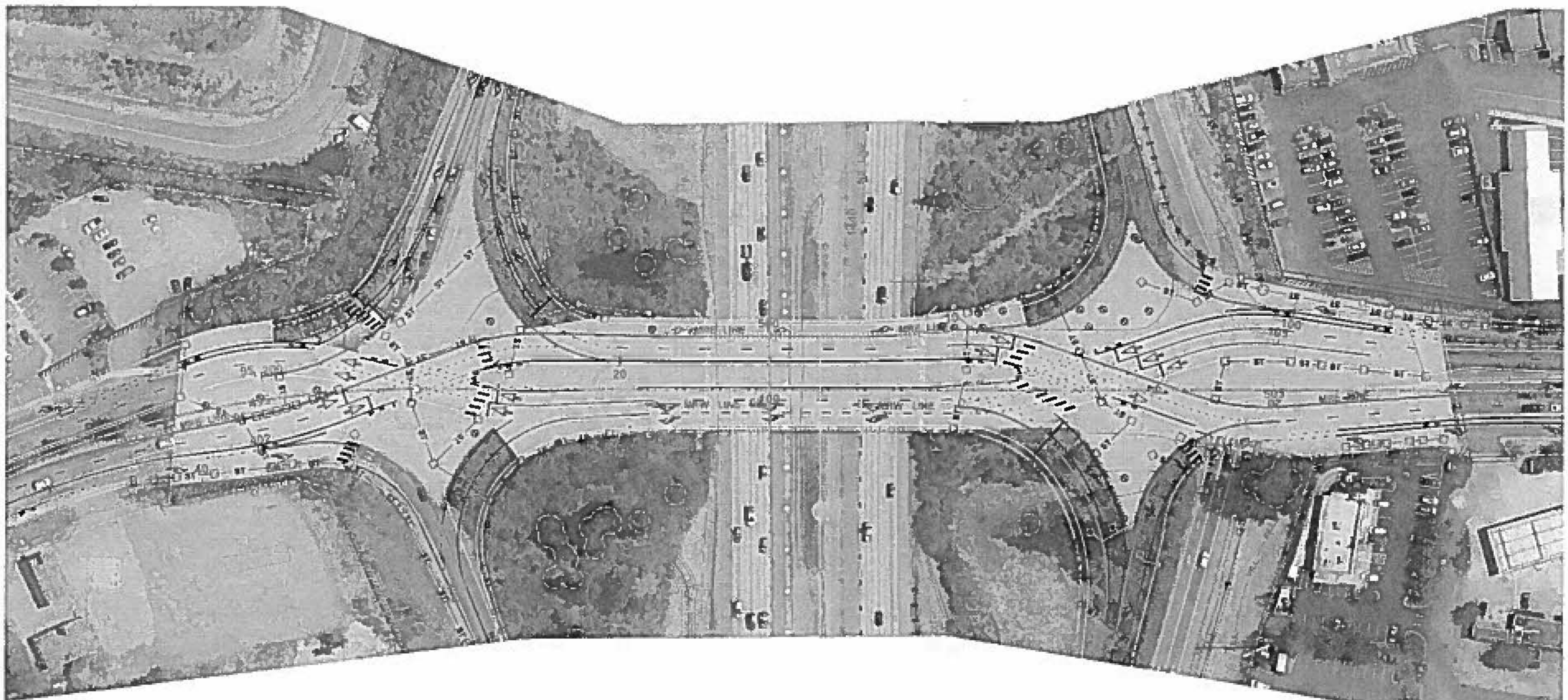
City of Lacey

Scott Spence, City Manager — Date 8/21/2018

Washington State Department of Transportation

John Wynands, WSDOT Olympic Region Administrator — Date 8/23/18

T.18N. R.1W. W.M.



NOTE:

1. HIGHLIGHTED AREA REPRESENTS THE MAINTENANCE AND PRESERVATION RESPONSIBILITY FOR THE CITY OF LACEY WITHIN I-5 STATE-OWNED RIGHT OF WAY.

LEGEND

EXISTING ALIGNMENT
CONSTRUCTION ALIGNMENT
HIGHWAY RIGHT OF WAY
LIMITED ACCESS RIGHT OF WAY
TURN BACK LINE
NEW LANE EDGE WHITE
NEW DOTTED LANE LINE
NEW BARRIER
NEW SHOULDER PAVED EDGE
NEW LANE LINE YELLOW
NEW CUT LINE
NEW FILL LINE
NEW CONTOUR LINE
GLOBAL POSITIONING POINT
FILL TOE
IMPACT ATTENUATOR
PEDESTRIAN PUSH BUTTON
SIGNAL HEAD
DATA STATION
CCTV CAMERA
ADVANCED WARNING SIGN
RETAINING WALL
ILLUMINATION
GRATE INLET
CATCH BASIN
STORM DRAIN PIPE
LANE LINE
DIRECTIONAL ARROWS
DETECTION LOOPS
CURBING
BRIDGE
CONDUIT

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PROJ. ENGR.	K. MUELLER
REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

LOCATION NO. XL5100

Washington State Department of Transportation

Exhibit 1

I-5
SR510 INTERCHANGE
RECONSTRUCT INTERCHANGE

MARVIN ROAD MAINTENANCE AGREEMENT

PLAN REF NO CPE1

SHEET 1 OF 1 SHEETS

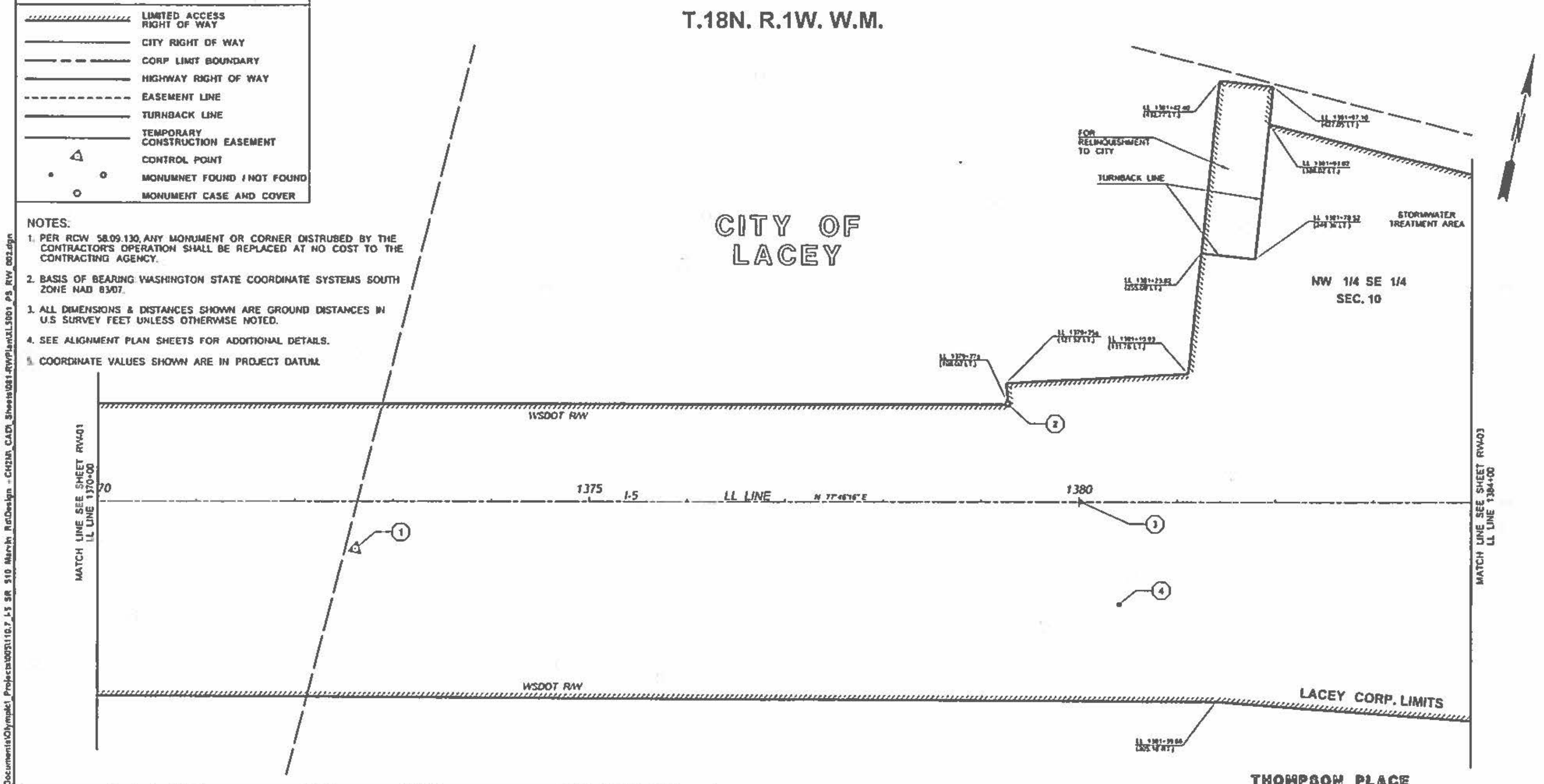
LEGEND

(line symbol)	LIMITED ACCESS RIGHT OF WAY
(line symbol)	CITY RIGHT OF WAY
(line symbol)	CORP LIMIT BOUNDARY
(line symbol)	HIGHWAY RIGHT OF WAY
(line symbol)	EASEMENT LINE
(line symbol)	TURNBACK LINE
(line symbol)	TEMPORARY CONSTRUCTION EASEMENT
(symbol)	CONTROL POINT
(symbols)	MONUMNET FOUND / NOT FOUND
(symbol)	MONUMENT CASE AND COVER

NOTES:

1. PER RCW 58.09.130, ANY MONUMENT OR CORNER DISTRUBED BY THE CONTRACTOR'S OPERATION SHALL BE REPLACED AT NO COST TO THE CONTRACTING AGENCY.
2. BASIS OF BEARING WASHINGTON STATE COORDINATE SYSTEMS SOUTH ZONE NAD 83/07.
3. ALL DIMENSIONS & DISTANCES SHOWN ARE GROUND DISTANCES IN U.S SURVEY FEET UNLESS OTHERWISE NOTED.
4. SEE ALIGNMENT PLAN SHEETS FOR ADDITIONAL DETAILS.
5. COORDINATE VALUES SHOWN ARE IN PROJECT DATUM.

T.18N. R.1W. W.M.



MONUMENT TABLE LIST

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2	LL 1379+27.06	100.89' LT	966127.40	1398194.31	5/8" REBAR & CAP ISP 28073	DO NOT DISTURB
3	LL 1380+02.00	0.09' LT	966044.76	1398288.90	3" BRASS DISK	DO NOT DISTURB
4	LL 1380+40.92	104.77' RT	965950.52	1398349.15	3" BRASS DISK	DO NOT DISTURB

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Exhibit 2, Pg 1 of 2

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REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER 17C521

CONTRACT NO. | LOCATION NO. XL5001

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

RIGHT OF WAY PLAN

PLAN REF NO RW-02

SHEET 92 OF 792 SHEETS

LEGEND

(line symbol)	LIMITED ACCESS RIGHT OF WAY
(line symbol)	CITY RIGHT OF WAY
(line symbol)	CORP LIMIT BOUNDARY
(line symbol)	HIGHWAY RIGHT OF WAY
(line symbol)	EASEMENT LINE
(line symbol)	TURNBACK LINE
(line symbol)	TEMPORARY CONSTRUCTION EASEMENT
(symbol)	CONTROL POINT
(symbols)	MONUMNET FOUND / NOT FOUND
(symbol)	MONUMENT CASE AND COVER

T.18N. R.1W. W.M.

MONUMENT TABLE LIST

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2	LL 1419+89.18	296.25' RT	966599.70	1402248.37	5/8" REBAR & CAP	DO NOT DISTURB
3	LL 1420+59.22	100.77' LT	967002.54	1402232.73	5/8" REBAR & CAP	WILL BE RESET AT NEW ROW AND PROPERTY LINE
4	LL 1421+82.24	100.32' LT	967028.16	1402353.06	5/8" REBAR & CAP	WILL BE DESTROYED AND NOT RESET
5	LL 1422+01.78	100.26' LT	967032.25	1402372.17	5/8" REBAR & CAP	WILL BE DESTROYED AND NOT RESET

NOTES:

1. PER RCW 58.09.130, ANY MONUMENT OR CORNER DISTRUBED BY THE CONTRACTOR'S OPERATION SHALL BE REPLACED AT NO COST TO THE CONTRACTING AGENCY.
2. BASIS OF BEARING: WASHINGTON STATE COORDINATE SYSTEMS SOUTH ZONE NAD 83/07.
3. ALL DIMENSIONS & DISTANCES SHOWN ARE GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
4. SEE ALIGNMENT PLAN SHEETS FOR ADDITIONAL DETAILS.
5. COORDINATE VALUES SHOWN ARE IN PROJECT DATUM.

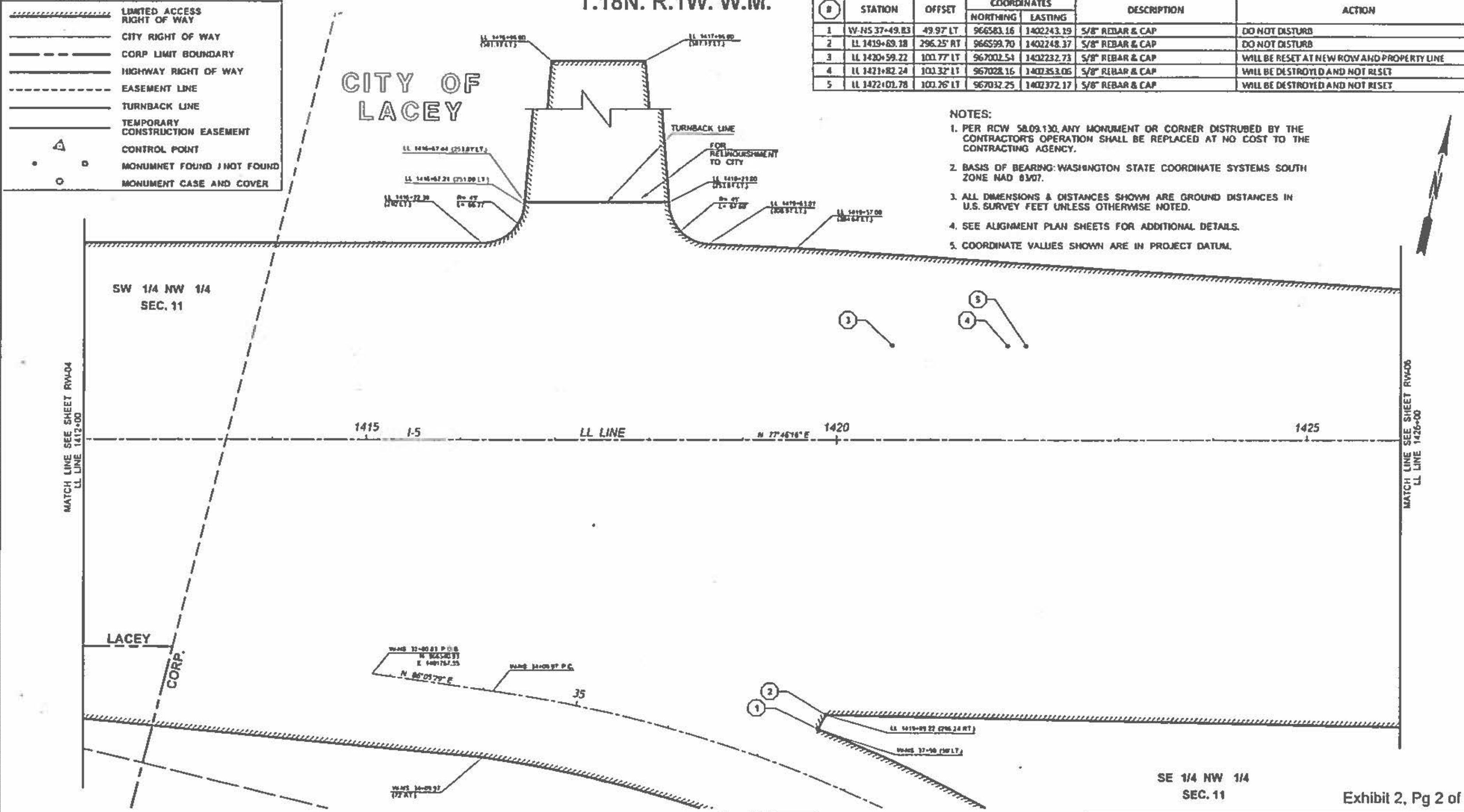

Exhibit 2, Pg 2 of 2

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CHECKED BY	J. QUEEN		
PROJ. ENGR.	K. MUELLER		
REGIONAL ADM.	J. WYNANDS	REVISION	DATE	BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER 17C521

CONTRACT NO.

LOCATION NO. XL5001

P.E. STAMP BOX — DATE

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

RIGHT OF WAY PLAN

PLAN REF NO RW-05

SHEET 95 OF 792 SHEETS

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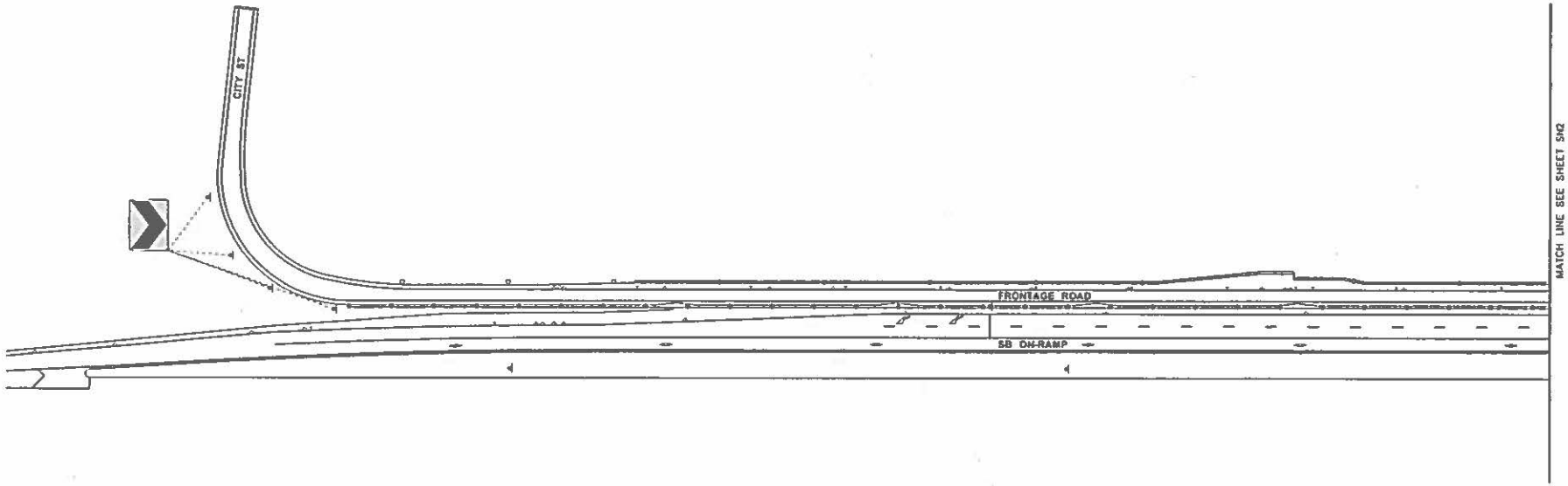

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Exhibit 3, Pg 1 of 10

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REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

CONCEPTUAL SIGN PLAN

SN1

SHEET OF SHEETS

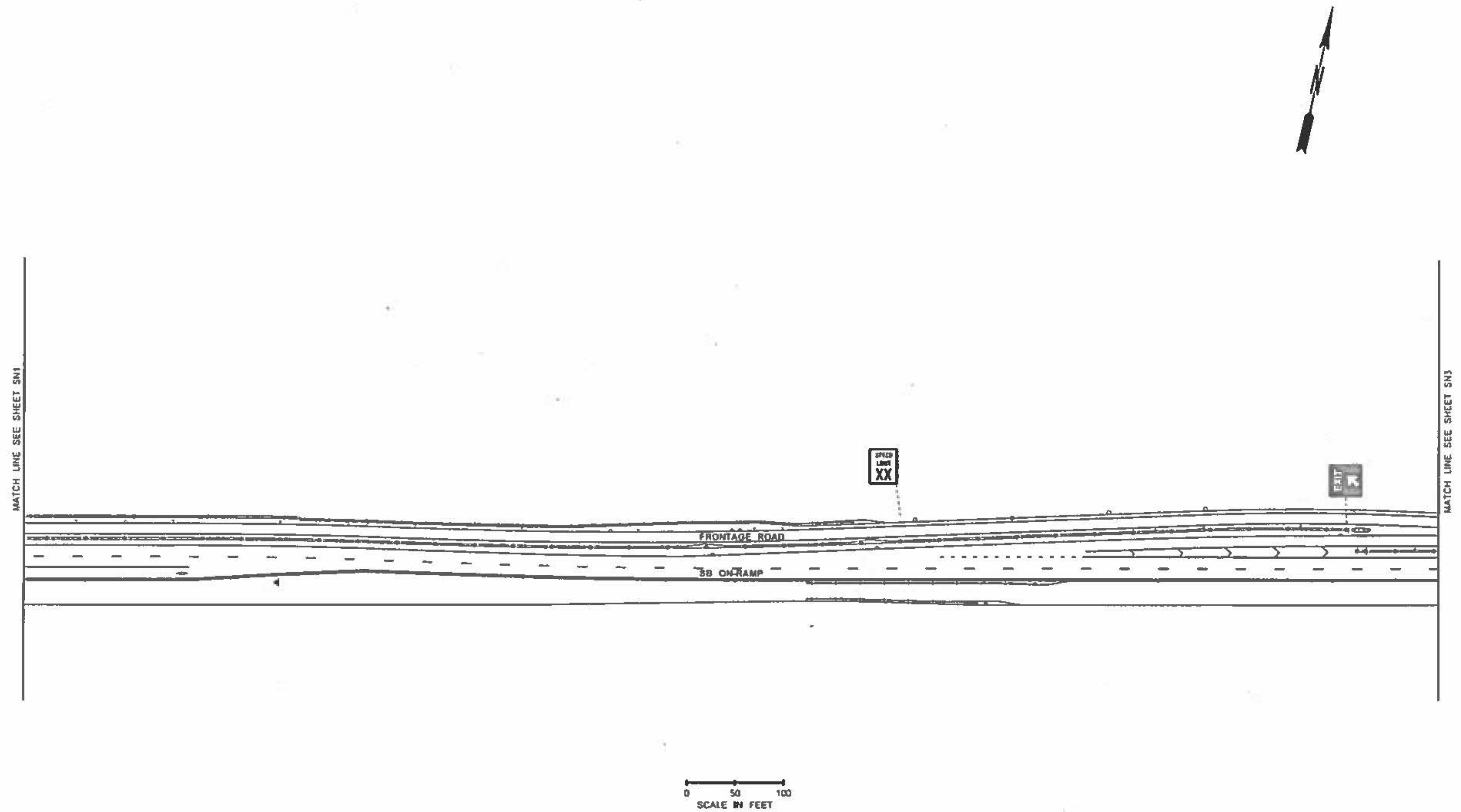

Exhibit 3, Pg 2 of 10

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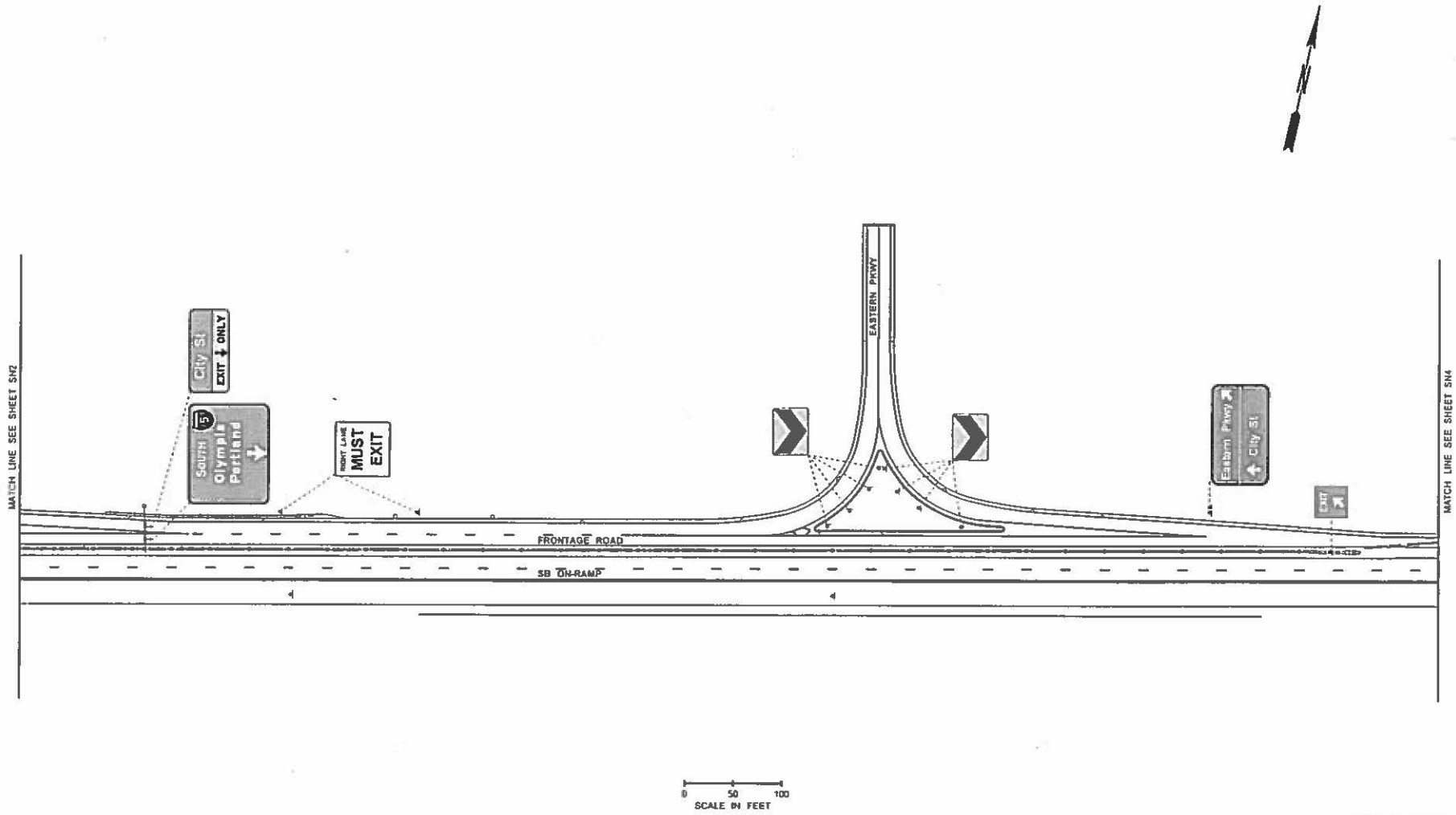
REGIONAL ADM.		REVISION	DATE	BY		

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

CONCEPTUAL SIGN PLAN

SN2



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REGION NO.	STATE	FED.AID PROJ.NO.	
10	WASH		
JOB NUMBER			
CONTRACT NO.		LOCATION NO.	

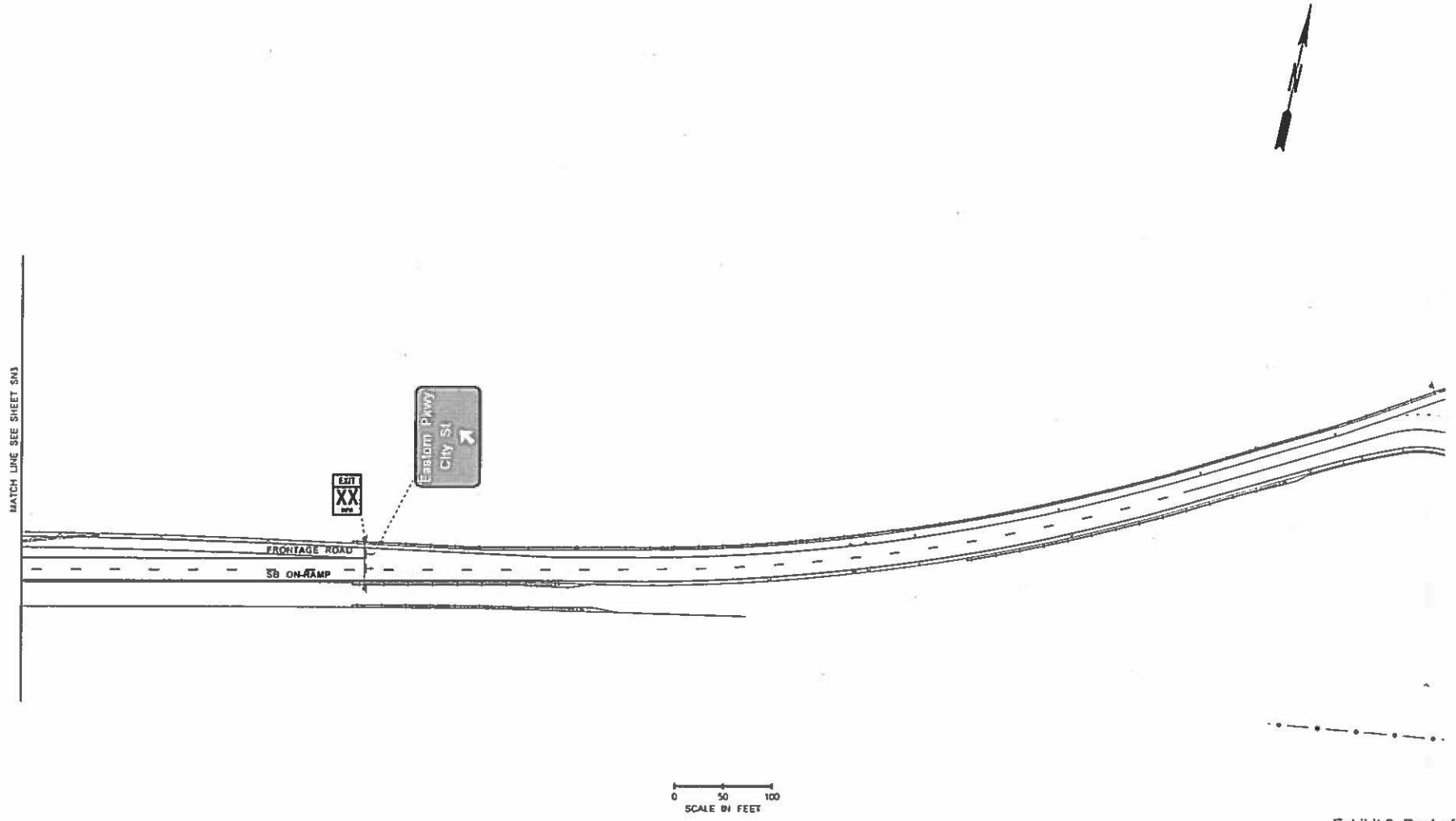
Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

CONCEPTUAL SIGN PLAN

SN3

SHEET OF SHEETS



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DATE	6/12/2018						
PLOTTED BY	Mike M						
DESIGNED BY							
ENTERED BY							
CHECKED BY							
PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
APD NUMBER		
CONTRACT NO.	LOCATION NO.	

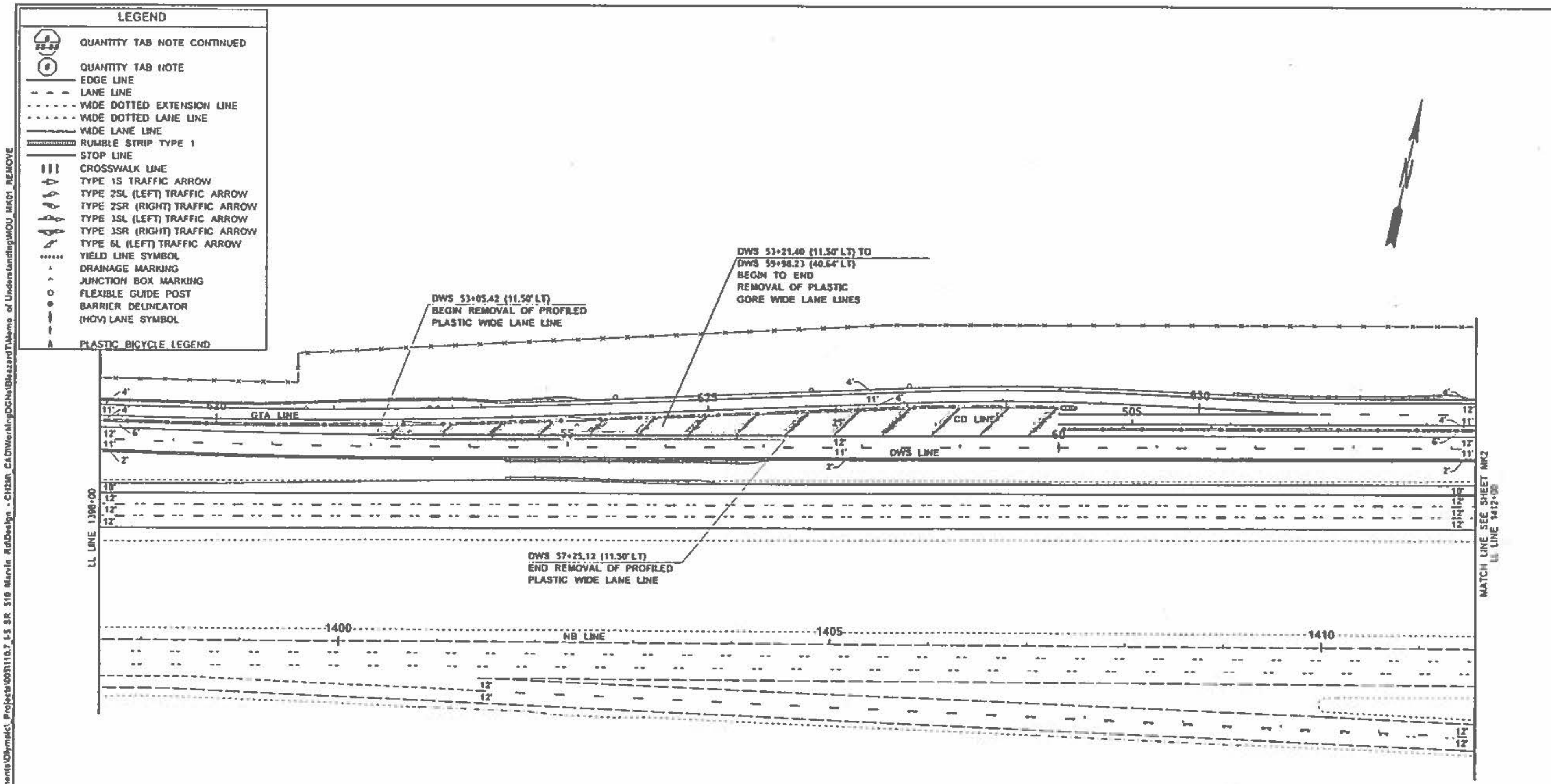
Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

CONCEPTUAL SIGN PLAN

SN4

SHEET OF SHEETS



NOTES
1. FOR INFORMATION ONLY
2. PAVEMENT MARKING (REMOVAL)

0 50 100
SCALE IN FEET

Exhibit 3, Pg 5 of 10

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DATE	7/13/2018
PLOTTED BY	bleazat
DESIGNED BY	
ENTERED BY	
CHECKED BY	
PROJ. ENGR.	
REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER

CONTRACT NO. | LOCATION NO.

P.E. STAMP BOX | DATE

P.E. STAMP BOX | DATE

Washington State Department of Transportation

MOU WITH
CITY OF LACEY
EXHIBIT 3

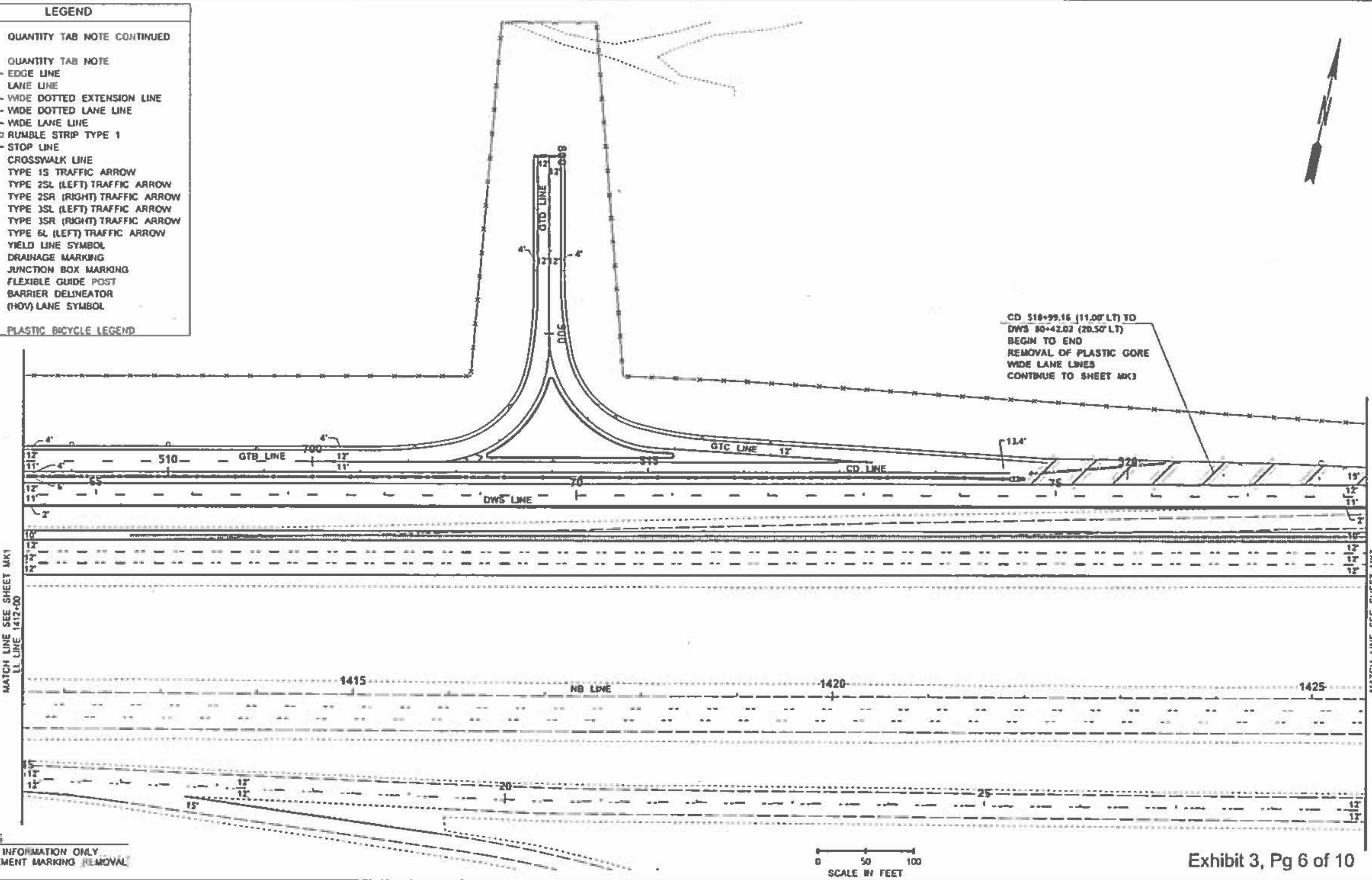
CONCEPTUAL PAVEMENT MARKING PLAN

PLAN REF NO MK1

SHEET 1 OF 6 SHEETS

LEGEND

- QUANTITY TAB NOTE CONTINUED
- QUANTITY TAB NOTE
- EDGE LINE
- LANE LINE
- WIDE DOTTED EXTENSION LINE
- WIDE DOTTED LANE LINE
- WIDE LANE LINE
- RUMBLE STRIP TYPE 1
- STOP LINE
- CROSSWALK LINE
- TYPE 1S TRAFFIC ARROW
- TYPE 2SL (LEFT) TRAFFIC ARROW
- TYPE 2SR (RIGHT) TRAFFIC ARROW
- TYPE 3SL (LEFT) TRAFFIC ARROW
- TYPE 3SR (RIGHT) TRAFFIC ARROW
- TYPE 6L (LEFT) TRAFFIC ARROW
- YIELD LINE SYMBOL
- DRAINAGE MARKING
- JUNCTION BOX MARKING
- FLEXIBLE GUIDE POST
- BARRIER DELINEATOR
- (HOV) LANE SYMBOL
- PLASTIC BICYCLE LEGEND



NOTES
1. FOR INFORMATION ONLY
2. PAVEMENT MARKING REMOVAL

Exhibit 3, Pg 6 of 10

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ENTERED BY	
CHECKED BY	
PROJ. ENGR.	
REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER | CONTRACT NO. | LOCATION NO.

Washington State Department of Transportation

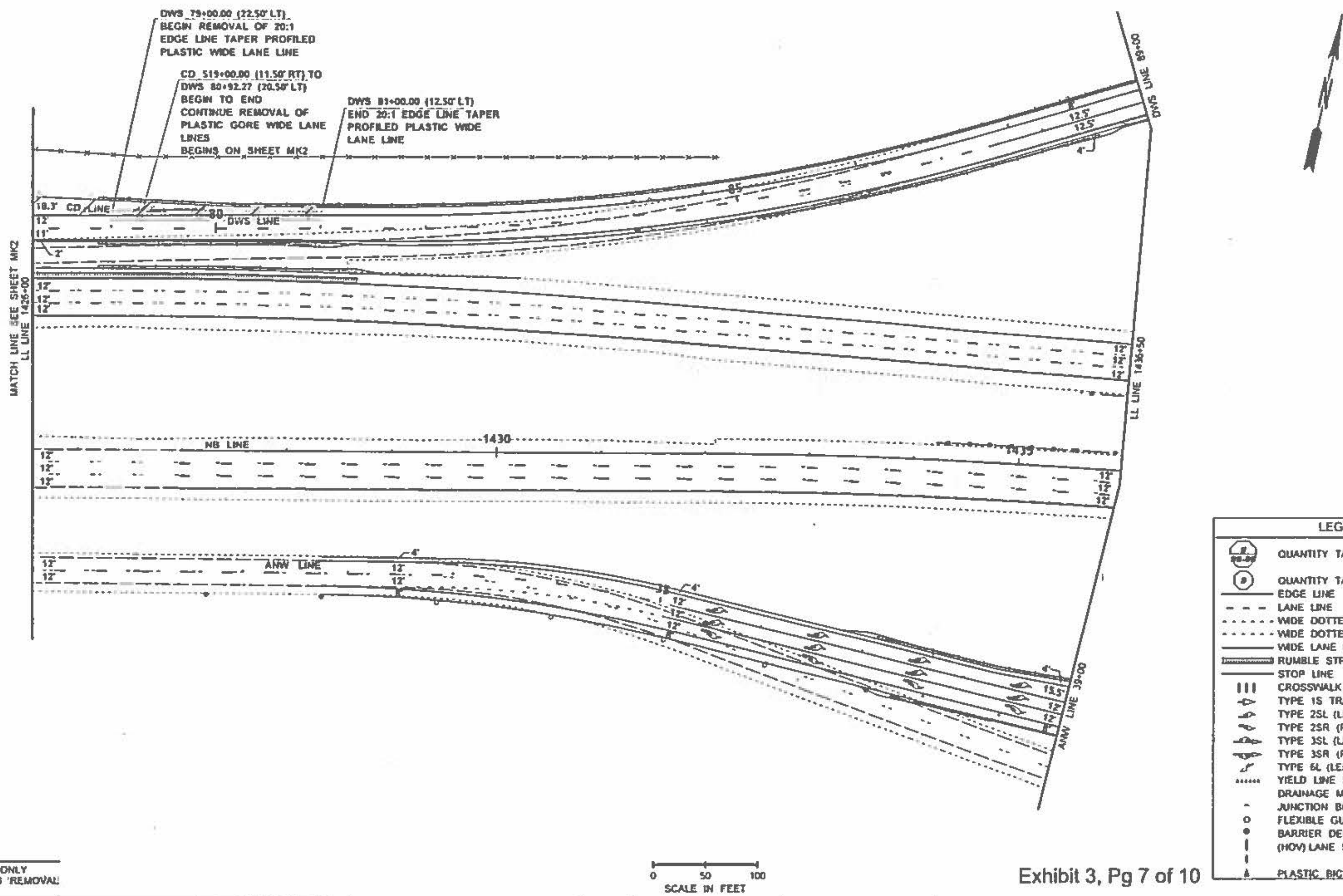
MOU WITH
CITY OF LACEY
EXHIBIT 3

CONCEPTUAL PAVEMENT MARKING PLAN

PLAN REF NO MK2

SHEET 2 OF 6 SHEETS

pw:\\HQOLYMAPPPW01P.WSDOT.LOC:WSDOT\Documents\Olympic\ Projects\005\110.7 I-5 SR 510 Marvin Rd\Design - CH2M\ CAD\WorkingDGNs\Bleazard\Memo of Understanding\MOU_MK02_REMOVE



NOTES
1. FOR INFORMATION ONLY
2. PAVEMENT MARKING 'REMOVAL'

LEGEND

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- LANE LINE
- WIDE DOTTED EXTENSION LINE
- WIDE DOTTED LANE LINE
- WIDE LANE LINE
- RUMBLE STRIP TYPE 1
- STOP LINE
- CROSSWALK LINE
- TYPE 1S TRAFFIC ARROW
- TYPE 2SL (LEFT) TRAFFIC ARROW
- TYPE 2SR (RIGHT) TRAFFIC ARROW
- TYPE 3SL (LEFT) TRAFFIC ARROW
- TYPE 3SR (RIGHT) TRAFFIC ARROW
- TYPE 6L (LEFT) TRAFFIC ARROW
- YIELD LINE SYMBOL
- DRAINAGE MARKING
- JUNCTION BOX MARKING
- FLEXIBLE GUIDE POST
- BARRIER DELINEATOR
- (HOV) LANE SYMBOL
- PLASTIC BICYCLE LEGEND

Exhibit 3, Pg 7 of 10

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CHECKED BY	
PROJ. ENGR.	
REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER | CONTRACT NO. | LOCATION NO.

P.E. STAMP BOX | DATE

Washington State Department of Transportation

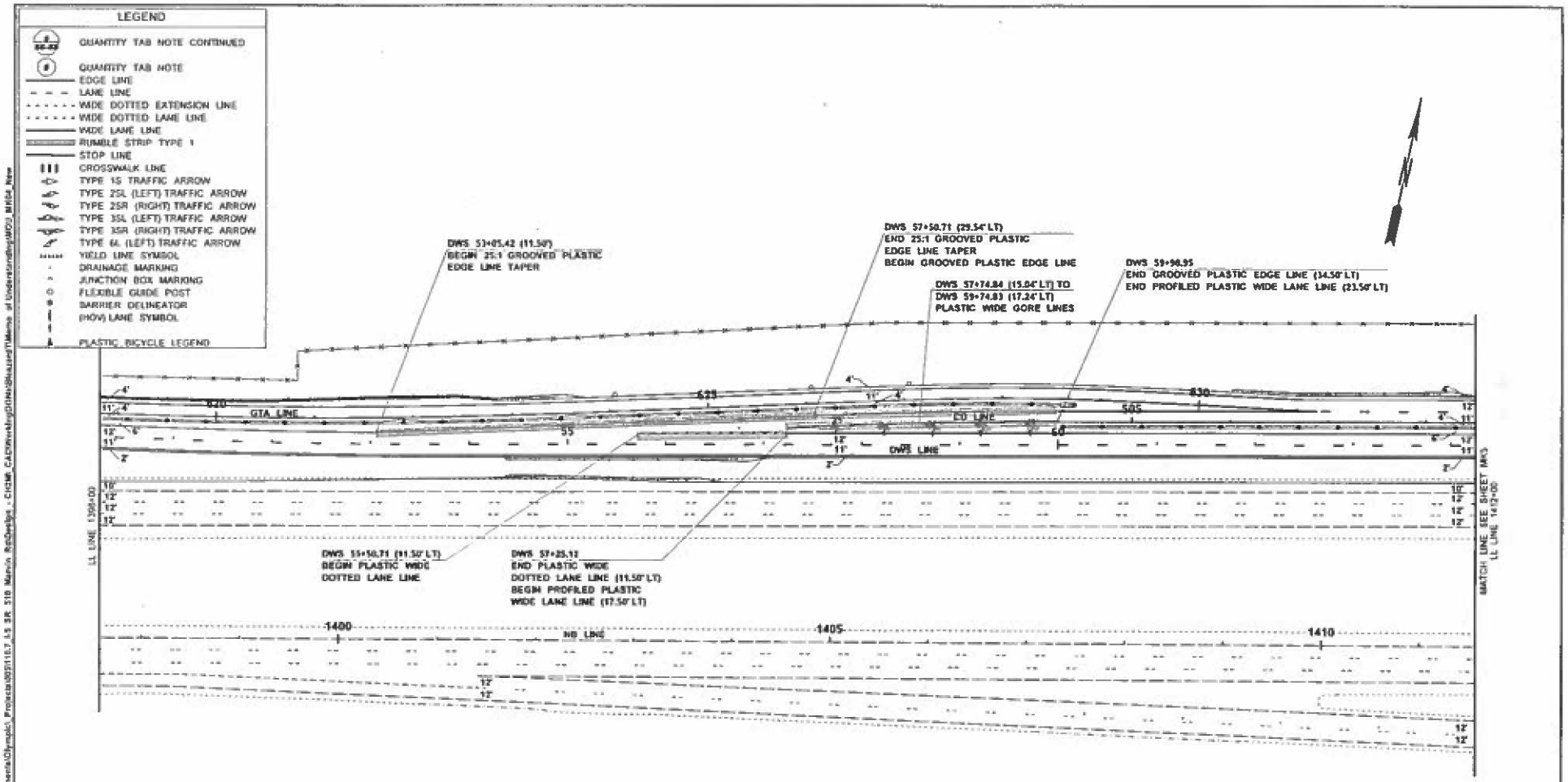
MOU WITH CITY OF LACEY EXHIBIT 3

PLAN REF NO. MK3

SHEET 3 OF 6 SHEETS

CONCEPTUAL PAVEMENT MARKING PLAN

pw:\\WOOLYMAPPW01P.WSDOT.LOC:WSDOT\Documents\Olympic_Projects\00S1110.7 I-5 SR 510 Marvin RdDesign - CH2M_CAD\Working\DGNs\bleazat\Memo of Understanding\MOU_MK03_REMOVE



NOTES
1. FOR INFORMATION ONLY
2. NEW/ PAVEMENT MARKINGS

0 50 100
SCALE IN FEET

Exhibit 3, Pg 8 of 10

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PLOTTED BY	blesza									
DESIGNED BY										
ENTERED BY										
CHECKED BY										
PROJ. ENGR.										
REGIONAL ADM.	J. WYNANDS	REVISION	DATE	BY						

10	WASH	FED.AID PROJ.NO.	

Washington State Department of Transportation

MOU WITH
CITY OF LACEY
EXHIBIT 3

CONCEPTUAL PAVEMENT MARKING PLAN

PLAN SHT. NO. MK4

SHEET 4 OF 5 SHEETS

LEGEND

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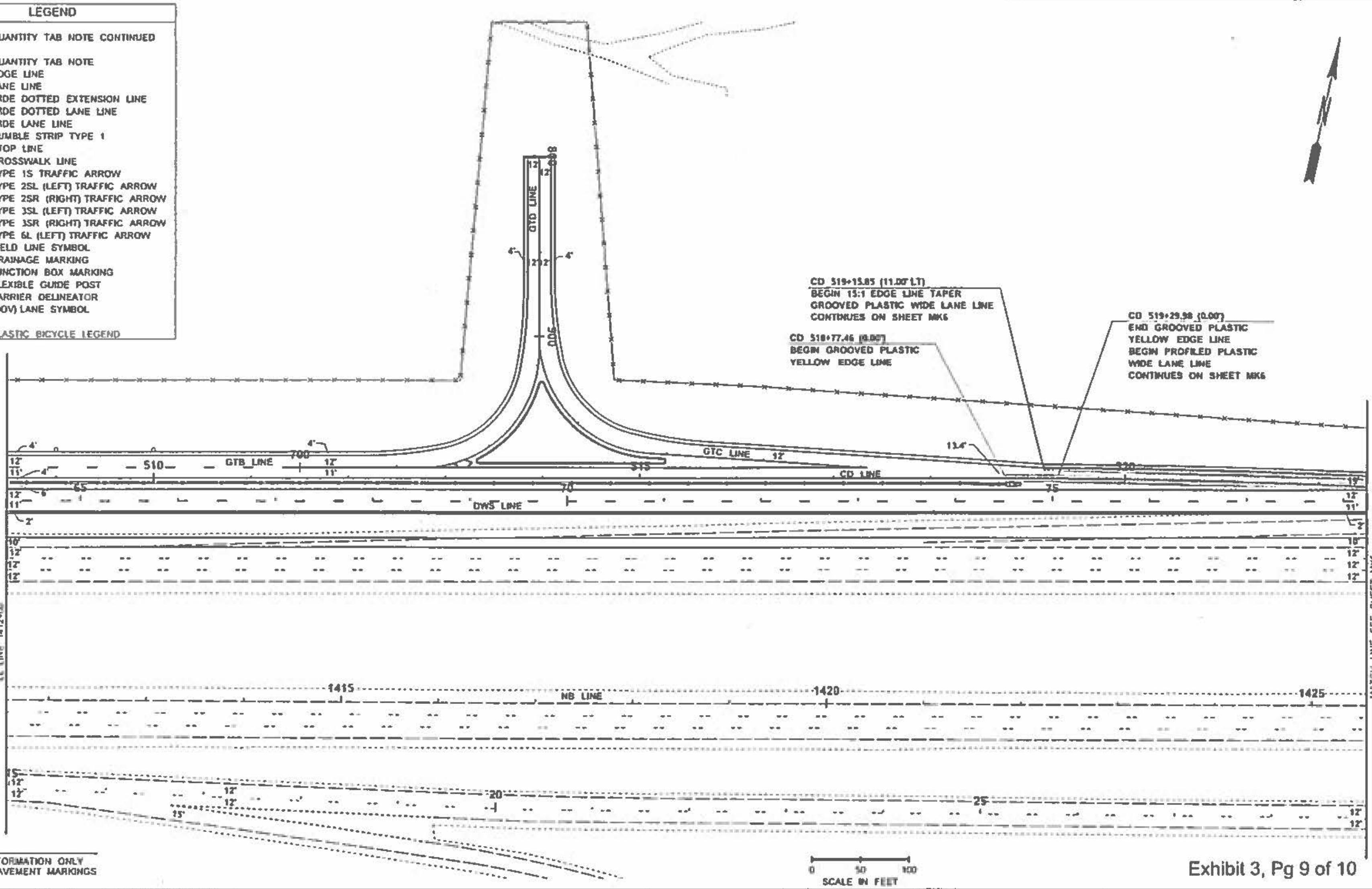
- QUANTITY TAB NOTE
- EDGE LINE
- LANE LINE
- WIDE DOTTED EXTENSION LINE
- WIDE DOTTED LANE LINE
- WIDE LANE LINE
- RUMBLE STRIP TYPE 1
- STOP LINE
- CROSSWALK LINE
- TYPE 1S TRAFFIC ARROW
- TYPE 2SL (LEFT) TRAFFIC ARROW
- TYPE 2SR (RIGHT) TRAFFIC ARROW
- TYPE 3SL (LEFT) TRAFFIC ARROW
- TYPE 3SR (RIGHT) TRAFFIC ARROW
- TYPE 6L (LEFT) TRAFFIC ARROW
- YIELD LINE SYMBOL
- DRAINAGE MARKING
- JUNCTION BOX MARKING
- FLEXIBLE GUIDE POST
- BARRIER DELINEATOR
- (HOV) LANE SYMBOL
- PLASTIC BICYCLE LEGEND



NOTES
1. FOR INFORMATION ONLY
2. NEW PAVEMENT MARKINGS

SCALE IN FEET (0, 50, 100)

Exhibit 3, Pg 9 of 10

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ENTERED BY				
CHECKED BY				
PROJ. ENGR.				
REGIONAL ADM.	J. WYNANDS	REVISION	DATE	BY

REGION NO. 10 — STATE WASH — FED.AID PROJ.NO.

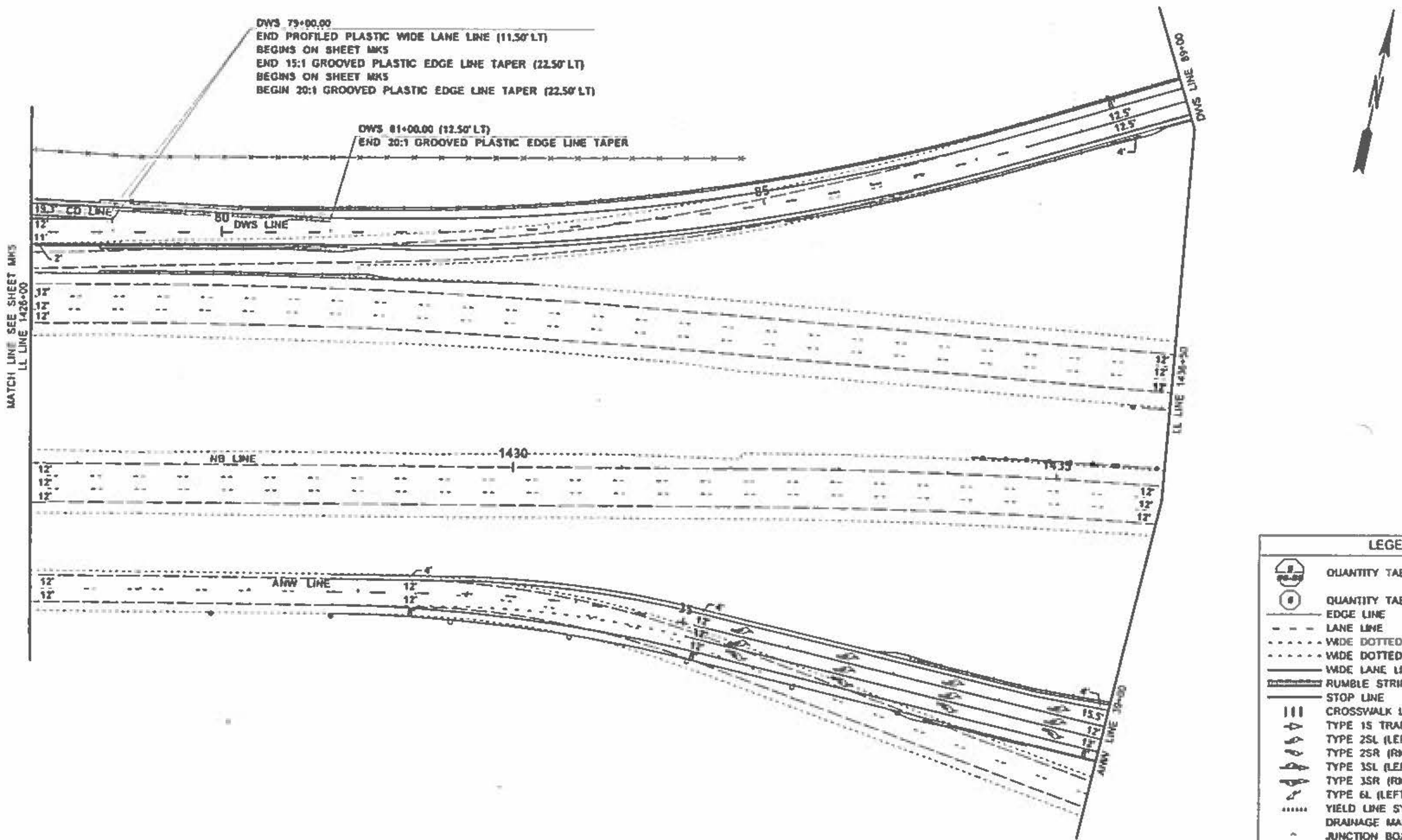
Washington State Department of Transportation

MOU WITH
CITY OF LACEY
EXHIBIT 3

CONCEPTUAL PAVEMENT MARKING PLAN

MK5

SHEET 5 OF 6 SHEETS



NOTES

1. FOR INFORMATION ONLY
2. NEW PAVEMENT MARKINGS

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SCALE IN FEET

Exhibit 3, Pg 10 of 10

LEGEND

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- QUANTITY TAB NOTE
- EDGE LINE
- LANE LINE
- WIDE DOTTED EXTENSION LINE
- WIDE DOTTED LANE LINE
- WIDE LANE LINE
- RUMBLE STRIP TYPE 1
- STOP LINE
- CROSSWALK LINE
- TYPE 1S TRAFFIC ARROW
- TYPE 2SL (LEFT) TRAFFIC ARROW
- TYPE 2SR (RIGHT) TRAFFIC ARROW
- TYPE 3SL (LEFT) TRAFFIC ARROW
- TYPE 3SR (RIGHT) TRAFFIC ARROW
- TYPE 6L (LEFT) TRAFFIC ARROW
- YIELD LINE SYMBOL
- DRAINAGE MARKING
- JUNCTION BOX MARKING
- FLEXIBLE GUIDE POST
- BARRIER DELINEATOR
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CHECKED BY				
PROJ. ENGR.				
REGIONAL ADM.	J. WYNANDS	REVISION	DATE	BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

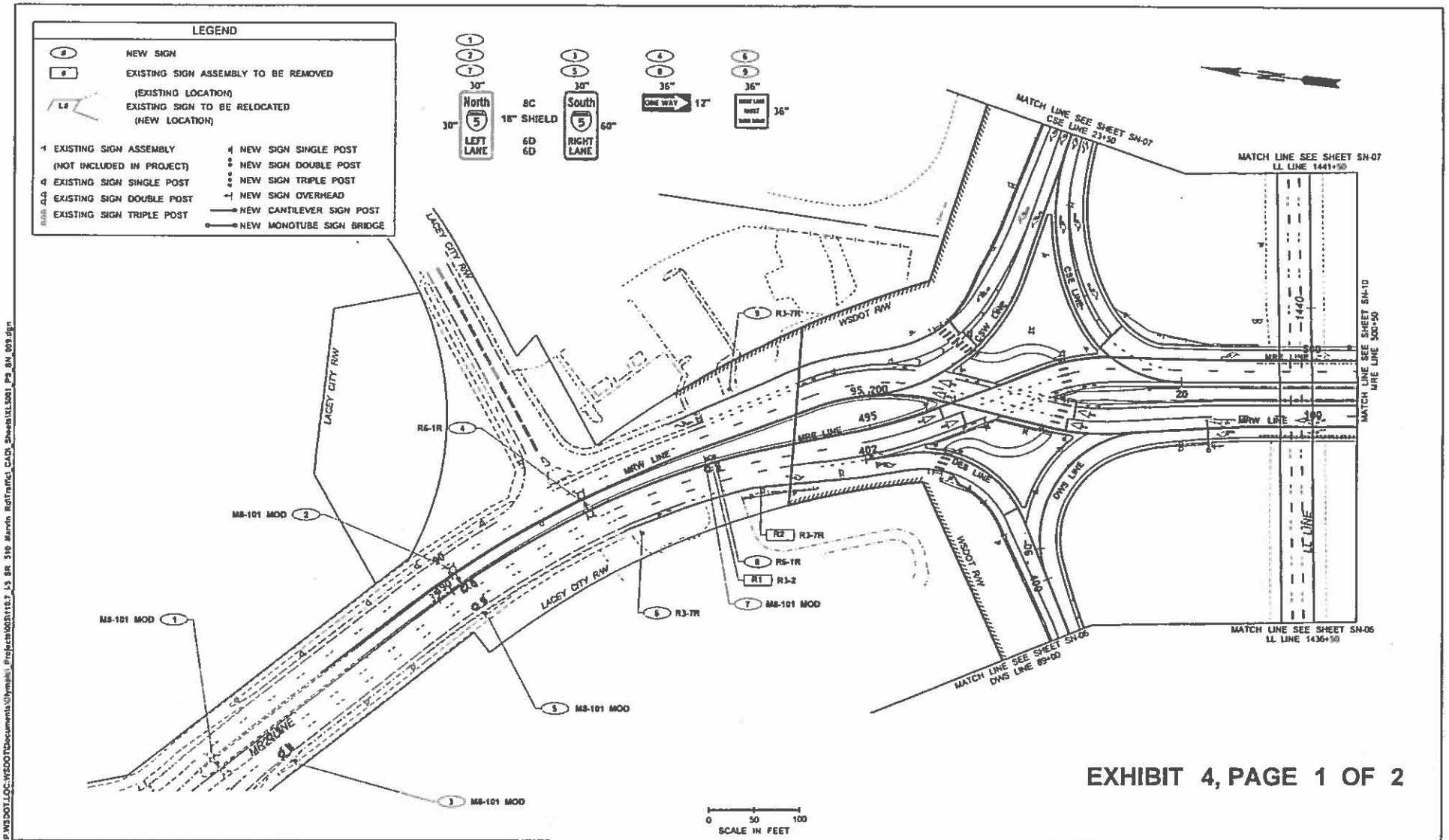
Washington State Department of Transportation

MOU WITH CITY OF LACEY EXHIBIT 3

CONCEPTUAL PAVEMENT MARKING PLAN

MK6

pw:\\OLYMAPPPW01P.WSDOT.LOC:WSDOT\Documents\Olympic\ Projects\005\118.7 I-5 SR 510 Marvin Rd\Design - CH2M\ CAD\Working\CH2M\Bleazat\Memo of Understanding\MOU_MK06_New



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DATE	09/25/19
PLOTTED BY	Mieum
DESIGNED BY	J. VARADY/F. SHULER
ENTERED BY	J. VARADY/F. SHULER
CHECKED BY	R. CRUMBLEY
PROJ. ENGR.	K. MUELLER
REGIONAL ADM.	J. WYNANDS

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO. | CONTRACT NO. 17C521 | LOCATION NO. XL5001

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

SIGN PLAN

PLAN SHEET NO. SN-09 | SHEET 528 OF 792 SHEETS

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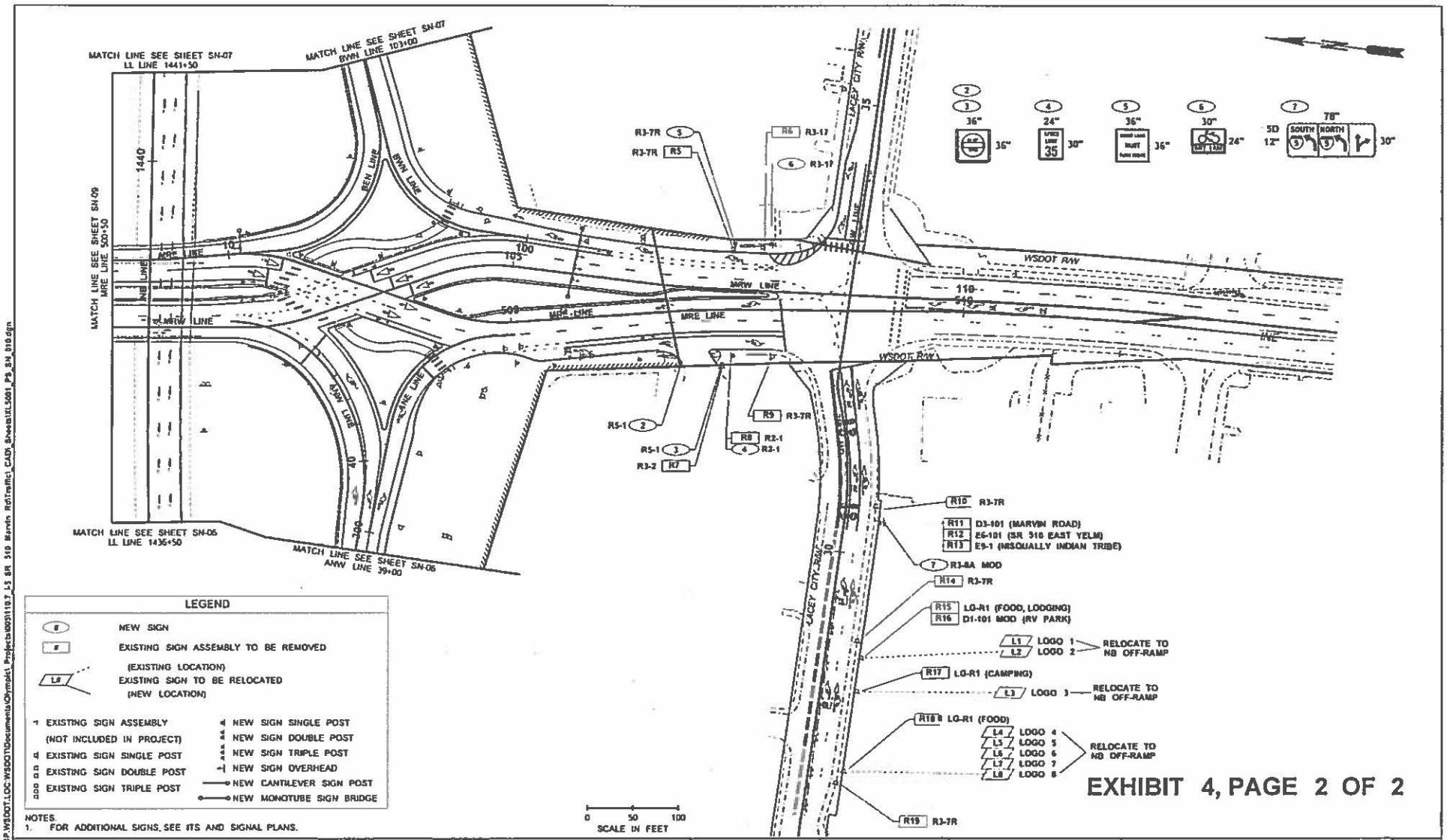

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PLOTTED BY	Mike M
DESIGNED BY	J. VARADY/F. SHULER
ENTERED BY	J. VARADY/F. SHULER
CHECKED BY	R. CRUMBLEY
PROJ.ENGR.	K. MUELLER
REGIONAL ADM.	J. WYNANDS

REVISION	DATE	BY

REGION NO. 10 | STATE WASH
JOB NUMBER 17C521
CONTRACT NO.
FED.AID PROJ.NO.
LOCATION NO. XL5001

P.E. STAMP BOX — DATE
P.E. STAMP BOX — DATE

Washington State Department of Transportation

I-5
SR 510 INTERCHANGE
RECONSTRUCT INTERCHANGE

SIGN PLAN

PLAN SHT NO. SN-10
SHEET 529 OF 732 SHEETS

pw:\\HOOLYAPPPW01P.WSDOT.LOC:WSDOTDocuments\Olympic_Projects\00311107_I-5 SR 510 Marvin Rd Traffic_CADD_Sheets\XL5001_PS_SN_010.dgn

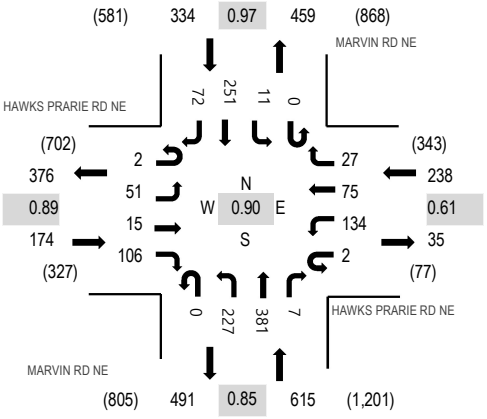
Appendix B: Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 MARVIN RD NE & HAWKS PRARIE RD NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

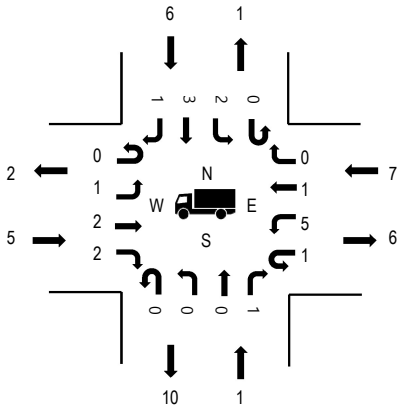
Motorized Vehicles



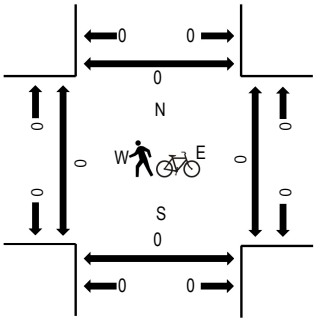
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.9%	0.89
WB	2.9%	0.61
NB	0.2%	0.85
SB	1.8%	0.97
All	1.4%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	HAWKS PRARIE RD NE Eastbound				HAWKS PRARIE RD NE Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	1	19	6	24	0	25	10	2	0	64	86	3	0	4	48	25	317	1,302
4:15 PM	1	17	2	32	1	12	17	5	0	52	85	2	0	2	61	20	309	1,361
4:30 PM	1	13	3	27	1	55	27	14	0	48	91	0	0	1	65	19	365	1,334
4:45 PM	0	10	5	25	0	26	11	3	0	58	93	0	0	5	65	10	311	1,228
5:00 PM	0	11	5	22	0	41	20	5	0	69	112	5	0	3	60	23	376	1,150
5:15 PM	1	14	6	18	0	11	13	2	0	68	85	1	0	2	46	15	282	
5:30 PM	1	11	4	20	0	12	6	5	0	44	96	4	0	1	46	9	259	
5:45 PM	2	9	2	15	0	8	9	2	0	54	77	4	1	5	41	4	233	
Count Total	7	104	33	183	2	190	113	38	0	457	725	19	1	23	432	125	2,452	
Peak Hour	2	51	15	106	2	134	75	27	0	227	381	7	0	11	251	72	1,361	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

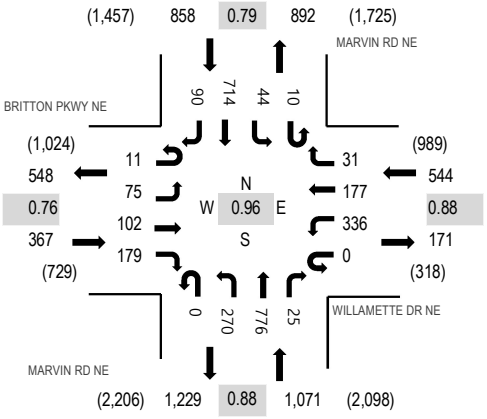
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	2	1	4	4:00 PM	0	0	0	0	0
4:15 PM	1	0	2	2	5	4:15 PM	0	0	0	0	0
4:30 PM	0	0	3	1	4	4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	3	4	4:45 PM	0	0	0	0	0
5:00 PM	4	1	1	0	6	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:30 PM	0	2	0	0	2	5:30 PM	0	0	0	0	0
5:45 PM	0	3	1	1	5	5:45 PM	0	0	0	0	0
Count Total	6	6	10	9	31	Count Total	0	0	0	0	0
Peak Hour	5	1	7	6	19	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 MARVIN RD NE & WILLAMETTE DR NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

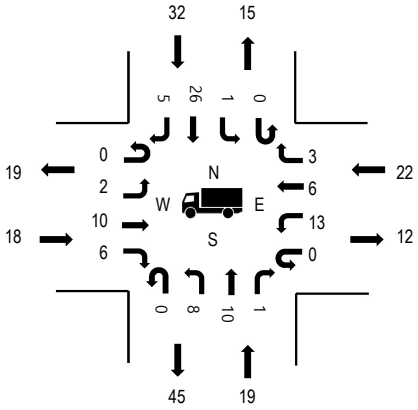
Motorized Vehicles



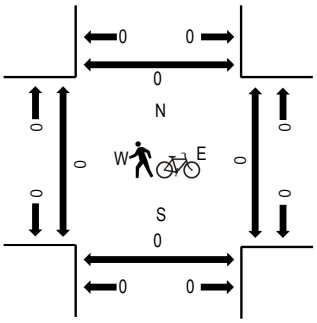
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.9%	0.76
WB	4.0%	0.88
NB	1.8%	0.88
SB	3.7%	0.79
All	3.2%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE Eastbound				WILLAMETTE DR NE Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	4	19	33	65	0	100	47	8	0	55	174	7	1	7	177	19	716	2,840
4:15 PM	1	20	25	38	0	79	37	11	0	66	185	8	2	12	164	18	666	2,804
4:30 PM	2	16	22	34	0	88	38	5	0	64	196	6	6	11	222	32	742	2,754
4:45 PM	4	20	22	42	0	69	55	7	0	85	221	4	1	14	151	21	716	2,592
5:00 PM	2	13	28	59	0	76	42	7	0	61	179	6	0	6	174	27	680	2,433
5:15 PM	4	11	32	42	0	68	34	15	0	68	195	12	1	8	115	11	616	
5:30 PM	2	16	17	48	0	65	33	12	0	80	175	9	3	4	104	12	580	
5:45 PM	0	18	10	60	0	52	30	11	0	61	174	7	3	8	114	9	557	
Count Total	19	133	189	388	0	597	316	76	0	540	1,499	59	17	70	1,221	149	5,273	
Peak Hour	11	75	102	179	0	336	177	31	0	270	776	25	10	44	714	90	2,840	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

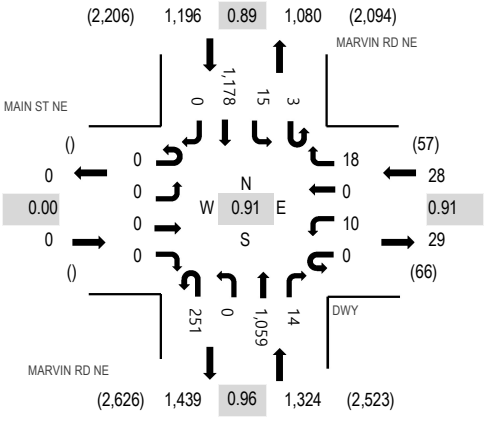
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	5	9	14	32	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	4	3	6	5	18	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	9	7	4	7	27	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	1	4	3	6	14	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	2	3	2	4	11	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	2	4	1	7	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	3	5	1	10	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	1	0	4	5	10	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	22	27	37	43	129	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	18	19	22	32	91	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 MARVIN RD NE & DWY PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

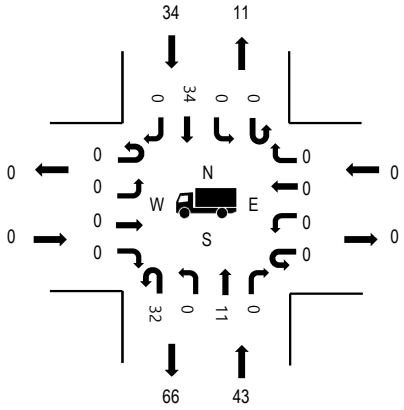
Motorized Vehicles



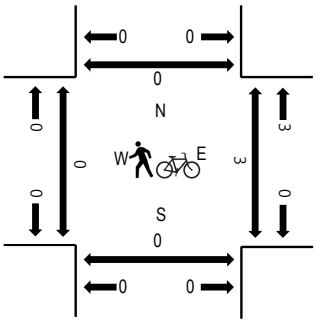
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.91
NB	3.2%	0.96
SB	2.8%	0.89
All	3.0%	0.91

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MAIN ST NE Eastbound				DWY Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	1	0	6	61	0	210	6	0	7	335	0	626	2,536
4:15 PM	0	0	0	0	0	3	0	5	71	0	249	6	0	5	276	0	615	2,548
4:30 PM	0	0	0	0	0	3	0	4	77	0	267	3	0	4	340	0	698	2,506
4:45 PM	0	0	0	0	0	2	0	5	50	0	275	3	0	5	257	0	597	2,348
5:00 PM	0	0	0	0	0	2	0	4	53	0	268	2	3	1	305	0	638	2,250
5:15 PM	0	0	0	0	0	4	0	4	44	0	290	6	0	4	221	0	573	
5:30 PM	0	0	0	0	0	3	0	3	44	0	269	4	1	2	214	0	540	
5:45 PM	0	0	0	0	0	2	0	6	36	0	224	5	1	3	222	0	499	
Count Total	0	0	0	0	0	20	0	37	436	0	2,052	35	5	31	2,170	0	4,786	
Peak Hour	0	0	0	0	0	10	0	18	251	0	1,059	14	3	15	1,178	0	2,548	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	10	0	16	26	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	9	0	8	17	4:15 PM	0	0	0	0	0	4:15 PM	0	0	2	0	2
4:30 PM	0	10	0	14	24	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	0	1
4:45 PM	0	11	0	7	18	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	13	0	5	18	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	9	0	1	10	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	12	0	4	16	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	8	0	7	15	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	82	0	62	144	Count Total	0	0	0	0	0	Count Total	0	0	3	0	3
Peak Hour	0	43	0	34	77	Peak Hour	0	0	0	0	0	Peak Hour	0	0	3	0	3

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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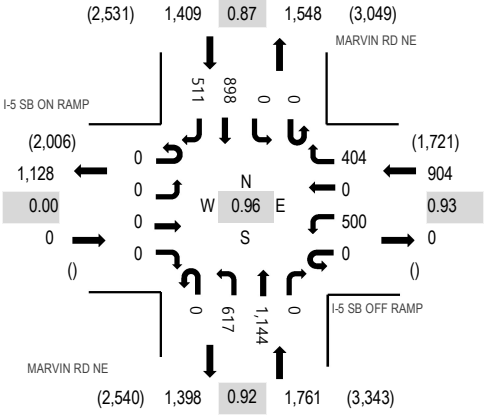
Location: 4 MARVIN RD NE & I-5 SB OFF RAMP PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

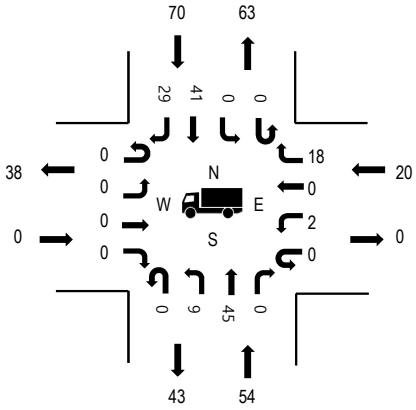
Motorized Vehicles



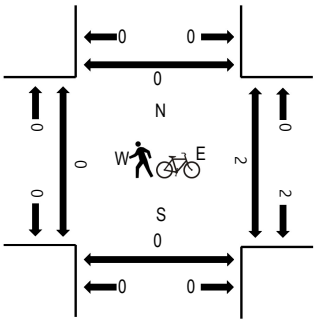
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	2.2%	0.93
NB	3.1%	0.92
SB	5.0%	0.87
All	3.5%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-5 SB ON RAMP Eastbound				I-5 SB OFF RAMP Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	131	0	95	0	150	236	0	0	0	240	166	1,018	4,074
4:15 PM	0	0	0	0	0	115	0	93	0	138	273	0	0	0	214	119	952	4,009
4:30 PM	0	0	0	0	0	121	0	107	0	187	296	0	0	0	229	125	1,065	3,967
4:45 PM	0	0	0	0	0	133	0	109	0	142	339	0	0	0	215	101	1,039	3,755
5:00 PM	0	0	0	0	0	105	0	105	0	132	245	0	0	0	240	126	953	3,521
5:15 PM	0	0	0	0	0	109	0	108	0	114	318	0	0	0	163	98	910	
5:30 PM	0	0	0	0	0	91	0	102	0	121	276	0	0	0	172	91	853	
5:45 PM	0	0	0	0	0	116	0	81	0	110	266	0	0	0	146	86	805	
Count Total	0	0	0	0	0	921	0	800	0	1,094	2,249	0	0	0	1,619	912	7,595	
Peak Hour	0	0	0	0	0	500	0	404	0	617	1,144	0	0	0	898	511	4,074	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	17	6	23	46	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:15 PM	0	10	7	15	32	4:15 PM	0	0	0	0	0	4:15 PM	0	0	1	0	1
4:30 PM	0	16	4	16	36	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	11	3	16	30	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	11	8	11	30	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	7	7	11	25	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	6	12	11	29	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	8	5	13	26	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	86	52	116	254	Count Total	0	0	0	1	1	Count Total	0	0	2	0	2
Peak Hour	0	54	20	70	144	Peak Hour	0	0	0	0	0	Peak Hour	0	0	2	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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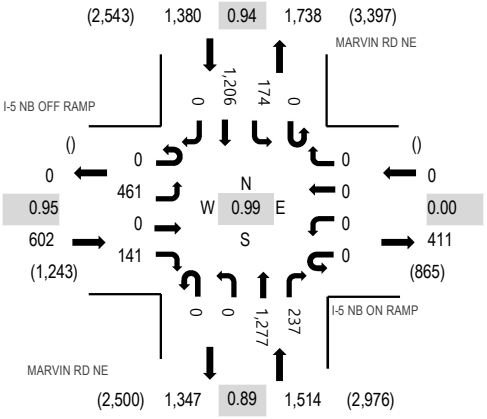
Location: 5 MARVIN RD NE & I-5 NB ON RAMP PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

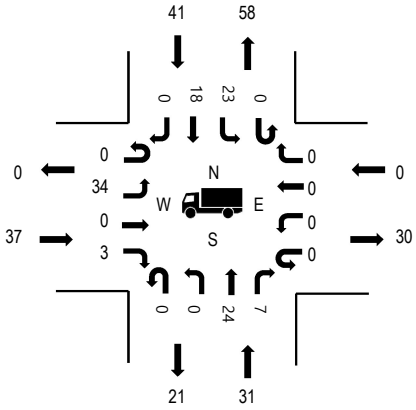
Motorized Vehicles



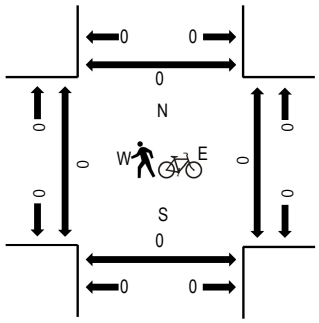
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	6.1%	0.95
WB	0.0%	0.00
NB	2.0%	0.89
SB	3.0%	0.94
All	3.1%	0.99

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-5 NB OFF RAMP Eastbound				I-5 NB ON RAMP Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	99	0	31	0	0	0	0	0	0	312	58	0	46	313	0	859	3,496
4:15 PM	0	111	0	29	0	0	0	0	0	0	302	56	0	57	309	0	864	3,492
4:30 PM	0	109	0	44	0	0	0	0	0	0	357	68	0	39	269	0	886	3,465
4:45 PM	0	142	0	37	0	0	0	0	0	0	306	55	0	32	315	0	887	3,401
5:00 PM	0	108	0	45	0	0	0	0	0	0	308	52	0	64	278	0	855	3,266
5:15 PM	0	129	0	50	0	0	0	0	0	0	301	66	0	48	243	0	837	
5:30 PM	0	117	0	49	0	0	0	0	0	0	328	85	0	42	201	0	822	
5:45 PM	0	108	0	35	0	0	0	0	0	0	260	62	0	35	252	0	752	
Count Total	0	923	0	320	0	0	0	0	0	0	2,474	502	0	363	2,180	0	6,762	
Peak Hour	0	461	0	141	0	0	0	0	0	0	1,277	237	0	174	1,206	0	3,496	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	11	11	0	13	35	4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0
4:15 PM	7	6	0	9	22	4:15 PM	0	0	0	1	1	4:15 PM	0	0	0	0	0
4:30 PM	9	11	0	9	29	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	10	3	0	10	23	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	8	8	0	8	24	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	7	3	0	11	21	5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:30 PM	5	5	0	9	19	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	8	1	0	11	20	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	65	48	0	80	193	Count Total	0	0	0	4	4	Count Total	0	0	0	0	0
Peak Hour	37	31	0	41	109	Peak Hour	0	0	0	2	2	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
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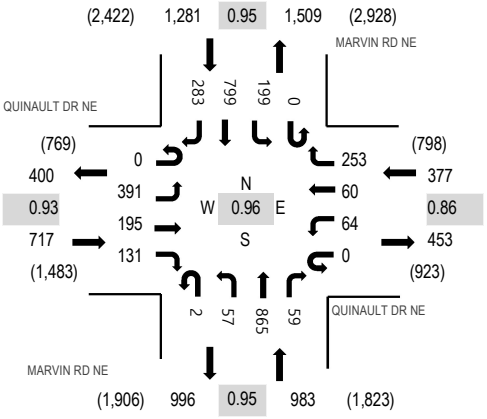
Location: 6 MARVIN RD NE & QUINAULT DR NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

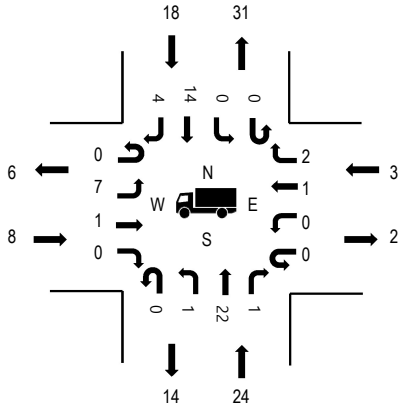
Motorized Vehicles



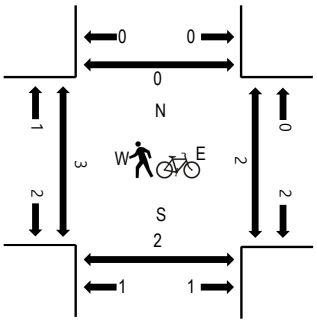
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.1%	0.93
WB	0.8%	0.86
NB	2.4%	0.95
SB	1.4%	0.95
All	1.6%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	QUINAULT DR NE Eastbound				QUINAULT DR NE Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	94	47	28	0	17	14	42	0	14	215	7	0	55	192	91	816	3,358
4:15 PM	0	102	52	28	0	21	14	63	2	15	207	21	0	51	182	63	821	3,328
4:30 PM	0	104	41	38	0	7	17	73	0	11	215	16	0	50	212	61	845	3,334
4:45 PM	0	91	55	37	0	19	15	75	0	17	228	15	0	43	213	68	876	3,279
5:00 PM	0	96	49	32	0	16	12	62	0	19	172	13	0	55	195	65	786	3,168
5:15 PM	0	113	51	41	0	22	20	72	0	9	176	26	0	45	184	68	827	
5:30 PM	0	114	54	32	0	13	16	65	0	15	191	22	0	47	158	63	790	
5:45 PM	0	106	49	29	0	24	16	83	0	9	169	19	0	40	164	57	765	
Count Total	0	820	398	265	0	139	124	535	2	109	1,573	139	0	386	1,500	536	6,526	
Peak Hour	0	391	195	131	0	64	60	253	2	57	865	59	0	199	799	283	3,358	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	9	2	10	22	4:00 PM	0	0	0	1	1	4:00 PM	1	0	0	0	1
4:15 PM	2	7	0	3	12	4:15 PM	0	1	0	0	1	4:15 PM	2	1	0	0	3
4:30 PM	4	7	0	2	13	4:30 PM	0	0	0	1	1	4:30 PM	0	1	0	0	1
4:45 PM	1	1	1	3	6	4:45 PM	0	0	0	1	1	4:45 PM	0	0	2	0	2
5:00 PM	1	5	0	5	11	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	2	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	2	0	1	4	5:30 PM	0	0	0	0	0	5:30 PM	0	3	0	0	3
5:45 PM	1	1	0	4	6	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	11	32	3	30	76	Count Total	0	1	0	4	5	Count Total	3	5	2	0	10
Peak Hour	8	24	3	18	53	Peak Hour	0	1	0	3	4	Peak Hour	3	2	2	0	7

ALL TRAFFIC DATA SERVICES
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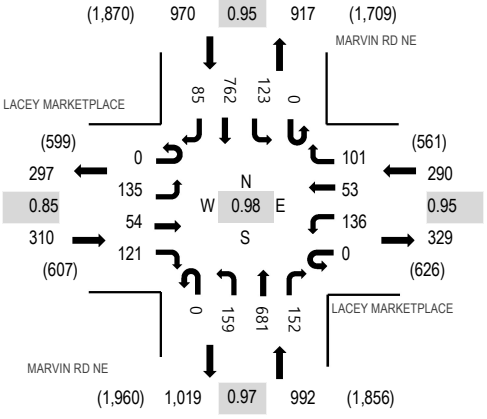
Location: 7 MARVIN RD NE & LACEY MARKETPLACE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

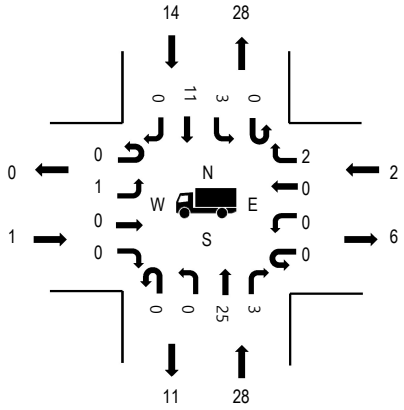
Motorized Vehicles



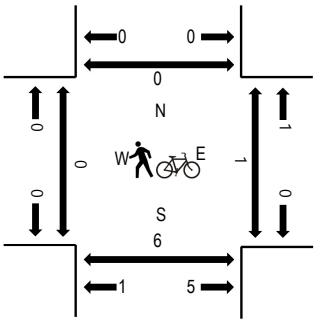
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.3%	0.85
WB	0.7%	0.95
NB	2.8%	0.97
SB	1.4%	0.95
All	1.8%	0.98

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	LACEY MARKETPLACE Eastbound				LACEY MARKETPLACE Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	30	13	28	0	35	18	22	0	40	174	32	0	28	188	31	639	2,562
4:15 PM	0	41	20	32	0	33	15	24	0	46	165	42	0	32	162	18	630	2,549
4:30 PM	0	31	13	26	0	38	8	26	0	30	179	46	0	34	203	17	651	2,511
4:45 PM	0	33	8	35	0	30	12	29	0	43	163	32	0	29	209	19	642	2,437
5:00 PM	0	35	16	28	0	41	18	18	0	37	152	32	0	40	187	22	626	2,332
5:15 PM	0	36	9	38	0	46	18	15	0	45	139	25	0	27	174	20	592	
5:30 PM	0	31	11	19	0	29	11	17	0	26	180	32	0	35	160	26	577	
5:45 PM	0	33	15	26	0	31	12	15	0	42	121	33	0	22	162	25	537	
Count Total	0	270	105	232	0	283	112	166	0	309	1,273	274	0	247	1,445	178	4,894	
Peak Hour	0	135	54	121	0	136	53	101	0	159	681	152	0	123	762	85	2,562	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	11	0	7	19	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:15 PM	0	6	0	3	9	4:15 PM	0	0	0	0	0	4:15 PM	0	3	0	0	3
4:30 PM	0	6	1	1	8	4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1
4:45 PM	0	5	1	3	9	4:45 PM	0	0	0	0	0	4:45 PM	0	2	0	0	2
5:00 PM	1	2	0	5	8	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	3	0	4	7	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	3	34	2	25	64	Count Total	0	0	0	0	0	Count Total	0	6	1	0	7
Peak Hour	1	28	2	14	45	Peak Hour	0	0	0	0	0	Peak Hour	0	6	1	0	7

ALL TRAFFIC DATA SERVICES
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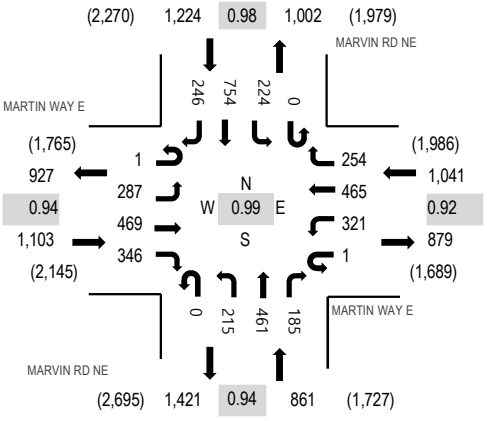
Location: 8 MARVIN RD NE & MARTIN WAY E PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

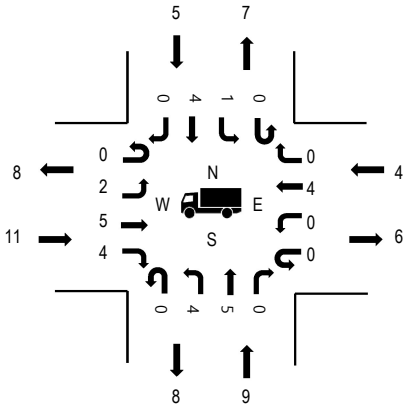
Peak Hour

Motorized Vehicles

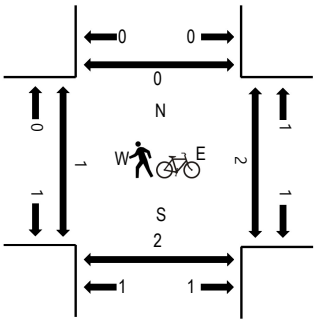


Note: Total study counts contained in parentheses.

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	1.0%	0.94
WB	0.4%	0.92
NB	1.0%	0.94
SB	0.4%	0.98
All	0.7%	0.99

Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				MARVIN RD NE Northbound				MARVIN RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	60	96	79	0	86	98	68	0	54	124	34	0	60	162	66	987	4,172
4:15 PM	1	79	130	92	0	91	117	56	0	50	128	33	0	57	149	61	1,044	4,226
4:30 PM	0	71	113	83	1	69	120	72	0	62	124	48	0	52	182	74	1,071	4,229
4:45 PM	0	84	112	82	0	88	129	74	0	38	103	49	0	58	187	66	1,070	4,118
5:00 PM	0	67	131	93	0	74	106	45	0	63	123	38	0	56	193	52	1,041	3,956
5:15 PM	1	65	113	88	0	90	110	63	0	52	111	50	0	58	192	54	1,047	
5:30 PM	0	63	105	93	0	73	85	52	0	50	132	52	0	59	147	49	960	
5:45 PM	0	64	99	81	0	76	101	42	0	55	109	45	0	40	145	51	908	
Count Total	2	553	899	691	1	647	866	472	0	424	954	349	0	440	1,357	473	8,128	
Peak Hour	1	287	469	346	1	321	465	254	0	215	461	185	0	224	754	246	4,229	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

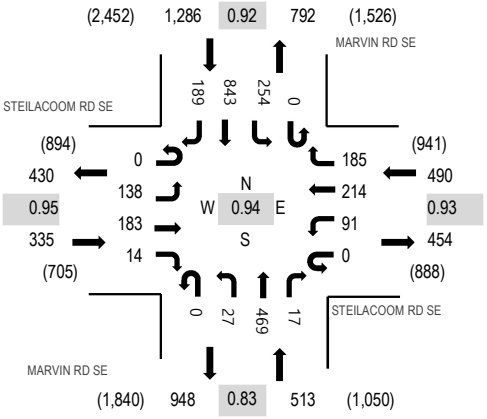
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	8	0	6	20	4:00 PM	1	0	0	1	2	4:00 PM	2	2	0	0	4
4:15 PM	7	3	0	2	12	4:15 PM	0	0	1	1	2	4:15 PM	3	1	0	0	4
4:30 PM	4	3	0	1	8	4:30 PM	0	0	0	0	0	4:30 PM	0	2	1	0	3
4:45 PM	1	1	2	0	4	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1
5:00 PM	5	5	2	3	15	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:15 PM	1	0	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	2	3	0	1	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	3	0	0	2	5	5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0
Count Total	29	23	4	16	72	Count Total	1	0	2	2	5	Count Total	6	5	2	0	13
Peak Hour	11	9	4	5	29	Peak Hour	0	0	0	0	0	Peak Hour	1	2	2	0	5

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 9 MARVIN RD SE & STEILACOOM RD SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

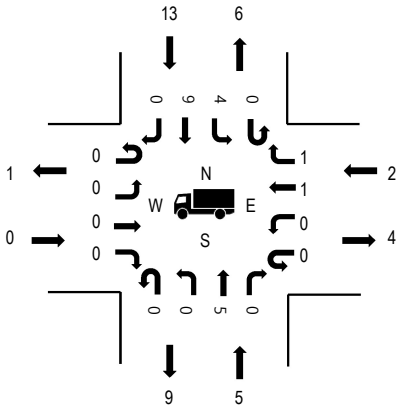
Motorized Vehicles



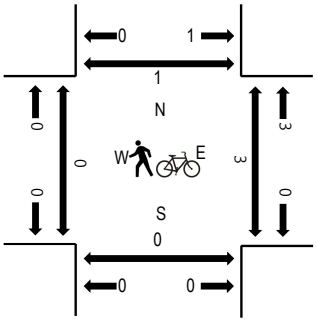
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.95
WB	0.4%	0.93
NB	1.0%	0.83
SB	1.0%	0.92
All	0.8%	0.94

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	STEILACOOM RD SE Eastbound				STEILACOOM RD SE Westbound				MARVIN RD SE Northbound				MARVIN RD SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	43	42	4	0	22	49	25	0	13	130	7	0	55	175	36	601	2,525
4:15 PM	0	31	50	8	0	38	63	34	0	20	116	10	0	52	211	55	688	2,611
4:30 PM	0	38	32	1	0	24	61	38	0	12	106	2	0	55	222	46	637	2,624
4:45 PM	0	36	45	6	0	26	55	42	0	4	100	5	0	47	185	48	599	2,622
5:00 PM	0	32	53	4	0	11	56	56	0	5	113	7	0	73	228	49	687	2,623
5:15 PM	0	32	53	3	0	30	42	49	0	6	150	3	0	79	208	46	701	
5:30 PM	0	38	41	18	0	25	53	32	0	4	114	4	0	57	191	58	635	
5:45 PM	0	39	44	12	0	20	57	33	0	4	99	16	0	56	168	52	600	
Count Total	0	289	360	56	0	196	436	309	0	68	928	54	0	474	1,588	390	5,148	
Peak Hour	0	138	183	14	0	91	214	185	0	27	469	17	0	254	843	189	2,624	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	4	6	5	16	4:00 PM	2	0	0	1	3
4:15 PM	0	3	1	2	6	4:15 PM	0	2	1	1	4
4:30 PM	0	0	2	5	7	4:30 PM	0	0	3	1	4
4:45 PM	0	1	0	3	4	4:45 PM	0	0	0	0	0
5:00 PM	0	3	0	2	5	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	3	4	5:15 PM	0	0	0	0	0
5:30 PM	1	2	1	5	9	5:30 PM	0	0	0	0	0
5:45 PM	1	1	1	0	3	5:45 PM	0	0	0	0	0
Count Total	3	15	11	25	54	Count Total	2	2	4	3	11
Peak Hour	0	5	2	13	20	Peak Hour	0	0	3	1	4

ALL TRAFFIC DATA SERVICES
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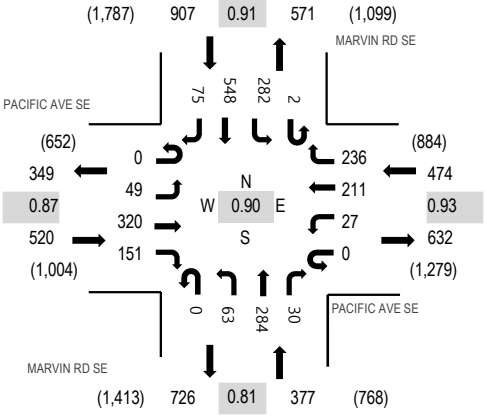
Location: 10 MARVIN RD SE & PACIFIC AVE SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

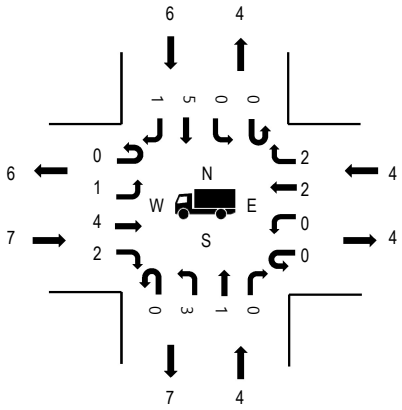
Motorized Vehicles



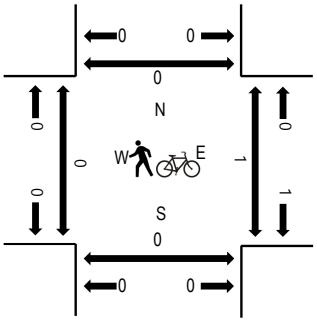
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.3%	0.87
WB	0.8%	0.93
NB	1.1%	0.81
SB	0.7%	0.91
All	0.9%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PACIFIC AVE SE Eastbound				PACIFIC AVE SE Westbound				MARVIN RD SE Northbound				MARVIN RD SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	5	81	36	0	6	43	60	0	9	86	12	0	67	116	17	538	2,202
4:15 PM	0	10	84	34	0	14	49	60	0	14	64	5	0	93	146	16	589	2,232
4:30 PM	0	13	82	25	0	6	56	46	0	25	59	6	0	64	146	16	544	2,278
4:45 PM	0	10	83	32	0	7	55	55	0	13	59	6	0	72	121	18	531	2,273
5:00 PM	0	12	68	44	0	7	51	63	0	5	71	7	2	67	144	27	568	2,241
5:15 PM	0	14	87	50	0	7	49	72	0	20	95	11	0	79	137	14	635	
5:30 PM	0	4	79	42	0	7	38	43	0	19	73	9	0	80	122	23	539	
5:45 PM	0	8	59	42	0	8	39	43	0	21	72	7	0	71	114	15	499	
Count Total	0	76	623	305	0	62	380	442	0	126	579	63	2	593	1,046	146	4,443	
Peak Hour	0	49	320	151	0	27	211	236	0	63	284	30	2	282	548	75	2,278	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	1	1	2	7	4:00 PM	0	0	1	0	1
4:15 PM	1	0	3	1	5	4:15 PM	0	0	0	0	0
4:30 PM	0	3	0	4	7	4:30 PM	0	0	0	0	0
4:45 PM	1	0	1	1	3	4:45 PM	0	0	0	0	0
5:00 PM	4	0	1	1	6	5:00 PM	0	0	1	0	1
5:15 PM	2	1	2	0	5	5:15 PM	0	0	0	0	0
5:30 PM	0	1	1	2	4	5:30 PM	0	0	0	0	0
5:45 PM	1	2	2	0	5	5:45 PM	0	0	0	0	0
Count Total	12	8	11	11	42	Count Total	0	0	2	0	2
Peak Hour	7	4	4	6	21	Peak Hour	0	0	1	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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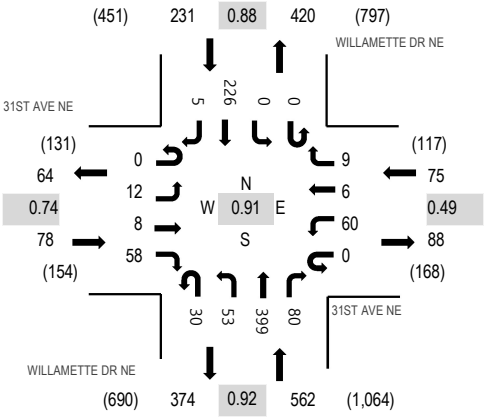
Location: 11 WILLAMETTE DR NE & 31ST AVE NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

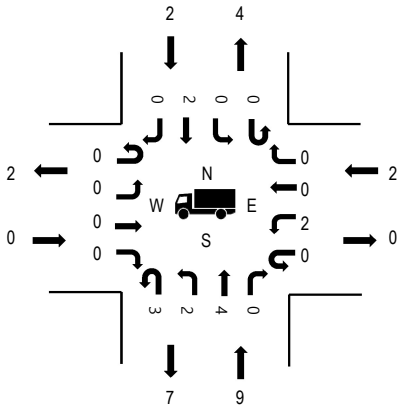
Motorized Vehicles



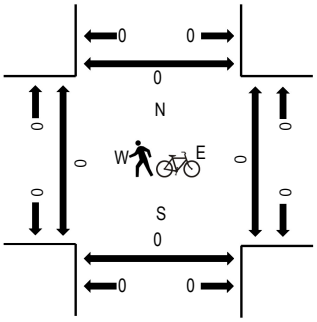
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.74
WB	2.7%	0.49
NB	1.6%	0.92
SB	0.9%	0.88
All	1.4%	0.91

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	31ST AVE NE Eastbound				31ST AVE NE Westbound				WILLAMETTE DR NE Northbound				WILLAMETTE DR NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	6	1	11	0	30	2	6	13	13	94	17	0	0	65	1	259	946
4:15 PM	0	4	3	8	0	9	4	1	9	12	104	19	0	0	57	2	232	906
4:30 PM	0	1	2	26	0	9	0	1	5	18	109	20	0	0	53	1	245	902
4:45 PM	0	1	2	13	0	12	0	1	3	10	92	24	0	0	51	1	210	871
5:00 PM	0	3	2	20	0	8	0	1	2	13	97	15	0	0	57	1	219	840
5:15 PM	0	2	2	12	0	8	2	3	3	13	103	17	0	0	63	0	228	
5:30 PM	0	1	5	14	0	5	3	1	5	15	82	25	0	0	57	1	214	
5:45 PM	0	1	1	13	0	10	0	1	1	16	82	13	0	0	38	3	179	
Count Total	0	19	18	117	0	91	11	15	41	110	763	150	0	0	441	10	1,786	
Peak Hour	0	12	8	58	0	60	6	9	30	53	399	80	0	0	226	5	946	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	2	1	0	3	4:00 PM	0	0	0	0	0
4:15 PM	0	2	0	1	3	4:15 PM	0	0	0	0	0
4:30 PM	0	3	0	1	4	4:30 PM	0	0	0	0	0
4:45 PM	0	2	1	0	3	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1
5:15 PM	0	2	0	0	2	5:15 PM	0	0	0	0	0
5:30 PM	1	3	0	1	5	5:30 PM	0	0	1	1	2
5:45 PM	0	1	1	0	2	5:45 PM	0	0	0	0	0
Count Total	1	15	3	3	22	Count Total	0	0	1	2	3
Peak Hour	0	9	2	2	13	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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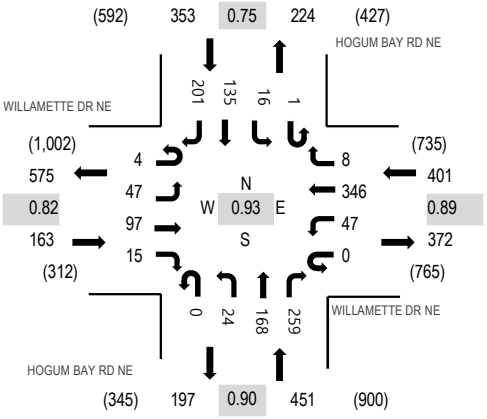
Location: 12 HOGUM BAY RD NE & WILLAMETTE DR NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

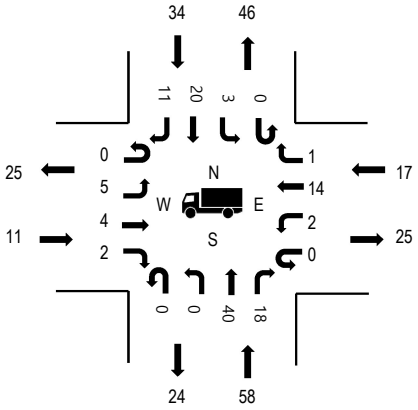
Motorized Vehicles



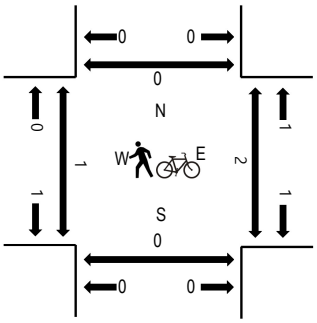
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	6.7%	0.82
WB	4.2%	0.89
NB	12.9%	0.90
SB	9.6%	0.75
All	8.8%	0.93

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	WILLAMETTE DR NE Eastbound				WILLAMETTE DR NE Westbound				HOGUM BAY RD NE Northbound				HOGUM BAY RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	8	31	6	0	7	88	4	0	5	40	60	0	9	42	67	367	1,368
4:15 PM	2	18	20	2	0	6	97	2	0	9	46	53	1	2	35	53	346	1,330
4:30 PM	1	10	22	4	0	19	93	1	0	2	32	69	0	3	31	47	334	1,305
4:45 PM	1	11	24	3	0	15	68	1	0	8	50	77	0	2	27	34	321	1,244
5:00 PM	0	4	34	2	0	9	79	5	0	5	39	72	0	0	38	42	329	1,171
5:15 PM	0	10	39	2	0	8	75	3	0	5	37	84	0	2	28	28	321	
5:30 PM	0	4	26	0	0	11	63	5	0	2	38	69	0	0	21	34	273	
5:45 PM	0	7	19	2	0	13	61	2	0	3	49	46	0	2	14	30	248	
Count Total	4	72	215	21	0	88	624	23	0	39	331	530	1	20	236	335	2,539	
Peak Hour	4	47	97	15	0	47	346	8	0	24	168	259	1	16	135	201	1,368	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	20	5	12	41	4:00 PM	0	0	0	0	0	4:00 PM	0	0	2	0	2
4:15 PM	3	16	5	8	32	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	4	8	6	6	24	4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1
4:45 PM	0	14	1	8	23	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	3	13	6	7	29	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	10	3	11	24	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	14	4	8	26	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	1	13	1	9	24	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	15	108	31	69	223	Count Total	0	0	0	0	0	Count Total	1	0	2	0	3
Peak Hour	11	58	17	34	120	Peak Hour	0	0	0	0	0	Peak Hour	1	0	2	0	3

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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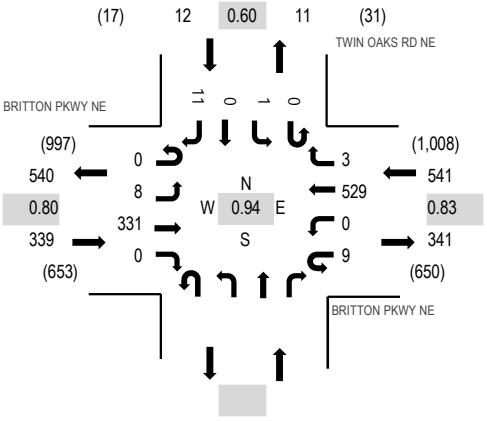
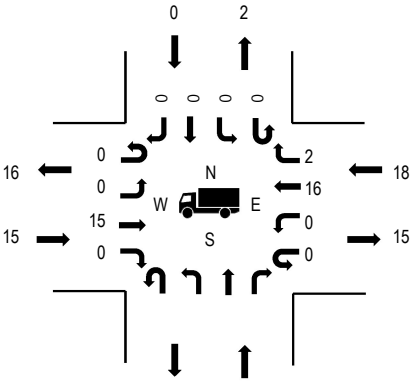
Location: 13 TWIN OAKS RD NE & BRITTON PKWY NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

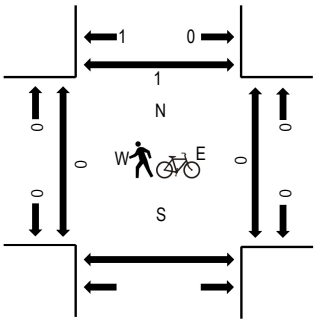
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.4%	0.80
WB	3.3%	0.83
NB		
SB	0.0%	0.60
All	3.7%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE Eastbound				BRITTON PKWY NE Westbound				Northbound				TWIN OAKS RD NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	4	102	0	1	0	122	0					0	0	0	5	234	892
4:15 PM	0	2	80	0	2	0	120	2					0	0	0	0	206	874
4:30 PM	0	2	78	0	1	0	129	1					0	1	0	3	215	868
4:45 PM	0	0	71	0	5	0	158	0					0	0	0	3	237	857
5:00 PM	0	6	86	0	2	0	121	1					0	0	0	0	216	786
5:15 PM	0	6	76	0	5	0	110	0					0	0	0	3	200	
5:30 PM	0	2	73	0	3	0	122	2					0	1	0	1	204	
5:45 PM	0	3	62	0	1	0	100	0					0	0	0	0	166	
Count Total	0	25	628	0	20	0	982	6					0	2	0	15	1,678	
Peak Hour	0	8	331	0	9	0	529	3					0	1	0	11	892	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

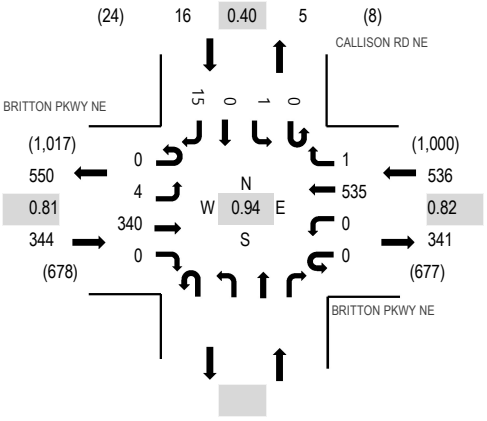
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5		7	0	12	4:00 PM	0		0	0	0	4:00 PM	0		0	1	1
4:15 PM	5		4	0	9	4:15 PM	0		0	0	0	4:15 PM	0		0	0	0
4:30 PM	5		4	0	9	4:30 PM	0		0	0	0	4:30 PM	0		0	0	0
4:45 PM	0		3	0	3	4:45 PM	0		0	0	0	4:45 PM	0		0	0	0
5:00 PM	1		1	0	2	5:00 PM	0		0	0	0	5:00 PM	0		0	1	1
5:15 PM	0		2	0	2	5:15 PM	0		0	0	0	5:15 PM	0		0	1	1
5:30 PM	1		3	0	4	5:30 PM	0		0	0	0	5:30 PM	0		0	0	0
5:45 PM	0		2	0	2	5:45 PM	0		0	0	0	5:45 PM	0		0	0	0
Count Total	17		26	0	43	Count Total	0		0	0	0	Count Total	0		0	3	3
Peak Hour	15		18	0	33	Peak Hour	0		0	0	0	Peak Hour	0		0	1	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

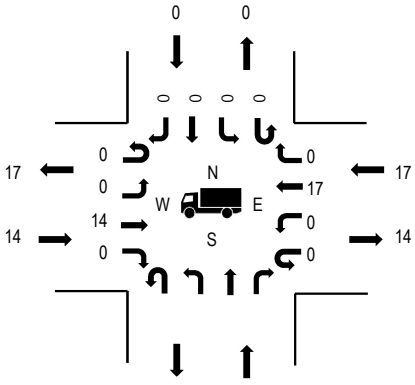
Location: 14 CALLISON RD NE & BRITTON PKWY NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

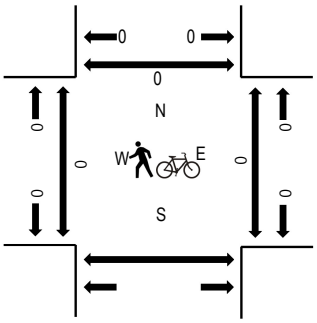
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.1%	0.81
WB	3.2%	0.82
NB		
SB	0.0%	0.40
All	3.5%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE Eastbound				BRITTON PKWY NE Westbound				Northbound				CALLISON RD NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	105	0	0	0	123	0					0	1	0	9	239	896
4:15 PM	0	1	84	0	0	0	126	0					0	0	0	2	213	874
4:30 PM	0	1	78	0	0	0	124	0					0	0	0	3	206	862
4:45 PM	0	1	73	0	0	0	162	1					0	0	0	1	238	878
5:00 PM	0	0	91	0	0	0	123	0					0	1	0	2	217	806
5:15 PM	0	1	84	0	0	0	114	1					0	0	0	1	201	
5:30 PM	0	0	94	0	0	0	125	0					0	1	0	2	222	
5:45 PM	0	0	64	0	0	0	100	1					0	1	0	0	166	
Count Total	0	5	673	0	0	0	997	3					0	4	0	20	1,702	
Peak Hour	0	4	340	0	0	0	535	1					0	1	0	15	896	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

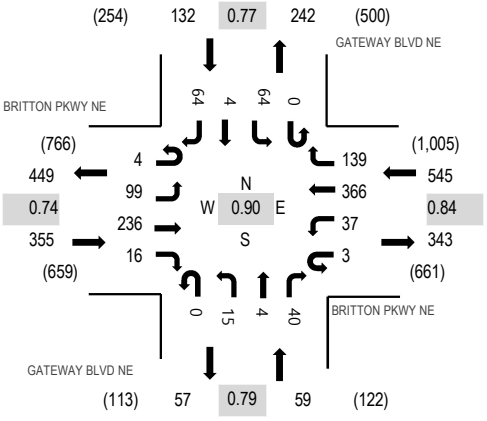
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3		8	0	11	4:00 PM	0		0	0	0	4:00 PM	0		0	0	0
4:15 PM	5		3	0	8	4:15 PM	0		0	0	0	4:15 PM	0		0	0	0
4:30 PM	6		3	0	9	4:30 PM	0		0	0	0	4:30 PM	0		0	0	0
4:45 PM	0		3	0	3	4:45 PM	0		0	0	0	4:45 PM	0		0	0	0
5:00 PM	1		0	0	1	5:00 PM	0		0	0	0	5:00 PM	0		0	1	1
5:15 PM	0		1	0	1	5:15 PM	0		0	0	0	5:15 PM	0		0	1	1
5:30 PM	1		1	0	2	5:30 PM	0		0	0	0	5:30 PM	0		0	0	0
5:45 PM	0		1	0	1	5:45 PM	0		0	0	0	5:45 PM	0		0	0	0
Count Total	16		20	0	36	Count Total	0		0	0	0	Count Total	0		0	2	2
Peak Hour	14		17	0	31	Peak Hour	0		0	0	0	Peak Hour	0		0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 15 GATEWAY BLVD NE & BRITTON PKWY NE PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

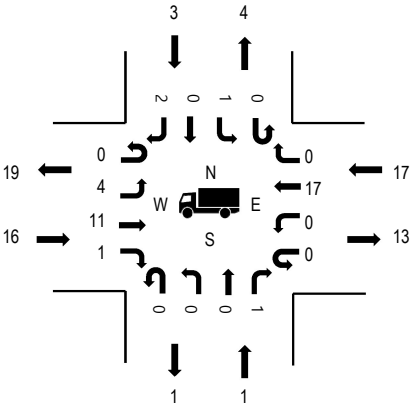
Motorized Vehicles



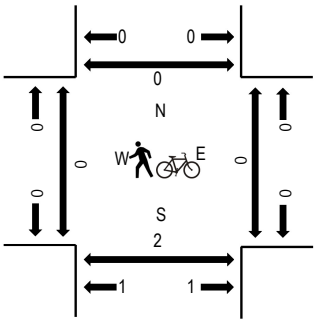
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.5%	0.74
WB	3.1%	0.84
NB	1.7%	0.79
SB	2.3%	0.77
All	3.4%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE Eastbound				BRITTON PKWY NE Westbound				GATEWAY BLVD NE Northbound				GATEWAY BLVD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	2	37	77	4	2	13	92	24	0	5	2	10	0	15	1	18	302	1,091
4:15 PM	0	23	56	3	1	9	87	30	0	3	1	13	0	17	0	17	260	1,052
4:30 PM	2	19	51	5	0	6	90	29	0	5	0	10	0	19	2	22	260	1,042
4:45 PM	0	20	52	4	0	9	97	56	0	2	1	7	0	13	1	7	269	1,018
5:00 PM	1	25	60	4	0	7	89	31	0	2	0	10	0	24	2	8	263	949
5:15 PM	1	29	56	10	0	7	59	42	0	7	0	13	0	16	1	9	250	
5:30 PM	0	19	37	4	0	9	73	44	0	2	1	12	0	25	0	10	236	
5:45 PM	1	21	33	3	1	9	45	44	0	2	2	12	0	19	0	8	200	
Count Total	7	193	422	37	4	69	632	300	0	28	7	87	0	148	7	99	2,040	
Peak Hour	4	99	236	16	3	37	366	139	0	15	4	40	0	64	4	64	1,091	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

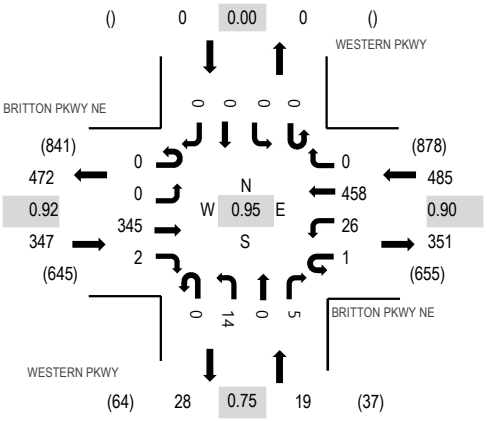
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	8	0	9	0	17	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:15 PM	5	0	3	3	11	4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	0	1
4:30 PM	3	1	3	0	7	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	2	0	2	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	2	0	2	0	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	1	3	0	5	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	1	2
Count Total	19	2	22	4	47	Count Total	0	0	0	0	0	Count Total	0	3	0	1	4
Peak Hour	16	1	17	3	37	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 16 WESTERN PKWY & BRITTON PKWY NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

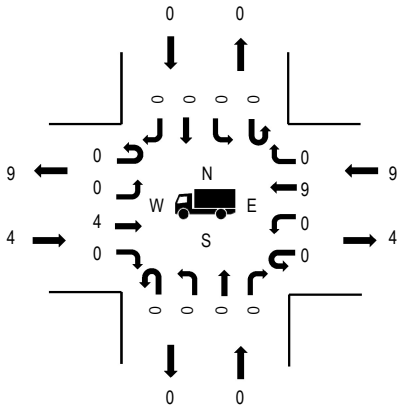
Motorized Vehicles



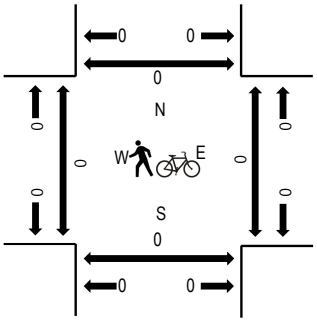
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.2%	0.92
WB	1.9%	0.90
NB	0.0%	0.75
SB	0.0%	0.00
All	1.5%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE Eastbound				BRITTON PKWY NE Westbound				WESTERN PKWY Northbound				WESTERN PKWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	81	0	0	5	115	0	0	2	0	0	0	0	0	0	203	851
4:15 PM	0	0	79	1	0	7	130	0	0	5	0	2	0	0	0	0	224	845
4:30 PM	0	0	93	1	0	6	111	0	0	5	0	2	0	0	0	0	218	811
4:45 PM	0	0	92	0	1	8	102	0	0	2	0	1	0	0	0	0	206	747
5:00 PM	0	0	63	0	0	5	125	0	0	3	0	1	0	0	0	0	197	709
5:15 PM	0	0	84	2	1	8	91	0	0	1	0	3	0	0	0	0	190	
5:30 PM	0	0	54	1	0	9	85	0	0	1	0	4	0	0	0	0	154	
5:45 PM	0	0	91	3	0	8	61	0	0	2	0	3	0	0	0	0	168	
Count Total	0	0	637	8	2	56	820	0	0	21	0	16	0	0	0	0	1,560	
Peak Hour	0	0	345	2	1	26	458	0	0	14	0	5	0	0	0	0	851	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

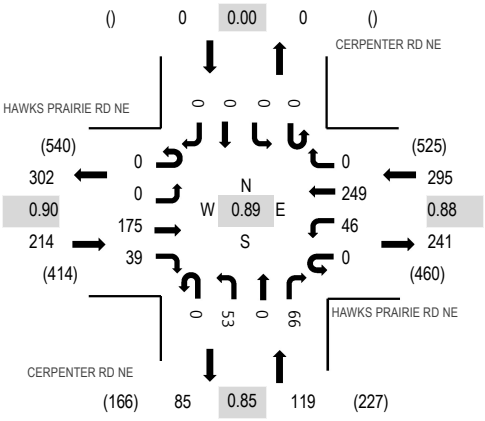
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	4	0	6	4:00 PM	0	0	0	0	0
4:15 PM	1	0	2	0	3	4:15 PM	0	0	0	0	0
4:30 PM	1	0	1	0	2	4:30 PM	0	0	0	0	0
4:45 PM	0	0	2	0	2	4:45 PM	0	0	0	0	0
5:00 PM	3	0	1	0	4	5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM	0	2	0	0	2
Count Total	7	0	13	0	20	Count Total	0	2	0	0	2
Peak Hour	4	0	9	0	13	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

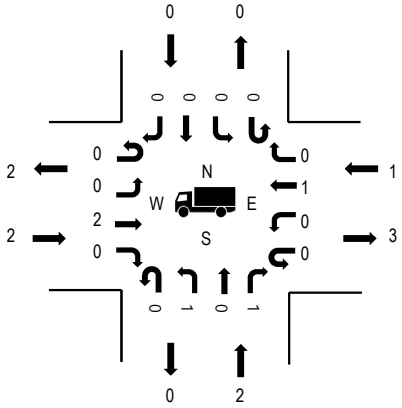
Location: 19 CERPENTER RD NE & HAWKS PRAIRIE RD NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

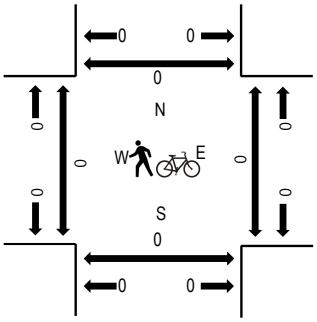
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.90
WB	0.3%	0.88
NB	1.7%	0.85
SB	0.0%	0.00
All	0.8%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	HAWKS PRAIRIE RD NE Eastbound				HAWKS PRAIRIE RD NE Westbound				CERPENTER RD NE Northbound				CERPENTER RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	46	11	0	16	65	0	0	21	0	18	0	0	0	0	177	618
4:15 PM	0	0	46	8	0	13	57	0	0	9	0	11	0	0	0	0	144	617
4:30 PM	0	0	49	12	0	17	62	0	0	15	0	20	0	0	0	0	175	628
4:45 PM	0	0	38	8	0	9	47	0	0	8	0	12	0	0	0	0	122	553
5:00 PM	0	0	50	12	0	6	78	0	0	16	0	14	0	0	0	0	176	548
5:15 PM	0	0	38	7	0	14	62	0	0	14	0	20	0	0	0	0	155	
5:30 PM	0	0	26	13	0	4	30	0	0	9	0	18	0	0	0	0	100	
5:45 PM	0	0	39	11	0	5	40	0	0	7	0	15	0	0	0	0	117	
Count Total	0	0	332	82	0	84	441	0	0	99	0	128	0	0	0	0	1,166	
Peak Hour	0	0	175	39	0	46	249	0	0	53	0	66	0	0	0	0	628	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

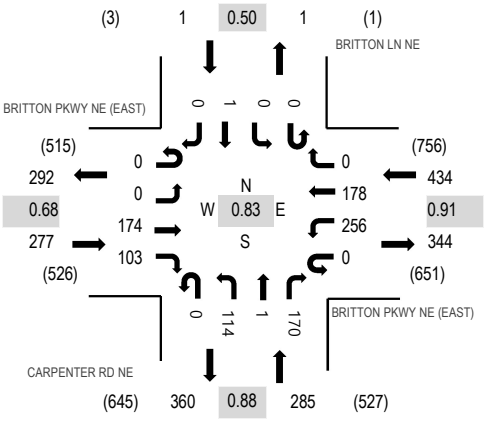
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	1	1	0	5	4:00 PM	0	0	0	0	0
4:15 PM	0	0	3	0	3	4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:45 PM	0	1	0	0	1	4:45 PM	0	0	0	0	0
5:00 PM	2	0	1	0	3	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	5	3	5	0	13	Count Total	0	0	0	0	0
Peak Hour	2	2	1	0	5	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 20 CARPENTER RD NE & BRITTON PKWY NE (EAST) PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

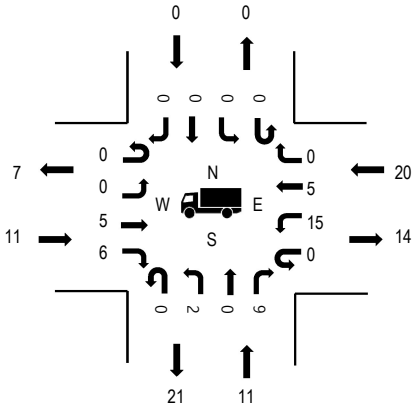
Peak Hour

Motorized Vehicles

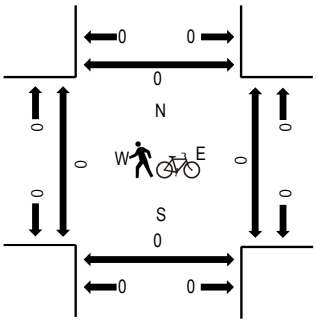


Note: Total study counts contained in parentheses.

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	4.0%	0.68
WB	4.6%	0.91
NB	3.9%	0.88
SB	0.0%	0.50
All	4.2%	0.83

Traffic Counts - Motorized Vehicles

Interval Start Time	BRITTON PKWY NE (EAST) Eastbound				BRITTON PKWY NE (EAST) Westbound				CARPENTER RD NE Northbound				BRITTON LN NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	72	30	0	72	45	0	0	34	1	46	0	0	0	0	300	997
4:15 PM	0	0	38	17	0	58	44	0	0	28	0	38	0	0	0	0	223	936
4:30 PM	0	0	29	34	0	70	49	0	0	29	0	49	0	0	1	0	261	933
4:45 PM	0	0	35	22	0	56	40	0	0	23	0	37	0	0	0	0	213	855
5:00 PM	0	0	58	24	0	64	34	0	0	25	0	34	0	0	0	0	239	815
5:15 PM	0	0	40	27	0	45	35	0	0	23	0	49	0	1	0	0	220	
5:30 PM	0	0	29	20	0	47	33	0	0	23	0	30	0	0	0	1	183	
5:45 PM	0	0	29	22	0	36	28	0	0	21	0	37	0	0	0	0	173	
Count Total	0	0	330	196	0	448	308	0	0	206	1	320	0	1	1	1	1,812	
Peak Hour	0	0	174	103	0	256	178	0	0	114	1	170	0	0	1	0	997	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

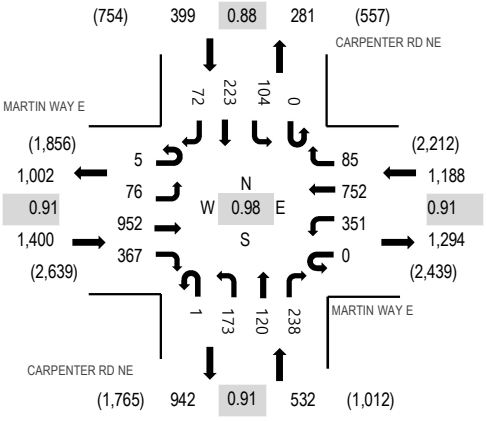
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	3	12	0	19	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	4	5	3	0	12	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	3	2	3	0	8	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	1	2	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	1	1	1	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	4	0	5	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	12	14	25	0	51	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	11	11	20	0	42	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 21 CARPENTER RD NE & MARTIN WAY E PM
Date: Tuesday, January 24, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

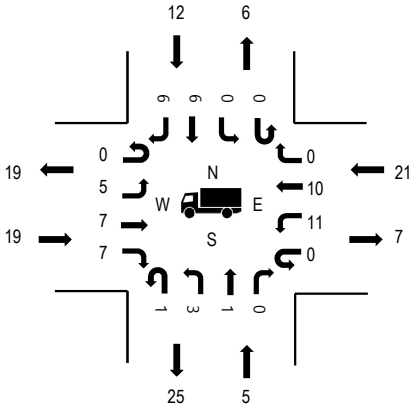
Motorized Vehicles



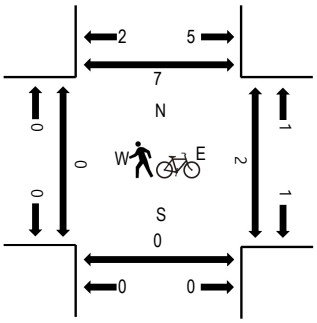
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.91
WB	1.8%	0.91
NB	0.9%	0.91
SB	3.0%	0.88
All	1.6%	0.98

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				CARPENTER RD NE Northbound				CARPENTER RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	1	15	227	77	0	80	164	26	0	40	41	57	0	34	69	20	851	3,455
4:15 PM	0	18	238	73	0	72	189	19	0	35	33	53	0	17	56	21	824	3,461
4:30 PM	1	19	208	78	0	97	202	27	0	45	32	69	0	32	73	12	895	3,519
4:45 PM	1	18	247	88	0	95	190	23	0	41	26	58	0	21	51	26	885	3,349
5:00 PM	1	14	250	89	0	63	187	14	1	45	35	57	0	26	56	19	857	3,162
5:15 PM	2	25	247	112	0	96	173	21	0	42	27	54	0	25	43	15	882	
5:30 PM	2	19	211	74	0	55	159	18	0	40	22	49	0	16	50	10	725	
5:45 PM	0	25	173	86	0	89	136	17	0	31	23	56	0	14	42	6	698	
Count Total	8	153	1,801	677	0	647	1,400	165	1	319	239	453	0	185	440	129	6,617	
Peak Hour	5	76	952	367	0	351	752	85	1	173	120	238	0	104	223	72	3,519	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	6	1	10	22	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	1	2
4:15 PM	4	6	7	4	21	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	5	1	12	8	26	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	2	3
4:45 PM	7	2	3	2	14	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	1	2
5:00 PM	4	1	5	2	12	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	3	3
5:15 PM	3	1	1	0	5	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	1	1
5:30 PM	4	1	2	4	11	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	2	0	2	0	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	34	18	33	30	115	Count Total	0	0	0	0	0	Count Total	0	0	3	8	11
Peak Hour	19	5	21	12	57	Peak Hour	0	0	0	0	0	Peak Hour	0	0	2	7	9

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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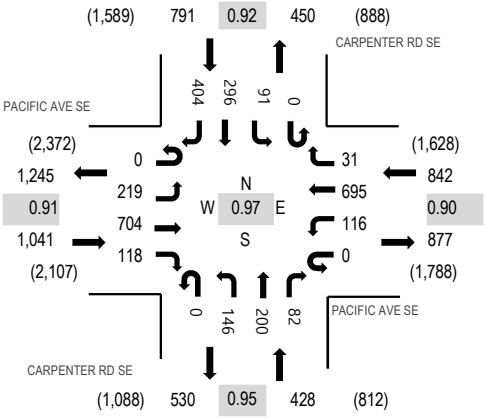
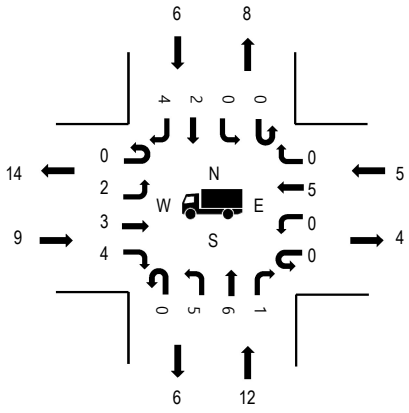
Location: 22 CARPENTER RD SE & PACIFIC AVE SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

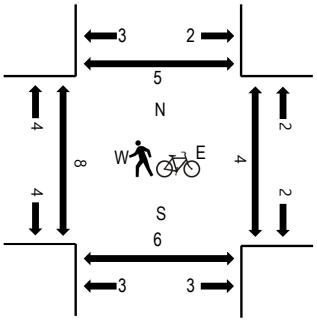
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.91
WB	0.6%	0.90
NB	2.8%	0.95
SB	0.8%	0.92
All	1.0%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	PACIFIC AVE SE Eastbound				PACIFIC AVE SE Westbound				CARPENTER RD SE Northbound				CARPENTER RD SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	67	201	26	0	28	147	2	0	34	50	32	0	28	78	72	765	3,093
4:15 PM	0	67	188	40	0	27	185	6	0	31	53	22	0	23	65	95	802	3,102
4:30 PM	0	51	163	20	0	22	179	5	0	45	48	19	0	22	73	94	741	3,080
4:45 PM	0	55	169	21	0	35	186	13	0	35	47	23	0	26	74	101	785	3,100
5:00 PM	0	46	184	37	0	32	145	7	0	35	52	18	0	20	84	114	774	3,043
5:15 PM	0	58	174	32	0	29	145	13	0	31	46	23	0	23	101	105	780	
5:30 PM	0	54	179	33	0	28	169	11	0	28	47	19	0	26	77	90	761	
5:45 PM	0	49	171	22	0	27	180	7	0	26	34	14	0	21	77	100	728	
Count Total	0	447	1,429	231	0	228	1,336	64	0	265	377	170	0	189	629	771	6,136	
Peak Hour	0	219	704	118	0	116	695	31	0	146	200	82	0	91	296	404	3,102	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	5	4	4	19	4:00 PM	1	0	1	1	3
4:15 PM	0	5	0	2	7	4:15 PM	0	0	0	1	1
4:30 PM	5	2	2	1	10	4:30 PM	6	2	0	1	9
4:45 PM	1	1	1	1	4	4:45 PM	1	3	4	3	11
5:00 PM	3	4	2	2	11	5:00 PM	1	1	0	0	2
5:15 PM	0	0	1	2	3	5:15 PM	2	0	0	0	2
5:30 PM	4	1	3	3	11	5:30 PM	0	0	0	2	2
5:45 PM	3	0	2	3	8	5:45 PM	0	0	1	1	2
Count Total	22	18	15	18	73	Count Total	11	6	6	9	32
Peak Hour	9	12	5	6	32	Peak Hour	8	6	4	5	23

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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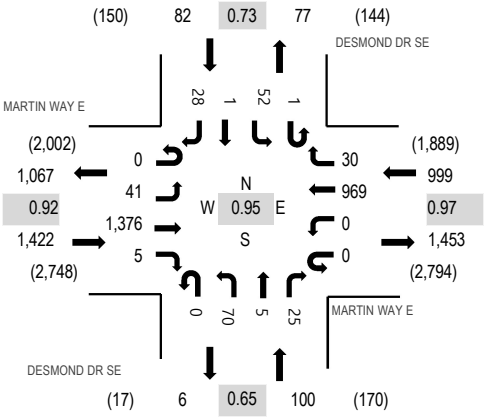
Location: 23 DESMOND DR SE & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

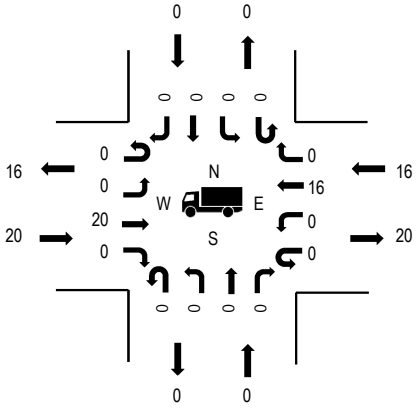
Peak Hour

Motorized Vehicles

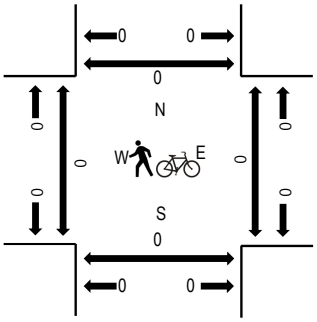


Note: Total study counts contained in parentheses.

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	1.4%	0.92
WB	1.6%	0.97
NB	0.0%	0.65
SB	0.0%	0.73
All	1.4%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				DESMOND DR SE Northbound				DESMOND DR SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	6	324	1	0	1	242	9	0	13	0	8	0	13	0	5	622	2,562
4:15 PM	0	10	346	0	0	0	253	6	0	7	0	5	1	12	0	6	646	2,603
4:30 PM	0	6	303	2	0	0	231	11	0	18	0	7	0	19	0	9	606	2,577
4:45 PM	0	12	381	1	0	0	253	4	0	17	2	2	0	12	1	3	688	2,564
5:00 PM	0	13	346	2	0	0	232	9	0	28	3	11	0	9	0	10	663	2,395
5:15 PM	0	11	356	5	0	0	205	4	0	16	0	5	0	13	0	5	620	
5:30 PM	0	10	311	3	0	0	227	6	0	13	1	2	0	11	0	9	593	
5:45 PM	0	15	283	1	0	0	191	5	0	6	0	6	0	9	0	3	519	
Count Total	0	83	2,650	15	0	1	1,834	54	0	118	6	46	1	98	1	50	4,957	
Peak Hour	0	41	1,376	5	0	0	969	30	0	70	5	25	1	52	1	28	2,603	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	0	2	0	7	4:00 PM	0	0	0	0	0
4:15 PM	5	0	4	0	9	4:15 PM	0	0	0	0	0
4:30 PM	4	0	3	0	7	4:30 PM	0	0	0	0	0
4:45 PM	7	0	3	0	10	4:45 PM	0	0	0	0	0
5:00 PM	4	0	6	0	10	5:00 PM	0	0	0	0	0
5:15 PM	5	0	3	0	8	5:15 PM	0	0	0	0	0
5:30 PM	3	0	3	0	6	5:30 PM	0	0	0	0	0
5:45 PM	2	0	3	0	5	5:45 PM	0	0	0	0	0
Count Total	35	0	27	0	62	Count Total	0	0	0	0	0
Peak Hour	20	0	16	0	36	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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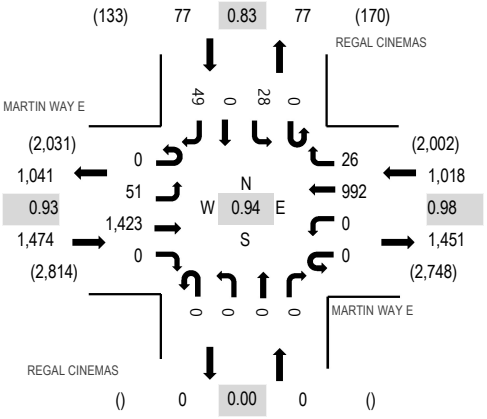
Location: 24 REGAL CINEMAS & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour

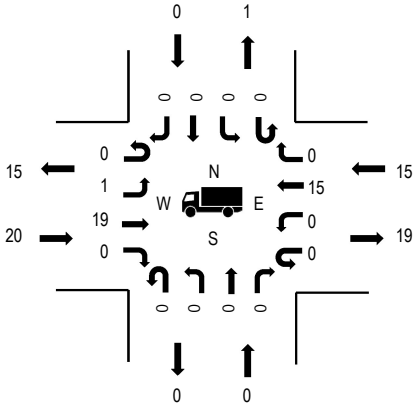
Motorized Vehicles



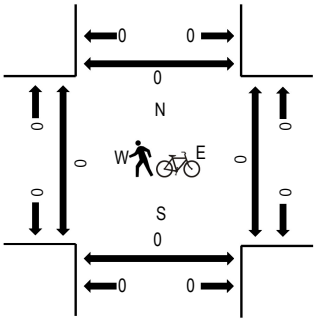
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.93
WB	1.5%	0.98
NB	0.0%	0.00
SB	0.0%	0.83
All	1.4%	0.94

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				REGAL CINEMAS Northbound				REGAL CINEMAS Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	21	321	0	0	0	255	5	0	0	0	0	0	10	0	4	616	2,531
4:15 PM	0	30	350	0	0	0	261	5	0	0	0	0	0	6	0	0	652	2,565
4:30 PM	0	11	303	0	0	0	254	4	0	0	0	0	0	8	0	2	582	2,546
4:45 PM	0	11	384	0	0	0	270	3	0	0	0	0	0	10	0	3	681	2,569
5:00 PM	0	8	357	0	0	0	259	11	0	0	0	0	0	4	0	11	650	2,418
5:15 PM	0	16	369	0	0	0	220	6	0	0	0	0	0	3	0	19	633	
5:30 PM	0	16	313	0	0	0	243	6	0	0	0	0	0	11	0	16	605	
5:45 PM	0	11	293	0	0	0	194	6	0	0	0	0	0	6	0	20	530	
Count Total	0	124	2,690	0	0	0	1,956	46	0	0	0	0	0	58	0	75	4,949	
Peak Hour	0	51	1,423	0	0	0	992	26	0	0	0	0	0	28	0	49	2,569	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

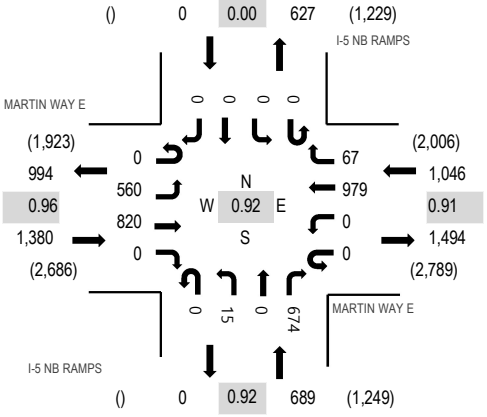
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	0	2	0	7	4:00 PM	0	0	0	0	0
4:15 PM	5	0	4	0	9	4:15 PM	0	0	0	0	0
4:30 PM	5	0	3	0	8	4:30 PM	0	0	0	0	0
4:45 PM	7	0	3	0	10	4:45 PM	0	0	0	0	0
5:00 PM	4	0	6	0	10	5:00 PM	0	0	0	0	0
5:15 PM	5	0	3	0	8	5:15 PM	0	0	0	0	0
5:30 PM	4	0	3	0	7	5:30 PM	0	0	0	0	0
5:45 PM	2	0	3	0	5	5:45 PM	0	0	0	0	0
Count Total	37	0	27	0	64	Count Total	0	0	0	0	0
Peak Hour	20	0	15	0	35	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

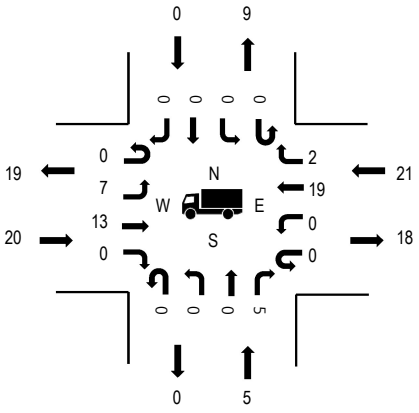
Location: 25 I-5 NB RAMPS & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

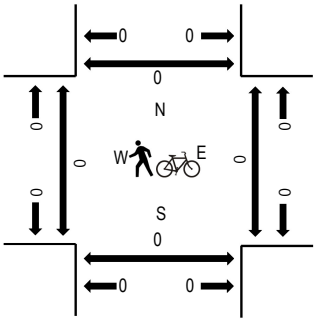
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.96
WB	2.0%	0.91
NB	0.7%	0.92
SB	0.0%	0.00
All	1.5%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				I-5 NB RAMPS Northbound				I-5 NB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	125	213	0	0	0	255	16	0	7	0	132	0	0	0	0	748	3,013
4:15 PM	0	164	191	0	0	0	225	12	0	5	0	140	0	0	0	0	737	3,110
4:30 PM	0	138	221	0	0	0	256	14	0	2	0	129	0	0	0	0	760	3,115
4:45 PM	0	156	179	0	0	0	237	17	0	1	0	178	0	0	0	0	768	3,082
5:00 PM	0	124	243	0	0	0	274	15	0	6	0	183	0	0	0	0	845	2,928
5:15 PM	0	142	177	0	0	0	212	21	0	6	0	184	0	0	0	0	742	
5:30 PM	0	132	192	0	0	0	247	12	0	3	0	141	0	0	0	0	727	
5:45 PM	0	132	157	0	1	0	183	9	0	4	0	128	0	0	0	0	614	
Count Total	0	1,113	1,573	0	1	0	1,889	116	0	34	0	1,215	0	0	0	0	5,941	
Peak Hour	0	560	820	0	0	0	979	67	0	15	0	674	0	0	0	0	3,115	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

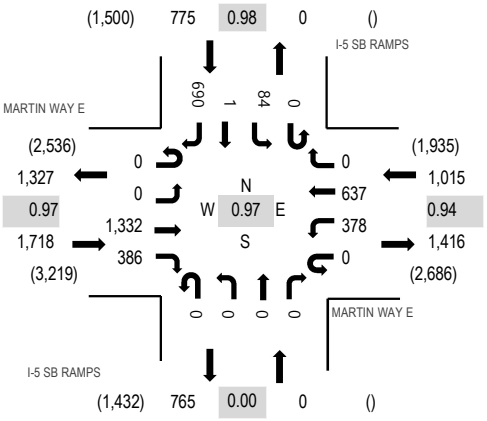
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	1	5	0	10	4:00 PM	0	0	0	0	0
4:15 PM	3	0	4	0	7	4:15 PM	0	0	0	0	0
4:30 PM	6	0	4	0	10	4:30 PM	0	0	0	0	0
4:45 PM	3	1	4	0	8	4:45 PM	0	0	0	0	0
5:00 PM	4	3	8	0	15	5:00 PM	0	0	0	0	0
5:15 PM	7	1	5	0	13	5:15 PM	0	0	0	0	0
5:30 PM	6	1	3	0	10	5:30 PM	0	0	0	0	0
5:45 PM	3	0	2	0	5	5:45 PM	0	3	0	0	3
Count Total	36	7	35	0	78	Count Total	0	3	0	0	3
Peak Hour	20	5	21	0	46	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

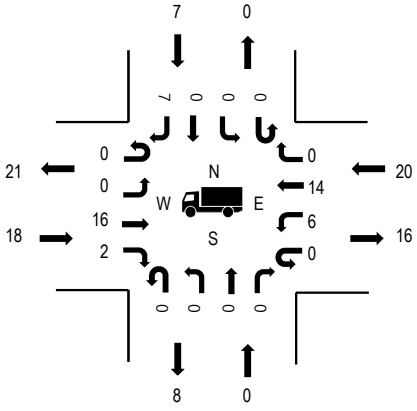
Location: 26 I-5 SB RAMPS & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

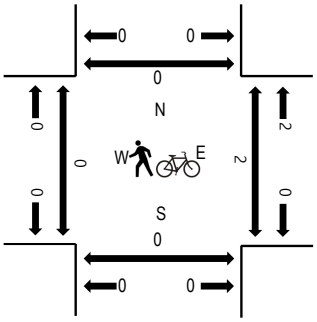
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.0%	0.97
WB	2.0%	0.94
NB	0.0%	0.00
SB	0.9%	0.98
All	1.3%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				I-5 SB RAMPS Northbound				I-5 SB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	312	113	0	93	163	0	0	0	0	0	0	26	1	168	876	3,481
4:15 PM	0	0	344	93	0	93	146	0	0	0	0	0	0	11	1	188	876	3,508
4:30 PM	0	0	338	105	0	92	164	0	0	0	0	0	0	21	0	175	895	3,413
4:45 PM	0	0	305	89	0	88	161	0	0	0	0	0	0	30	0	161	834	3,301
5:00 PM	0	0	345	99	0	105	166	0	0	0	0	0	0	22	0	166	903	3,173
5:15 PM	0	0	298	69	0	93	144	0	0	0	0	0	0	21	0	156	781	
5:30 PM	0	0	308	78	0	78	156	0	0	0	0	0	0	16	0	147	783	
5:45 PM	0	0	264	59	0	83	110	0	0	0	0	0	0	25	0	165	706	
Count Total	0	0	2,514	705	0	725	1,210	0	0	0	0	0	0	172	2	1,326	6,654	
Peak Hour	0	0	1,332	386	0	378	637	0	0	0	0	0	0	84	1	690	3,508	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	7	0	6	3	16	4:00 PM	0	0	2	0	2
4:15 PM	5	0	4	1	10	4:15 PM	0	0	1	0	1
4:30 PM	6	0	4	2	12	4:30 PM	0	0	1	0	1
4:45 PM	3	0	4	2	9	4:45 PM	0	0	0	0	0
5:00 PM	4	0	8	2	14	5:00 PM	0	0	0	0	0
5:15 PM	8	0	3	2	13	5:15 PM	0	0	0	0	0
5:30 PM	7	0	2	3	12	5:30 PM	0	0	0	0	0
5:45 PM	2	0	3	1	6	5:45 PM	0	0	0	0	0
Count Total	42	0	34	16	92	Count Total	0	0	4	0	4
Peak Hour	18	0	20	7	45	Peak Hour	0	0	2	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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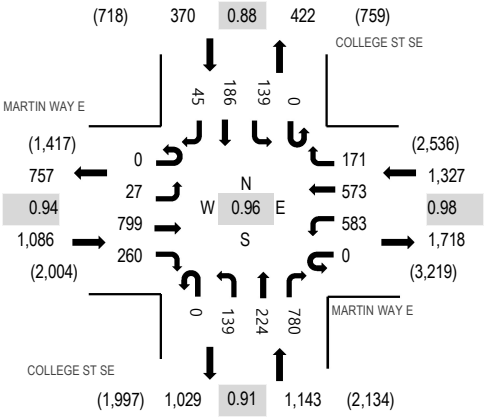
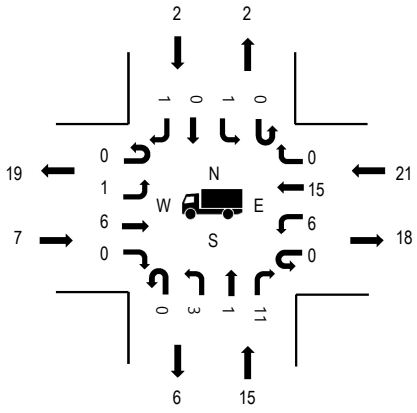
Location: 27 COLLEGE ST SE & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

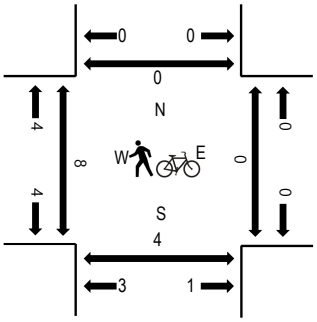
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.94
WB	1.6%	0.98
NB	1.3%	0.91
SB	0.5%	0.88
All	1.1%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				COLLEGE ST SE Northbound				COLLEGE ST SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	6	201	61	0	166	124	41	0	28	46	191	0	33	44	15	956	3,898
4:15 PM	0	10	183	67	0	139	154	41	0	33	70	212	0	42	57	13	1,021	3,926
4:30 PM	0	5	214	69	0	161	139	39	0	36	55	183	0	46	44	14	1,005	3,741
4:45 PM	0	5	191	54	0	135	150	37	0	38	48	172	0	31	46	9	916	3,625
5:00 PM	0	7	211	70	0	148	130	54	0	32	51	213	0	20	39	9	984	3,494
5:15 PM	0	6	162	43	0	140	128	32	0	45	42	174	0	31	24	9	836	
5:30 PM	0	7	172	49	0	153	115	35	0	38	46	161	0	53	49	11	889	
5:45 PM	0	9	147	55	0	149	98	28	0	43	39	138	0	38	35	6	785	
Count Total	0	55	1,481	468	0	1,191	1,038	307	0	293	397	1,444	0	294	338	86	7,392	
Peak Hour	0	27	799	260	0	583	573	171	0	139	224	780	0	139	186	45	3,926	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	5	7	1	15	4:00 PM	1	1	0	0	2
4:15 PM	1	5	3	1	10	4:15 PM	1	2	0	0	3
4:30 PM	1	4	4	1	10	4:30 PM	5	2	0	0	7
4:45 PM	3	1	5	0	9	4:45 PM	2	0	0	0	2
5:00 PM	2	5	9	0	16	5:00 PM	0	0	0	0	0
5:15 PM	5	7	3	1	16	5:15 PM	0	0	0	0	0
5:30 PM	6	2	5	1	14	5:30 PM	0	4	0	0	4
5:45 PM	1	1	3	0	5	5:45 PM	0	2	0	3	5
Count Total	21	30	39	5	95	Count Total	9	11	0	3	23
Peak Hour	7	15	21	2	45	Peak Hour	8	4	0	0	12

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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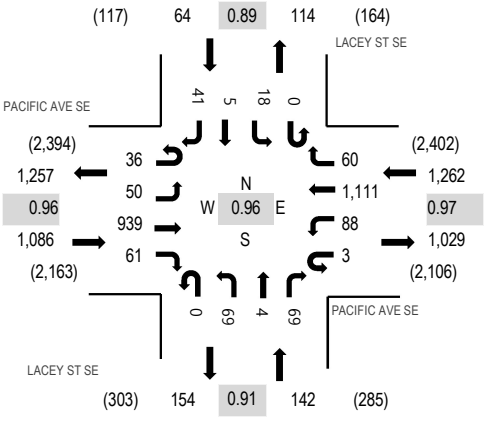
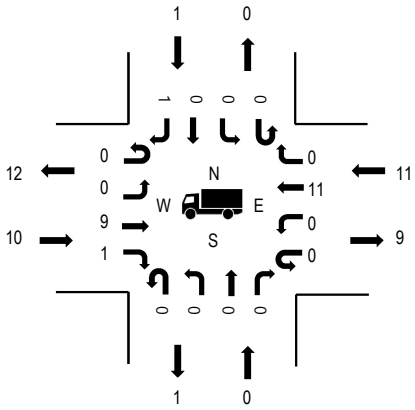
Location: 28 LACEY ST SE & PACIFIC AVE SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

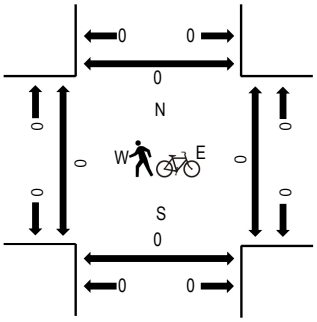
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.96
WB	0.9%	0.97
NB	0.0%	0.91
SB	1.6%	0.89
All	0.9%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	PACIFIC AVE SE Eastbound				PACIFIC AVE SE Westbound				LACEY ST SE Northbound				LACEY ST SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	3	5	277	9	0	23	234	2	0	14	0	27	0	5	2	7	608	2,535
4:15 PM	8	5	261	12	2	32	284	8	0	15	0	21	0	5	1	12	666	2,554
4:30 PM	11	11	215	14	1	12	290	16	0	19	0	15	0	3	0	9	616	2,499
4:45 PM	11	24	206	22	0	18	278	30	0	17	2	19	0	5	3	10	645	2,500
5:00 PM	6	10	257	13	0	26	259	6	0	18	2	14	0	5	1	10	627	2,432
5:15 PM	14	7	239	14	2	19	256	8	0	18	3	16	0	6	2	7	611	
5:30 PM	6	9	253	8	1	26	262	7	0	13	1	18	0	2	1	10	617	
5:45 PM	1	3	205	24	2	20	273	5	0	14	0	19	0	5	1	5	577	
Count Total	60	74	1,913	116	8	176	2,136	82	0	128	8	149	0	36	11	70	4,967	
Peak Hour	36	50	939	61	3	88	1,111	60	0	69	4	69	0	18	5	41	2,554	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	0	4	0	10	4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	0	0
4:30 PM	5	0	4	0	9	4:30 PM	0	0	0	0	0
4:45 PM	1	0	2	0	3	4:45 PM	0	0	0	0	0
5:00 PM	4	0	4	1	9	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:30 PM	3	0	3	0	6	5:30 PM	0	0	2	0	2
5:45 PM	1	0	3	0	4	5:45 PM	0	0	0	0	0
Count Total	20	0	21	1	42	Count Total	0	0	3	0	3
Peak Hour	10	0	11	1	22	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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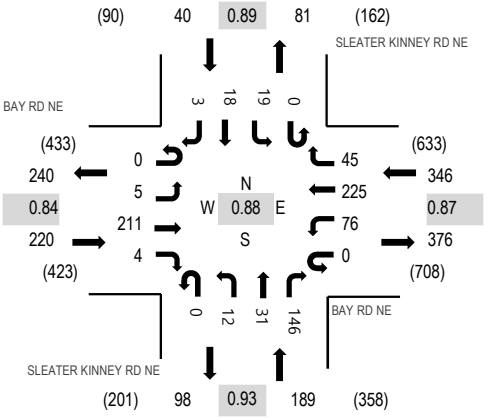
Location: 29 SLEATER KINNEY RD NE & BAY RD NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

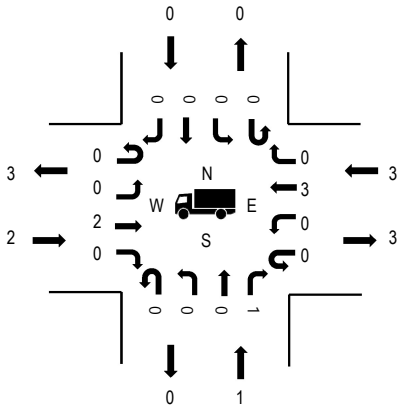
Motorized Vehicles



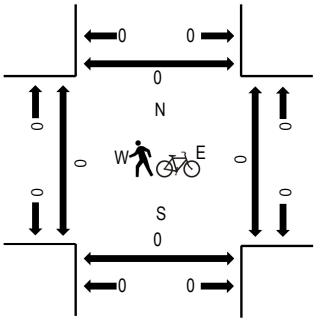
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.84
WB	0.9%	0.87
NB	0.5%	0.93
SB	0.0%	0.89
All	0.8%	0.88

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	BAY RD NE Eastbound				BAY RD NE Westbound				SLEATER KINNEY RD NE Northbound				SLEATER KINNEY RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	50	0	0	29	57	16	0	4	13	33	0	7	4	1	214	775
4:15 PM	0	2	51	2	0	26	44	4	0	2	9	30	0	8	4	2	184	786
4:30 PM	0	1	59	1	0	21	60	10	0	2	10	36	0	6	6	1	213	795
4:45 PM	0	0	39	2	0	21	37	12	0	4	4	34	0	6	4	1	164	749
5:00 PM	0	2	63	1	0	14	72	14	0	2	12	37	0	4	4	0	225	729
5:15 PM	0	2	50	0	0	20	56	9	0	4	5	39	0	3	4	1	193	
5:30 PM	0	3	52	0	0	14	40	3	0	1	12	29	0	2	10	1	167	
5:45 PM	0	2	41	0	0	10	38	6	0	1	11	24	0	5	4	2	144	
Count Total	0	12	405	6	0	155	404	74	0	20	76	262	0	41	40	9	1,504	
Peak Hour	0	5	211	4	0	76	225	45	0	12	31	146	0	19	18	3	795	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

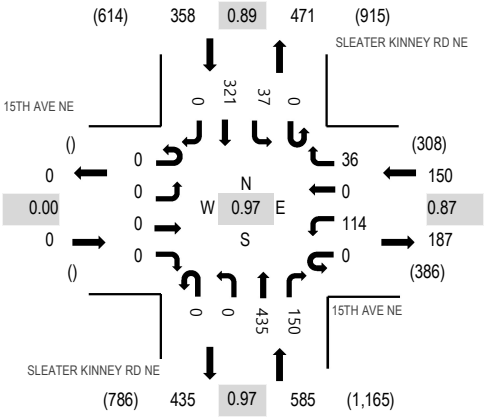
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0
4:15 PM	0	0	2	0	2	4:15 PM	0	0	0	0	0
4:30 PM	1	0	2	0	3	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	1	1	1	0	3	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0
Count Total	2	1	7	0	10	Count Total	0	0	0	0	0
Peak Hour	2	1	3	0	6	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 30 SLEATER KINNEY RD NE & 15TH AVE NE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

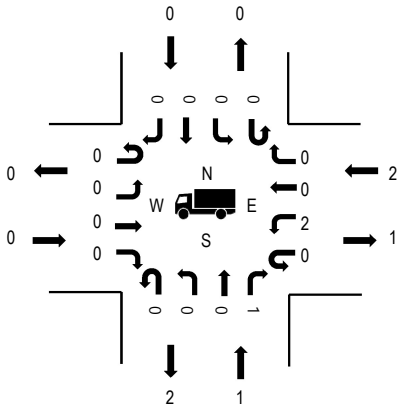
Motorized Vehicles



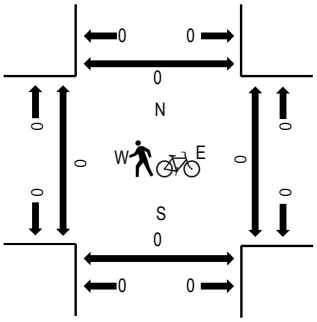
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	1.3%	0.87
NB	0.2%	0.97
SB	0.0%	0.89
All	0.3%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	15TH AVE NE Eastbound				15TH AVE NE Westbound				SLEATER KINNEY RD NE Northbound				SLEATER KINNEY RD NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	31	0	5	0	0	103	42	0	14	87	0	282	1,093
4:15 PM	0	0	0	0	0	28	0	13	0	0	109	37	0	9	78	0	274	1,075
4:30 PM	0	0	0	0	0	29	0	10	0	0	117	34	0	6	81	0	277	1,054
4:45 PM	0	0	0	0	0	26	0	8	0	0	106	37	0	8	75	0	260	1,009
5:00 PM	0	0	0	0	0	33	0	13	0	0	103	32	0	9	74	0	264	994
5:15 PM	0	0	0	0	0	32	0	9	0	0	103	52	0	6	51	0	253	
5:30 PM	0	0	0	0	0	28	0	7	0	0	106	33	0	8	50	0	232	
5:45 PM	0	0	0	0	0	31	0	5	0	0	98	53	0	6	52	0	245	
Count Total	0	0	0	0	0	238	0	70	0	0	845	320	0	66	548	0	2,087	
Peak Hour	0	0	0	0	0	114	0	36	0	0	435	150	0	37	321	0	1,093	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

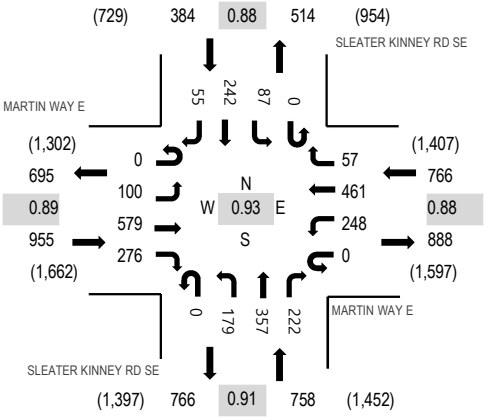
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	2	0	3	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	2	0	1	3	5:00 PM	0	0	0	0	0
5:15 PM	0	1	1	0	2	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	4	3	1	8	Count Total	0	0	0	0	0
Peak Hour	0	1	2	0	3	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 31 SLEATER KINNEY RD SE & MARTIN WAY E PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

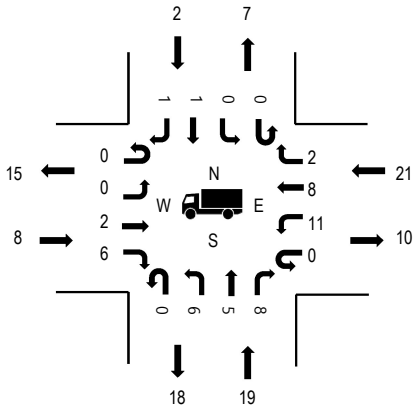
Motorized Vehicles



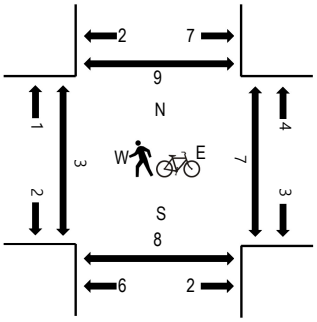
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.89
WB	2.7%	0.88
NB	2.5%	0.91
SB	0.5%	0.88
All	1.7%	0.93

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	MARTIN WAY E Eastbound				MARTIN WAY E Westbound				SLEATER KINNEY RD SE Northbound				SLEATER KINNEY RD SE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	30	132	64	0	55	102	20	1	40	35	71	0	25	69	7	651	2,834
4:15 PM	0	23	149	57	0	62	107	14	0	40	100	60	0	16	54	13	695	2,863
4:30 PM	0	21	147	88	0	58	120	15	0	50	69	88	0	27	67	17	767	2,814
4:45 PM	0	21	127	53	0	62	144	15	0	48	94	67	0	17	60	13	721	2,577
5:00 PM	0	35	156	78	0	66	90	13	0	41	94	7	0	27	61	12	680	2,416
5:15 PM	0	29	86	56	0	59	108	15	0	54	91	60	0	10	56	22	646	
5:30 PM	0	20	89	42	0	55	64	15	0	45	68	52	0	13	45	22	530	
5:45 PM	0	24	99	36	0	44	88	16	0	37	77	63	0	9	49	18	560	
Count Total	0	203	985	474	0	461	823	123	1	355	628	468	0	144	461	124	5,250	
Peak Hour	0	100	579	276	0	248	461	57	0	179	357	222	0	87	242	55	2,863	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	3	0	0	4	4:00 PM	0	0	0	2	2
4:15 PM	2	7	5	1	15	4:15 PM	0	2	0	0	2
4:30 PM	2	2	5	0	9	4:30 PM	1	2	2	1	6
4:45 PM	2	5	3	0	10	4:45 PM	1	1	4	3	9
5:00 PM	2	5	8	1	16	5:00 PM	1	3	1	5	10
5:15 PM	3	6	5	0	14	5:15 PM	1	0	0	1	2
5:30 PM	3	3	4	0	10	5:30 PM	0	0	0	1	1
5:45 PM	2	3	0	0	5	5:45 PM	3	2	0	3	8
Count Total	17	34	30	2	83	Count Total	7	10	7	16	40
Peak Hour	8	19	21	2	50	Peak Hour	3	8	7	9	27

ALL TRAFFIC DATA SERVICES
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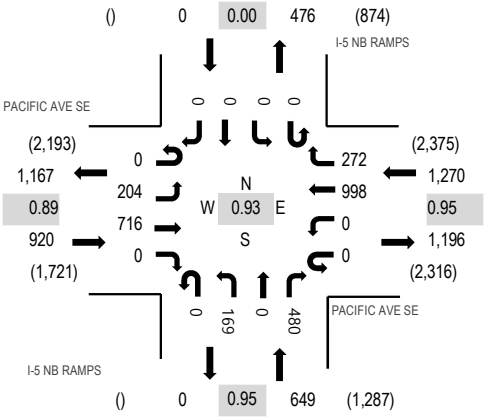
Location: 32 I-5 NB RAMPS & PACIFIC AVE SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

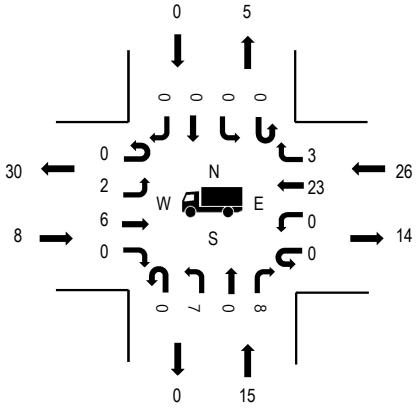
Peak Hour

Motorized Vehicles

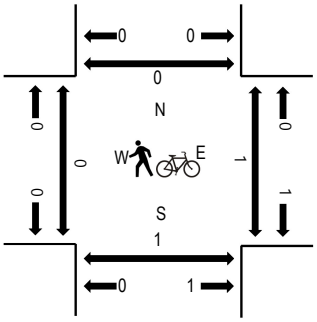


Note: Total study counts contained in parentheses.

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.9%	0.89
WB	2.0%	0.95
NB	2.3%	0.95
SB	0.0%	0.00
All	1.7%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	PACIFIC AVE SE Eastbound				PACIFIC AVE SE Westbound				I-5 NB RAMPS Northbound				I-5 NB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	52	174	0	0	0	223	67	0	31	0	138	0	0	0	0	685	2,721
4:15 PM	0	41	171	0	0	0	244	63	0	51	0	117	0	0	0	0	687	2,763
4:30 PM	0	43	177	0	0	0	243	73	0	44	0	110	0	0	0	0	690	2,839
4:45 PM	0	60	155	0	0	0	239	54	0	41	0	110	0	0	0	0	659	2,798
5:00 PM	0	52	175	0	0	0	253	73	0	39	0	135	0	0	0	0	727	2,662
5:15 PM	0	49	209	0	0	0	263	72	0	45	0	125	0	0	0	0	763	
5:30 PM	0	37	162	0	0	0	224	57	0	39	0	130	0	0	0	0	649	
5:45 PM	0	29	135	0	0	0	175	52	0	39	0	93	0	0	0	0	523	
Count Total	0	363	1,358	0	0	0	1,864	511	0	329	0	958	0	0	0	0	5,383	
Peak Hour	0	204	716	0	0	0	998	272	0	169	0	480	0	0	0	0	2,839	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	2	6	0	14	4:00 PM	0	0	0	0	0
4:15 PM	2	6	8	0	16	4:15 PM	0	2	0	0	2
4:30 PM	4	2	7	0	13	4:30 PM	0	0	0	0	0
4:45 PM	1	2	8	0	11	4:45 PM	0	0	0	0	0
5:00 PM	0	6	5	0	11	5:00 PM	0	1	0	0	1
5:15 PM	3	5	6	0	14	5:15 PM	0	0	1	0	1
5:30 PM	4	2	3	0	9	5:30 PM	0	0	0	0	0
5:45 PM	3	2	5	0	10	5:45 PM	0	0	0	0	0
Count Total	23	27	48	0	98	Count Total	0	3	1	0	4
Peak Hour	8	15	26	0	49	Peak Hour	0	1	1	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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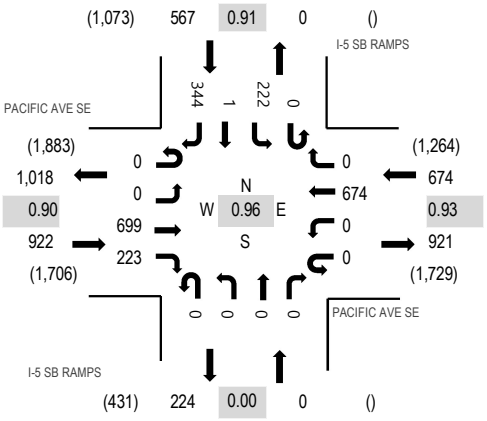
Location: 33 I-5 SB RAMPS & PACIFIC AVE SE PM
Date: Wednesday, February 22, 2023
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

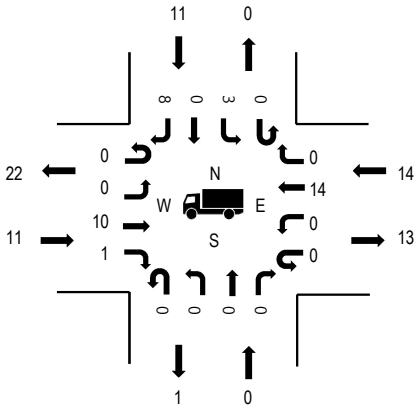
Motorized Vehicles



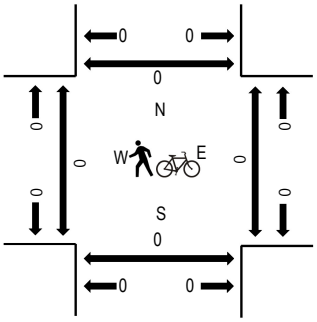
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.2%	0.90
WB	2.1%	0.93
NB	0.0%	0.00
SB	1.9%	0.91
All	1.7%	0.96

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	PACIFIC AVE SE Eastbound				PACIFIC AVE SE Westbound				I-5 SB RAMPS Northbound				I-5 SB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	163	60	0	1	144	0	0	0	0	0	0	67	0	73	508	2,114
4:15 PM	0	0	151	56	0	0	168	0	0	0	0	0	0	60	0	82	517	2,115
4:30 PM	0	0	167	61	0	0	182	0	0	0	0	0	0	62	0	75	547	2,163
4:45 PM	0	0	155	64	0	0	164	0	0	0	0	0	0	49	0	110	542	2,051
5:00 PM	0	0	200	57	0	0	150	0	0	0	0	0	0	40	0	62	509	1,929
5:15 PM	0	0	177	41	0	0	178	0	0	0	0	0	0	71	1	97	565	
5:30 PM	0	0	135	43	0	0	144	0	0	0	0	0	0	52	0	61	435	
5:45 PM	0	0	131	45	0	2	131	0	0	0	0	0	0	49	0	62	420	
Count Total	0	0	1,279	427	0	3	1,261	0	0	0	0	0	0	450	1	622	4,043	
Peak Hour	0	0	699	223	0	0	674	0	0	0	0	0	0	222	1	344	2,163	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

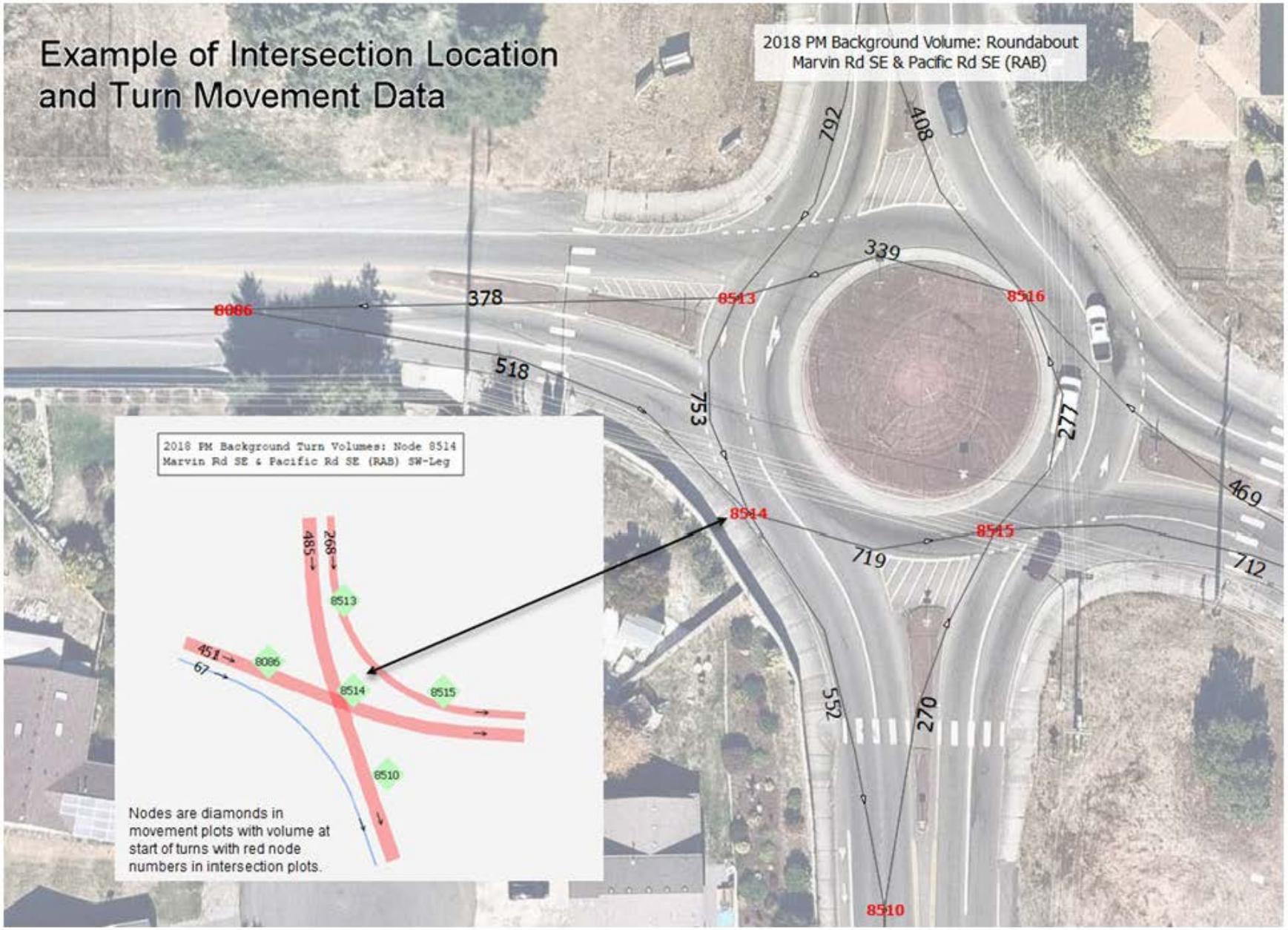
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	3	6	11	4:00 PM	0	0	0	0	0
4:15 PM	2	0	8	1	11	4:15 PM	1	0	0	1	2
4:30 PM	4	0	6	2	12	4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	4	5	4:45 PM	0	0	0	0	0
5:00 PM	2	0	2	3	7	5:00 PM	0	0	0	0	0
5:15 PM	4	0	6	2	12	5:15 PM	0	0	0	0	0
5:30 PM	1	0	2	5	8	5:30 PM	0	0	0	0	0
5:45 PM	5	0	2	0	7	5:45 PM	0	0	0	0	0
Count Total	21	0	29	23	73	Count Total	1	0	0	1	2
Peak Hour	11	0	14	11	36	Peak Hour	0	0	0	0	0

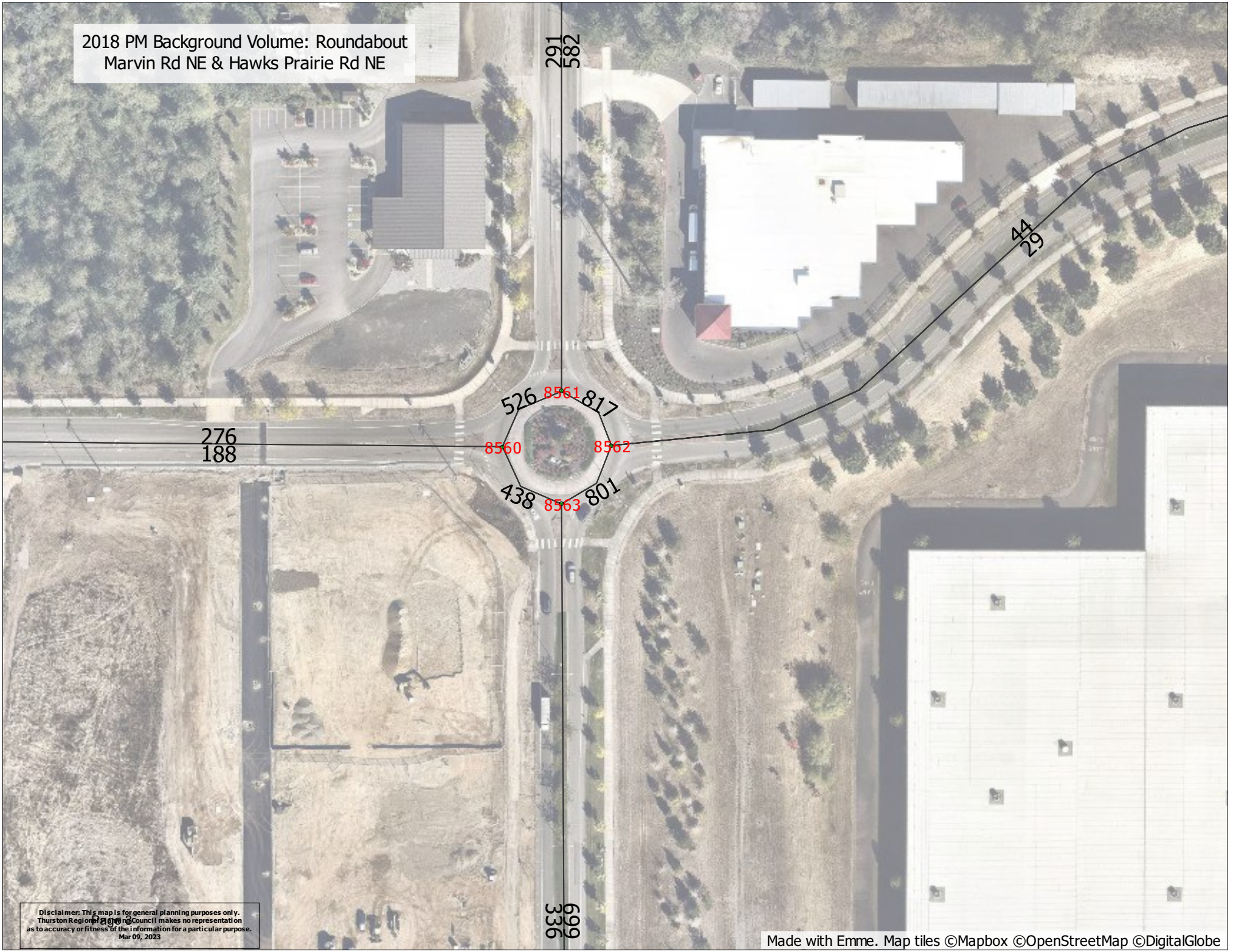
Appendix C: TRPC 2018 and 2045 Model Volumes

2018 Background Volumes

Intersection Turn Movements Background Volume By Locations

Intersection/Node Location Map


Example of Intersection Location and Turn Movement Data
2018 PM Background Volume: Roundabout
Marvin Rd SE & Pacific Rd SE (RAB)
792
408
339
8086
378
8513
8516
518
753
277
469
8514
8515
719
712
552
270
8510
2018 PM Background Turn Volumes: Node 8514
Marvin Rd SE & Pacific Rd SE (RAB) SW-Leg
485
268
8513
451
67
8086
8514
8515
8510
Nodes are diamonds in movement plots with volume at start of turns with red node numbers in intersection plots.


2018 PM Background Volume: Roundabout
Marvin Rd NE & Hawks Prairie Rd NE
291
582
44
29
526
8561
817
276
188
8560
8562
438
8563
801
336
699
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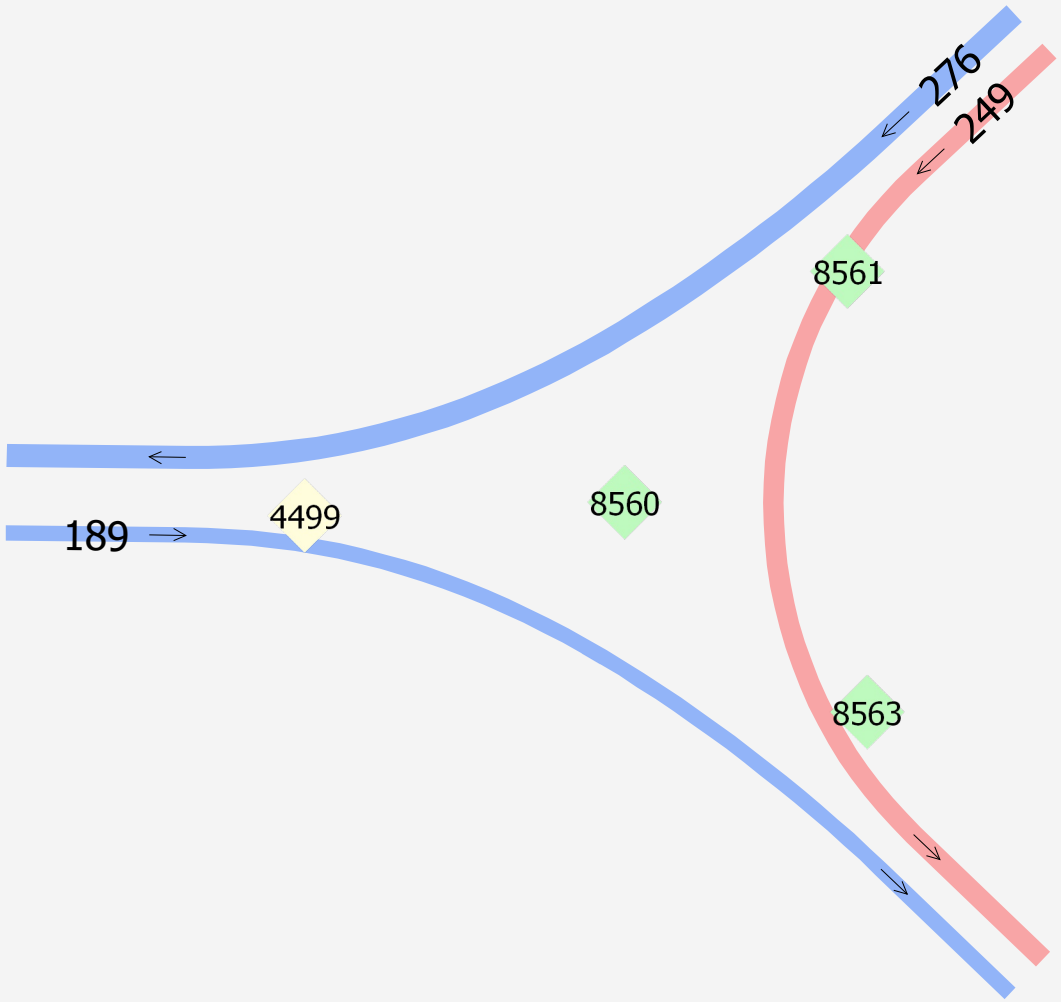
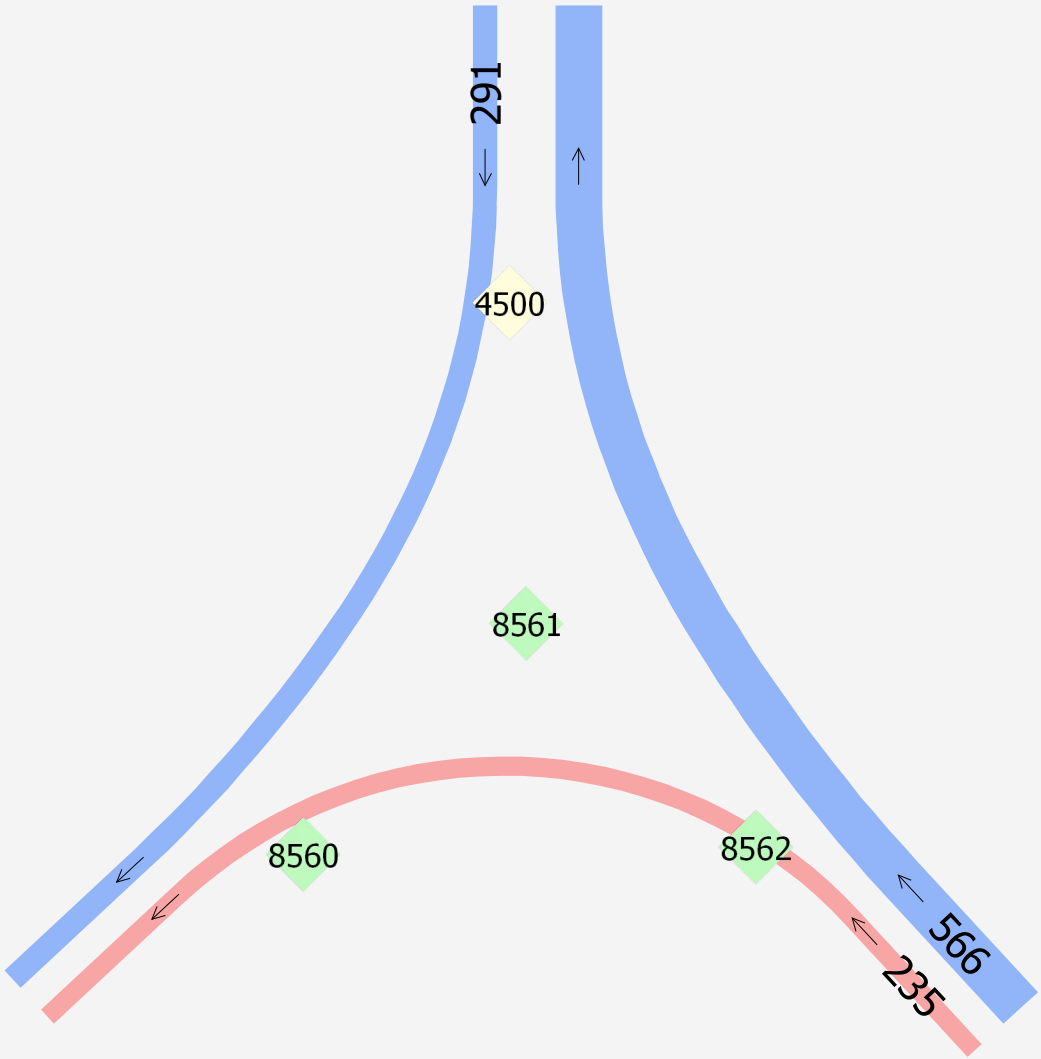
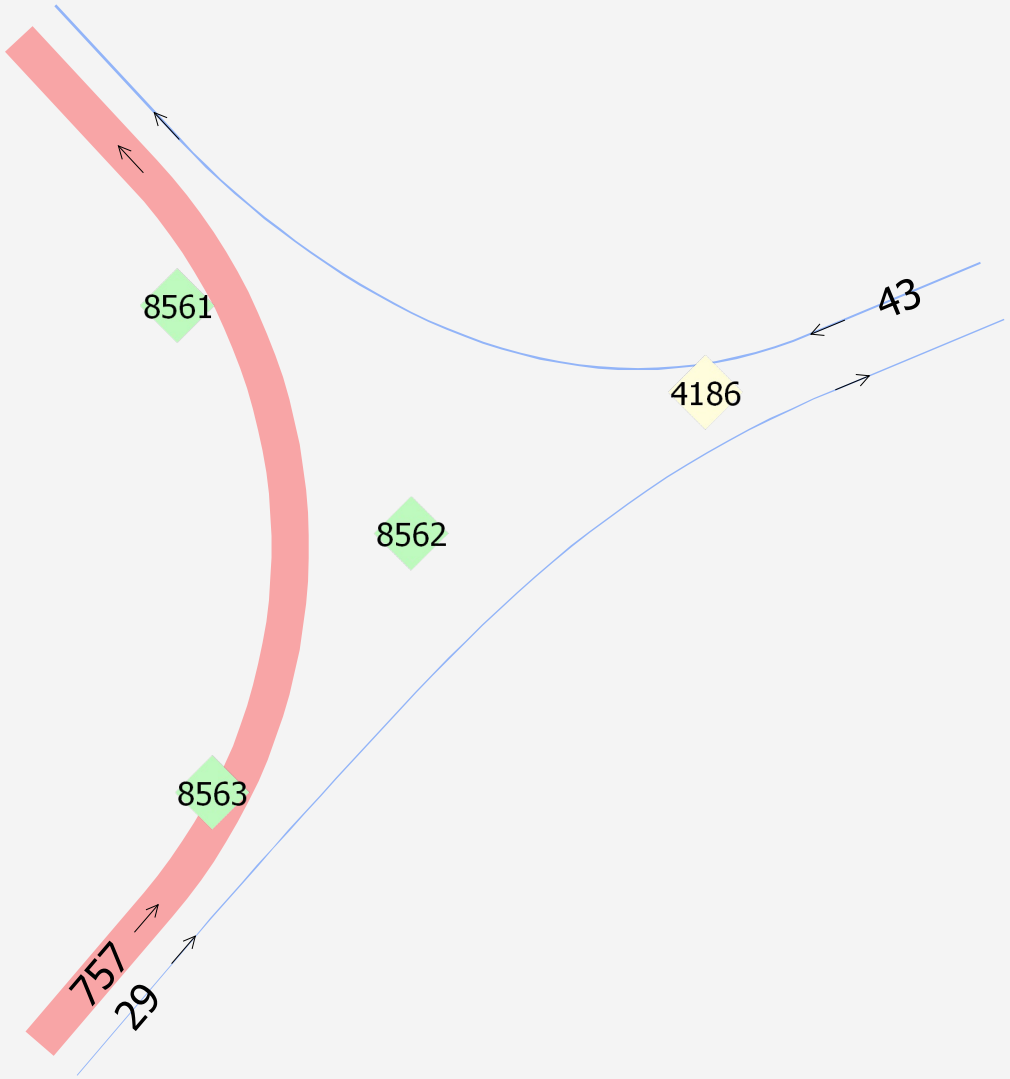
2018 PM Background Turn Volumes: Node 8560
Marvin Rd NE & Hawks Prairie Rd NE W-Leg



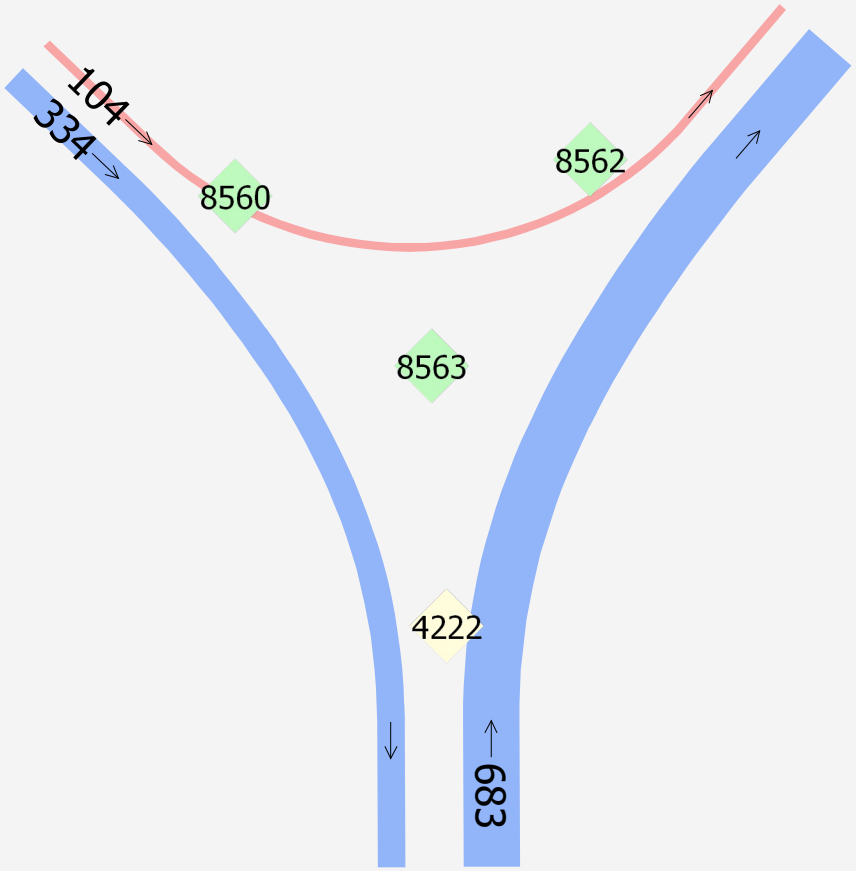
2018 PM Background Turn Volumes: Node 8561
Marvin Rd NE & Hawks Prairie Rd NE N-Leg

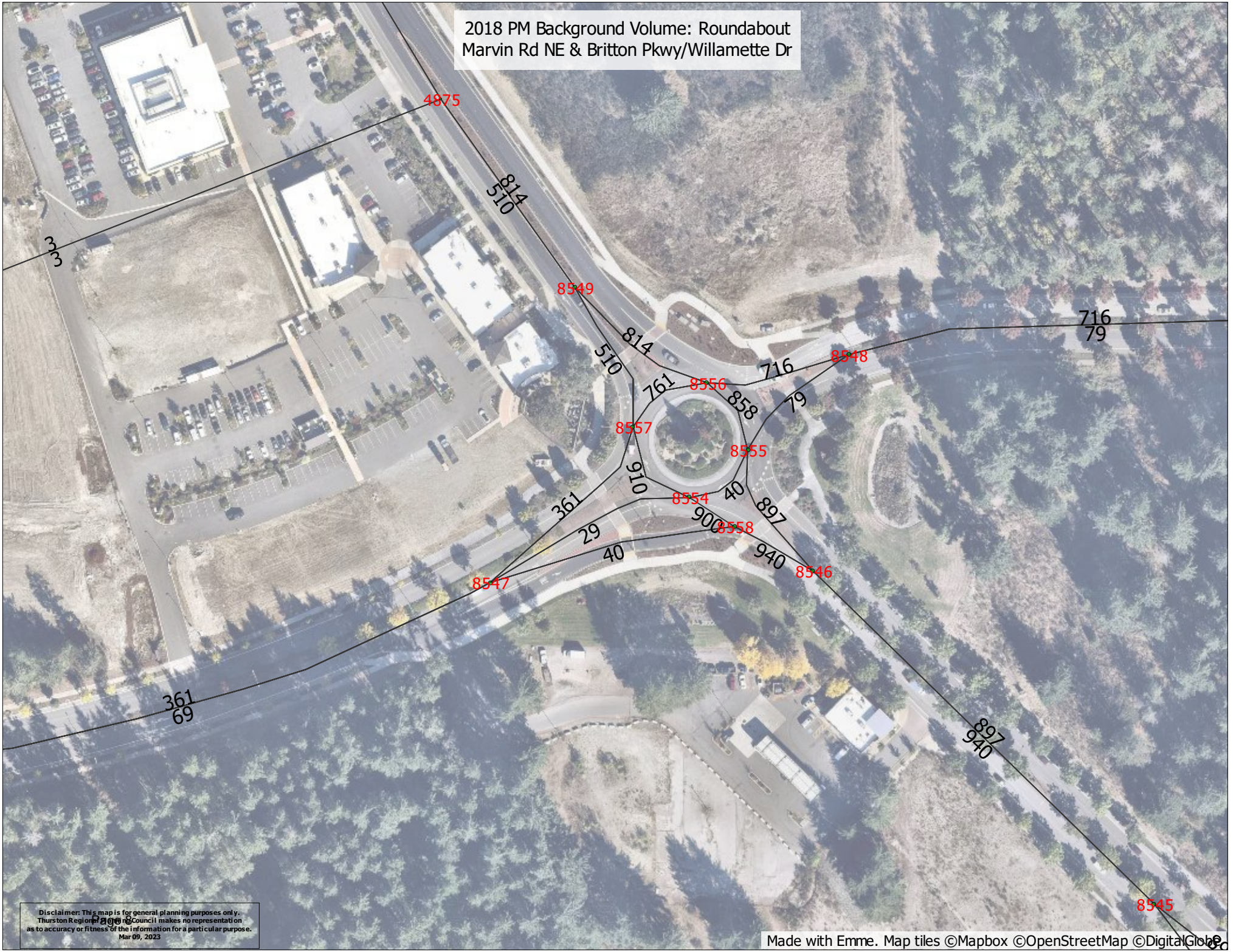


2018 PM Background Turn Volumes: Node 8562
Marvin Rd NE & Hawks Prairie Rd NE E-Leg



2018 PM Background Turn Volumes: Node 8563
Marvin Rd NE & Hawks Prairie Rd NE S-Leg




2018 PM Background Volume: Roundabout
Marvin Rd NE & Britton Pkwy/Willamette Dr
4875
814
510
3
3
8549
814
510
761
8556
716
8548
716
79
858
79
8557
8555
910
40
897
361
8554
900
8558
29
40
940
8546
8547
361
69
897
940
8545
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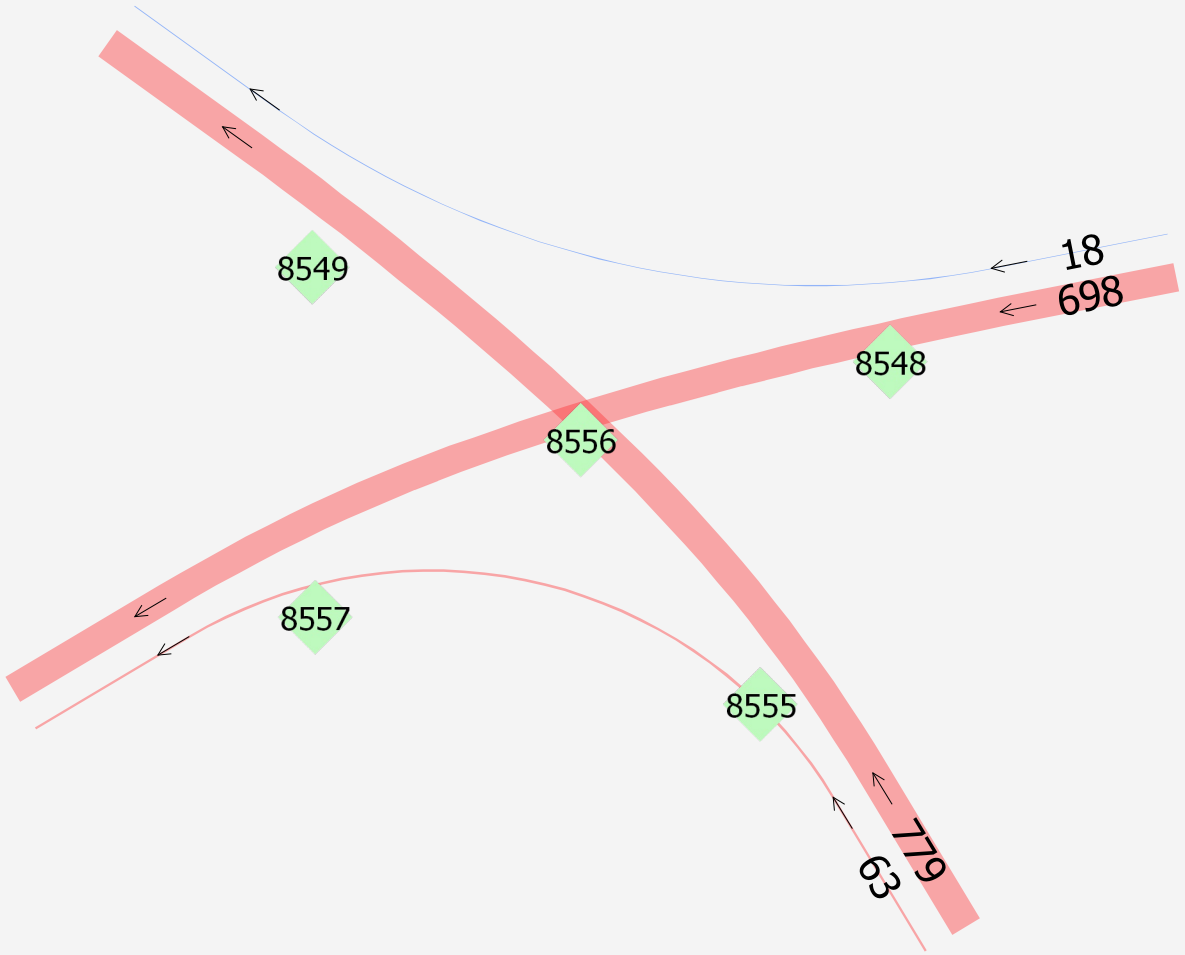
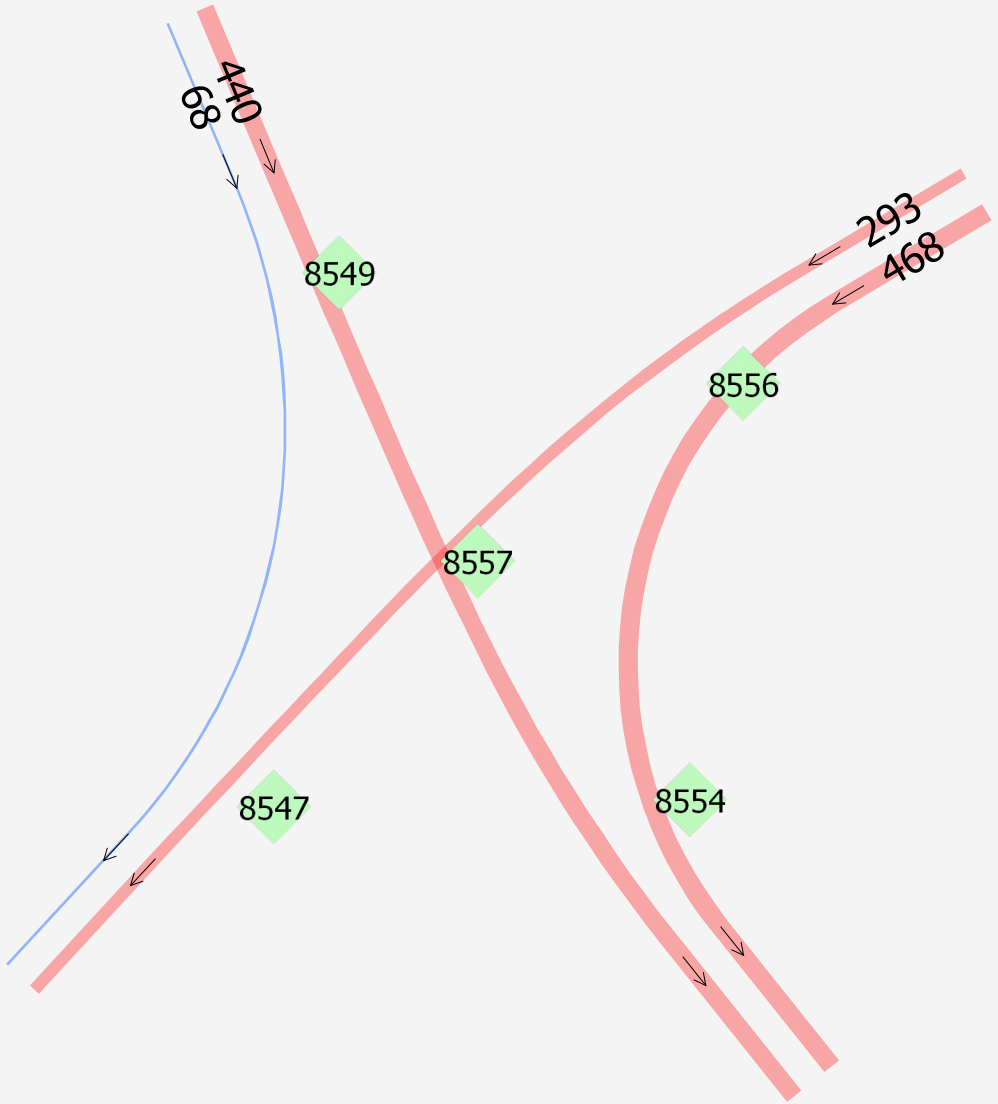
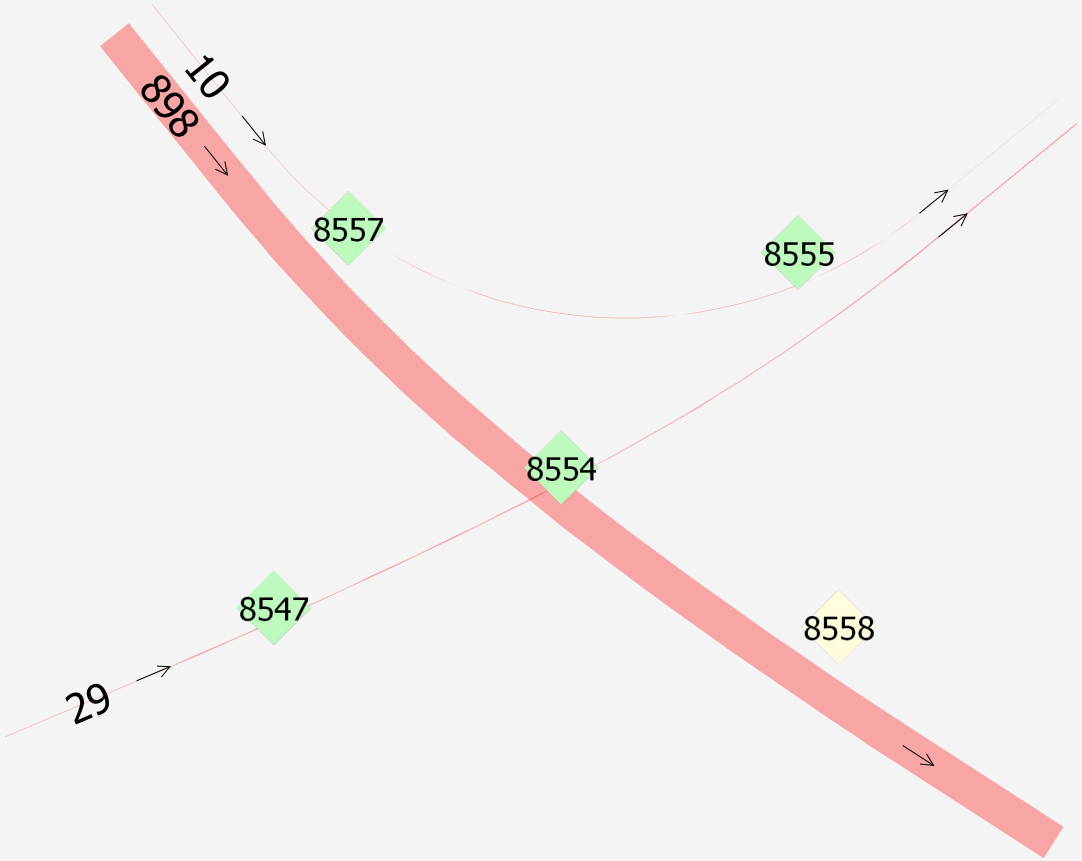
2018 PM Background Turn Volumes: Node 8556
Marvin Rd NE & Britton Pkwy/Willamette Dr NE-Leg



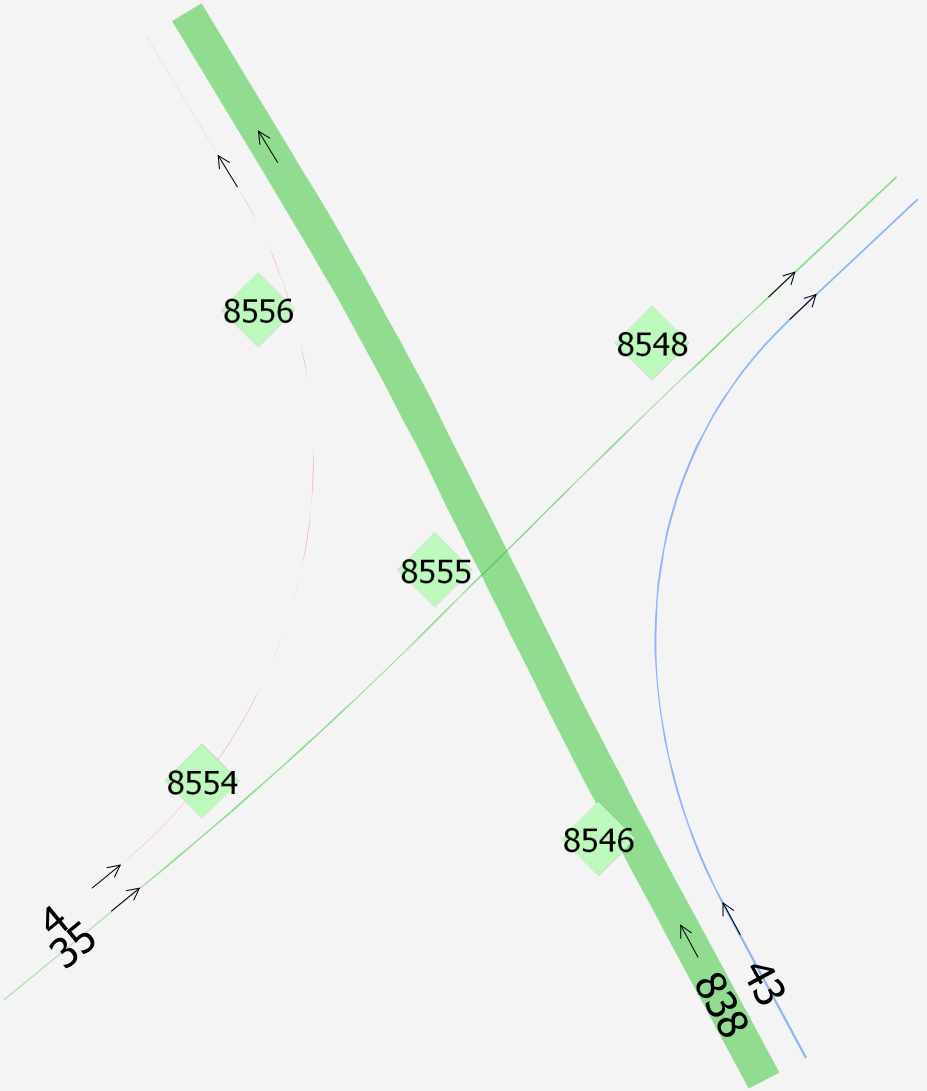
2018 PM Background Turn Volumes: Node 8557
Marvin Rd NE & Britton Pkwy/Willamette Dr NW-Leg



2018 PM Background Turn Volumes: Node 8554
Marvin Rd NE & Britton Pkwy/Willamette Dr SW-Leg



2018 PM Background Turn Volumes: Node 8555
Marvin Rd NE & Britton Pkwy/Willamette Dr SE-Leg




2018 PM Background Volume: Roundabout
Marvin Rd NE & Main St NE
897
940
8545
897
940
8550
40
937
8551
8553
974
2e-01
8552
2e-01
9
937
974
1
8544
8543
91
937
975
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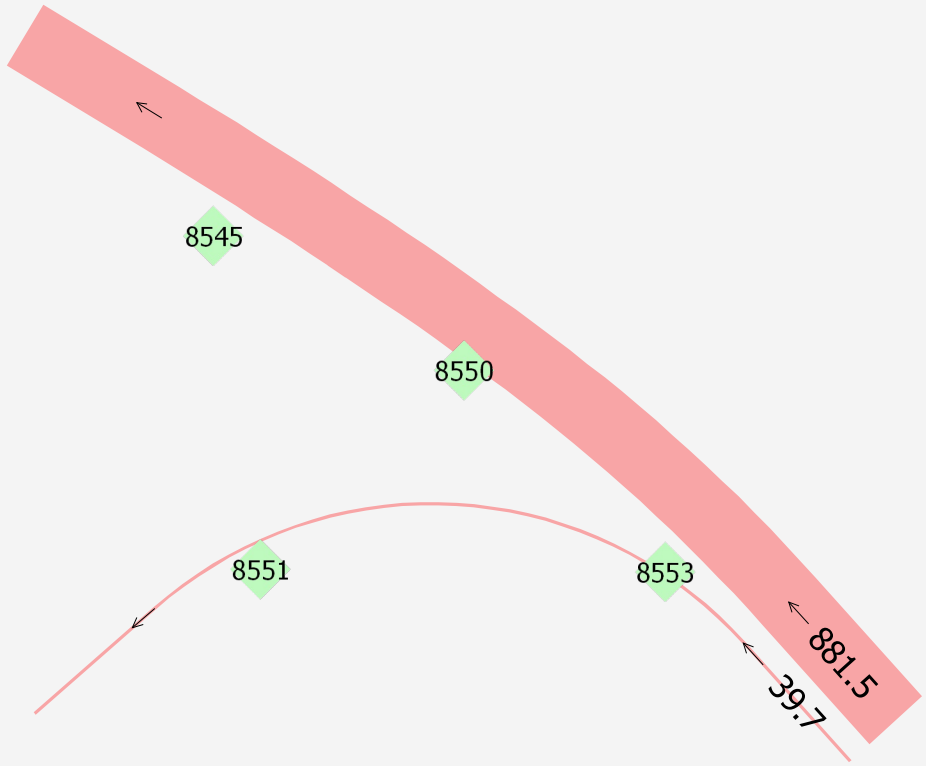
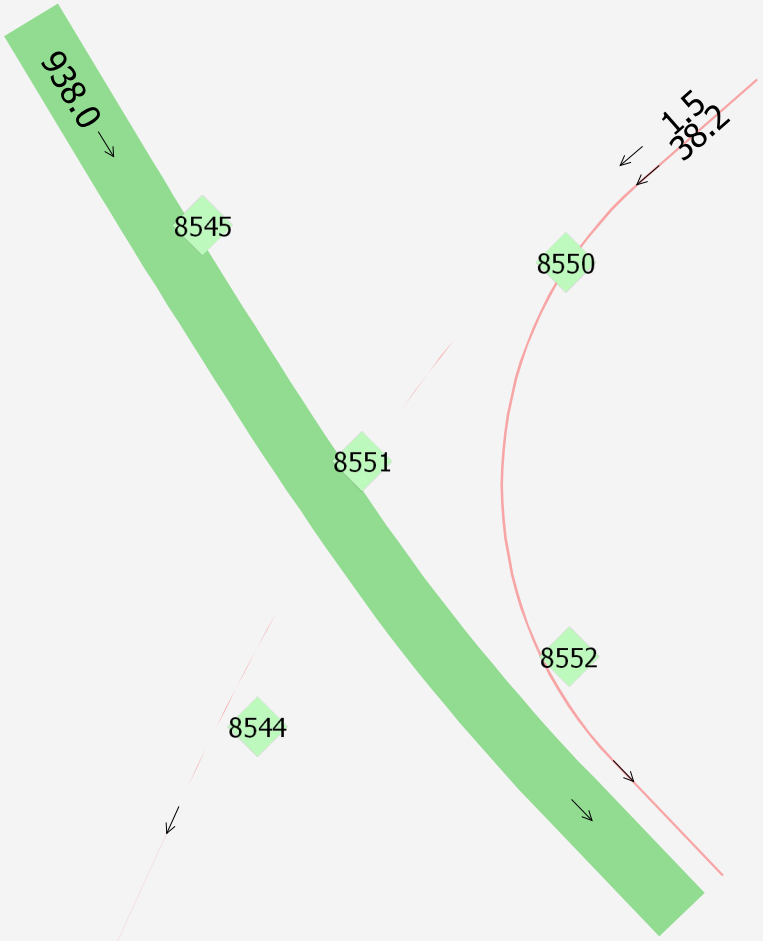
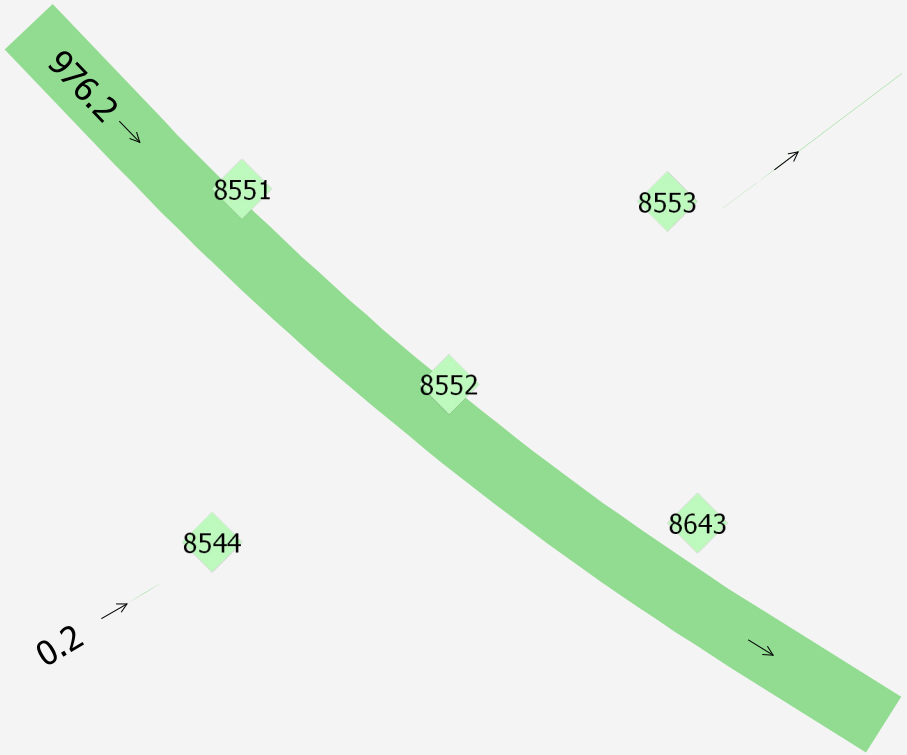
2018 PM Background Turn Volumes: Node 8550
Marvin Rd NE & Main St NE NE-Leg



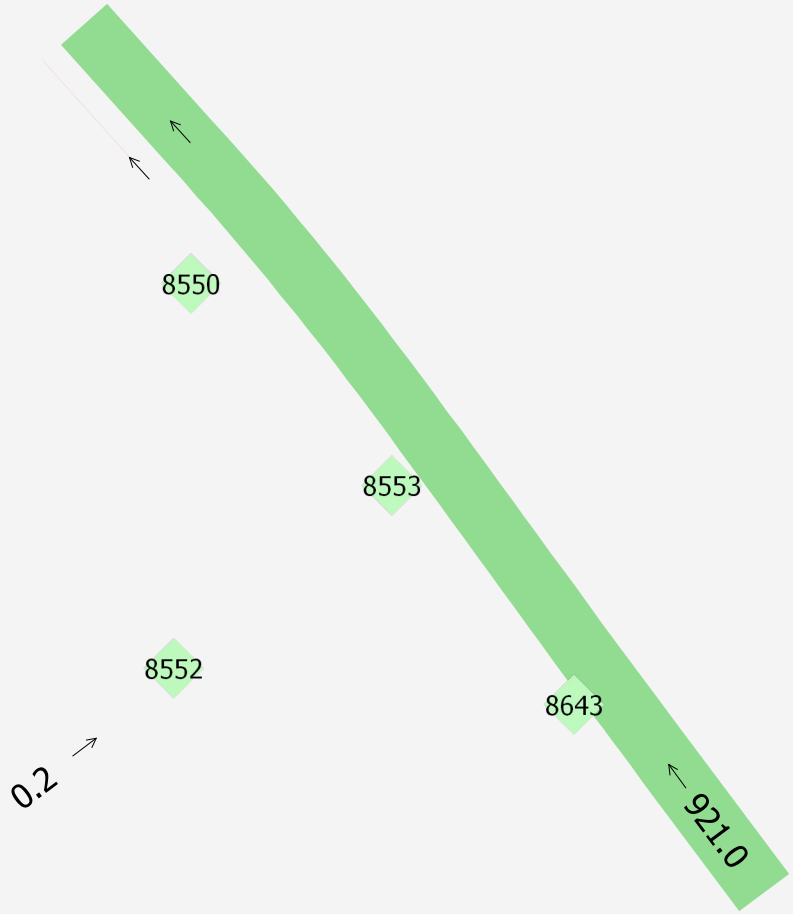
2018 PM Background Turn Volumes: Node 8551
Marvin Rd NE & Main St NE NW-Leg



2018 PM Background Turn Volumes: Node 8552
Marvin Rd NE & Main St NE SW-Leg



2018 PM Background Turn Volumes: Node 8553
Marvin Rd NE & Main St NE SE-Leg




2018 PM Background Volume: DDI
Marvin Rd NE & I-5 SB Ramps
1614
977
10251
1614
624
353
4893
1177
437
9189
4892
653
437
4879
271
1177
624
9203
9198
4096
1277
1447
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2018 PM Background Turn Volumes: Node 9189
Marvin Rd NE & I-5 SB Ramps (DDI)


2018 PM Background Volume: DDI
Marvin Rd NE & I-5 NB Ramps
1277
1447
9199
9200
1034
759
9190
243
9204
688
124
1034
644
4891
759
9027
1158
1403
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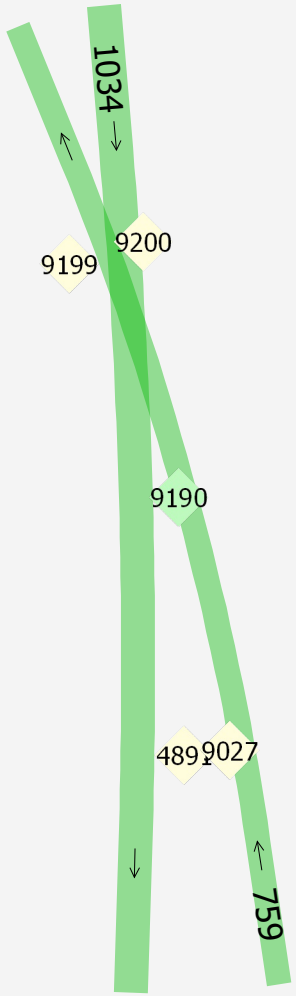
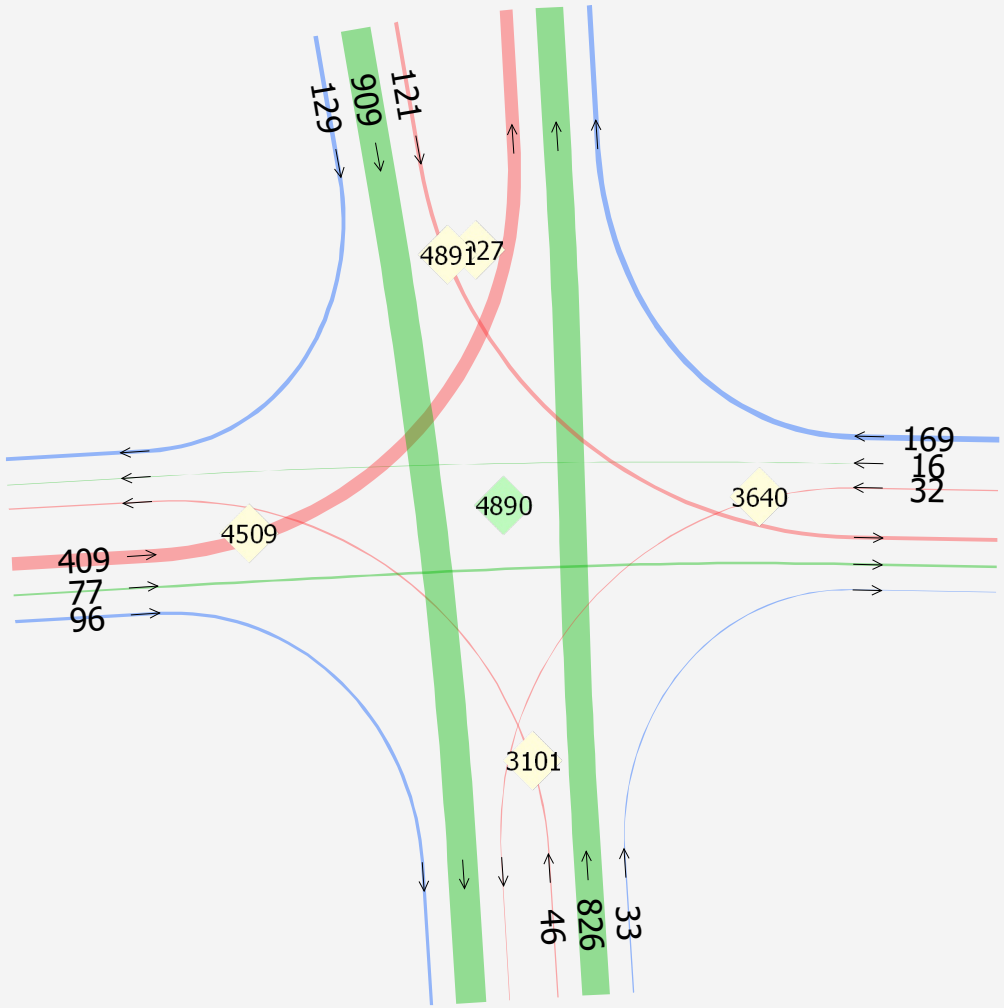
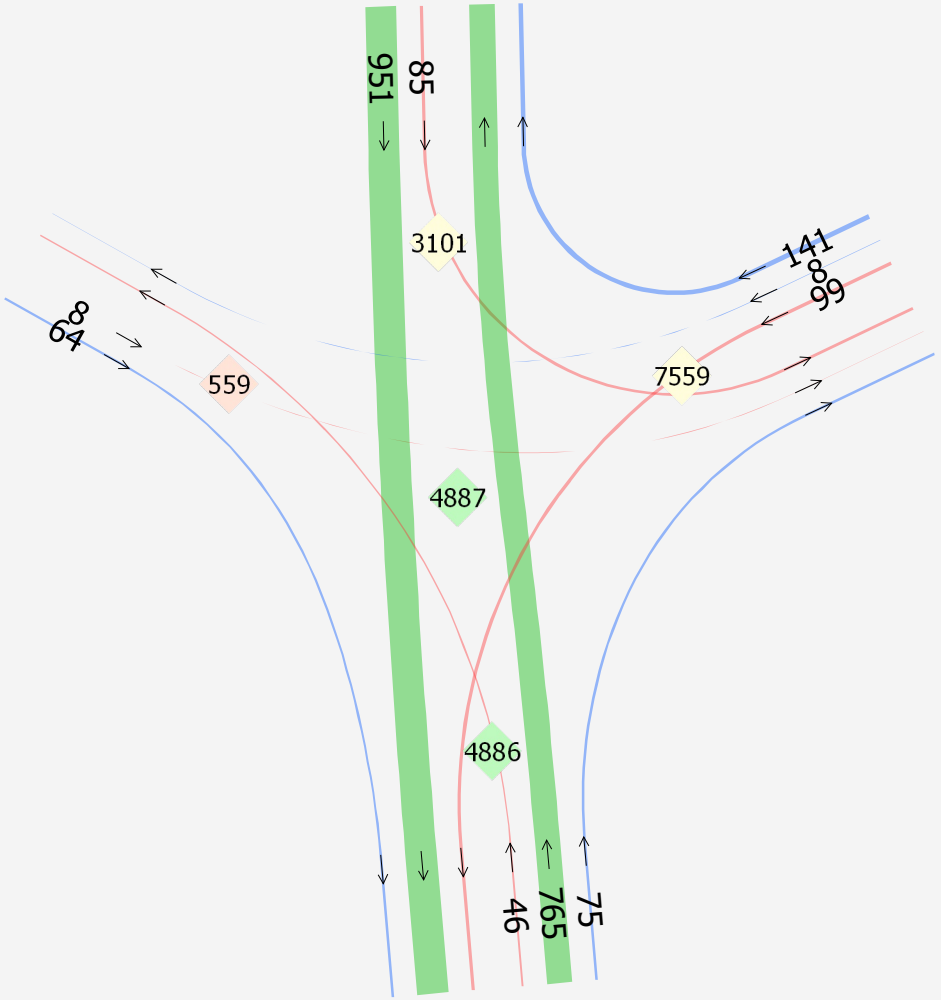
2018 PM Background Turn Volumes: Node 9190
Marvin Rd NE & I-5 NB Ramps (DDI)



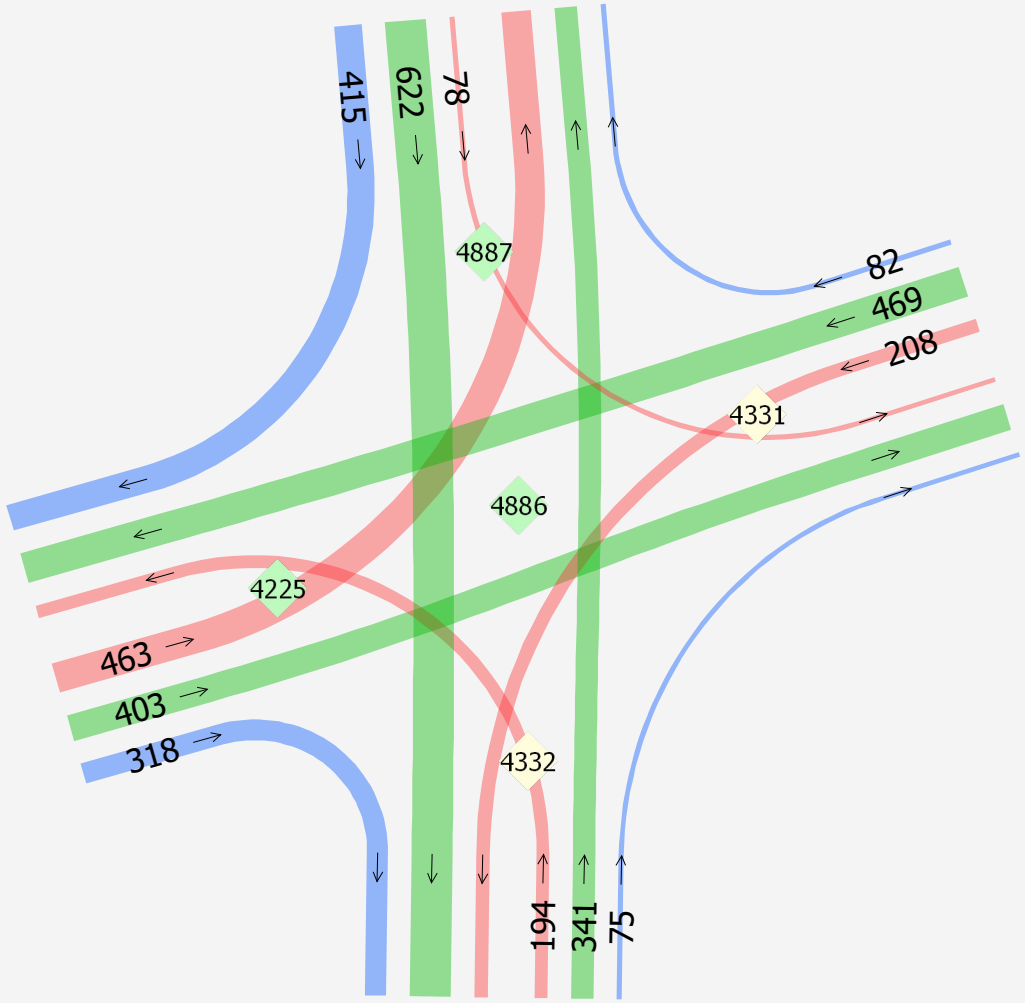
2018 PM Background Turn Volumes: Node 4890
Marvin Rd NE @ Quinault Dr NE



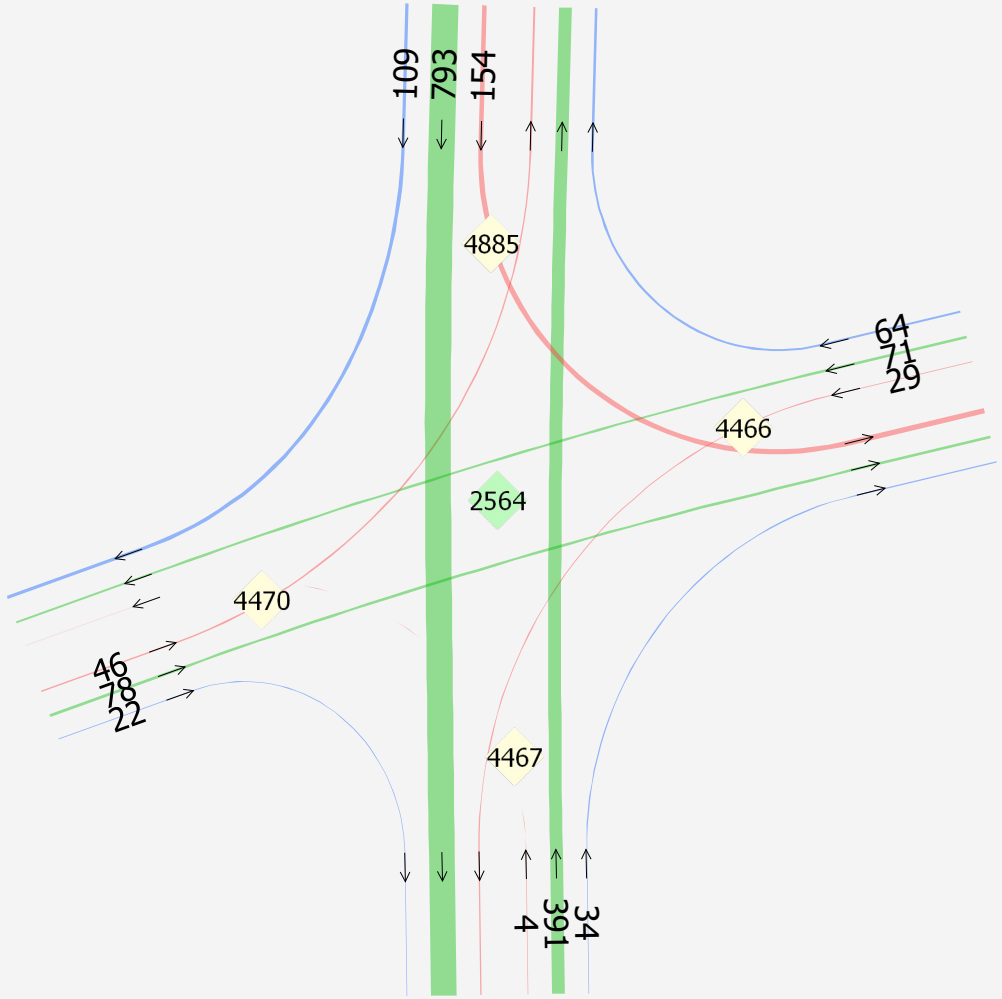
2018 PM Background Turn Volumes: Node 4887
Marvin Rd NE & Lacey Marketplace

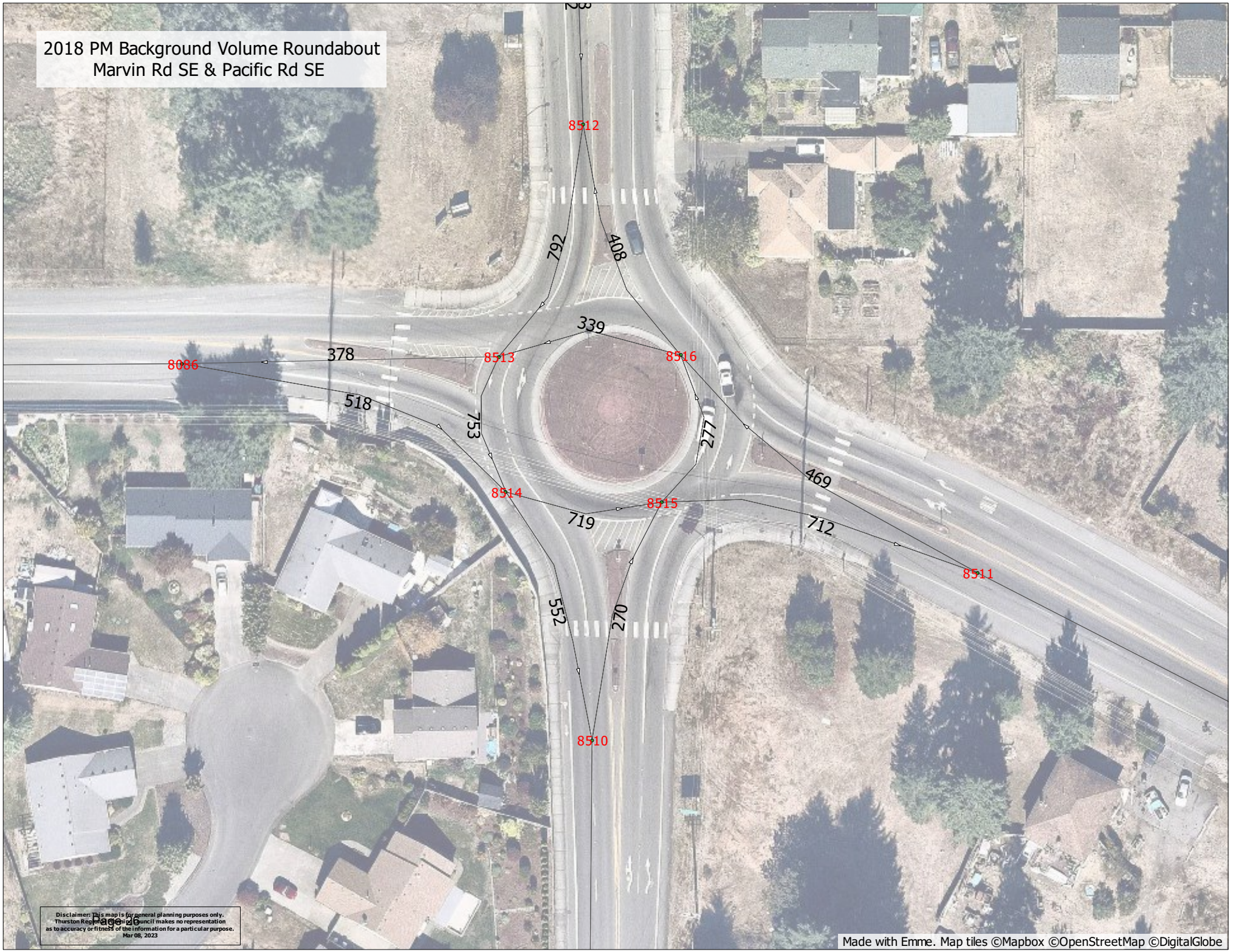


2018 PM Background Turn Volumes: Node 4886
Marvin Rd & Martin Way E



2018 PM Background Turn Volumes: Node 2564
Marvin Rd SE & Steilacoom Rd SE




2018 PM Background Volume Roundabout
Marvin Rd SE & Pacific Rd SE
8512
792
408
339
8513
8516
378
8086
518
753
277
469
8514
8515
719
712
8511
552
270
8510
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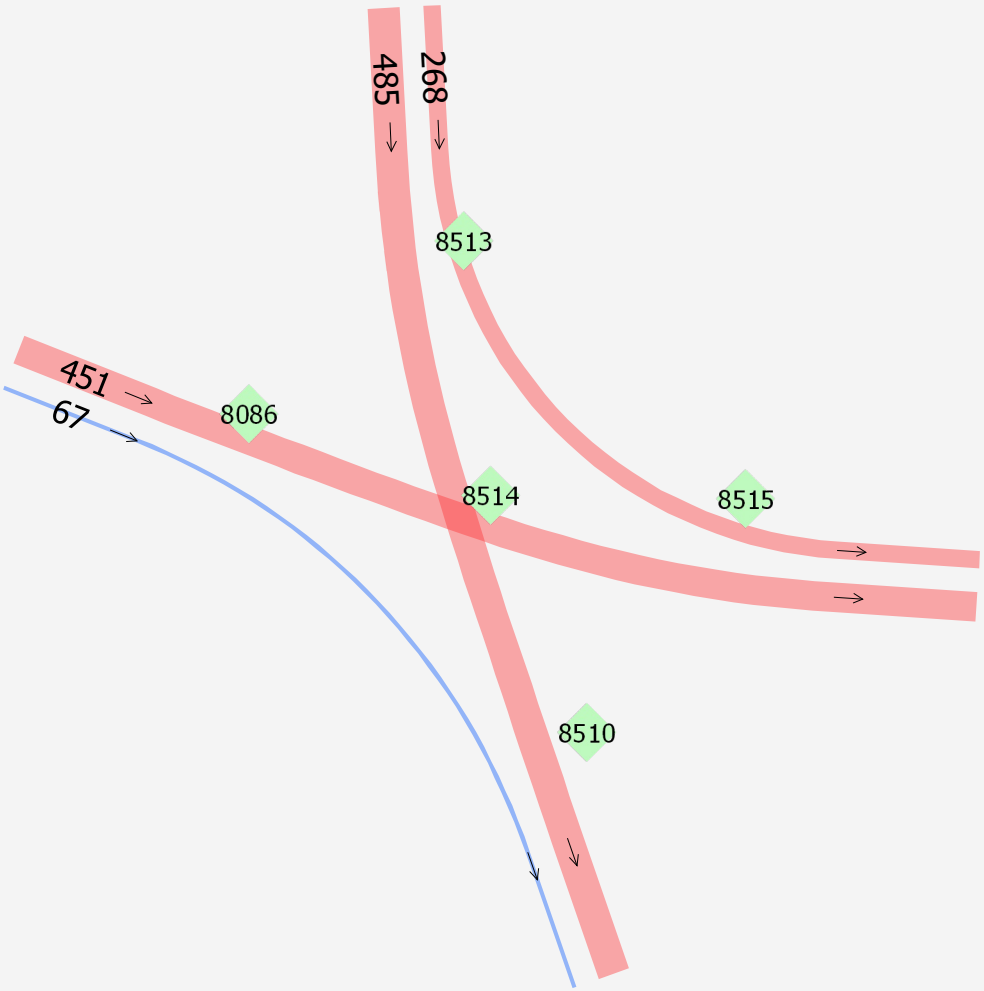
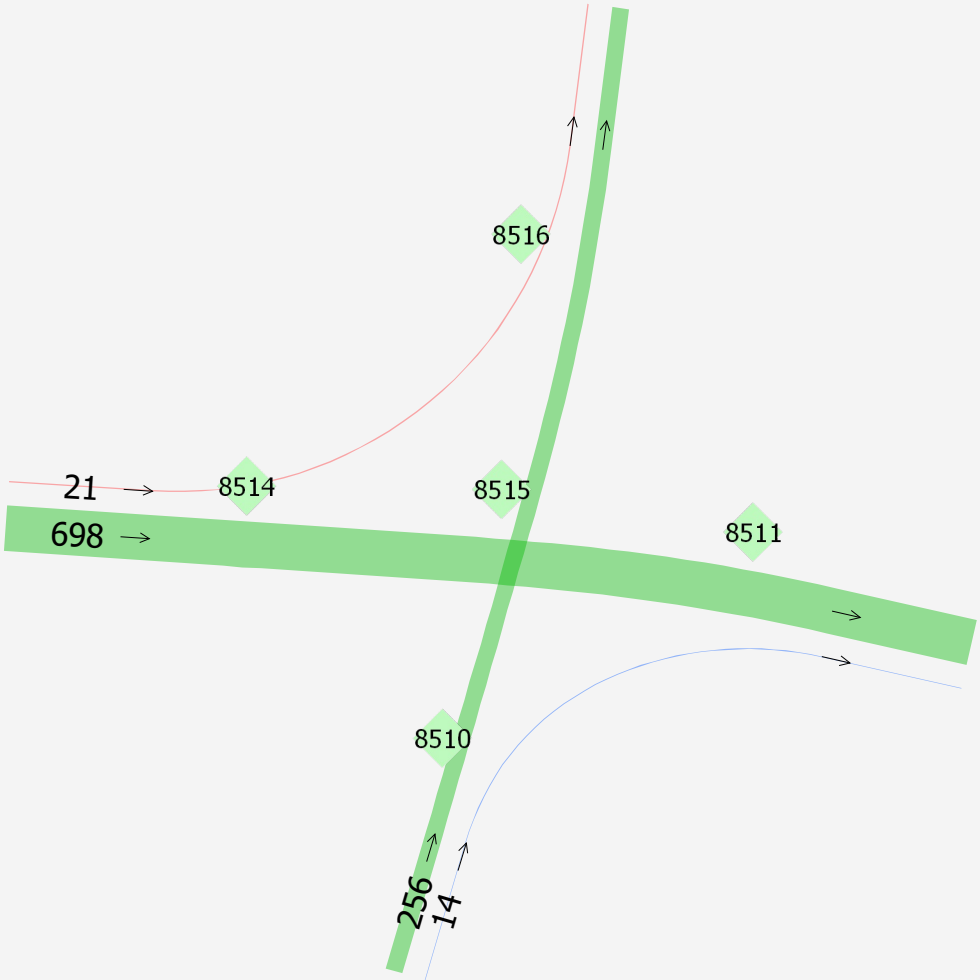
2018 PM Background Turn Volumes: Node 8513
Marvin Rd SE & Pacific Rd SE SW-Leg

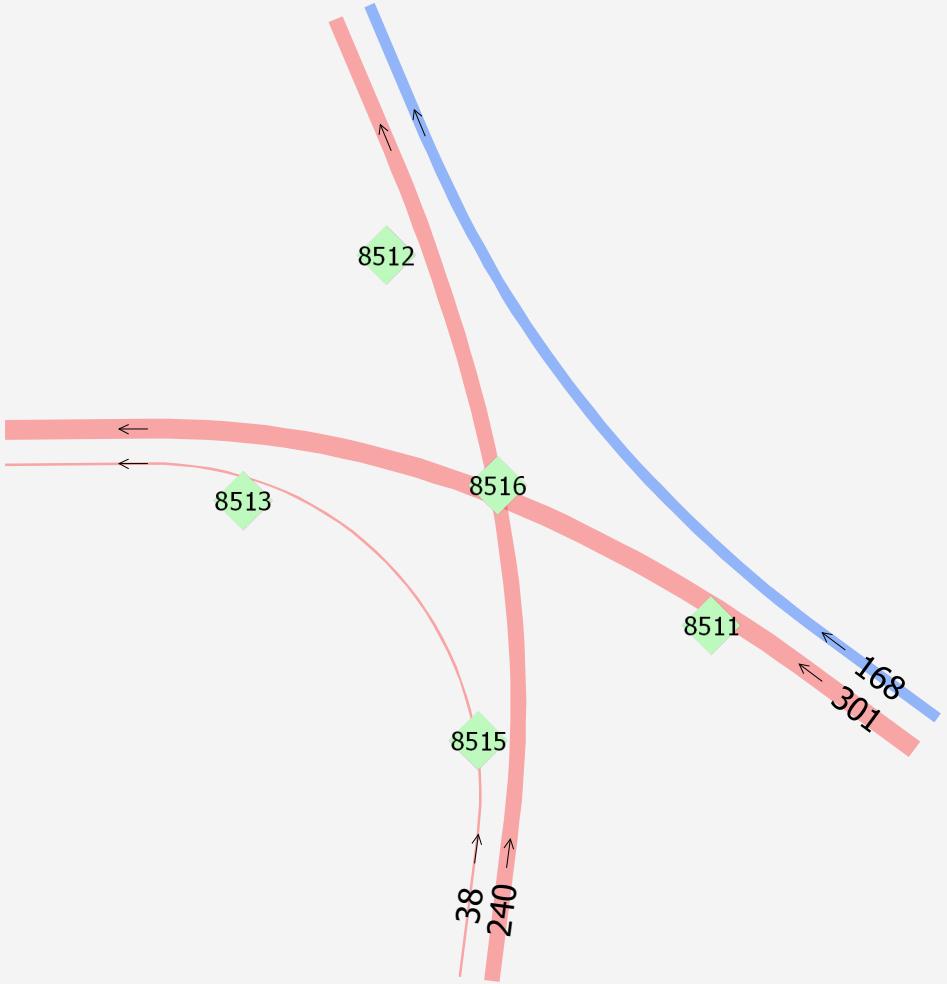
2018 PM Background Turn Volumes: Node 8514
Marvin Rd SE & Pacific Rd SE SW-Leg



2018 PM Background Turn Volumes: Node 8515
Marvin Rd SE & Pacific Rd SE SE-Leg



2018 PM Background Turn Volumes: Node 8516
Marvin Rd SE & Pacific Rd SE NE-Leg




2018 PM Background Volume Roundabout
Willamette Dr NE & 31St Ave NE
374
157
8572
374
157
84
195
94
8576
468
8577
251
8575
579
8573
48
156
359
8578
8579
59
520
301
8574
520
301
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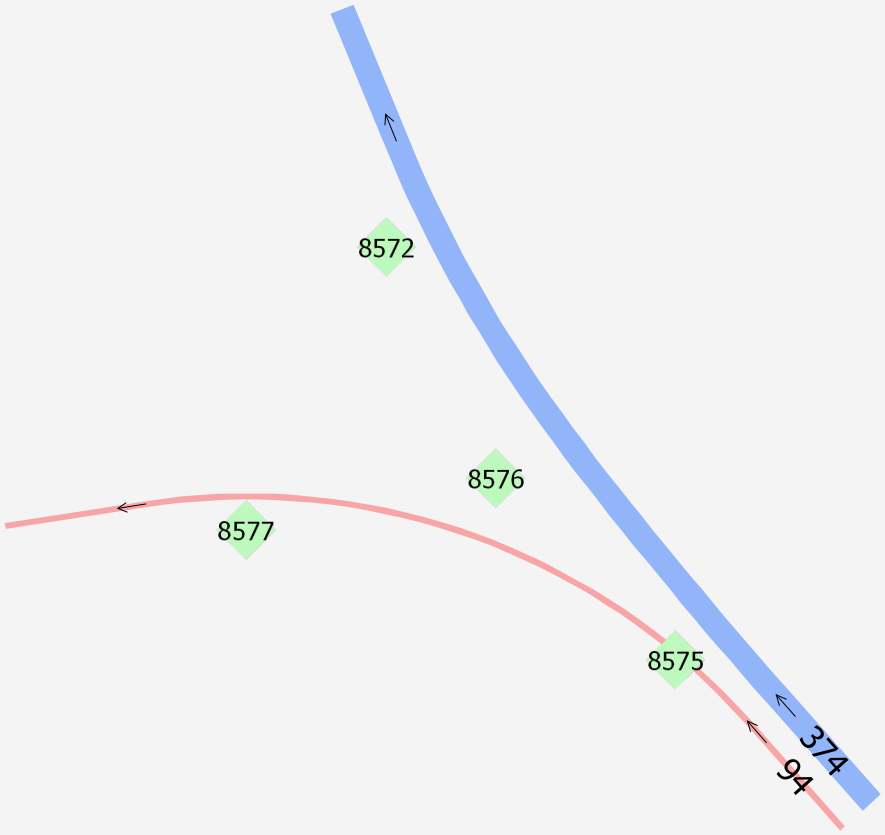
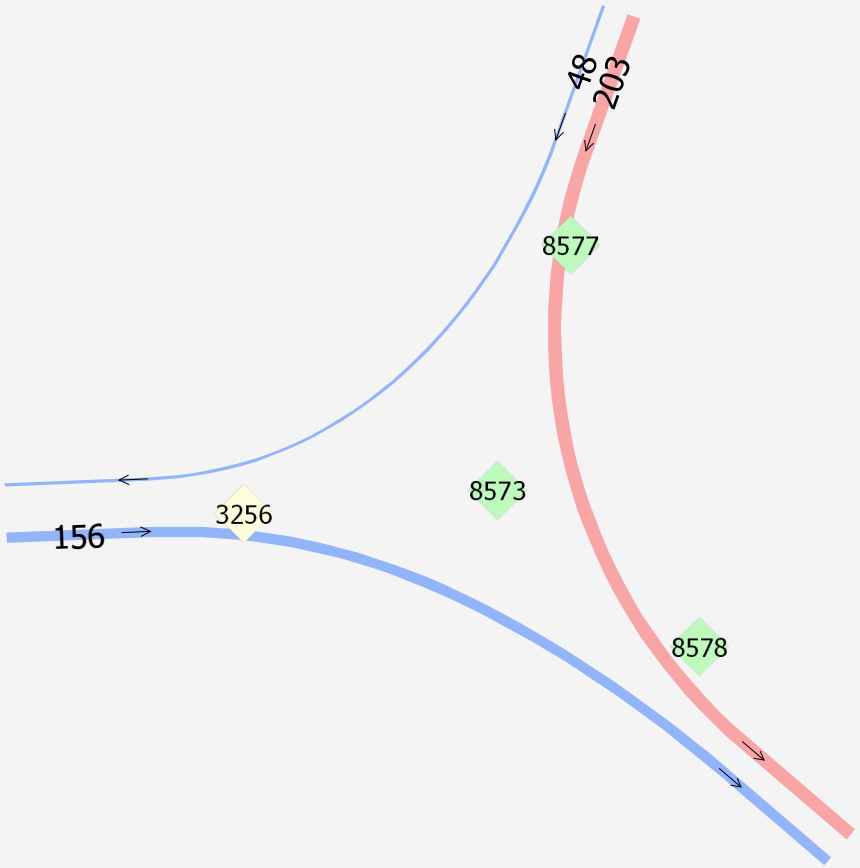
2018 PM Background Turn Volumes: Node 8576
Willamette Dr NE & 31St Ave NE-Leg

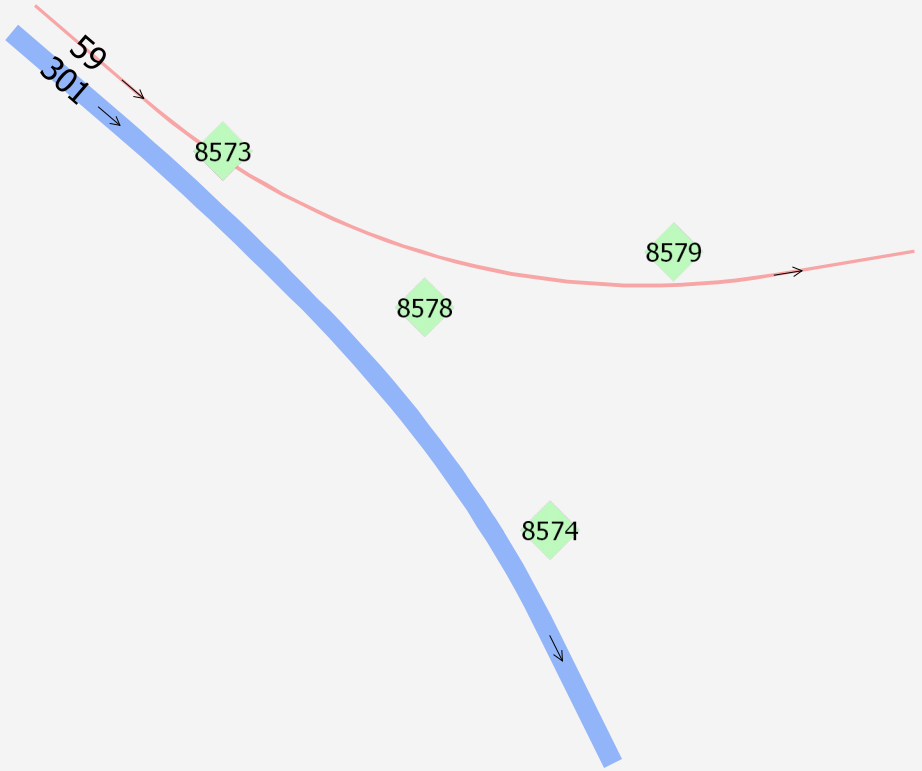


2018 PM Background Turn Volumes: Node 8577
Willamette Dr NE & 31St Ave NW-Leg

2018 PM Background Turn Volumes: Node 8573
Willamette Dr NE & 31St Ave W-Leg

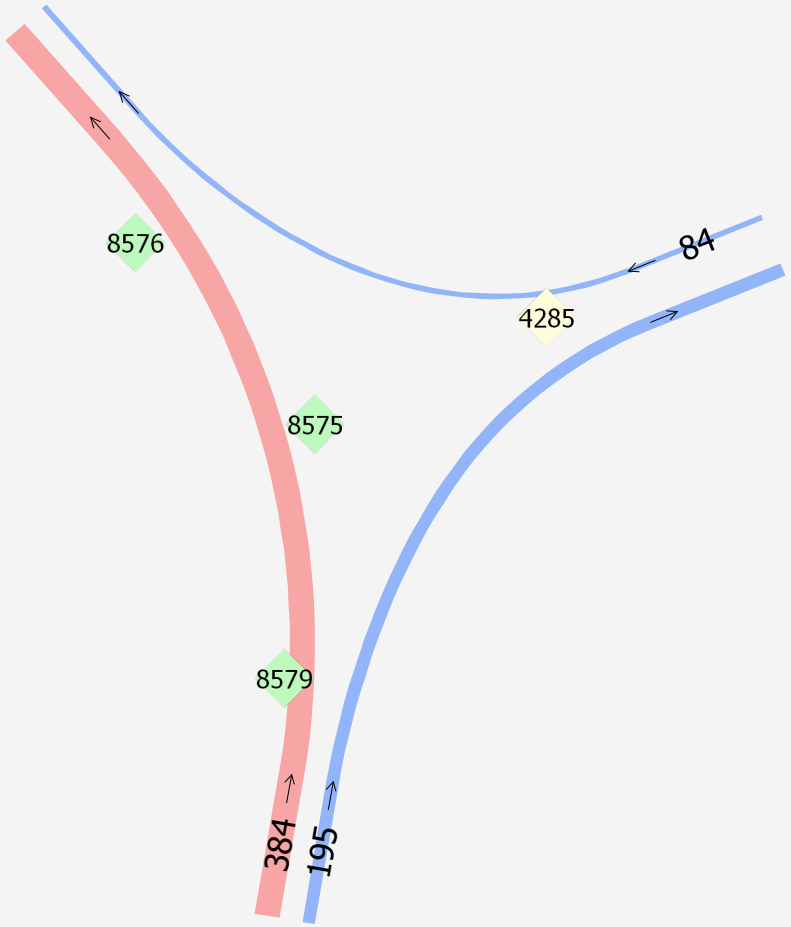


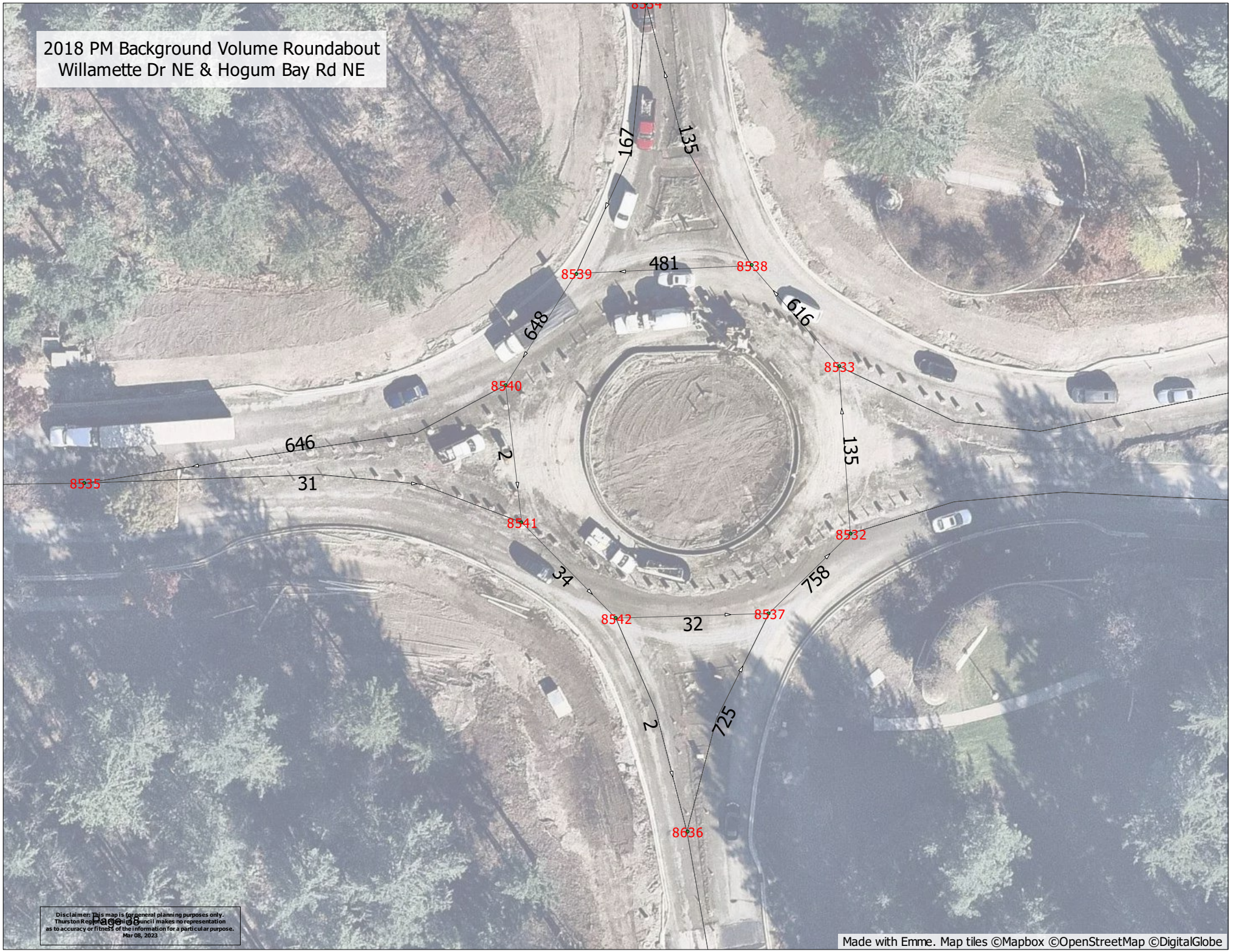
2018 PM Background Turn Volumes: Node 8578
Willamette Dr NE & 31St Ave SW-Leg



2018 PM Background Turn Volumes: Node 8579
Willamette Dr NE & 31St Ave SE-Leg

2018 PM Background Turn Volumes: Node 8575
Willamette Dr NE & 31St Ave E-Leg




2018 PM Background Volume Roundabout
Willamette Dr NE & Hogum Bay Rd NE
8534
167
135
481
8539
8538
648
616
8540
8533
646
2
135
8535
31
8541
8532
34
758
8542
32
8537
2
725
8636
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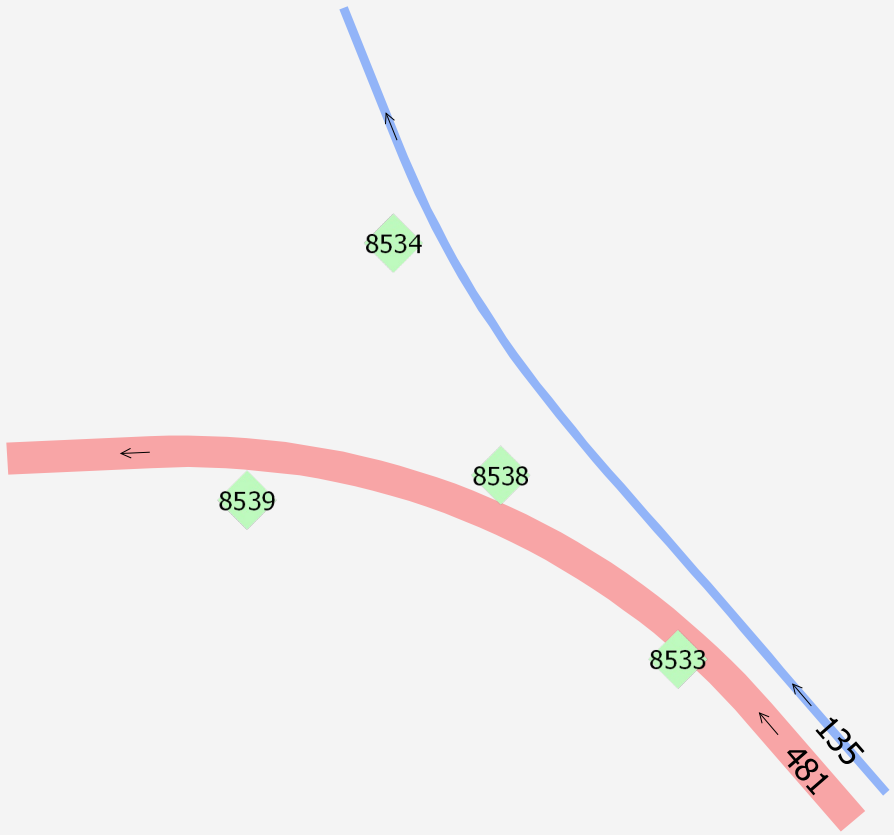
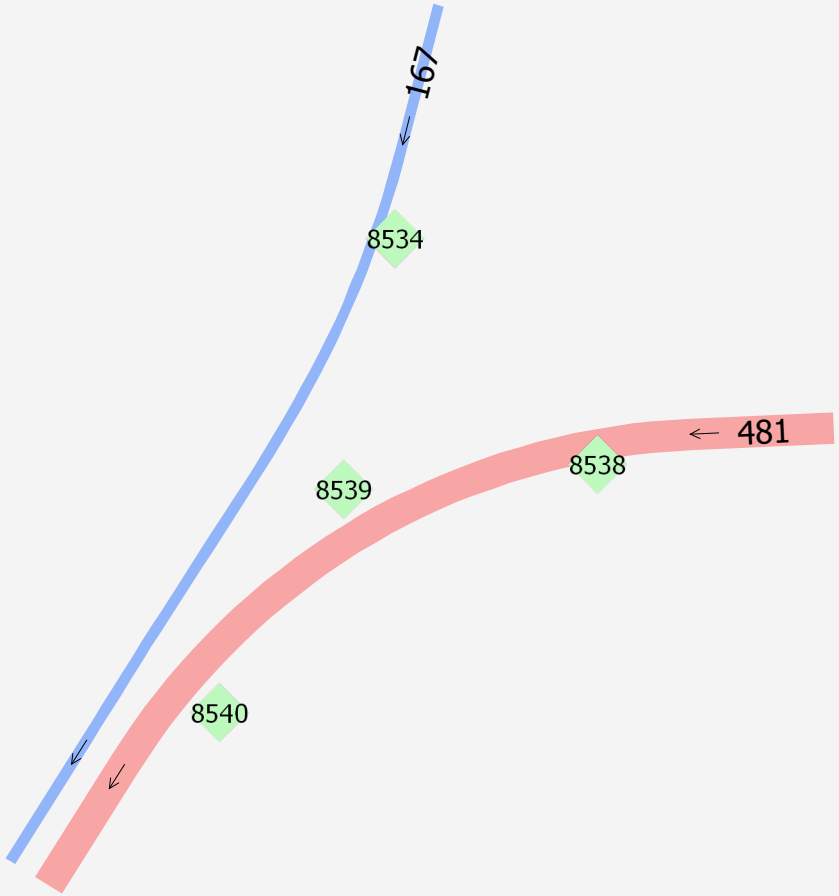
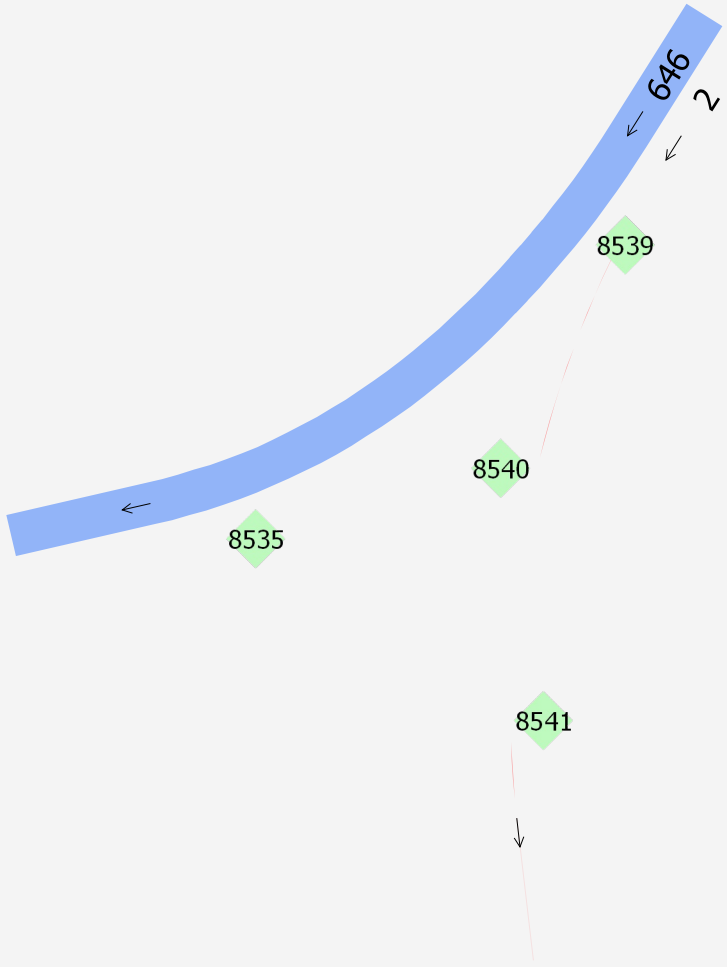
2018 PM Background Turn Volumes: Node 8538
Willamette Dr NE & Hogum Bay Rd NE NE-Leg



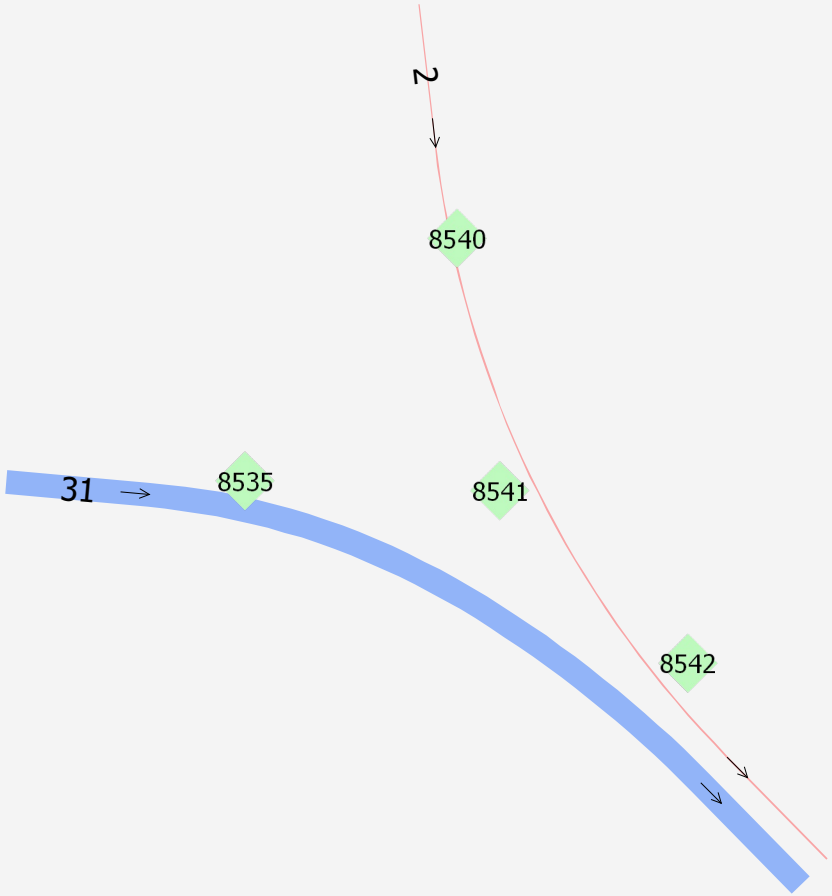
2018 PM Background Turn Volumes: Node 8539
Willamette Dr NE & Hogum Bay Rd NE NW-Leg



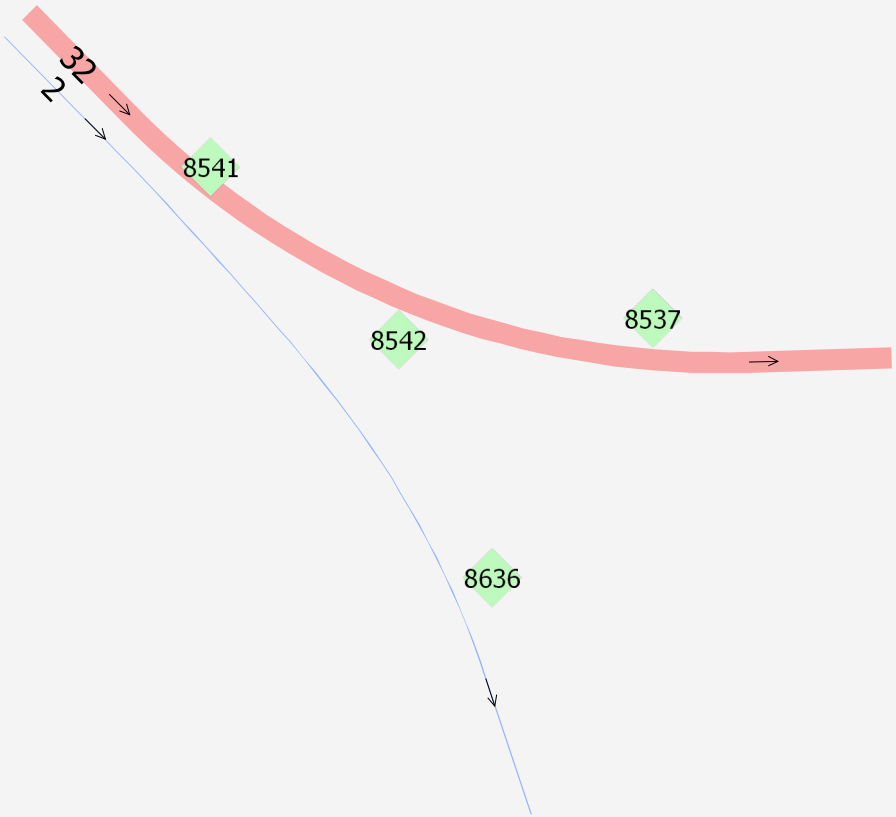
2018 PM Background Turn Volumes: Node 8540
Willamette Dr NE & Hogum Bay Rd NE W-Leg



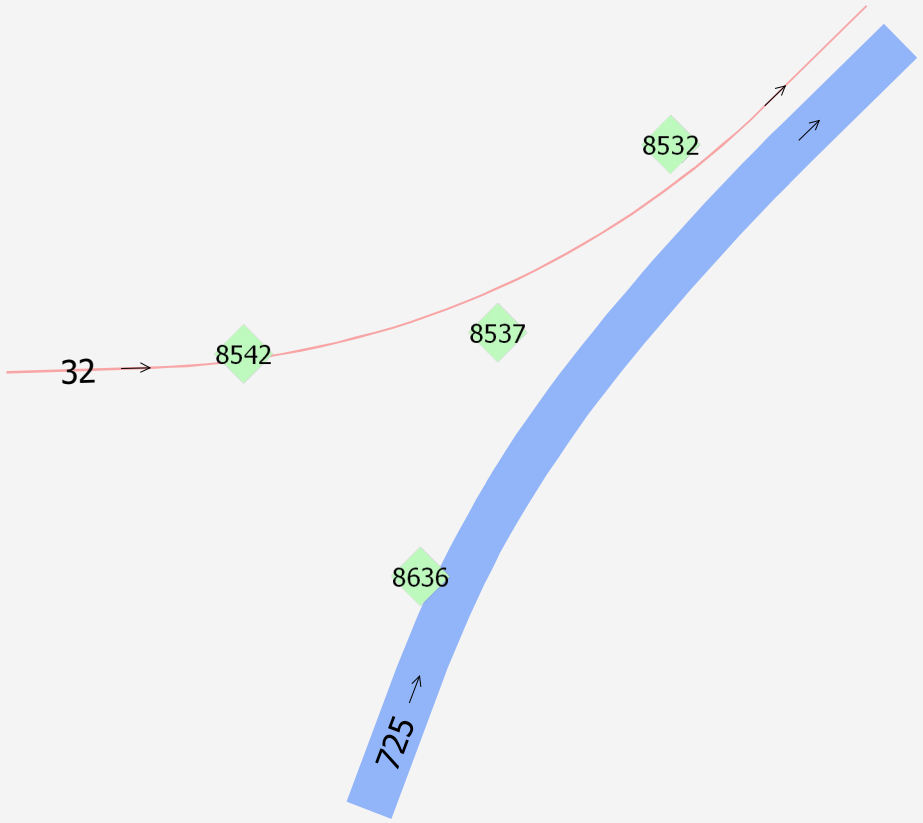
2018 PM Background Turn Volumes: Node 8541
Willamette Dr NE & Hogum Bay Rd NE SW-Leg



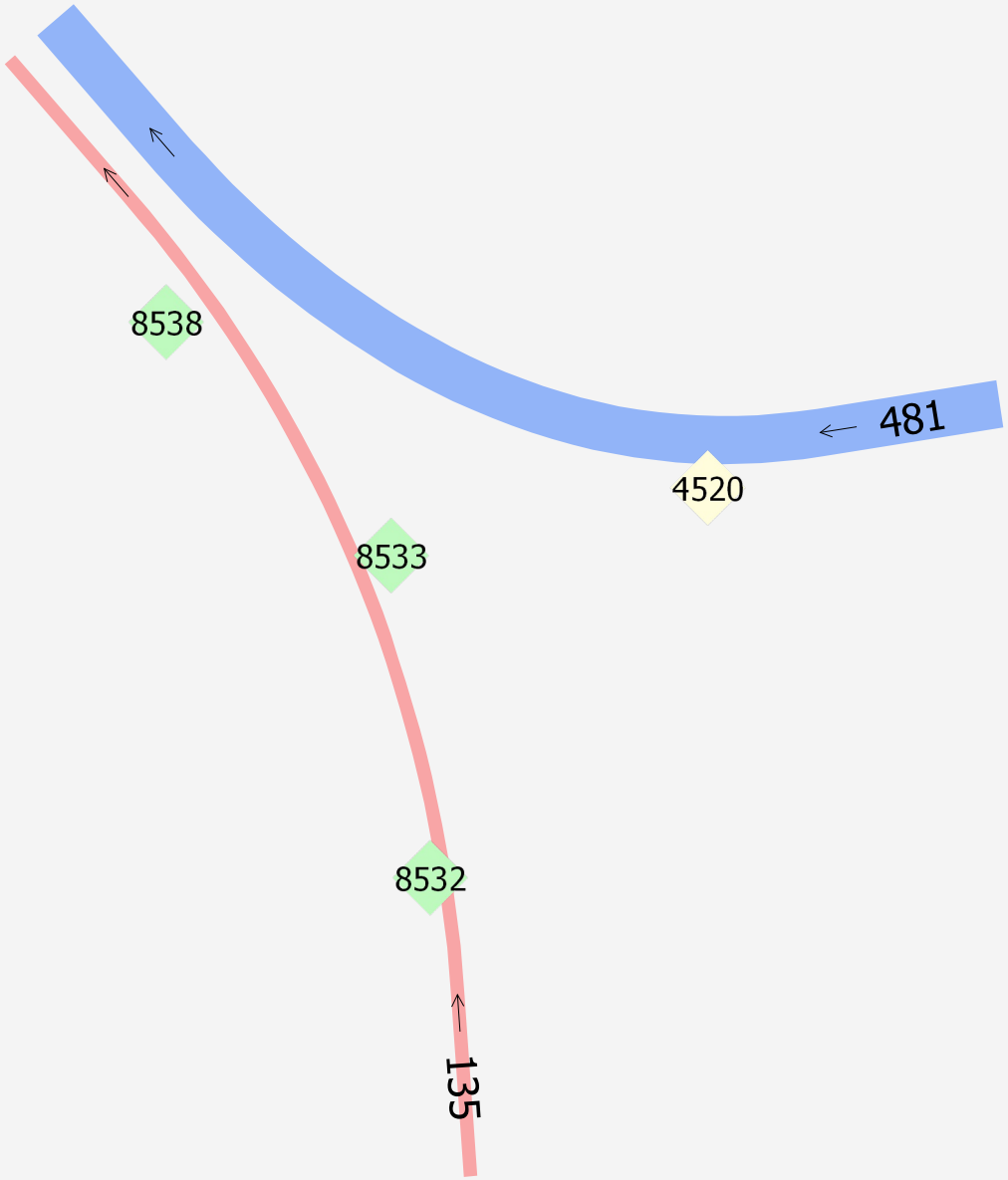
2018 PM Background Turn Volumes: Node 8542
Willamette Dr NE & Hogum Bay Rd NE SE-Leg



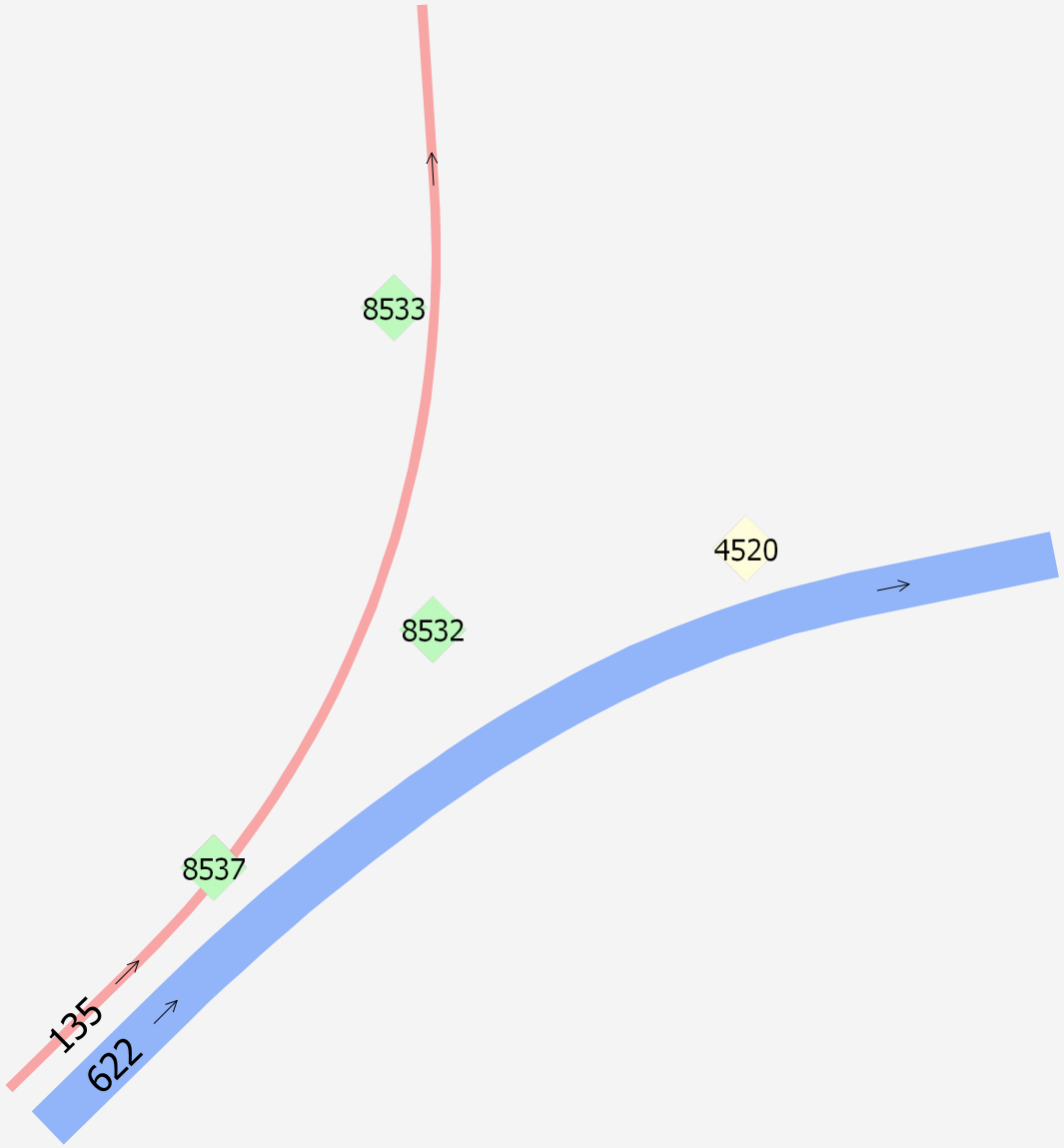
2018 PM Background Turn Volumes: Node 8537
Willamette Dr NE & Hogum Bay Rd NE NE-Leg



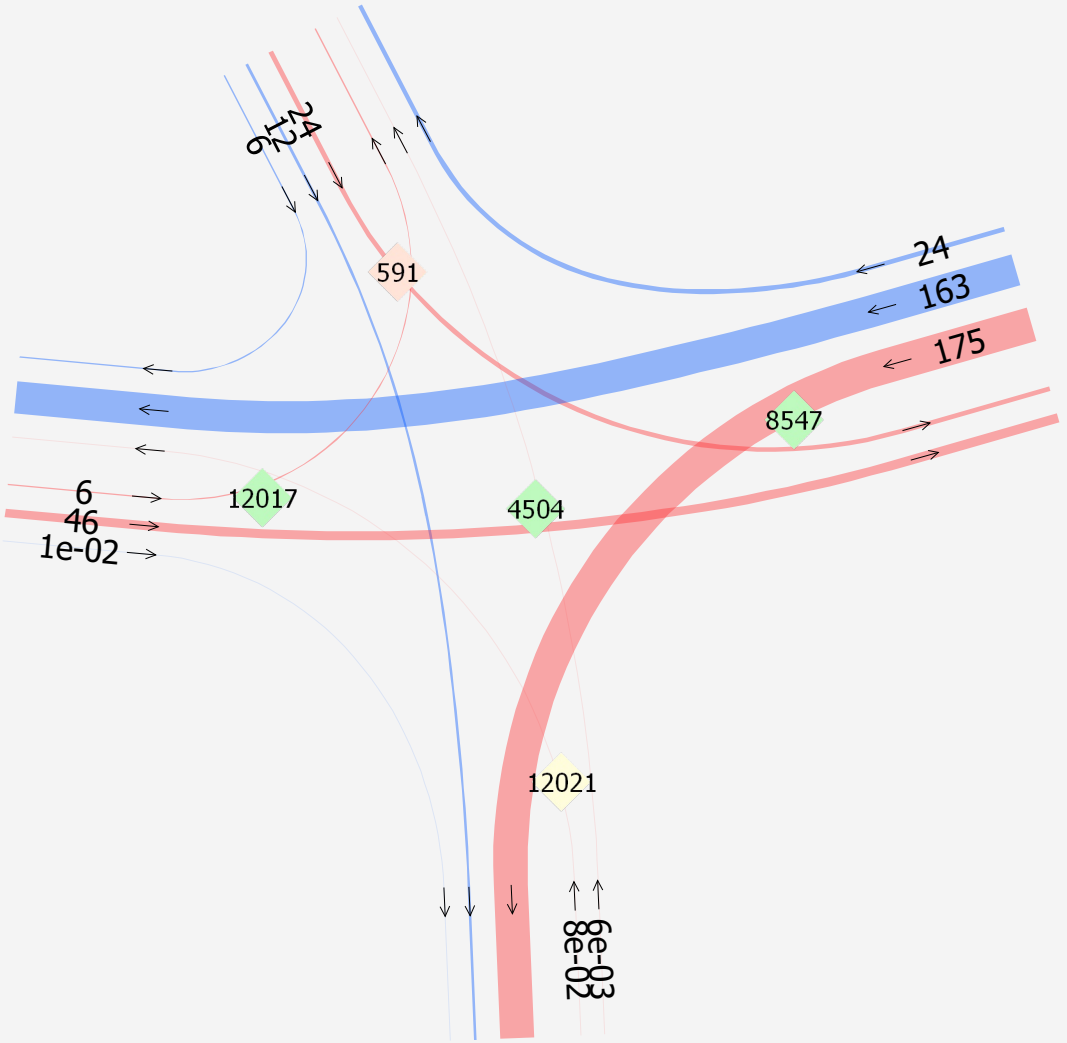
2018 PM Background Turn Volumes: Node 8533
Willamette Dr NE & Hogum Bay Rd NE



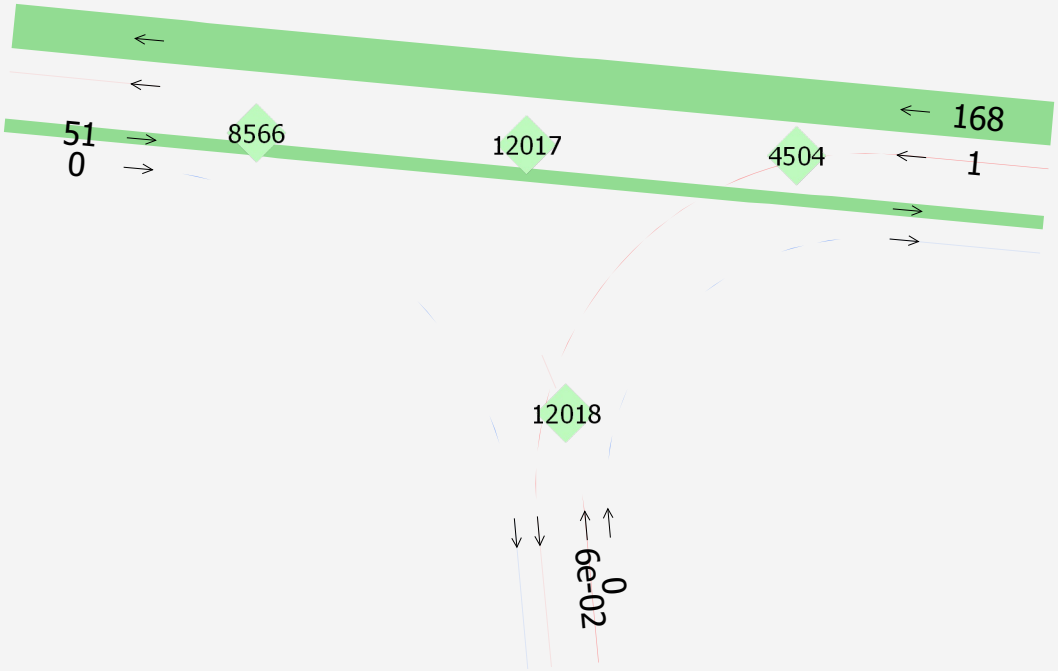
2018 PM Background Turn Volumes: Node 8532
Willamette Dr NE & Hogum Bay Rd NE

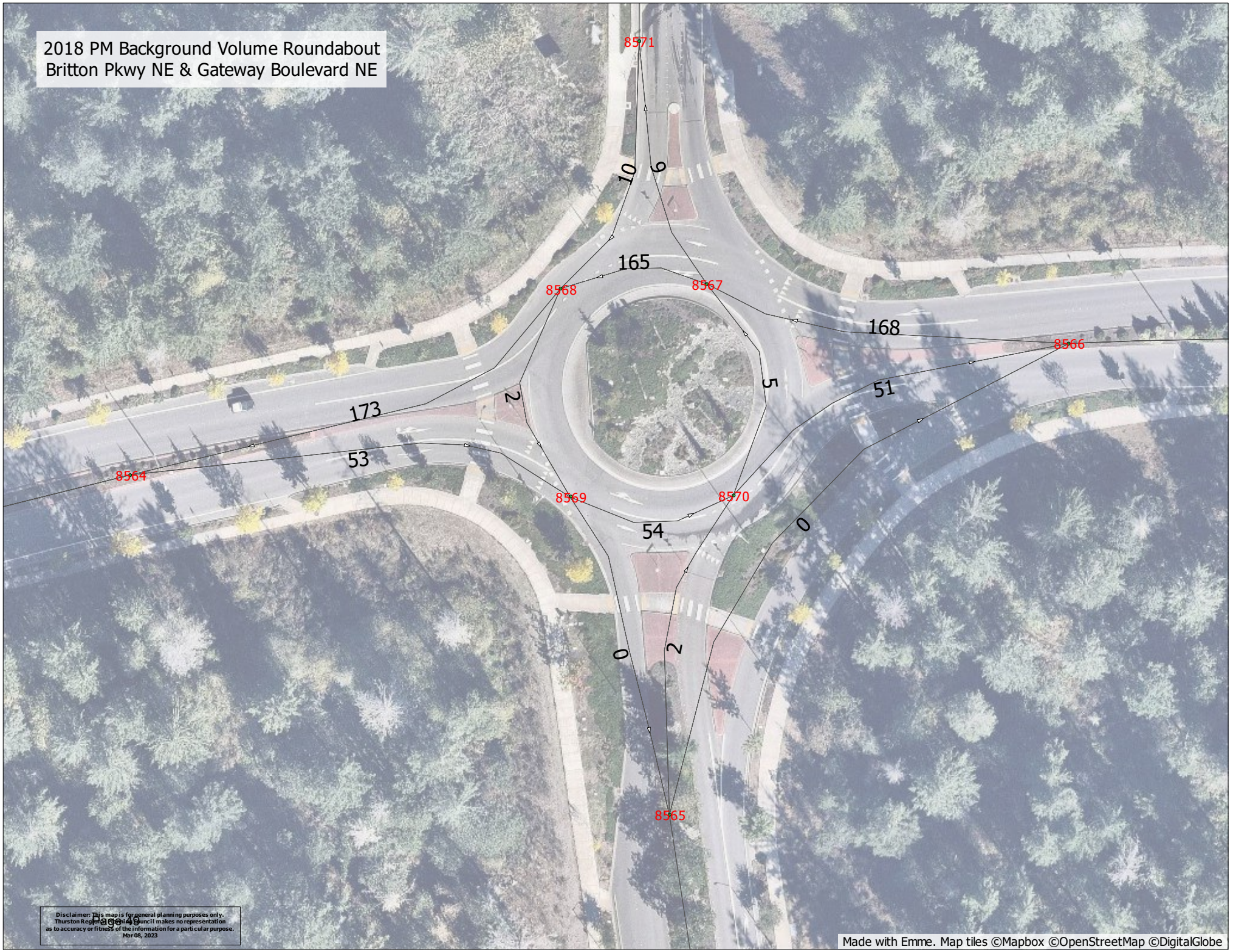


2018 PM Background Turn Volumes: Node 4504
Britton Pkwy NE & Eastern Pkwy NE



2018 PM Background Turn Volumes: Node 12017
Britton Pkwy NE & Central Pkwy NE




2018 PM Background Volume Roundabout
Britton Pkwy NE & Gateway Boulevard NE
8571
10
6
165
8568
8567
168
8566
5
51
2
173
53
8564
8569
8570
54
0
0
2
8565
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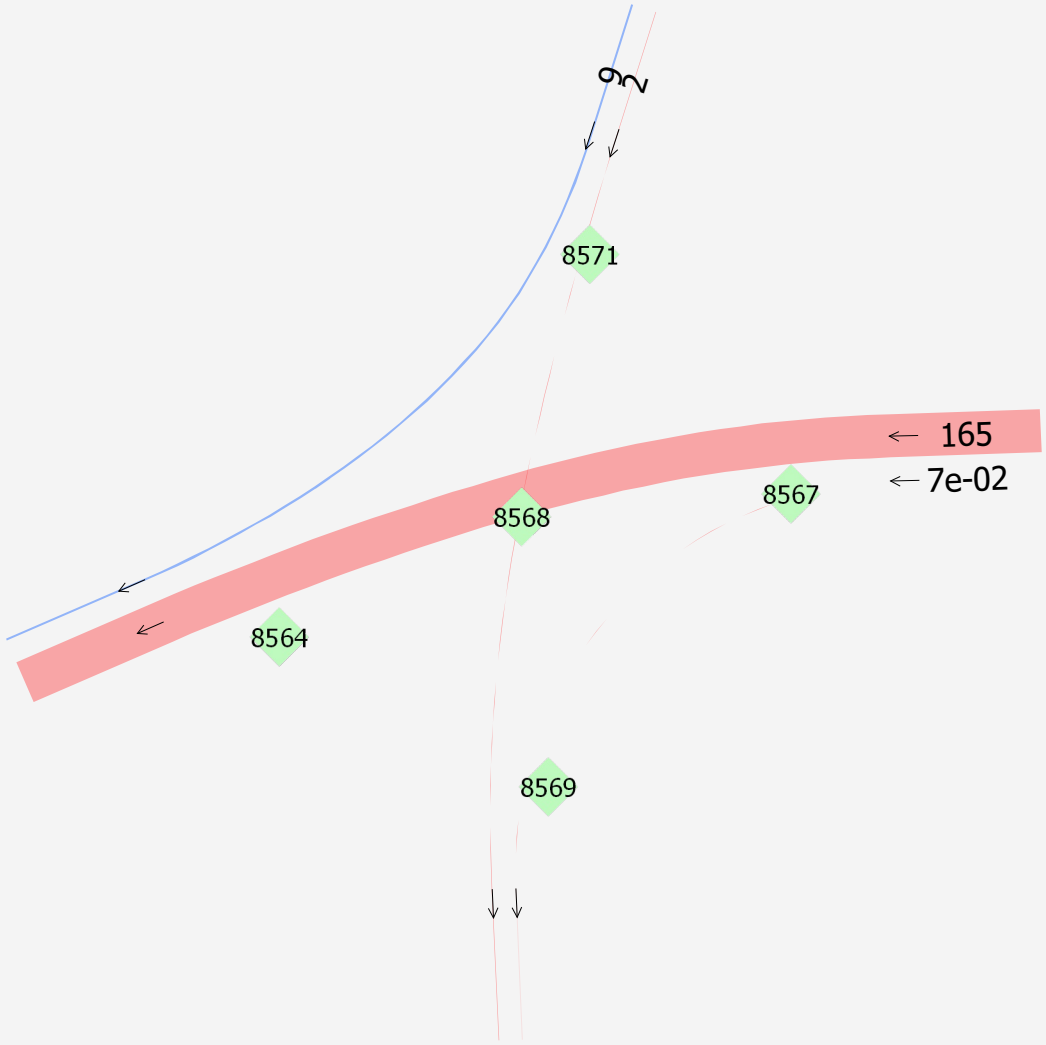
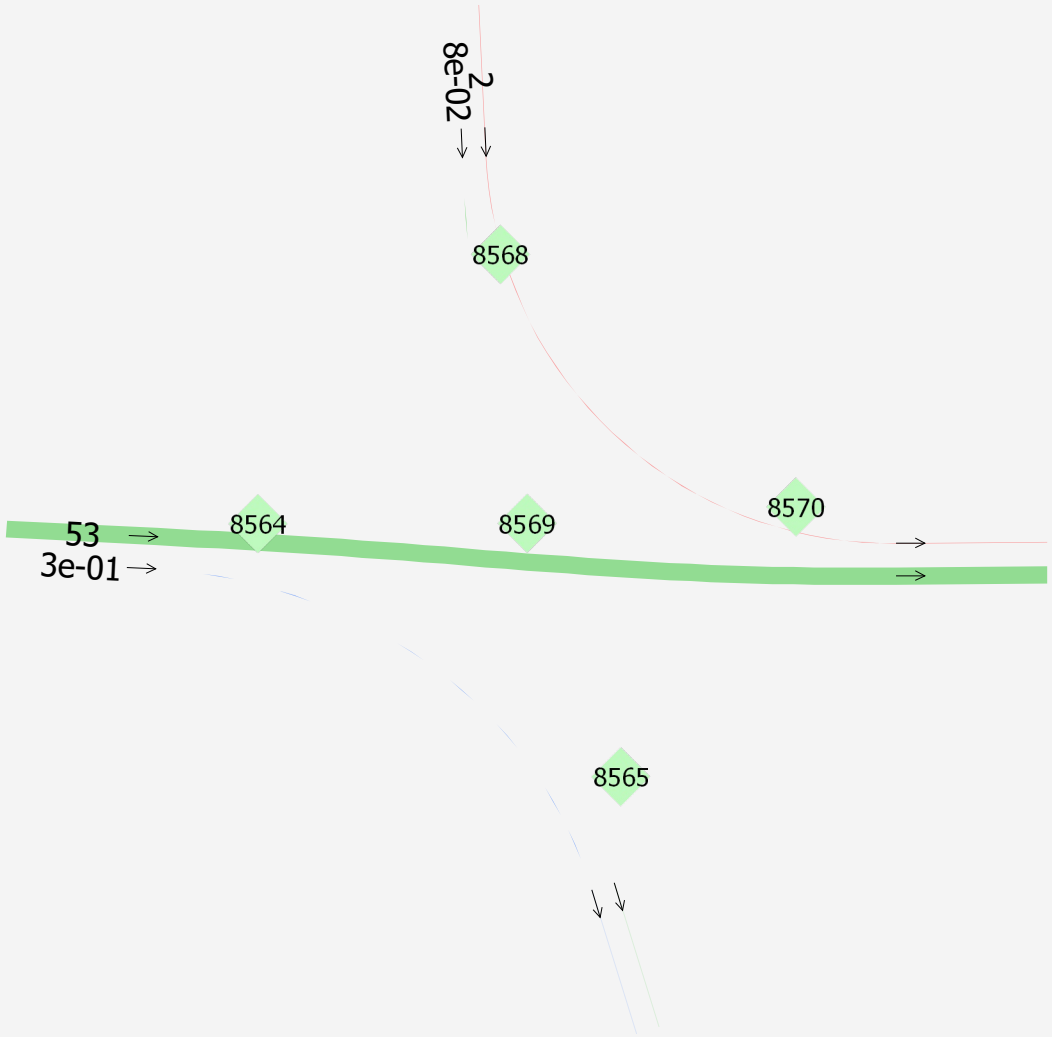
2018 PM Background Turn Volumes: Node 8567
Britton Pkwy NE & Gateway Boulevard NE NE-Leg

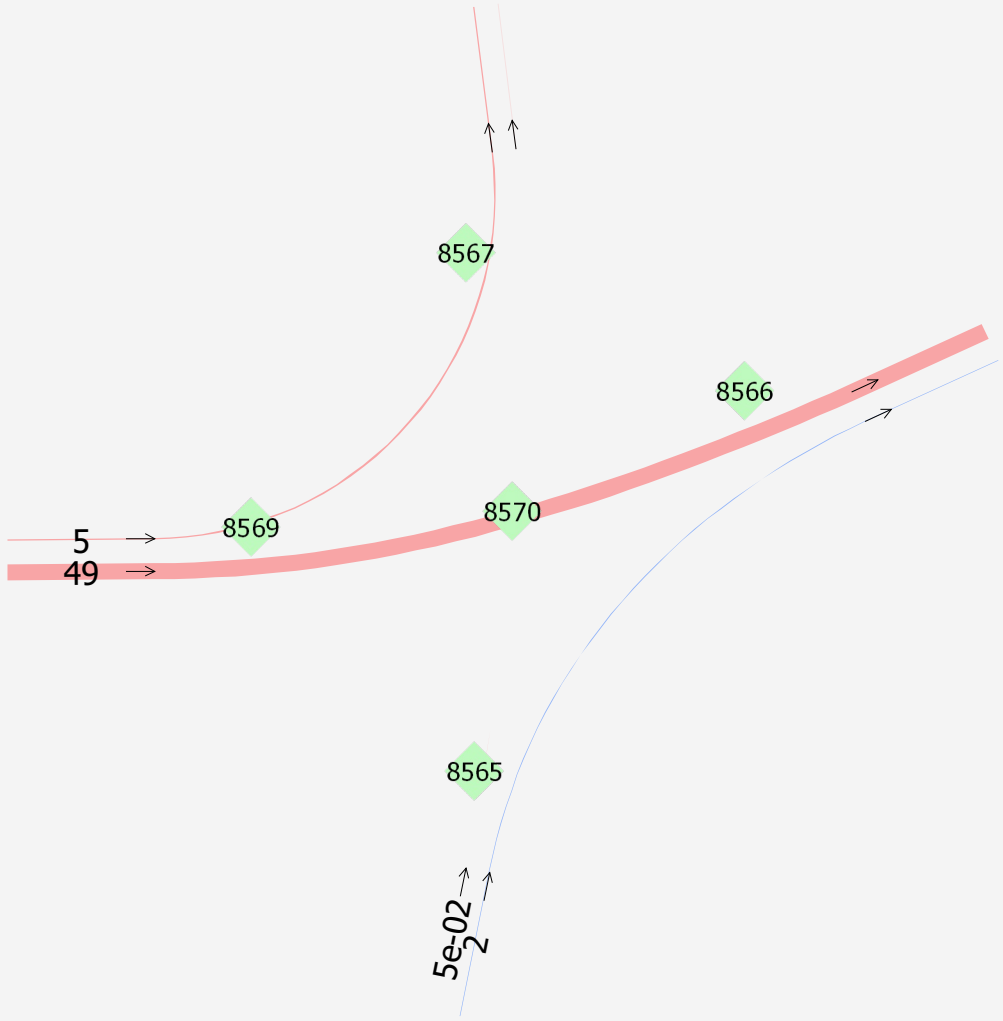
2018 PM Background Turn Volumes: Node 8568
Britton Pkwy NE & Gateway Boulevard NE NW-Leg



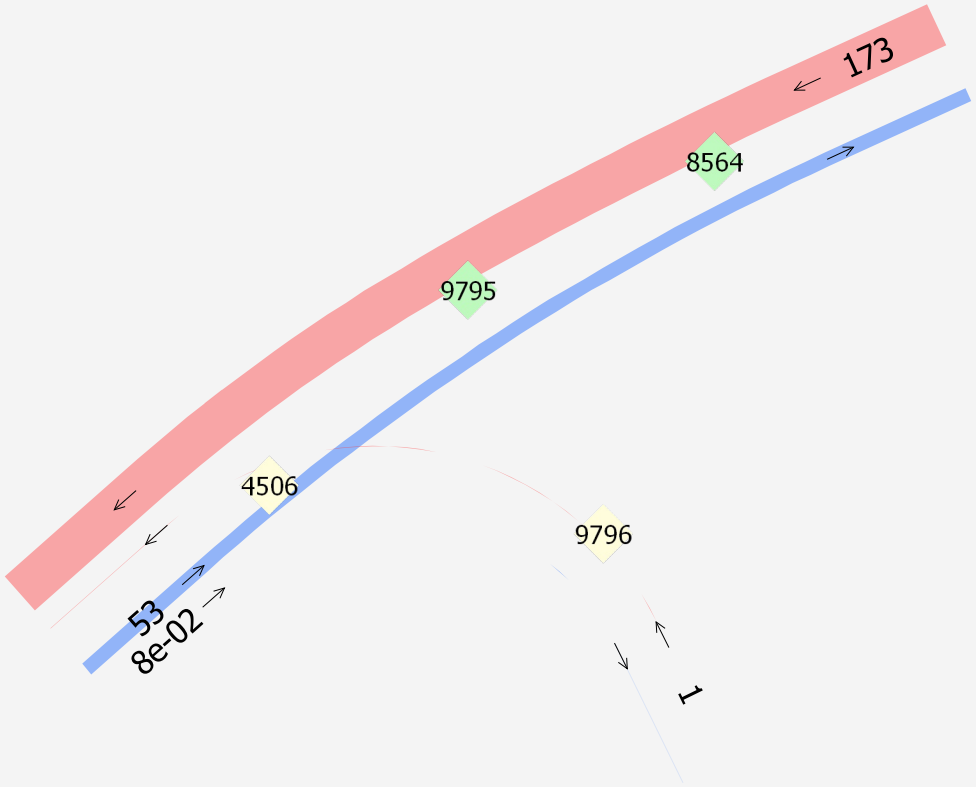
2018 PM Background Turn Volumes: Node 8569
Britton Pkwy NE & Gateway Boulevard NE SW-Leg



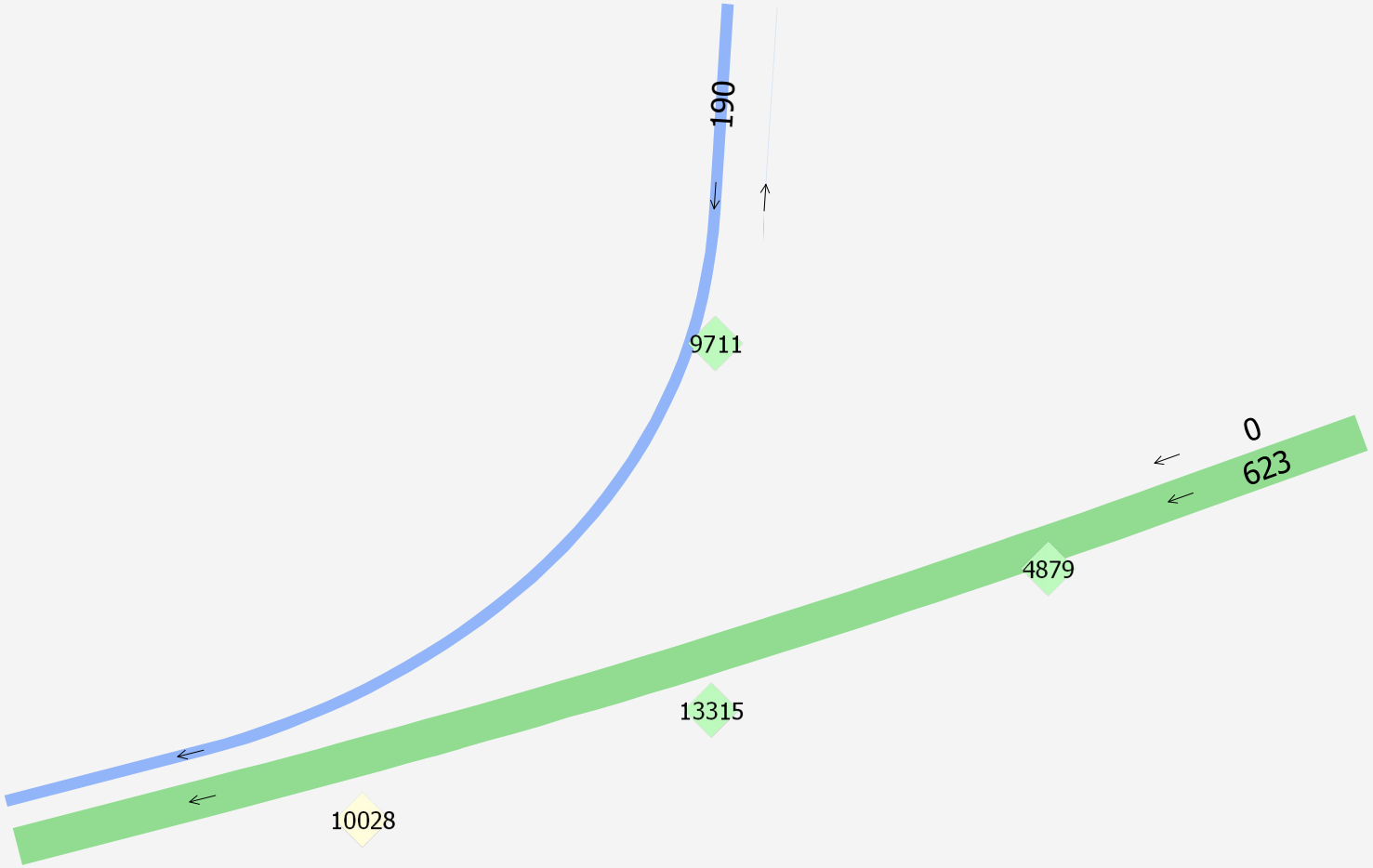
2018 PM Background Turn Volumes: Node 8570
Britton Pkwy NE & Gateway Boulevard NE SE-Leg



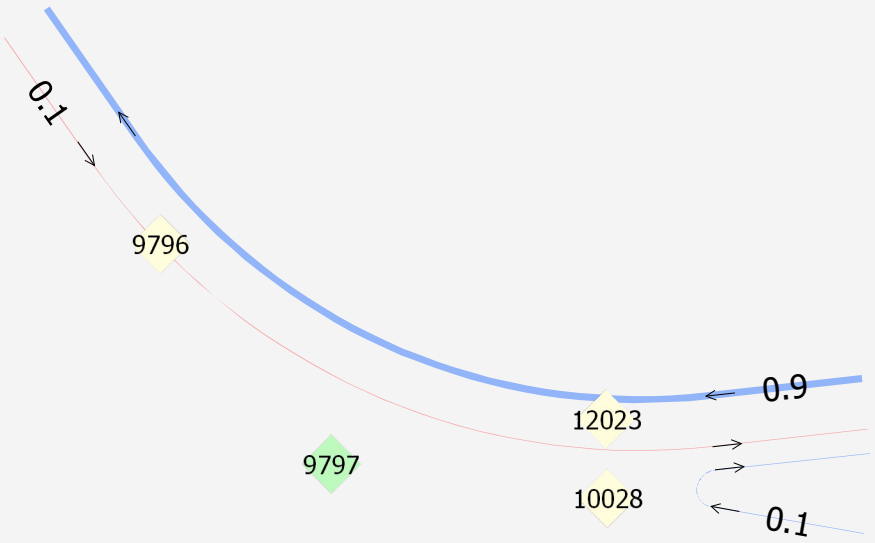
2018 PM Background Turn Volumes: Node 9795
Britton Pkwy NE & Western Pkwy NE



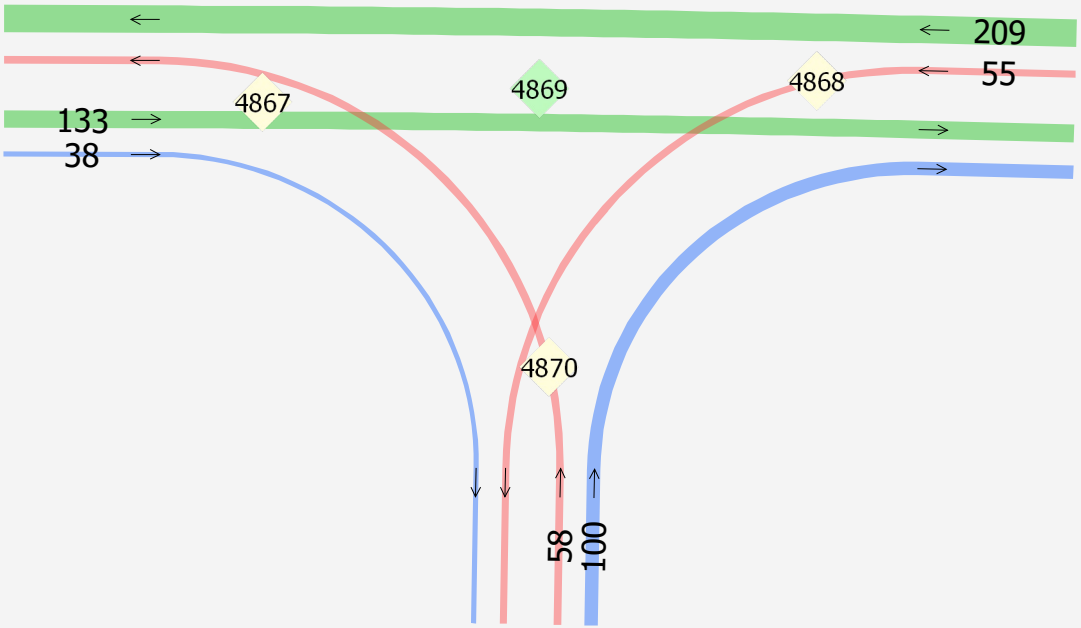
2018 PM Background Turn Volumes: Node 13315
I-5 SB Ramp & CD Rd



2018 PM Background Turn Volumes: Node 9797
CD Rd & Western Pkwy NE



2018 PM Background Turn Volumes: Node 4869
Hawks Prairie Rd NE & Carpenter Rd NE




2018 PM Background Volume Roundabout
Britton Parkway NE & Carpenter Road NE
185
107
303
4196
4167
224
182
4507
174
53
161
203
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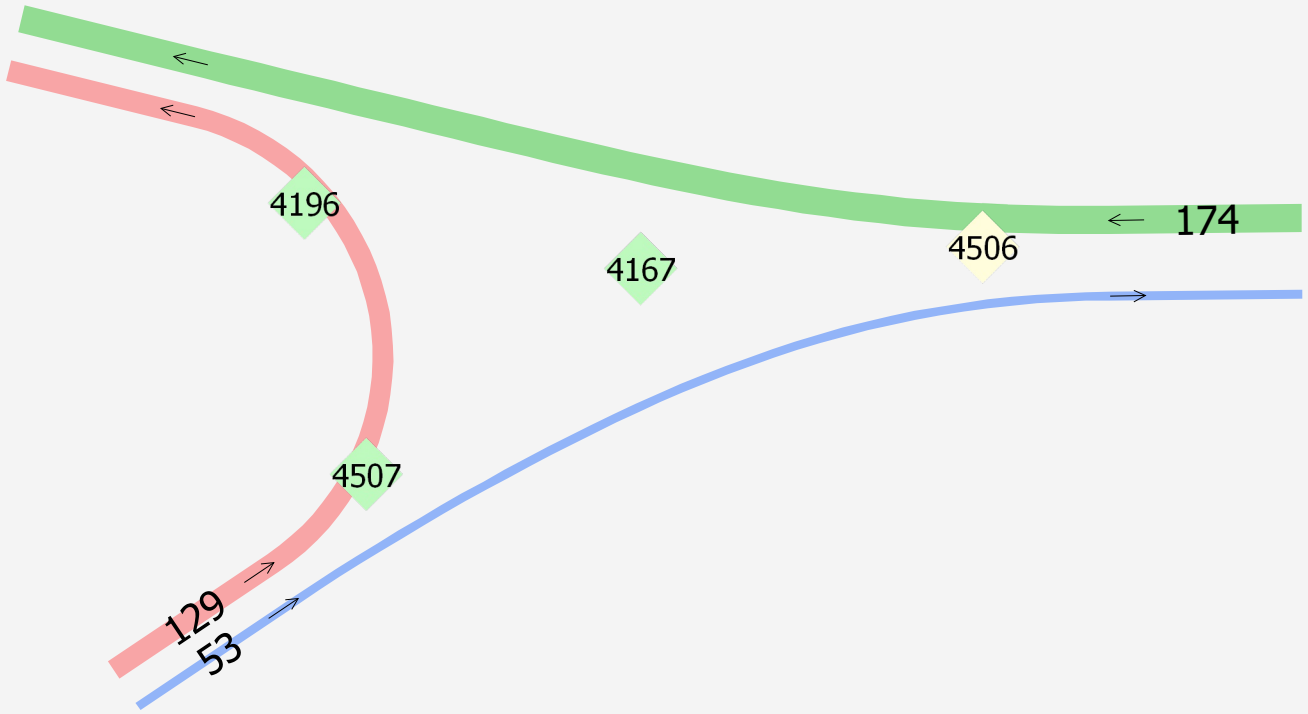
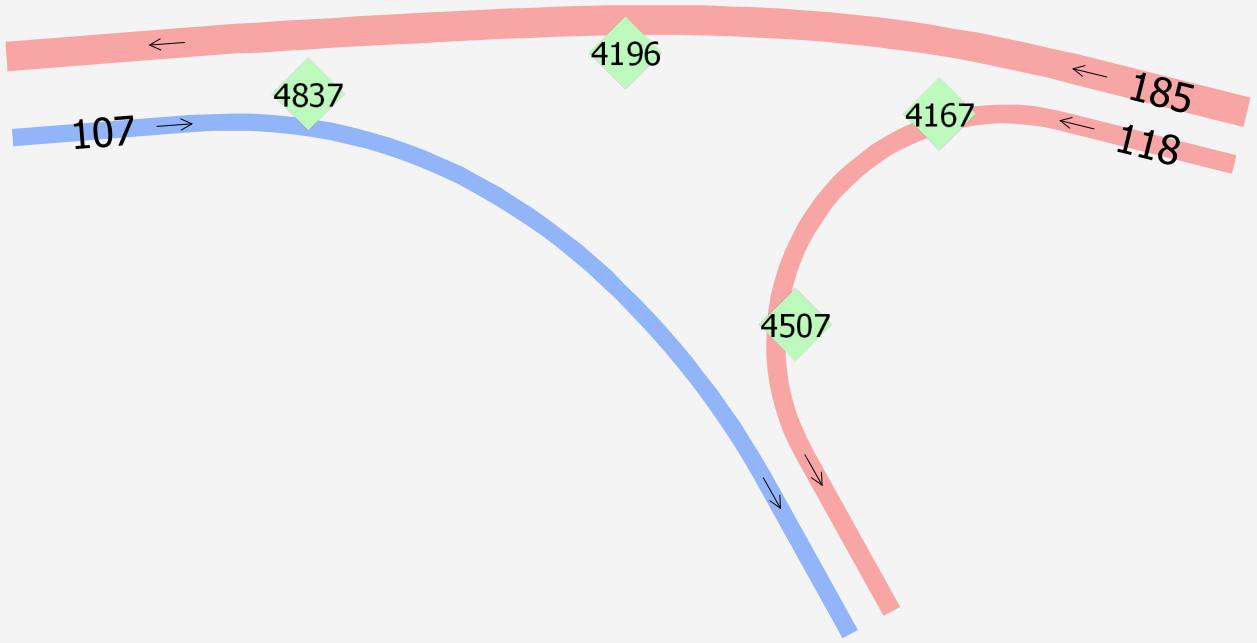
2018 PM Background Turn Volumes: Node 4167
Britton Parkway NE & Carpenter Road NE E-Leg

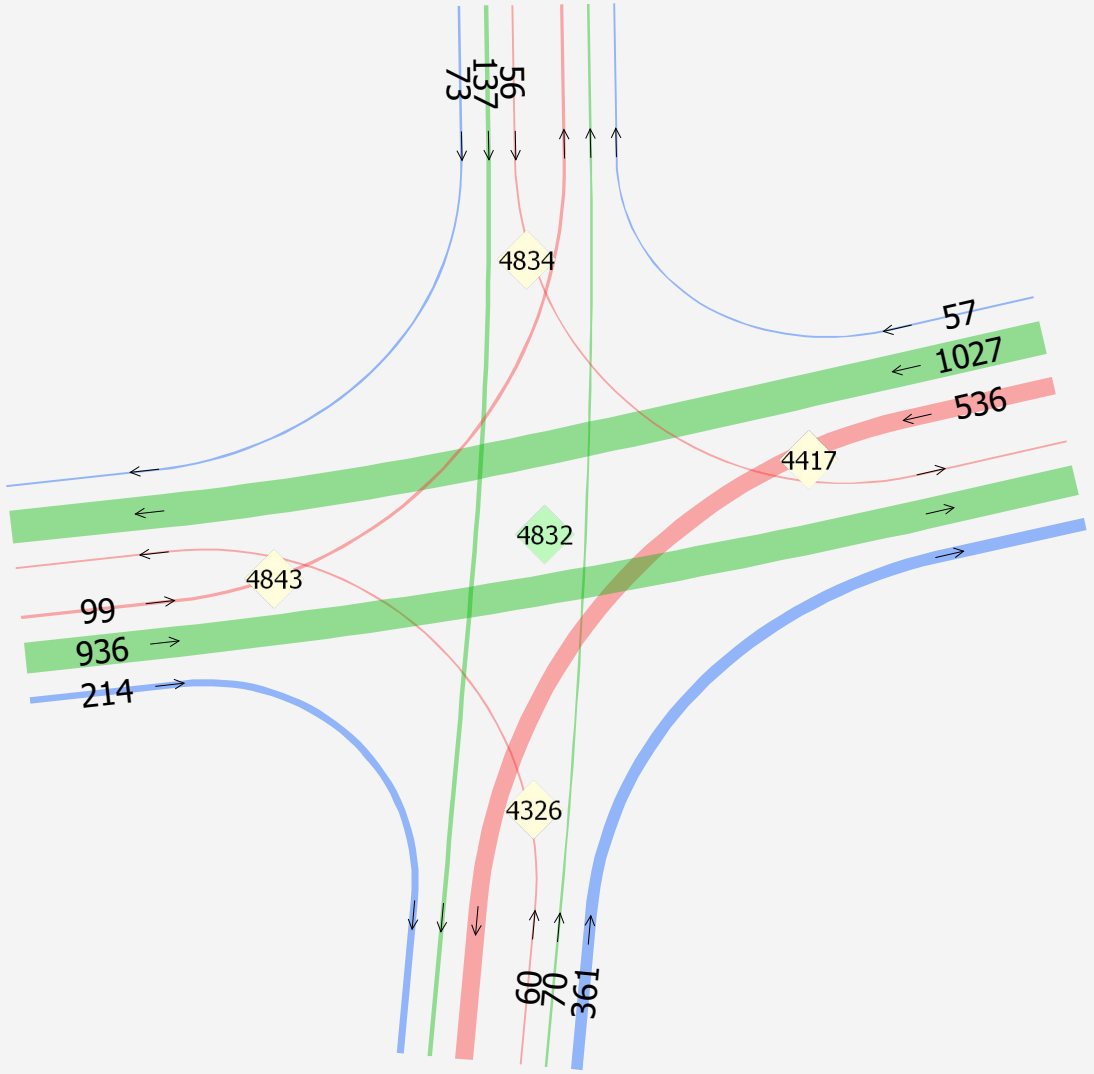


2018 PM Background Turn Volumes: Node 4196
Britton Parkway NE & Carpenter Road NE W-Leg

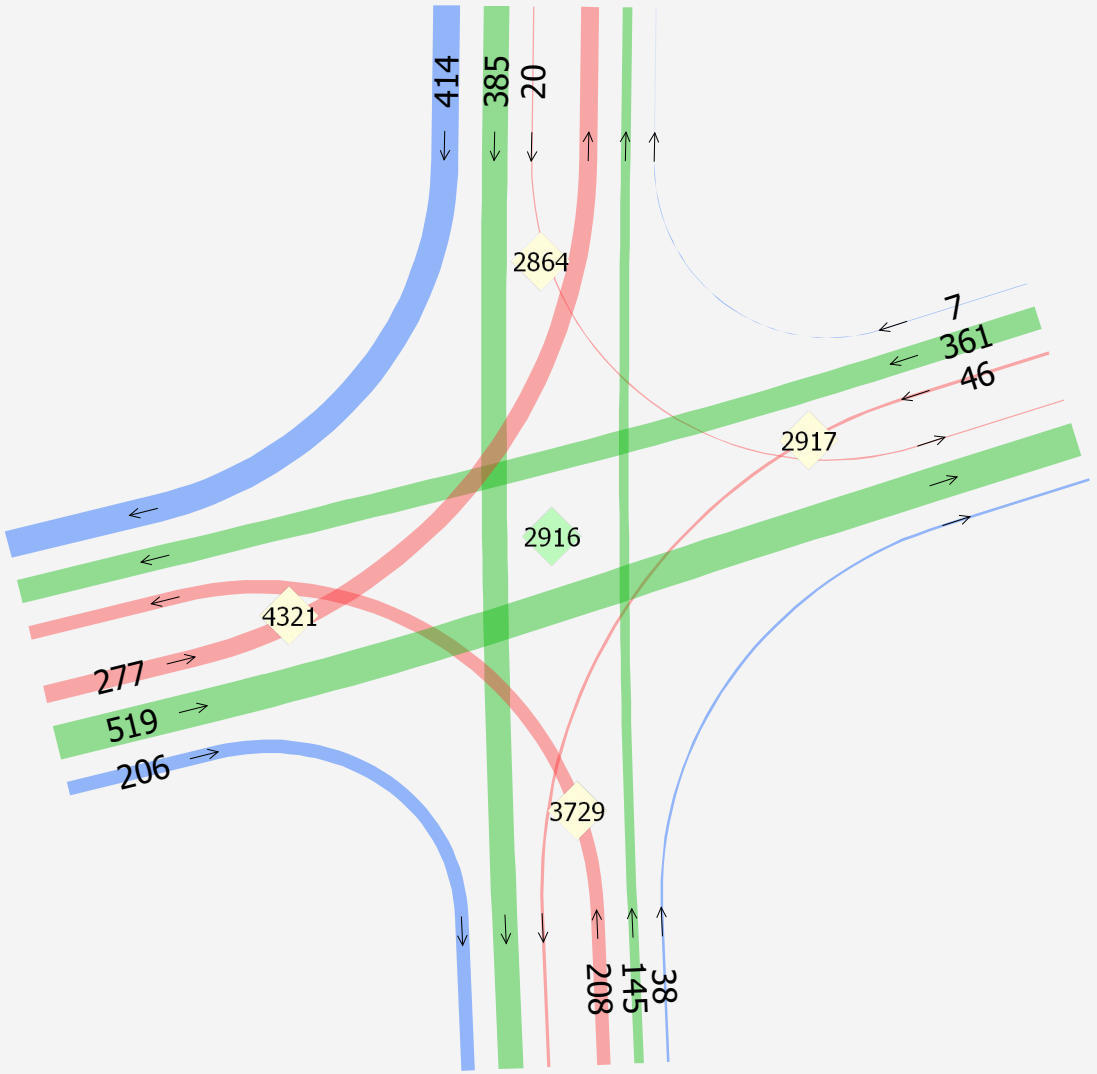


2018 PM Background Turn Volumes: Node 4507
Britton Parkway NE & Carpenter Road NE S-Leg

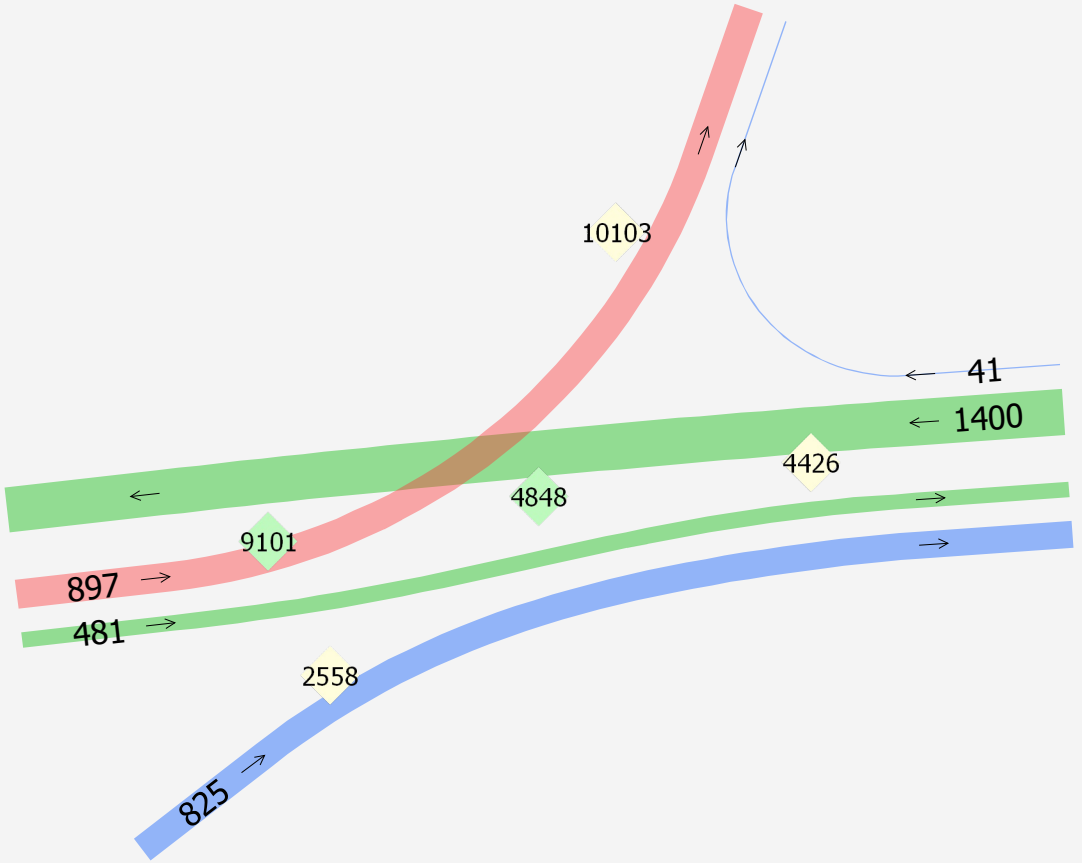
2018 PM Background Turn Volumes: Node 4832
Martin Way E & Carpenter Rd



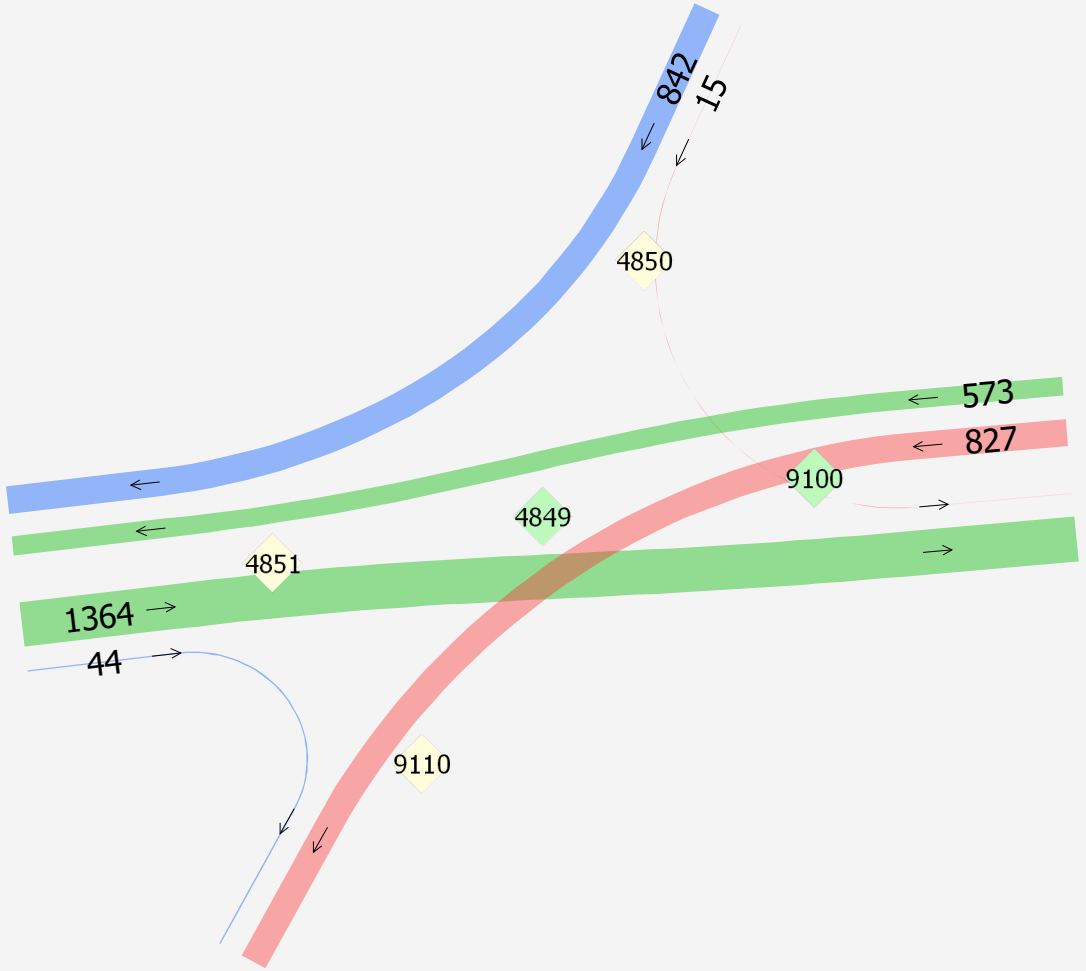
2018 PM Background Turn Volumes: Node 2916
Pacific Ave SE & Carpenter Rd SE



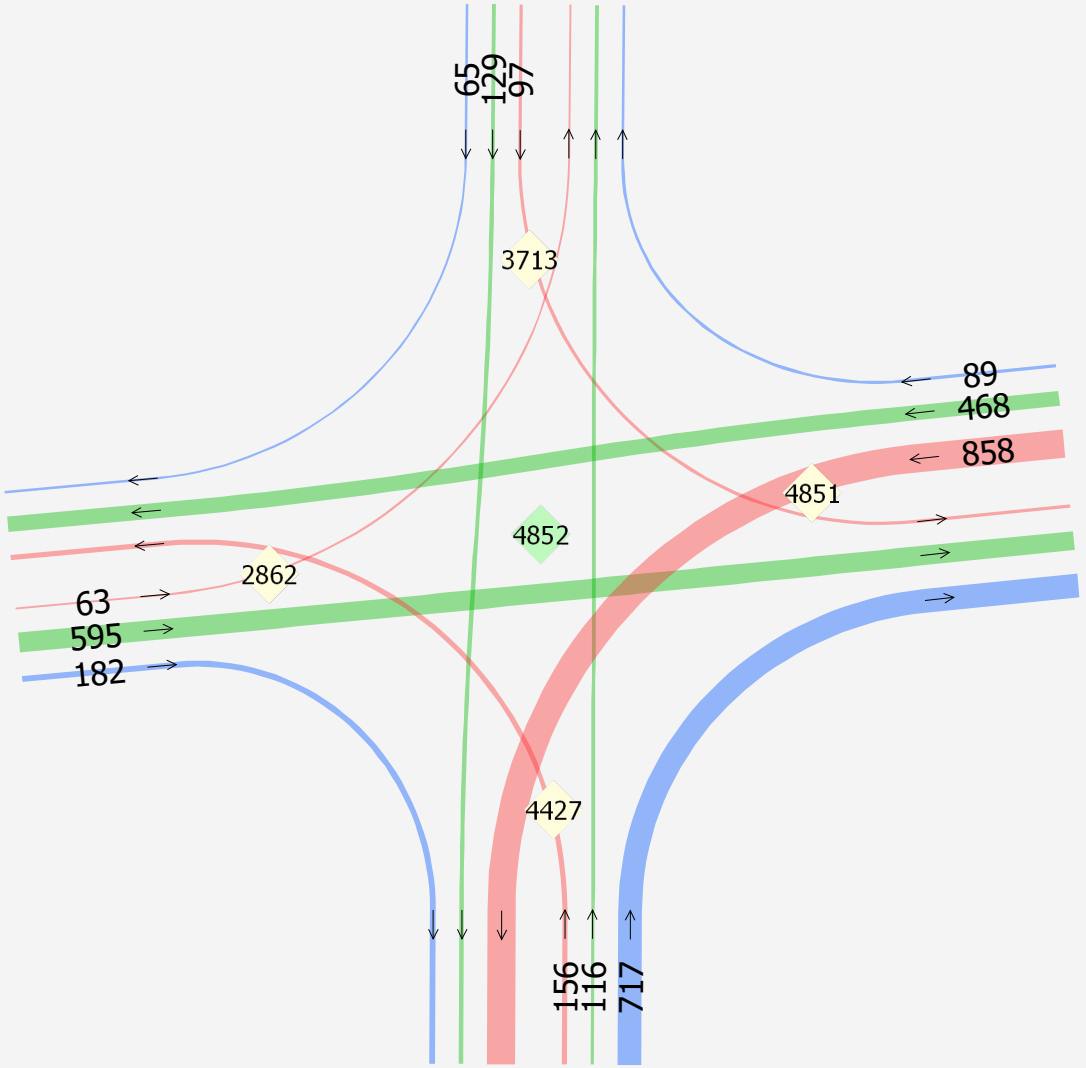
2018 PM Background Turn Volumes: Node 4848
Martin Way E & I-5 NB Ramps



2018 PM Background Turn Volumes: Node 4849
Martin Way E & I-5 SB Ramps



2018 PM Background Turn Volumes: Node 4852
Martin Way E & College St




2018 PM Background Volume Roundabout
Pacific Avenue SE & Lacey Boulevard SE
1074
1074
8507
4118
1009
2968
66
1
1015
8509
8508
1080
1029
2966
1030
1029
65
14
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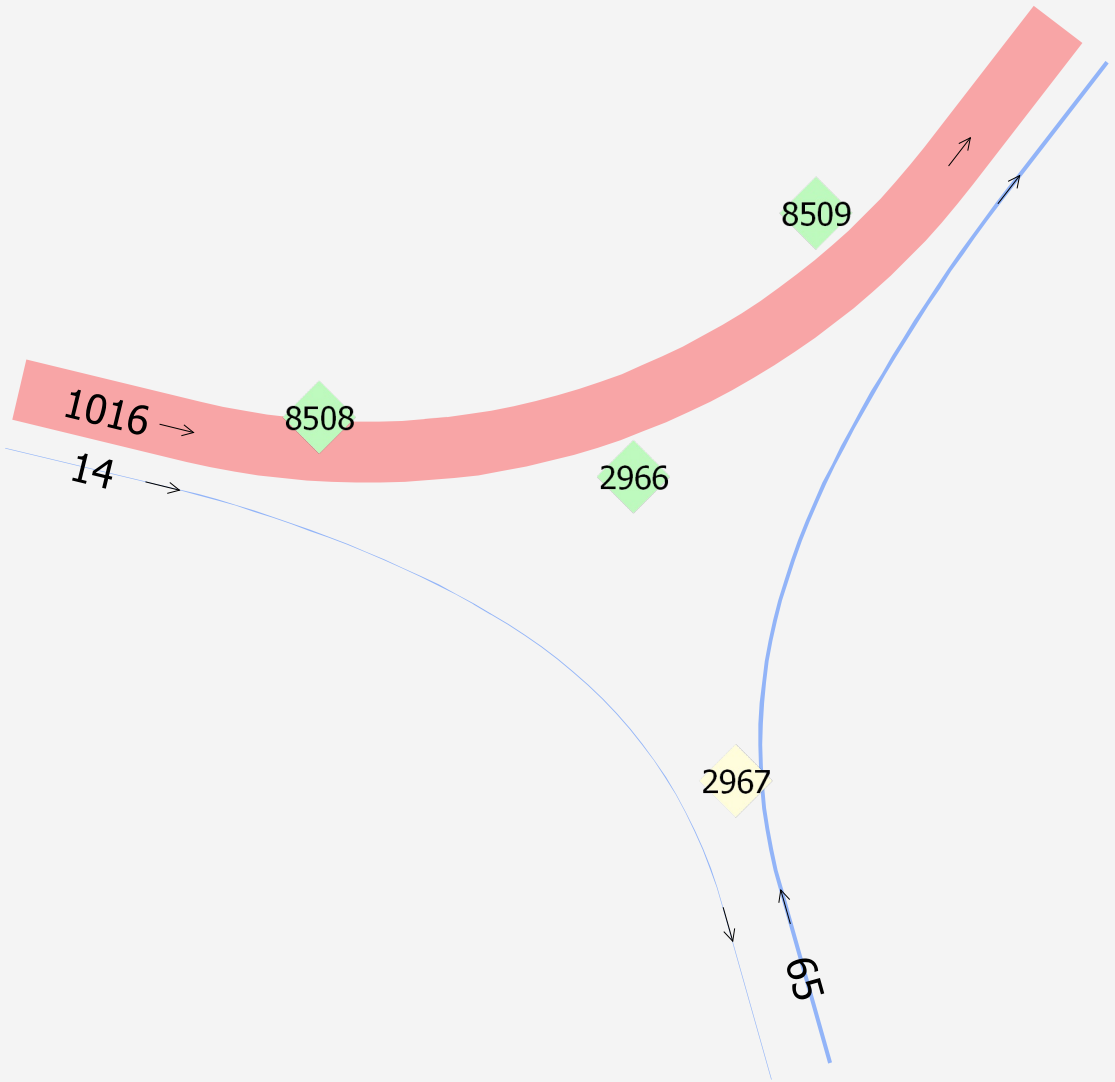
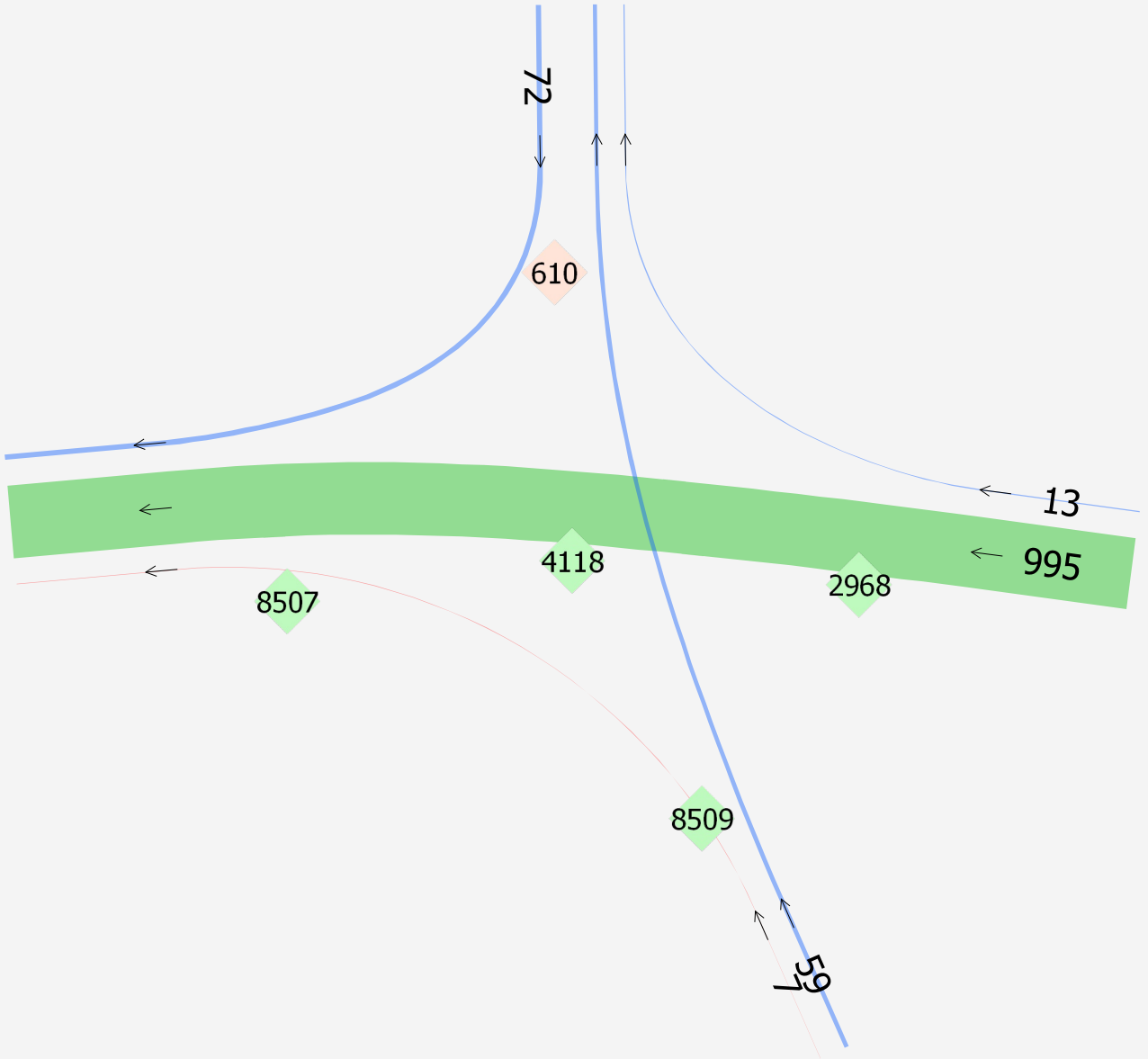
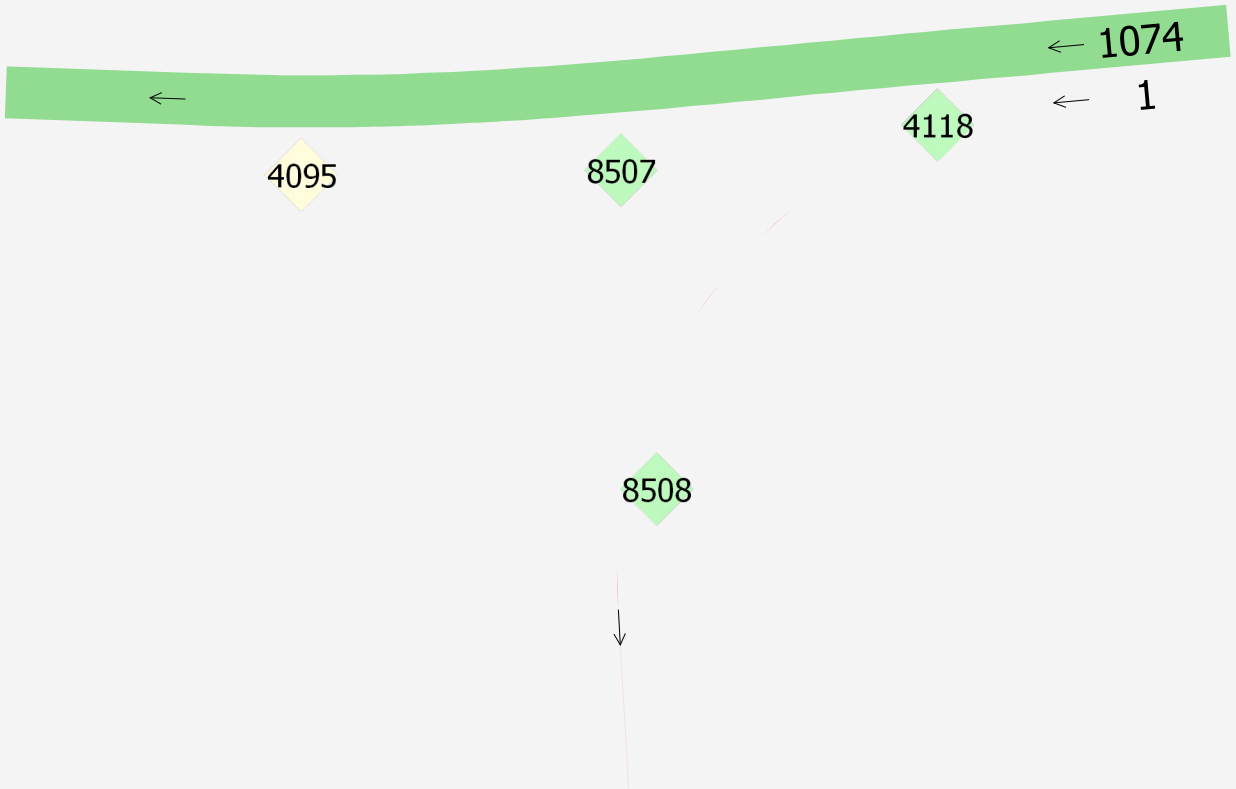
2018 PM Background Turn Volumes: Node 2966
Pacific Avenue SE & Lacey Boulevard SE E-Leg



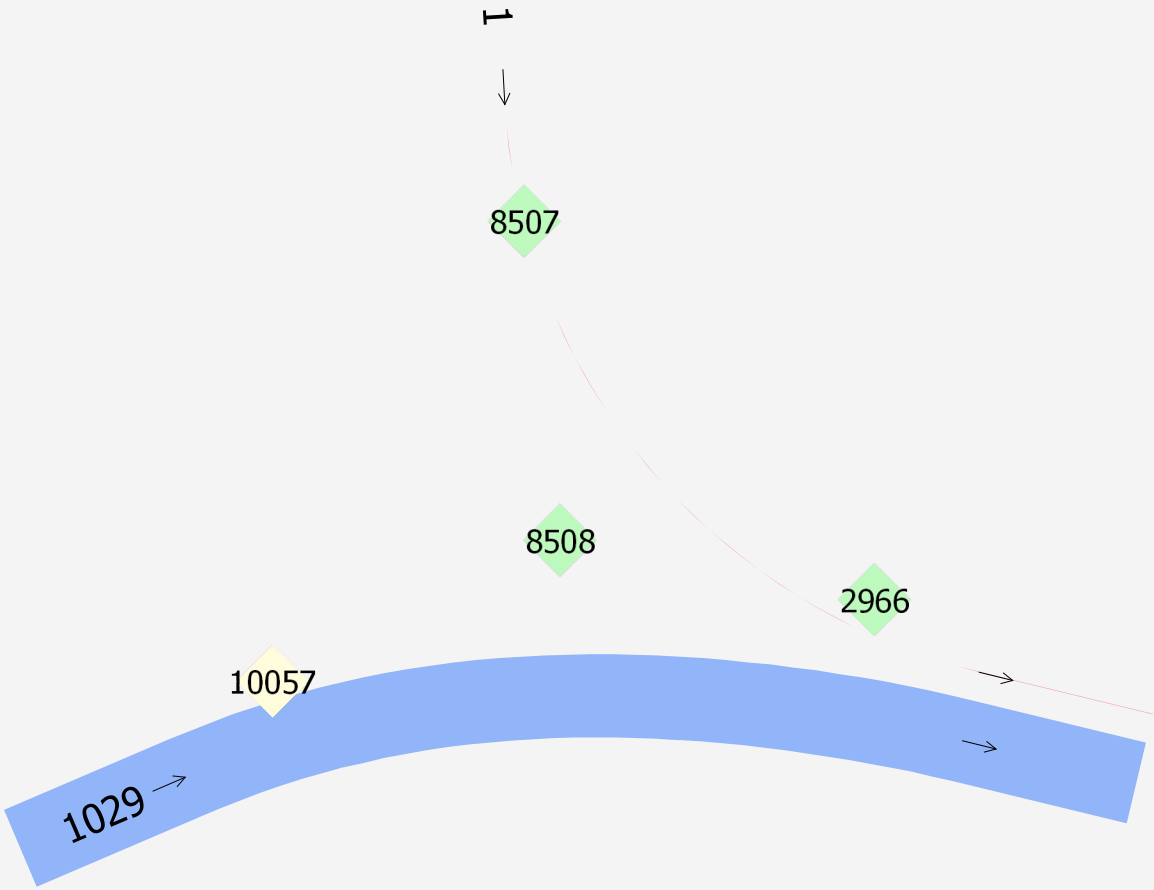
2018 PM Background Turn Volumes: Node 4118
Pacific Avenue SE & Lacey Boulevard SE NE-Leg



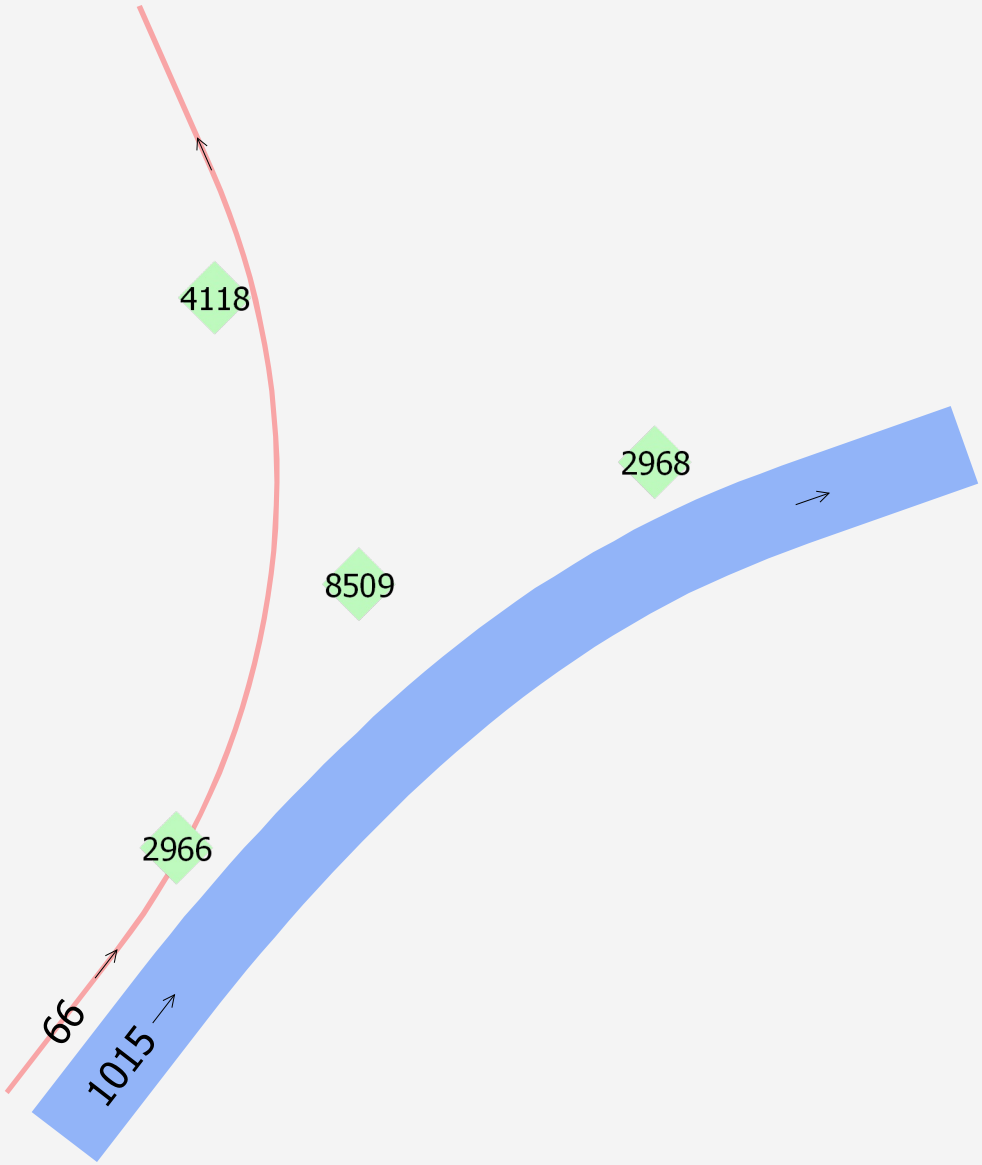
2018 PM Background Turn Volumes: Node 8507
Pacific Avenue SE & Lacey Boulevard SE NW-Leg



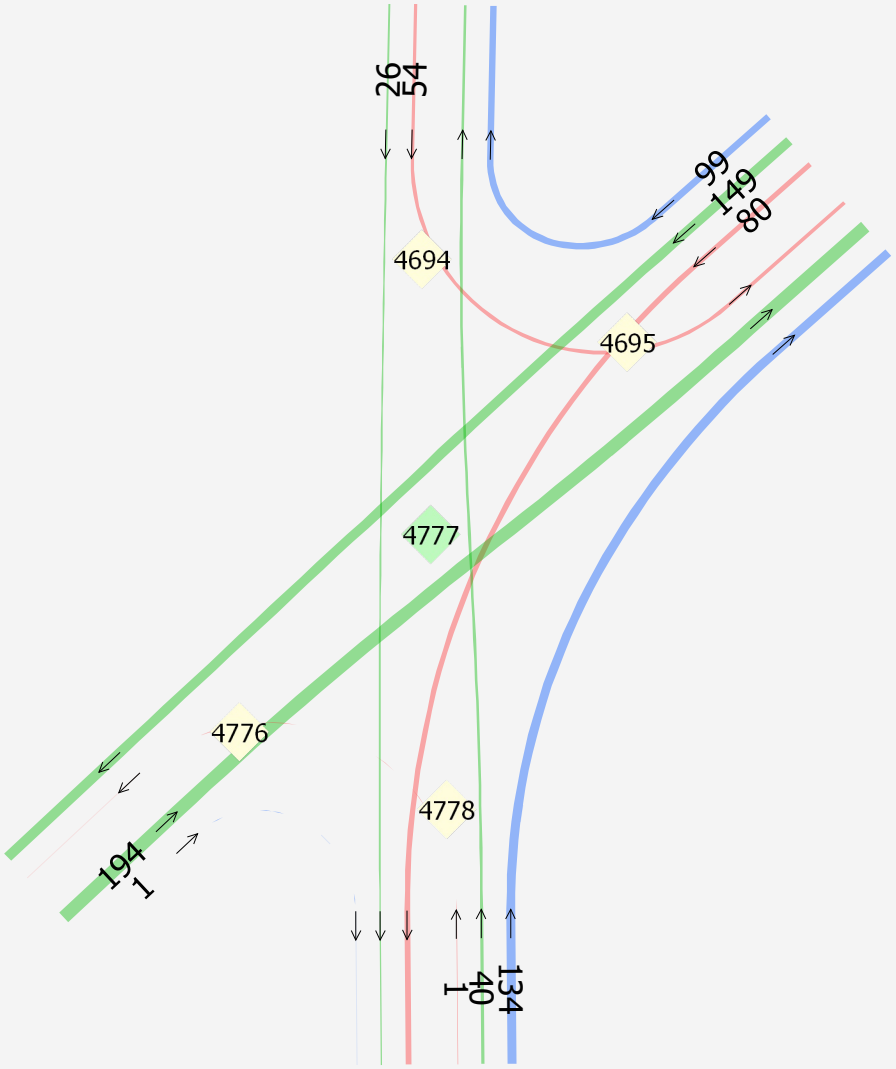
2018 PM Background Turn Volumes: Node 8508
Pacific Avenue SE & Lacey Boulevard SE SW-Leg



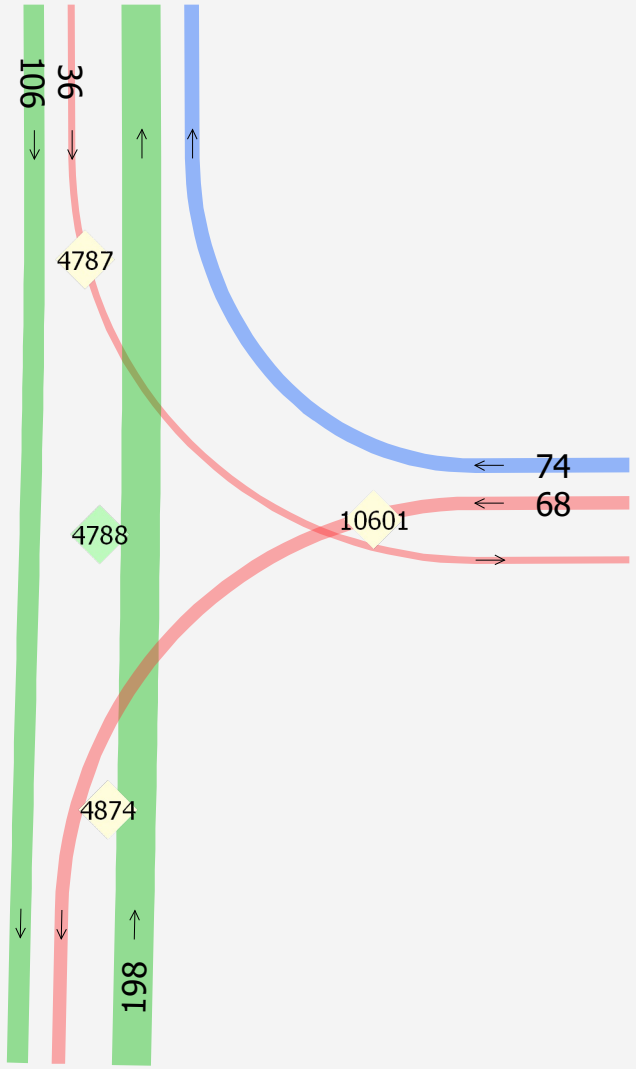
2018 PM Background Turn Volumes: Node 8509
Pacific Avenue SE & Lacey Boulevard SE SE-Leg



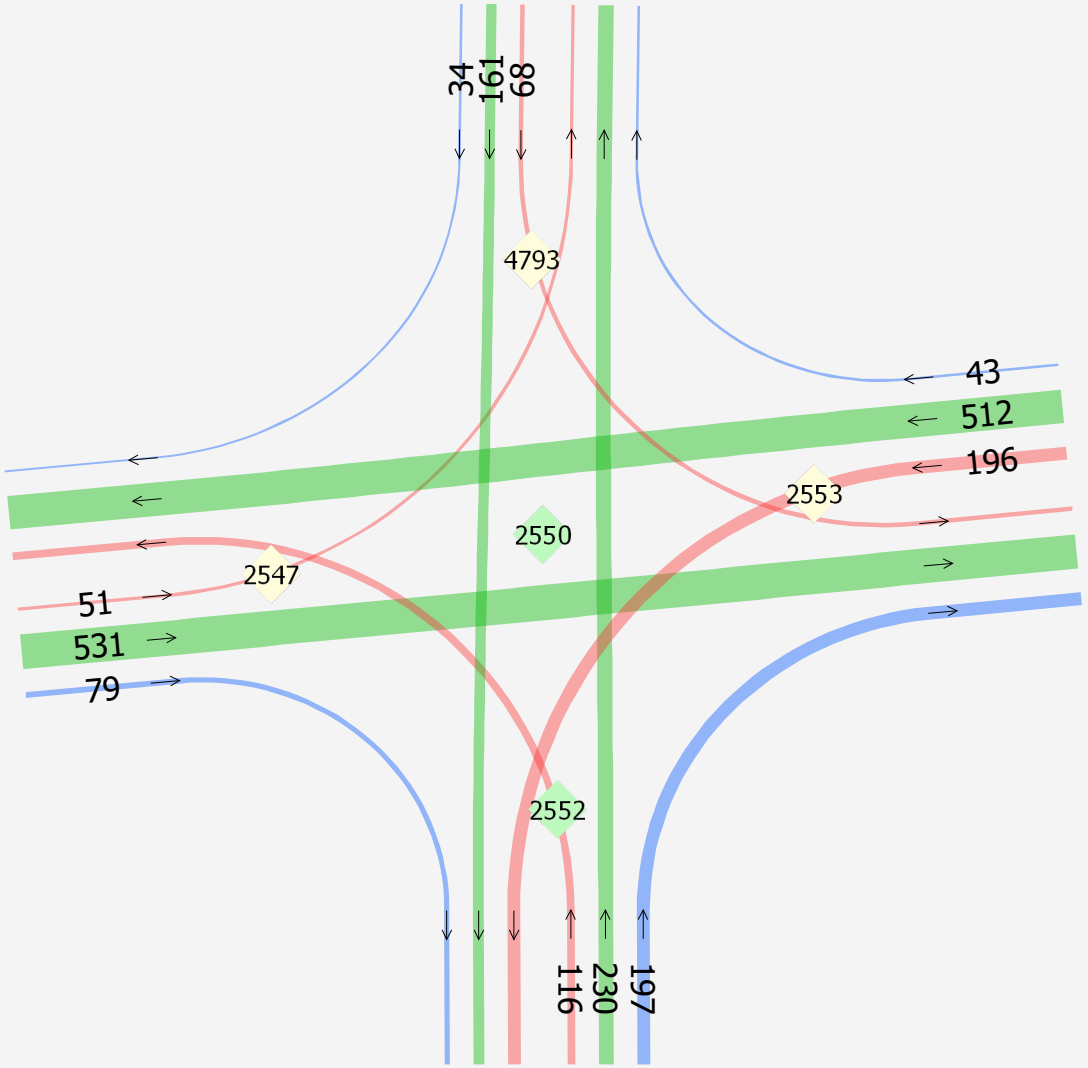
2018 PM Background Turn Volumes: Node 4777
Sleater Kinney Rd NE & South Bay Rd NE



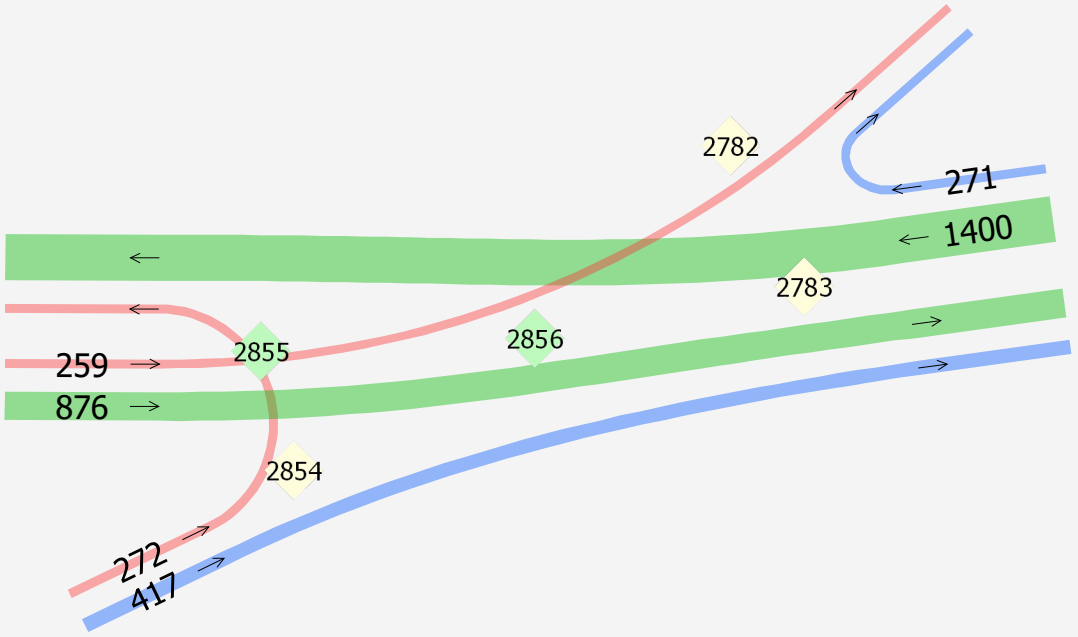
2018 PM Background Turn Volumes: Node 4788
Sleater Kinney Rd NE & 15th Ave NE



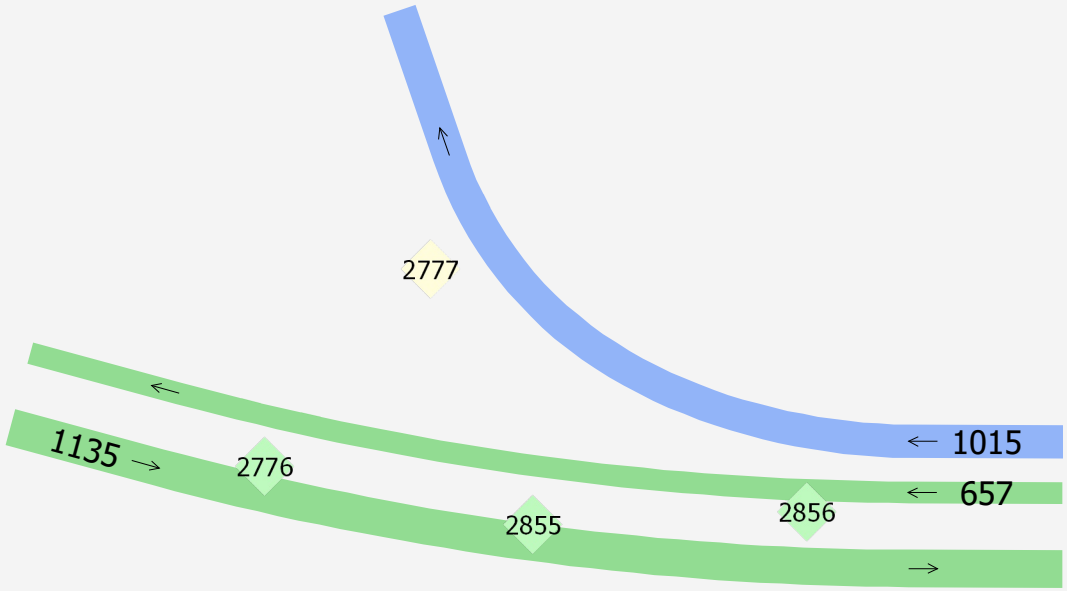
2018 PM Background Turn Volumes: Node 2550
Martin Way E & Sleater Kinney Rd



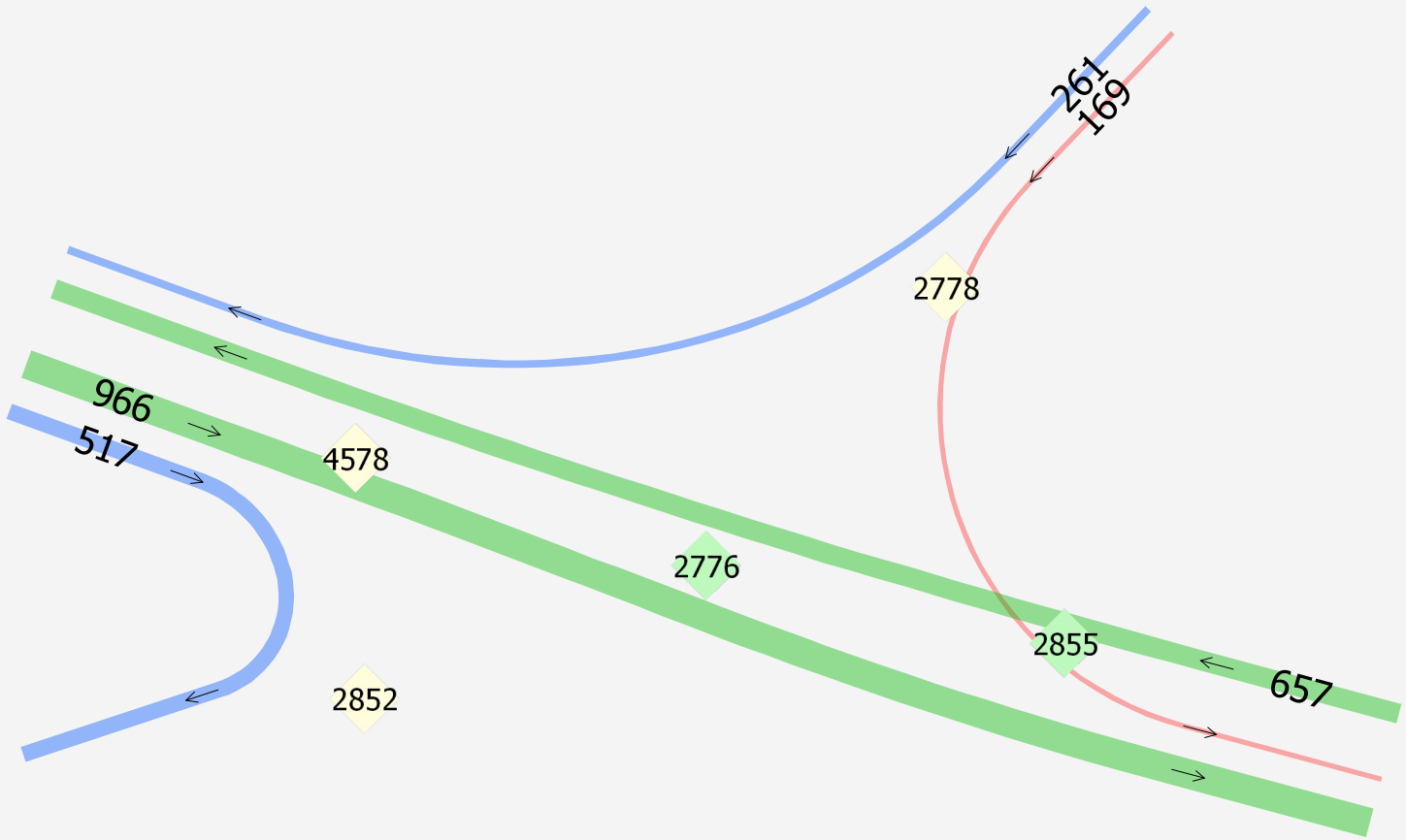
2018 PM Background Turn Volumes: Node 2856
Pacific Ave SE & I-5 NB Ramps



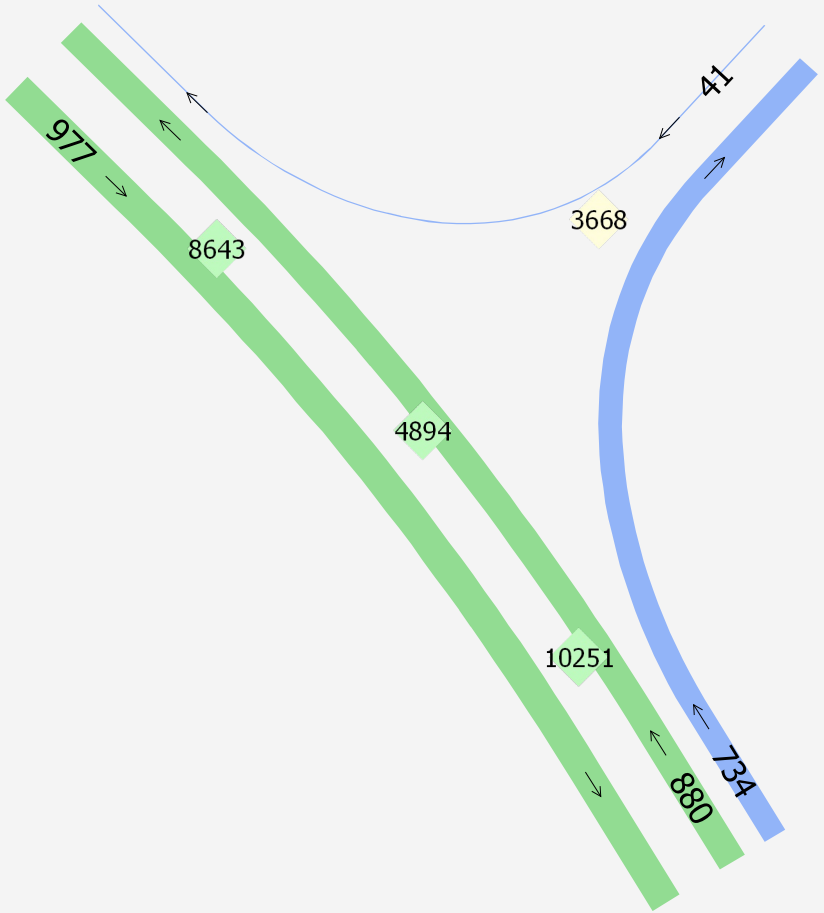
2018 PM Background Turn Volumes: Node 2855
Pacific Ave SE & I-5 SB Loop Ramp



2018 PM Background Turn Volumes: Node 2776
Pacific Ave SE & I-5 SB Ramps



2018 PM Background Turn Volumes: Node 4894
Marvin & Hogum Bay Rd NE




2018 PM Background Volume Roundabout
Marvin Road NE & 31st Ave NE
3922
780
451
3580
3280
774
455
10125
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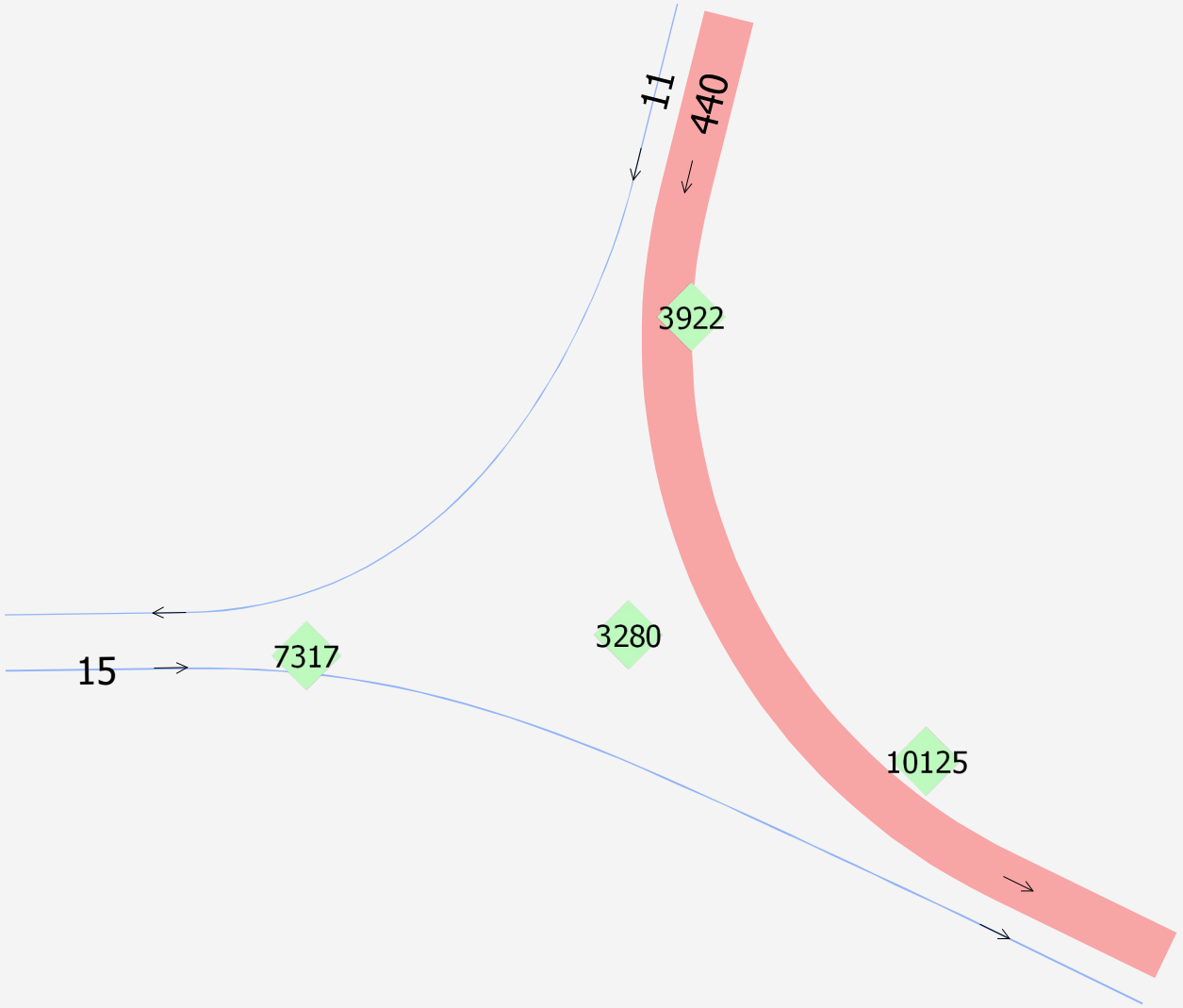
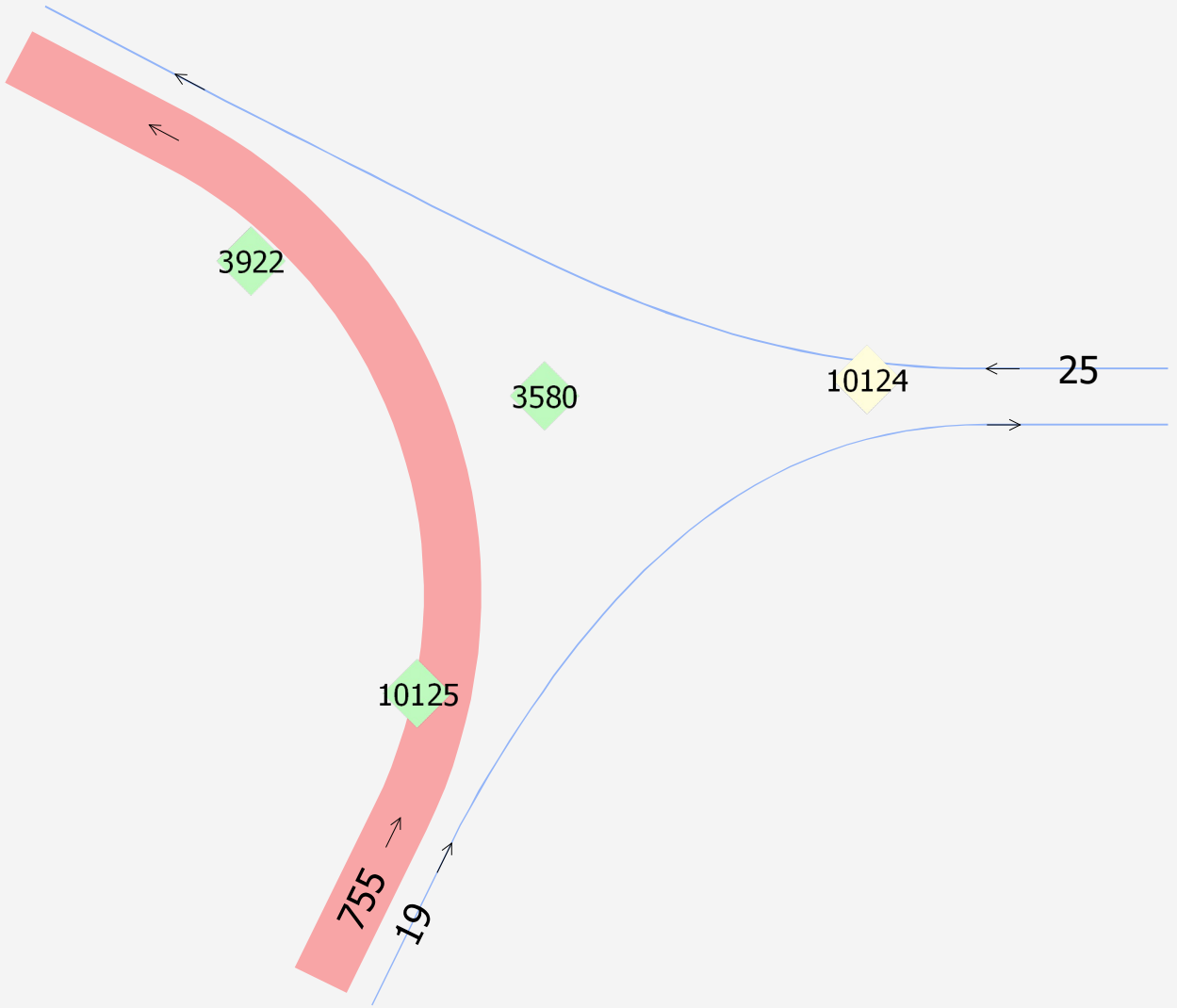
2018 PM Background Turn Volumes: Node 3280
Marvin Road NE & 31st Ave NE W-Leg

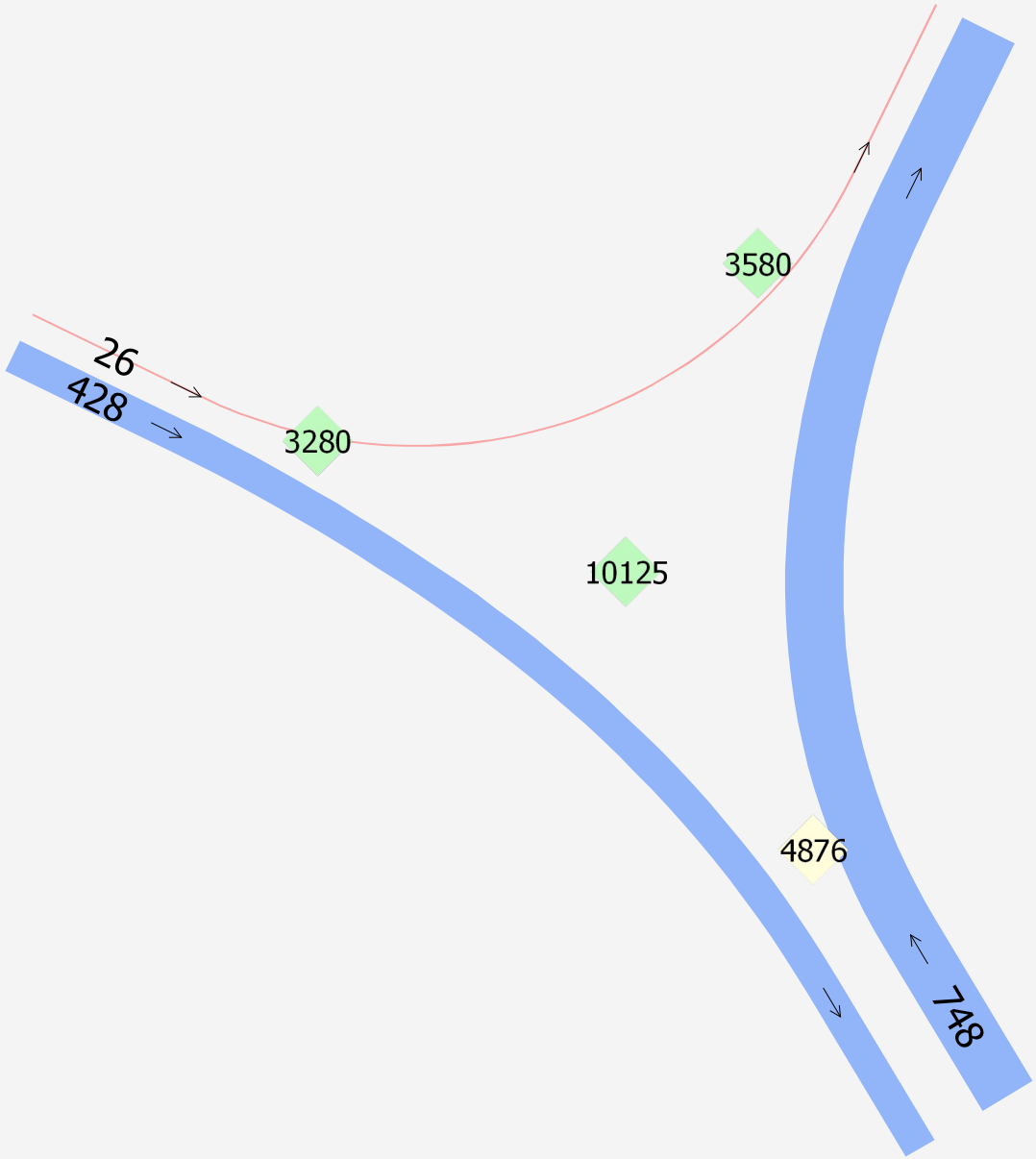


2018 PM Background Turn Volumes: Node 3580
Marvin Road NE & 31st Ave NE E-Leg



2018 PM Background Turn Volumes: Node 3922
Marvin Road NE & 31st Ave NE N-Leg

2018 PM Background Turn Volumes: Node 10125
Marvin Road NE & 31st Ave NE S-Leg



Data Sources

Mode Networks:

1) 2018 Comm. Netwk. Gateway Site
2) Committed Net 2045LU Tribe Proj. trips

Scenarios:

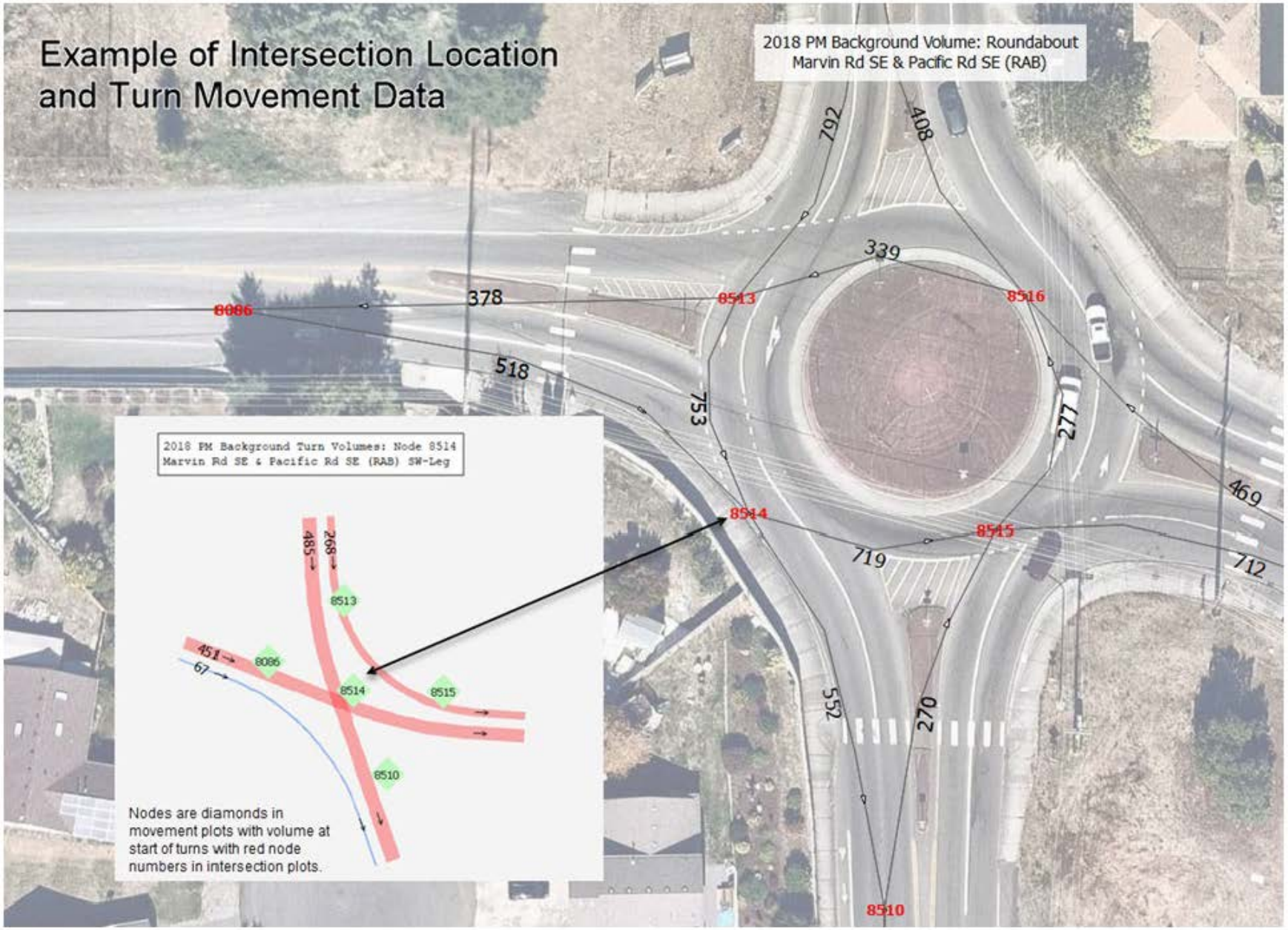
1) 81103 – 2018 PM Turns Sel_Link
2) 71113 – 2045 PM Turns
3) 81113 – 2045 PM Select Link Turns

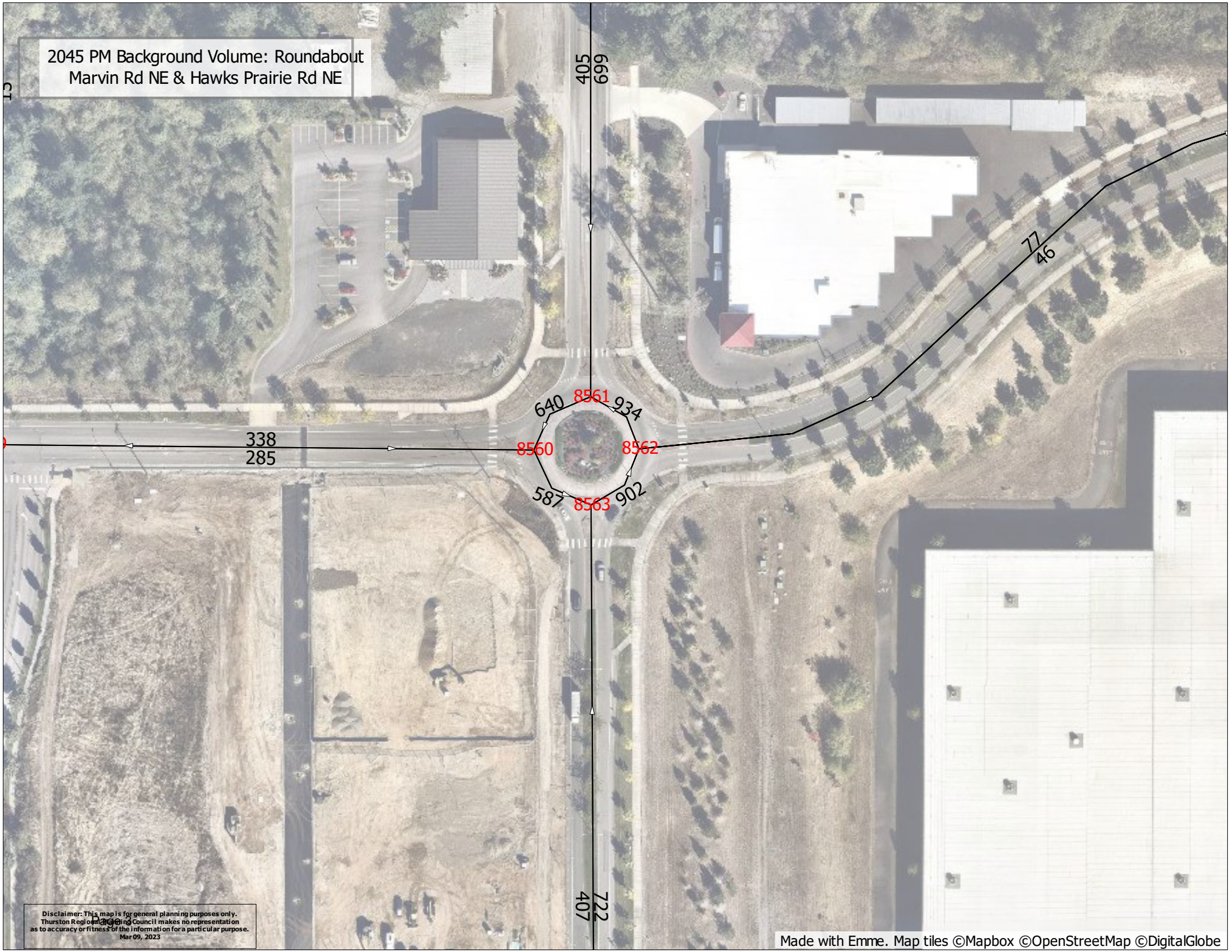
Location:
W:\Data Request\Pipeline Model Projects\Committed Network\Models\

2045 Background Volumes

Intersection Turn Movements Background Volume By Locations

Intersection/Node Location Map


Example of Intersection Location and Turn Movement Data
2018 PM Background Volume: Roundabout
Marvin Rd SE & Pacific Rd SE (RAB)
792
408
339
8086
378
8513
8516
518
753
277
469
8514
8515
719
712
552
270
8510
2018 PM Background Turn Volumes: Node 8514
Marvin Rd SE & Pacific Rd SE (RAB) SW-Leg
485
268
8513
451
67
8086
8514
8515
8510
Nodes are diamonds in movement plots with volume at start of turns with red node numbers in intersection plots.


2045 PM Background Volume: Roundabout
Marvin Rd NE & Hawks Prairie Rd NE
405
699
77
46
640
8561
934
338
285
8560
8562
587
8563
902
722
407
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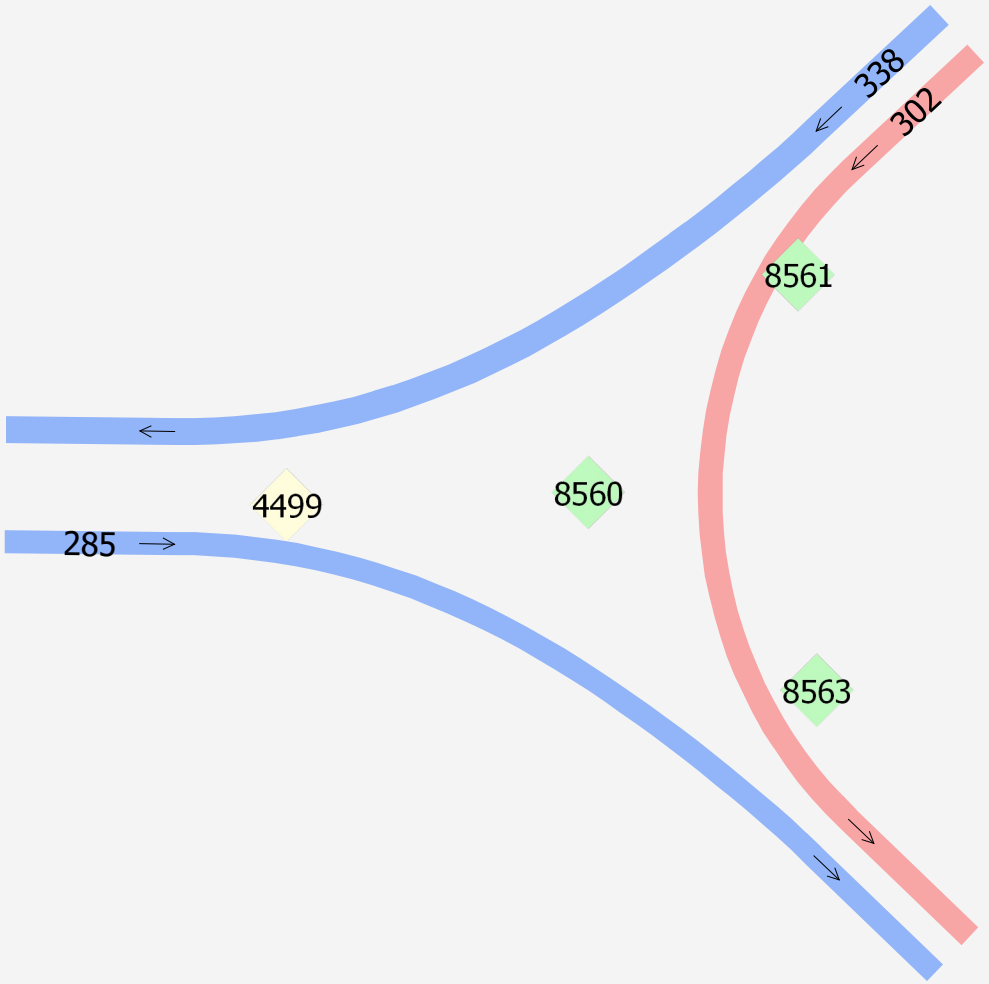
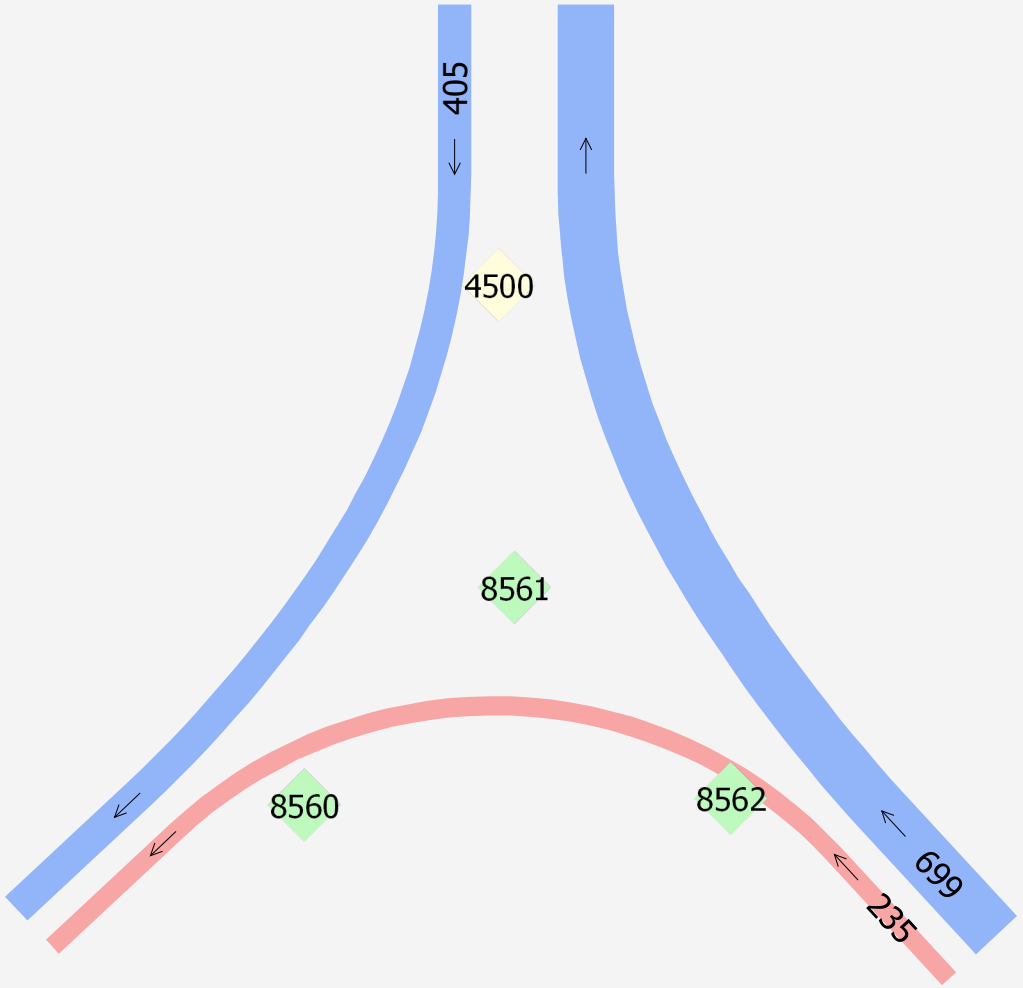
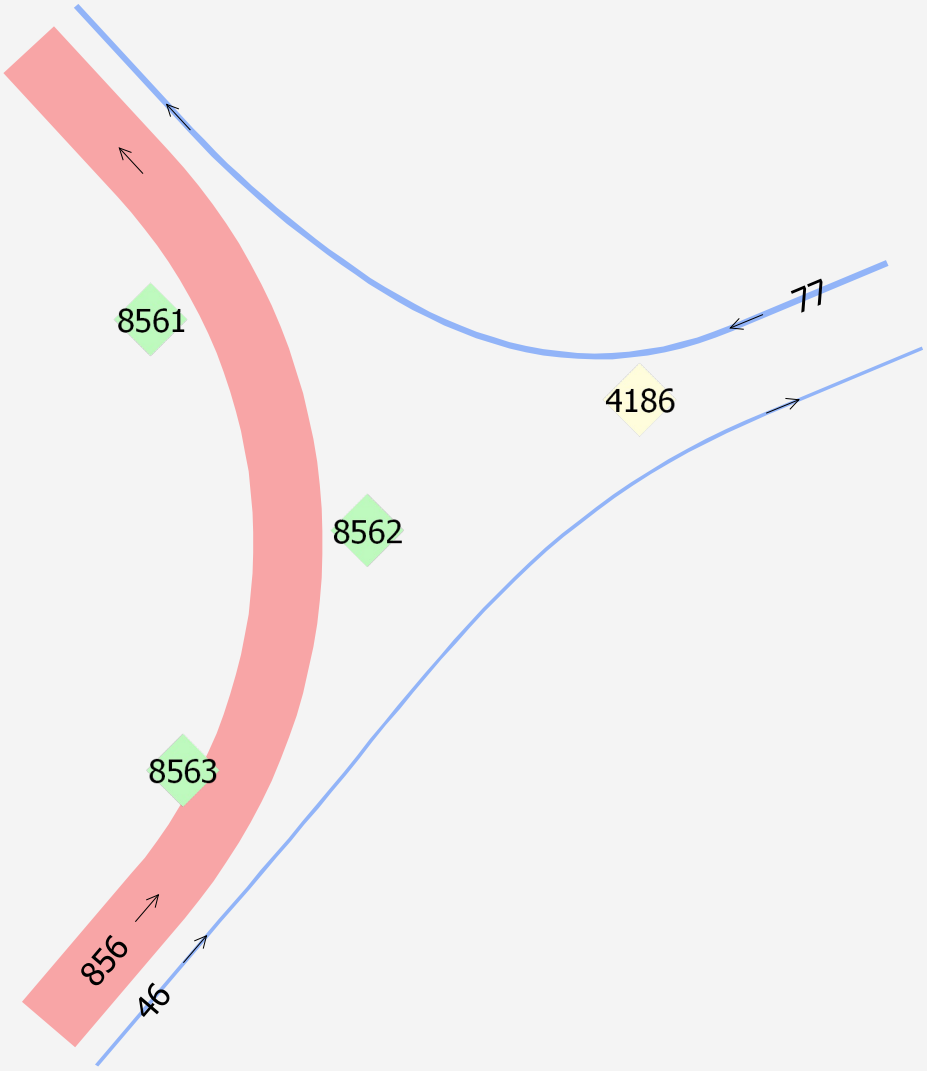
2045 PM Background Turn Volumes: Node 8560
Marvin Rd NE & Hawks Prairie Rd N W-Leg



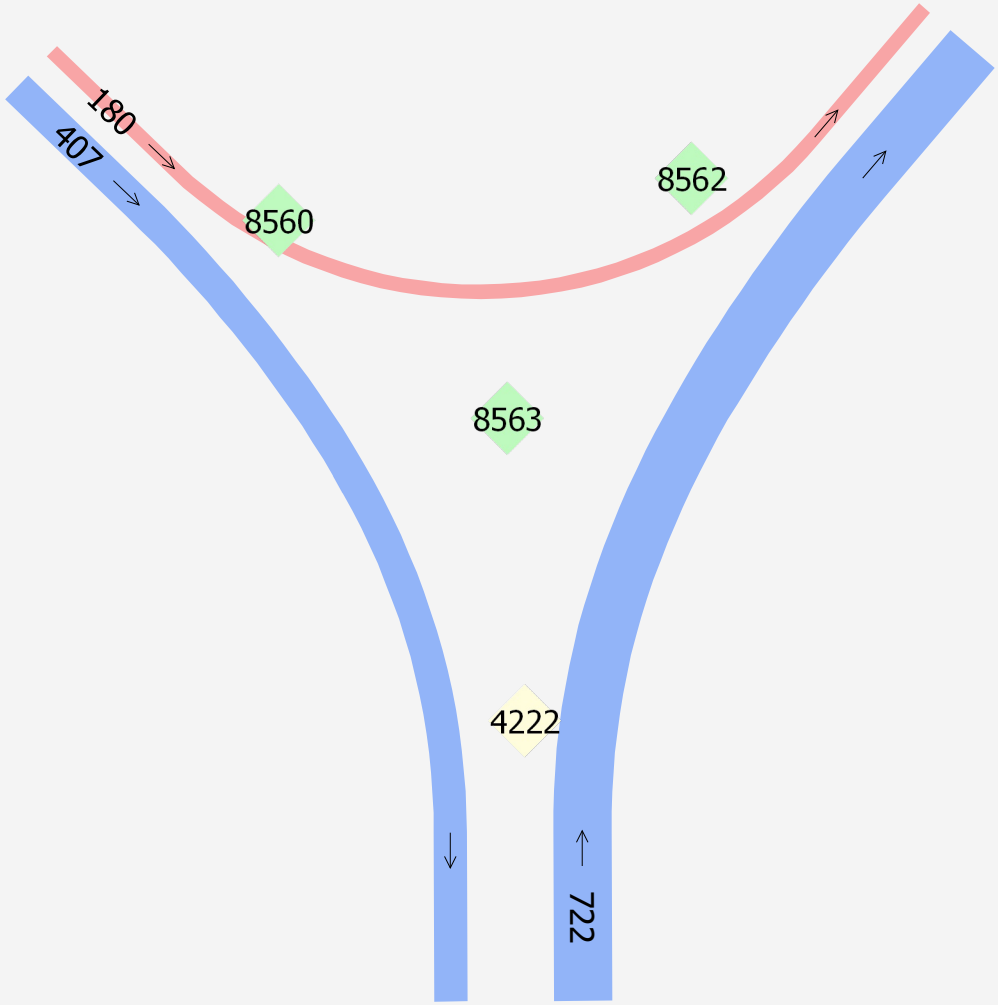
2045 PM Background Turn Volumes: Node 8561
Marvin Rd NE & Hawks Prairie Rd N N-Leg

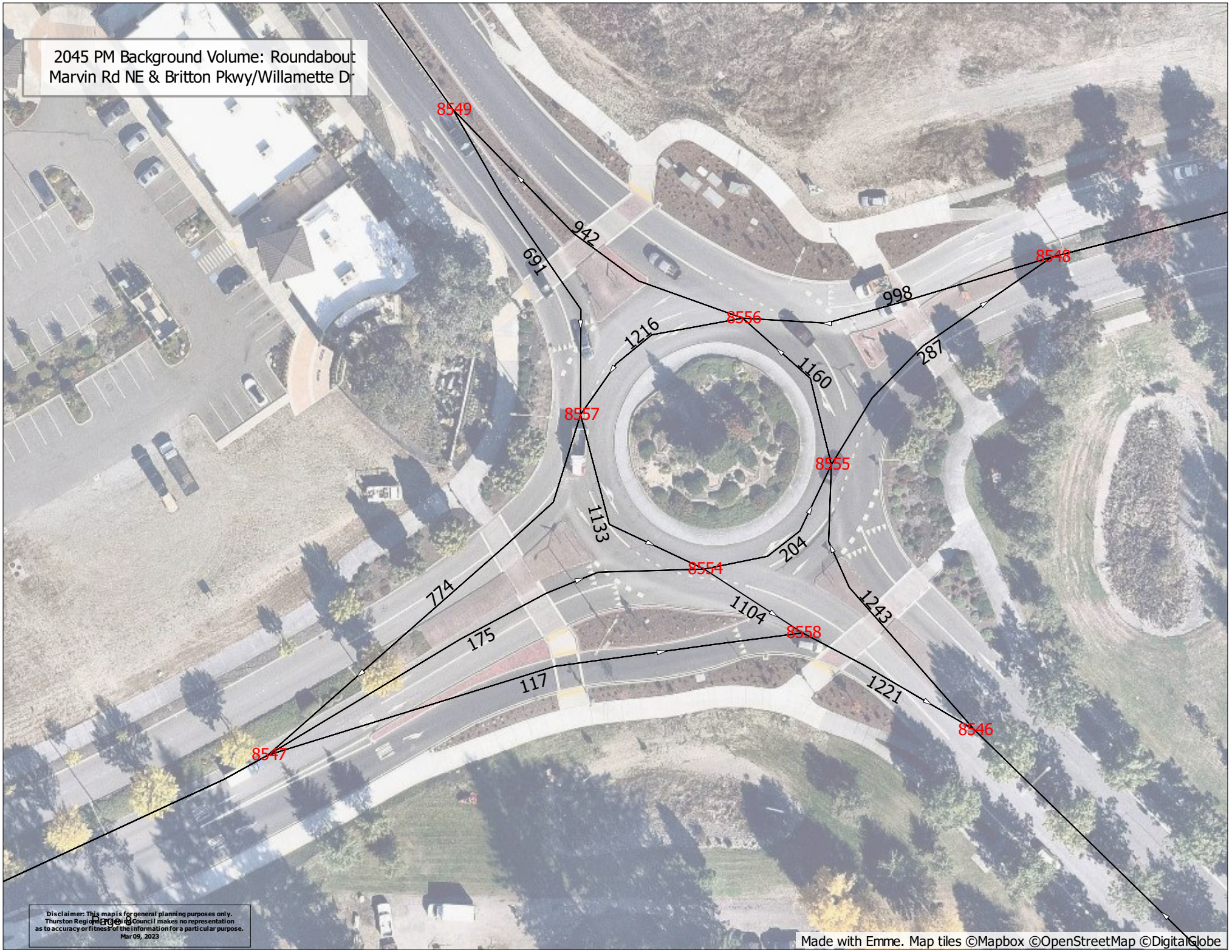


2045 PM Background Turn Volumes: Node 8562
Marvin Rd NE & Hawks Prairie Rd N E-Leg



2045 PM Background Turn Volumes: Node 8563
Marvin Rd NE & Hawks Prairie Rd N S-Leg




2045 PM Background Volume: Roundabout
Marvin Rd NE & Britton Pkwy/Willamette Dr
8549
942
691
8548
998
8556
1216
1160
287
8557
8555
1133
204
8554
774
1104
1243
175
8558
117
1221
8546
8547
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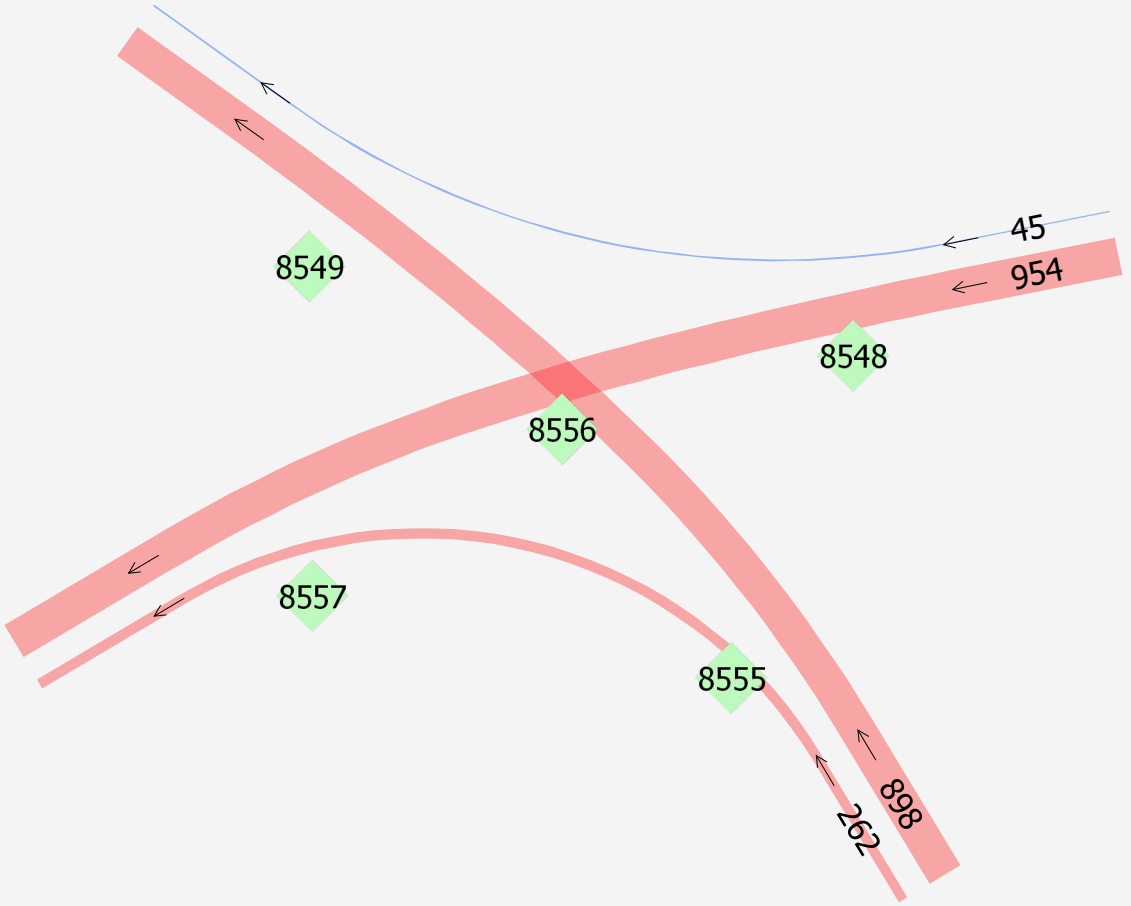
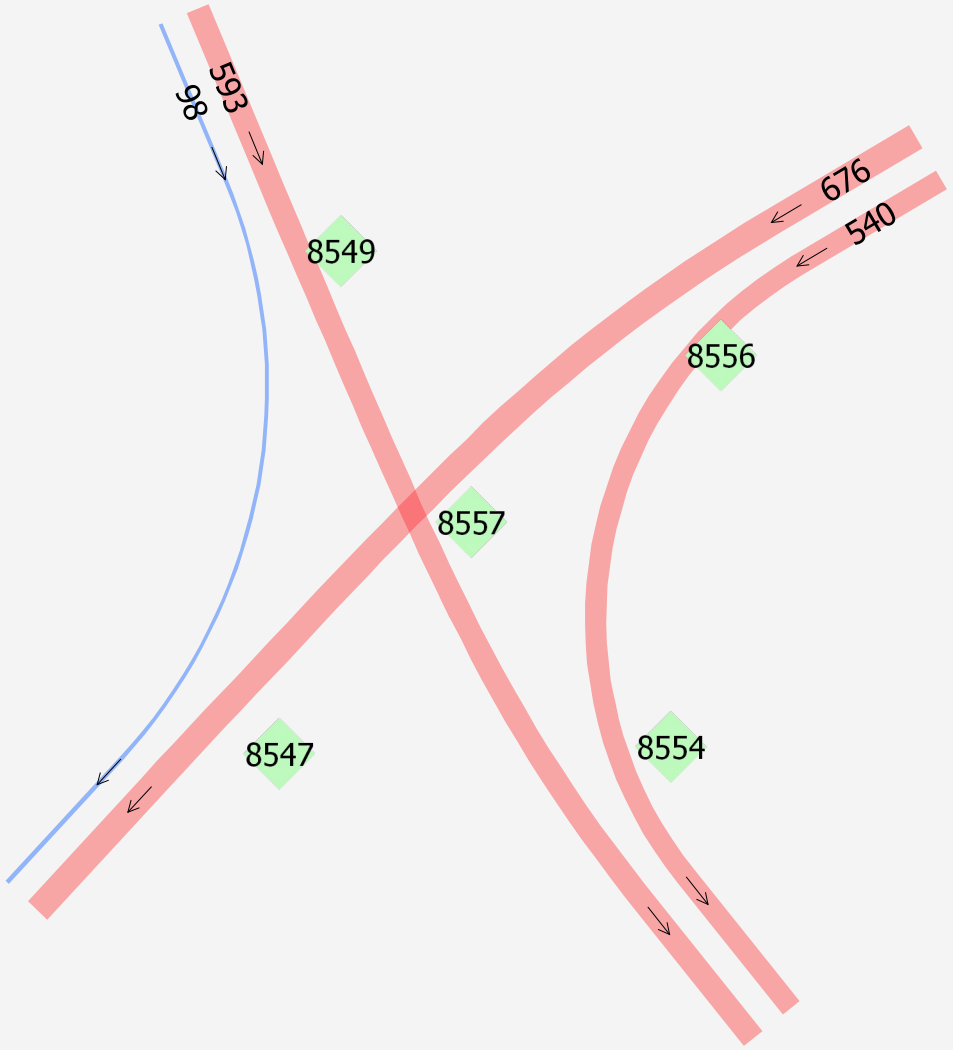
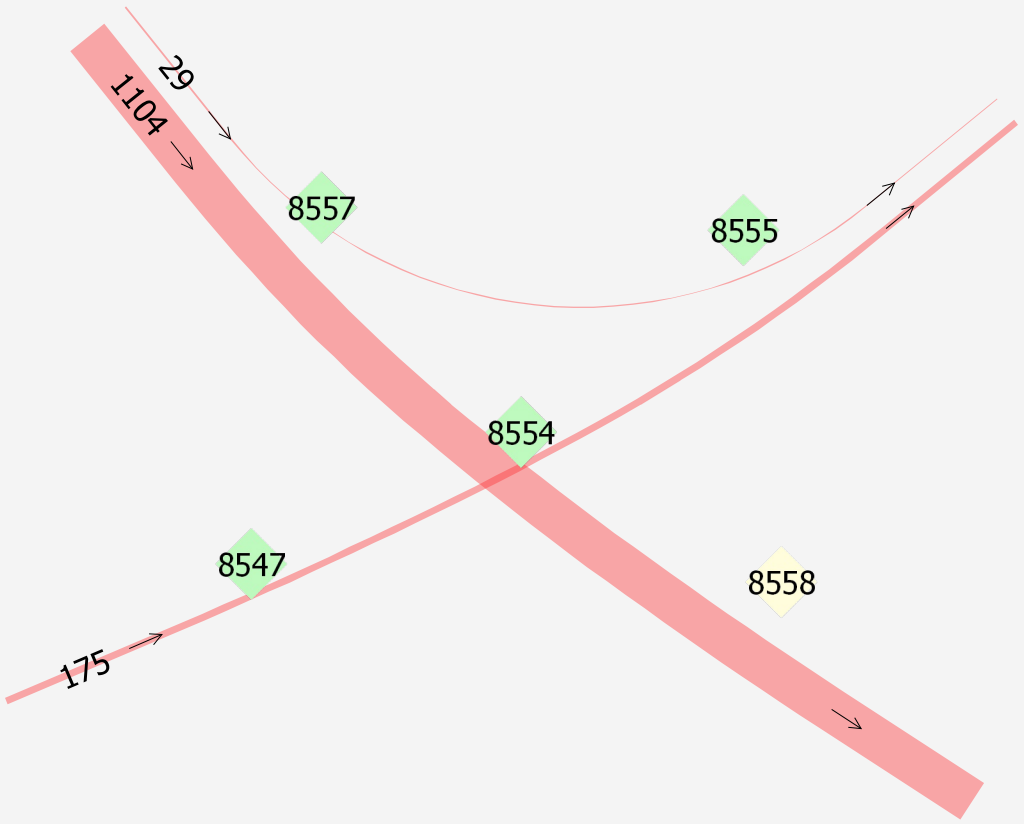
2045 PM Background Turn Volumes: Node 8556
Marvin Rd NE & Britton Pkwy/Willamette Dr NE-Leg



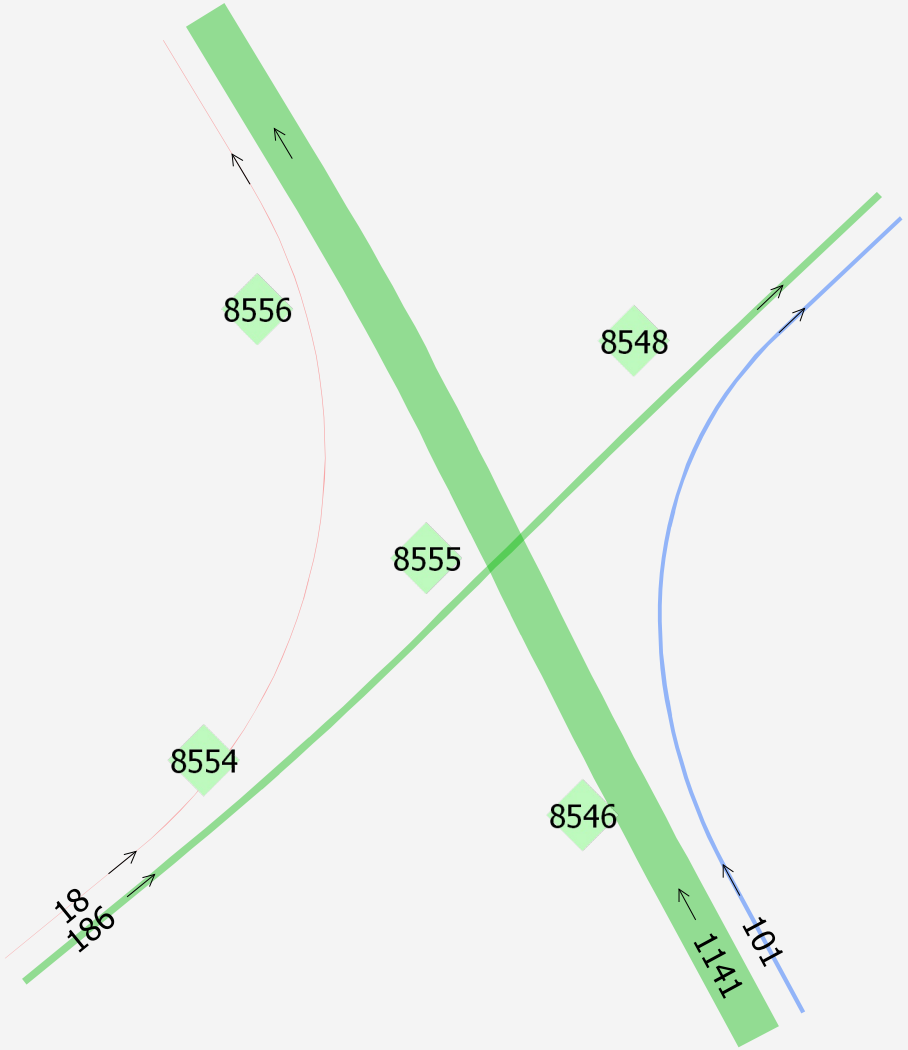
2045 PM Background Turn Volumes: Node 8557
Marvin Rd NE & Britton Pkwy/Willamette Dr NW-Leg



2045 PM Background Turn Volumes: Node 8554
Marvin Rd NE & Britton Pkwy/Willamette Dr SW-Leg



2045 PM Background Turn Volumes: Node 8555
Marvin Rd NE & Britton Pkwy/Willamette Dr SE-Leg




2045 PM Background Volume: Roundabout
Marvin Rd NE & Main St NE
1243
1221
565
8545
1243
1221
8550
167
1410
8551
8553
1297
8552
91
1410
1297
2
8544
8643
91
2
1410
1298
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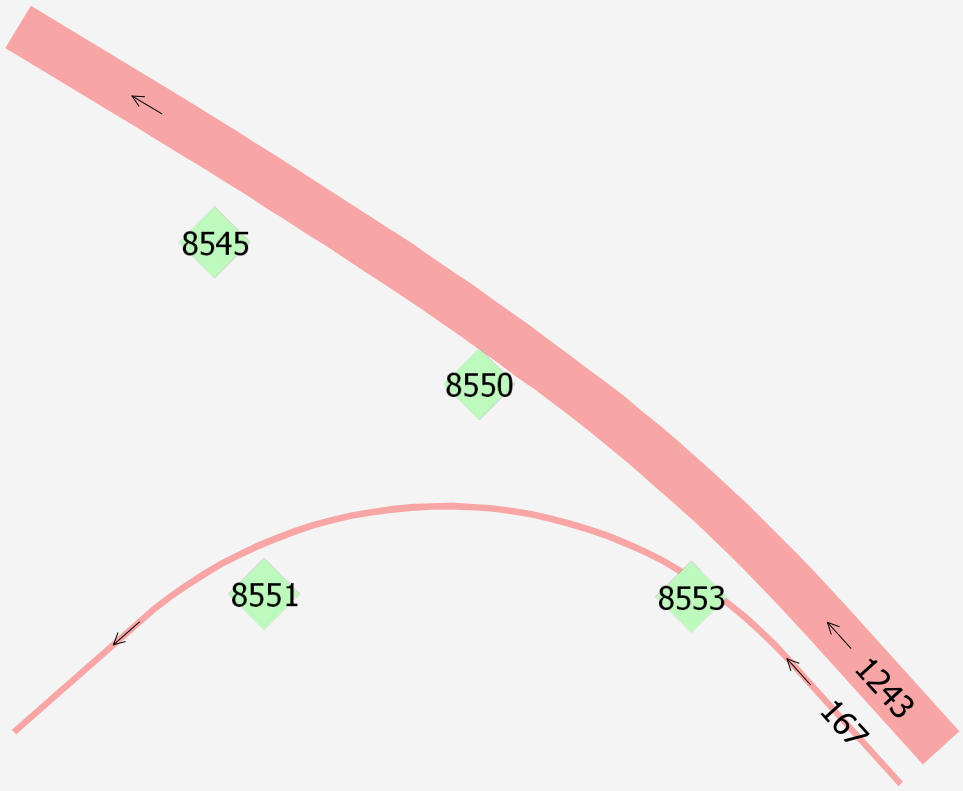
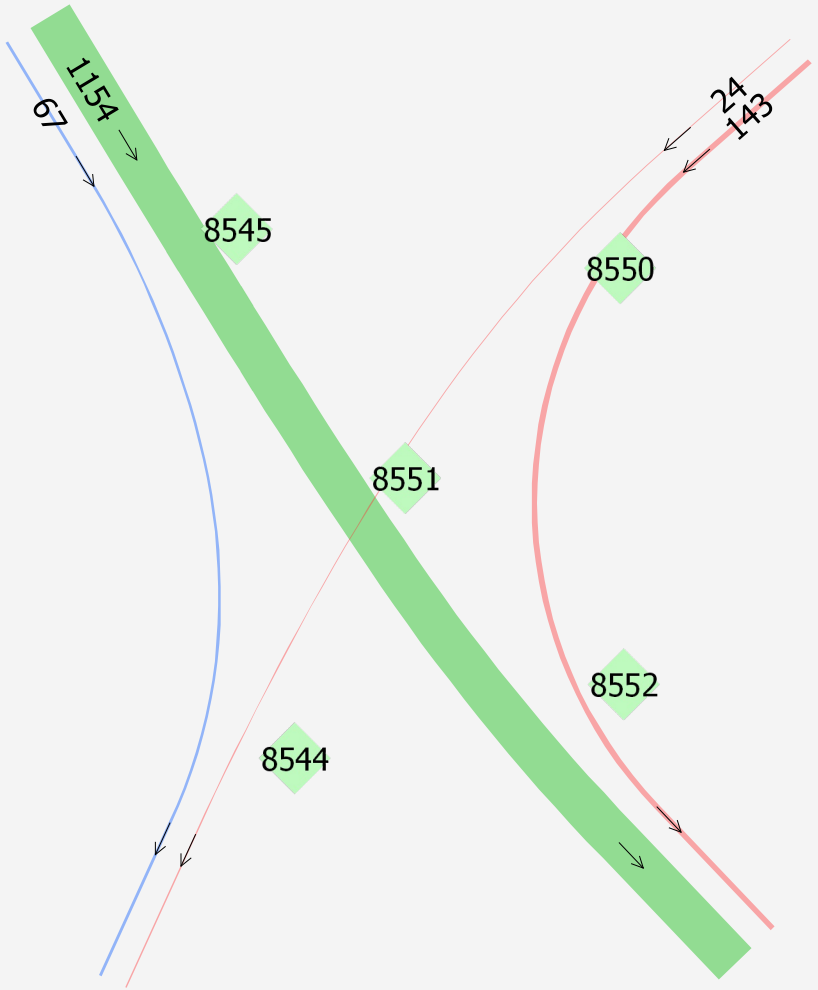
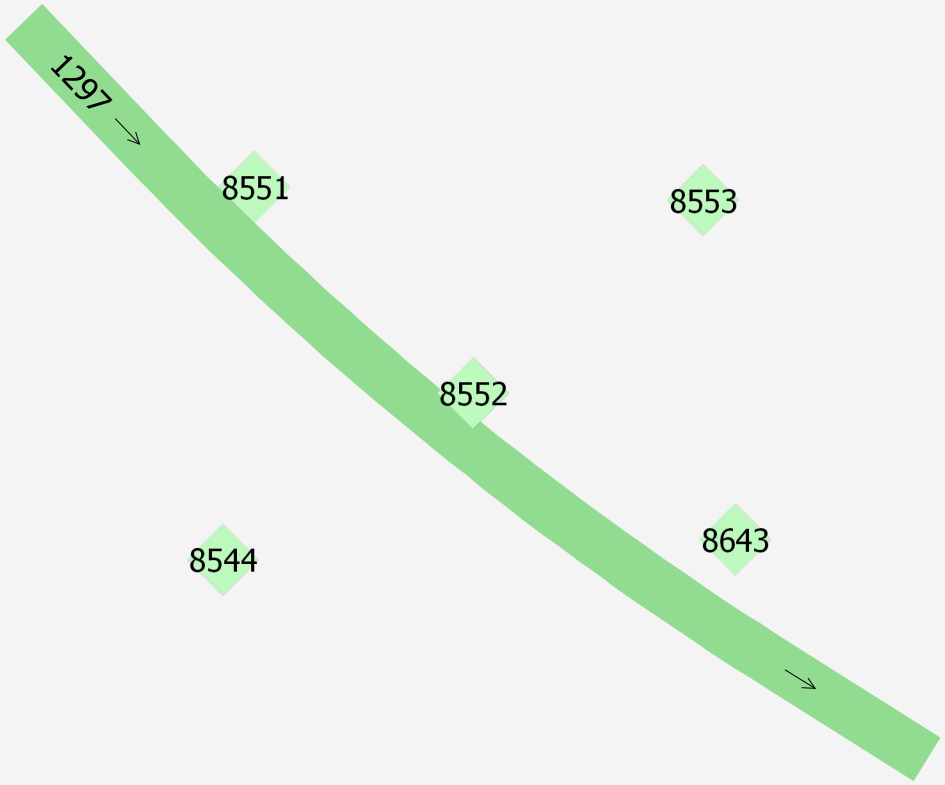
2045 PM Background Turn Volumes: Node 8550
Marvin Rd NE & Main St NE NE-Leg



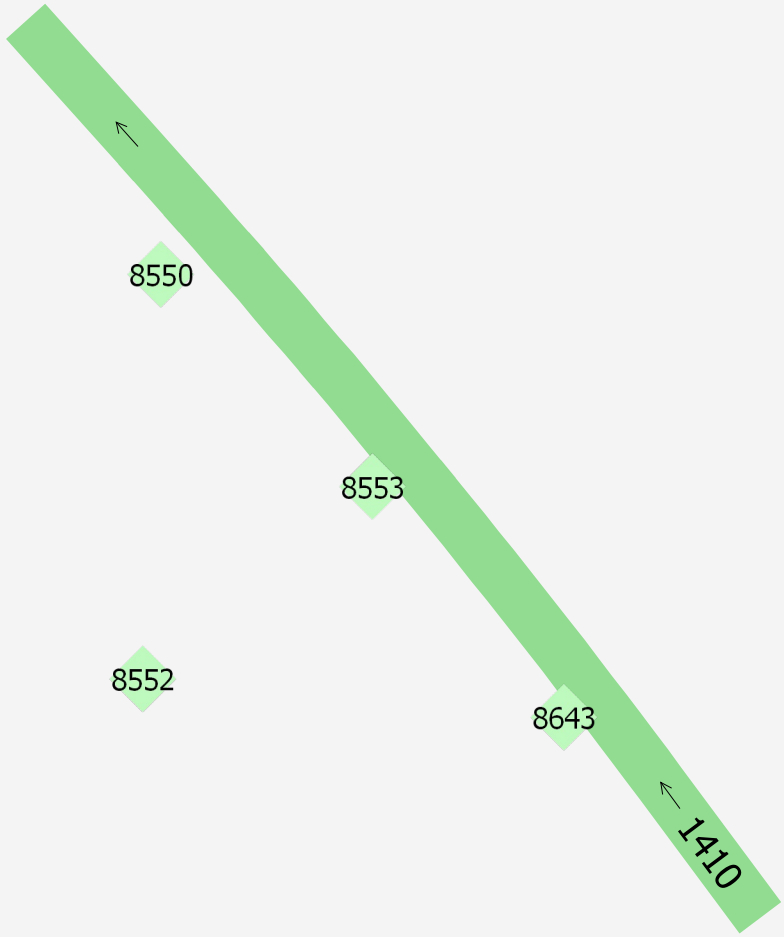
2045 PM Background Turn Volumes: Node 8551
Marvin Rd NE & Main St NE NW-Leg

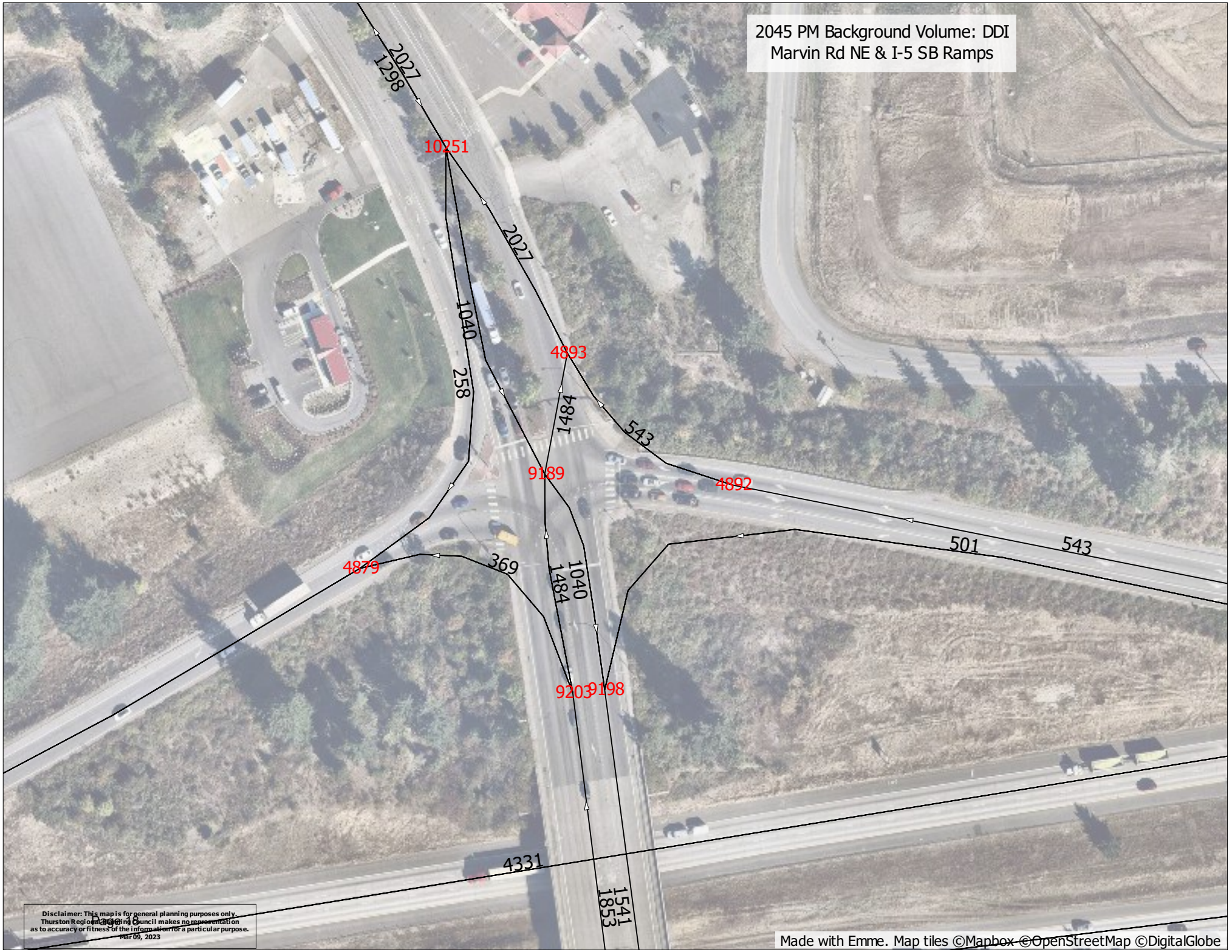


2045 PM Background Turn Volumes: Node 8552
Marvin Rd NE & Main St NE SW-Leg



2045 PM Background Turn Volumes: Node 8553
Marvin Rd NE & Main St NE SE-Leg




2045 PM Background Volume: DDI
Marvin Rd NE & I-5 SB Ramps
2027
1298
10251
2027
1040
258
4893
1484
543
9189
4892
501
543
4879
369
1040
1484
9203
9198
4331
1541
1853
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2045 PM Background Turn Volumes: Node 9189
Marvin Rd NE & I-5 SB Ramps (DDI)


2045 PM Background Volume: DDI
Marvin Rd NE & I-5 NB Ramps
4331
1541
1853
9199
9200
1209
1109
9190
341
9204
690
273
1021
269
4891
1163
1472
9027
1855
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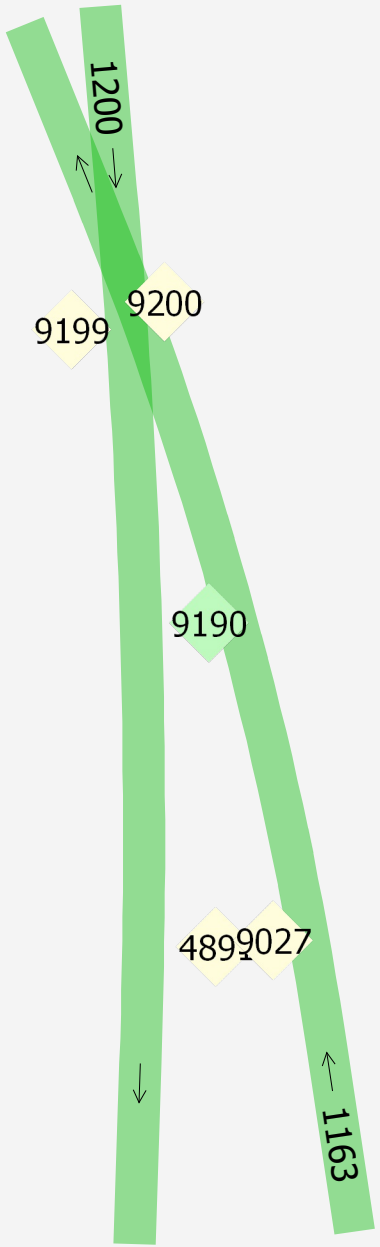
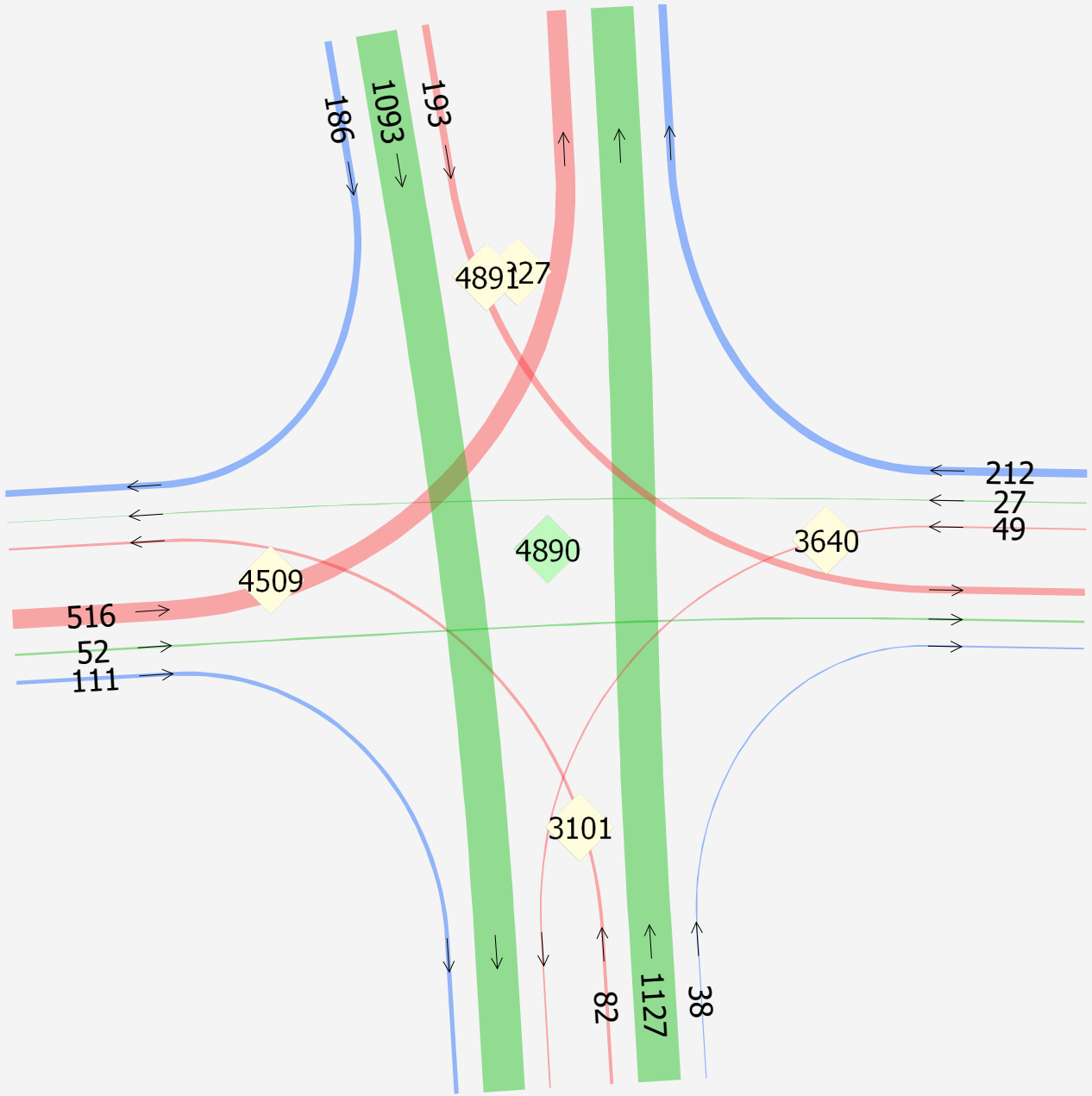
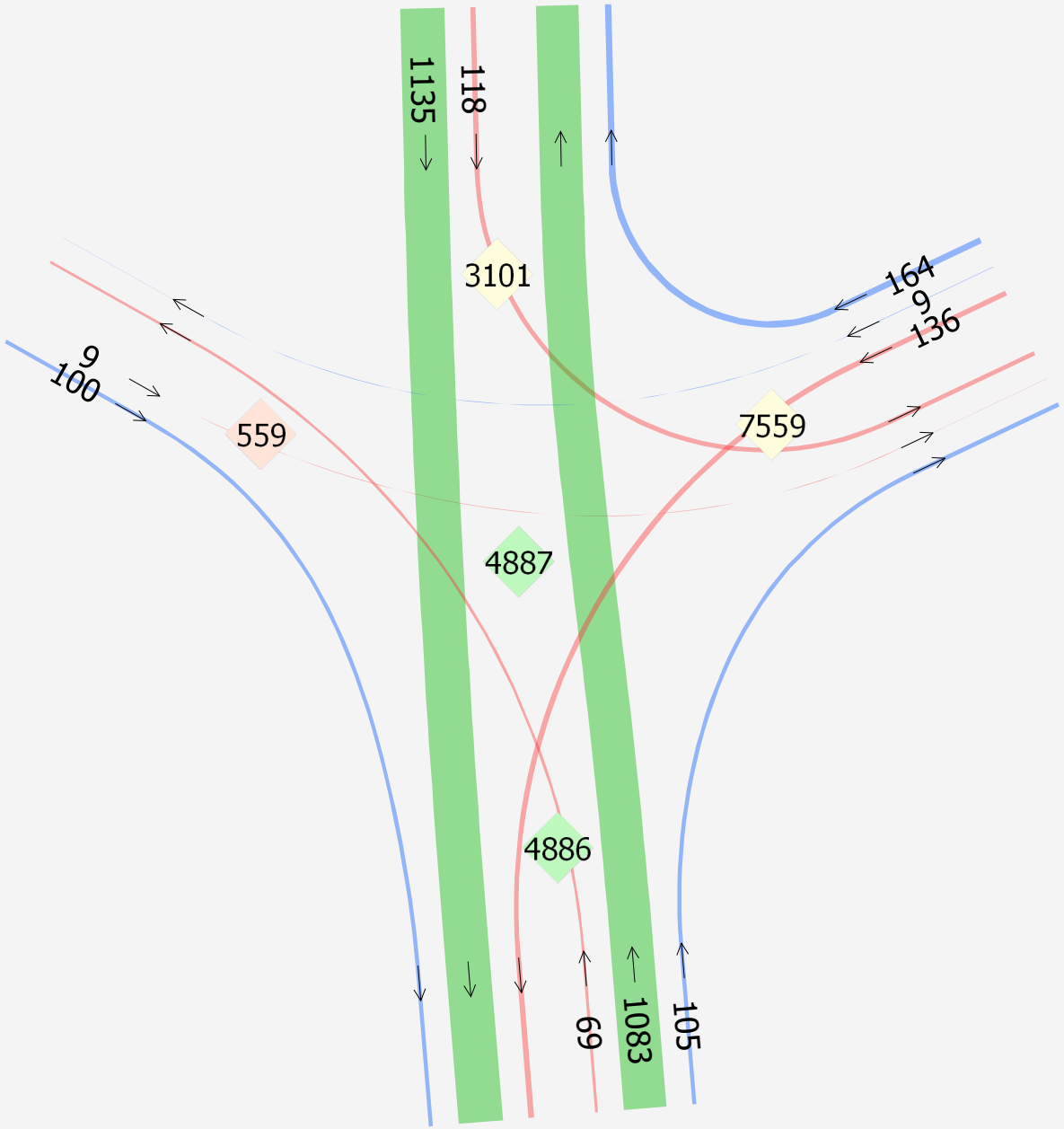
2045 PM Background Turn Volumes: Node 9190
Marvin Rd NE & I-5 NB Ramps (DDI)



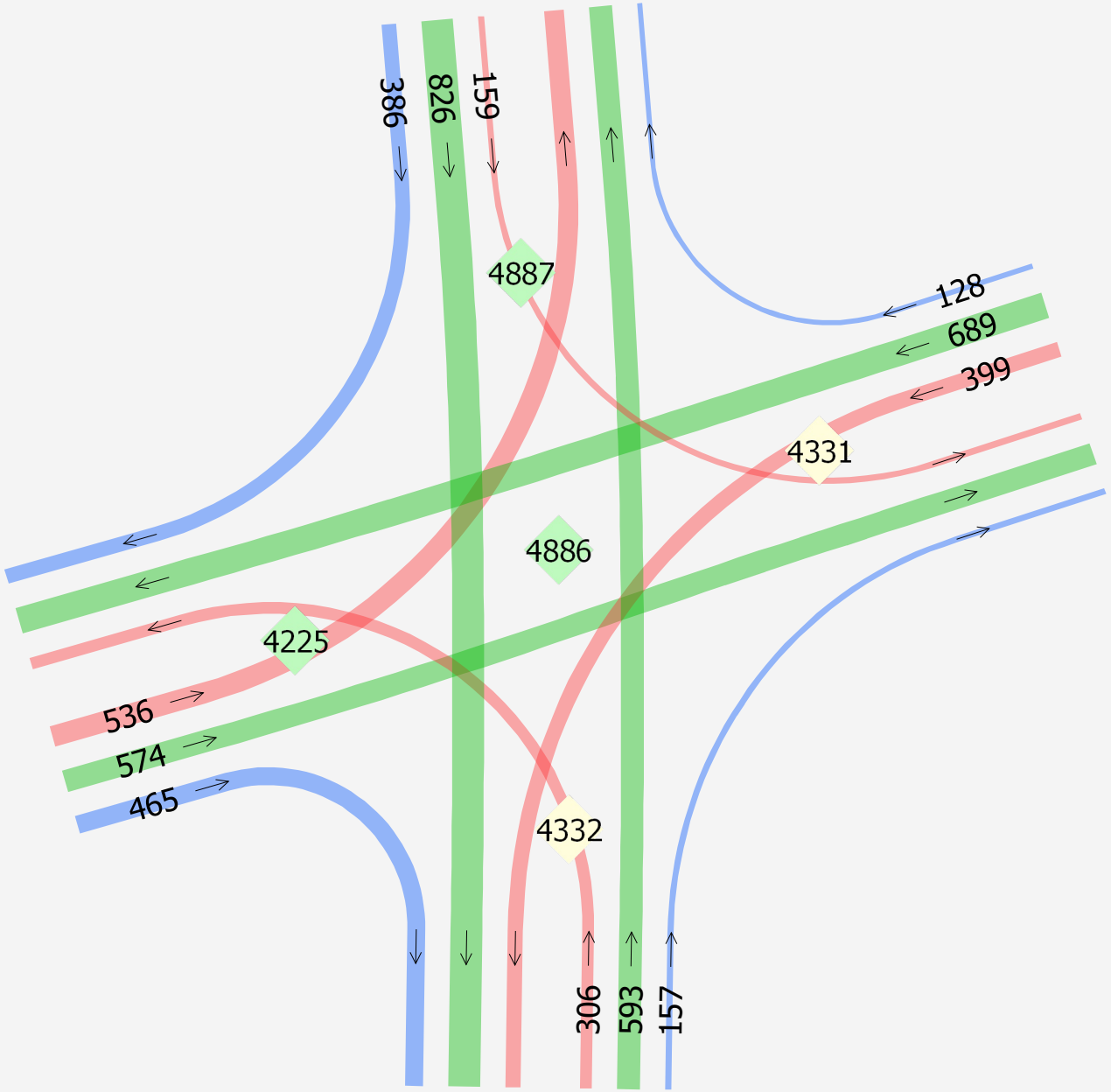
2045 PM Background Turn Volumes: Node 4890
Marvin Rd NE @ Quinault Dr NE



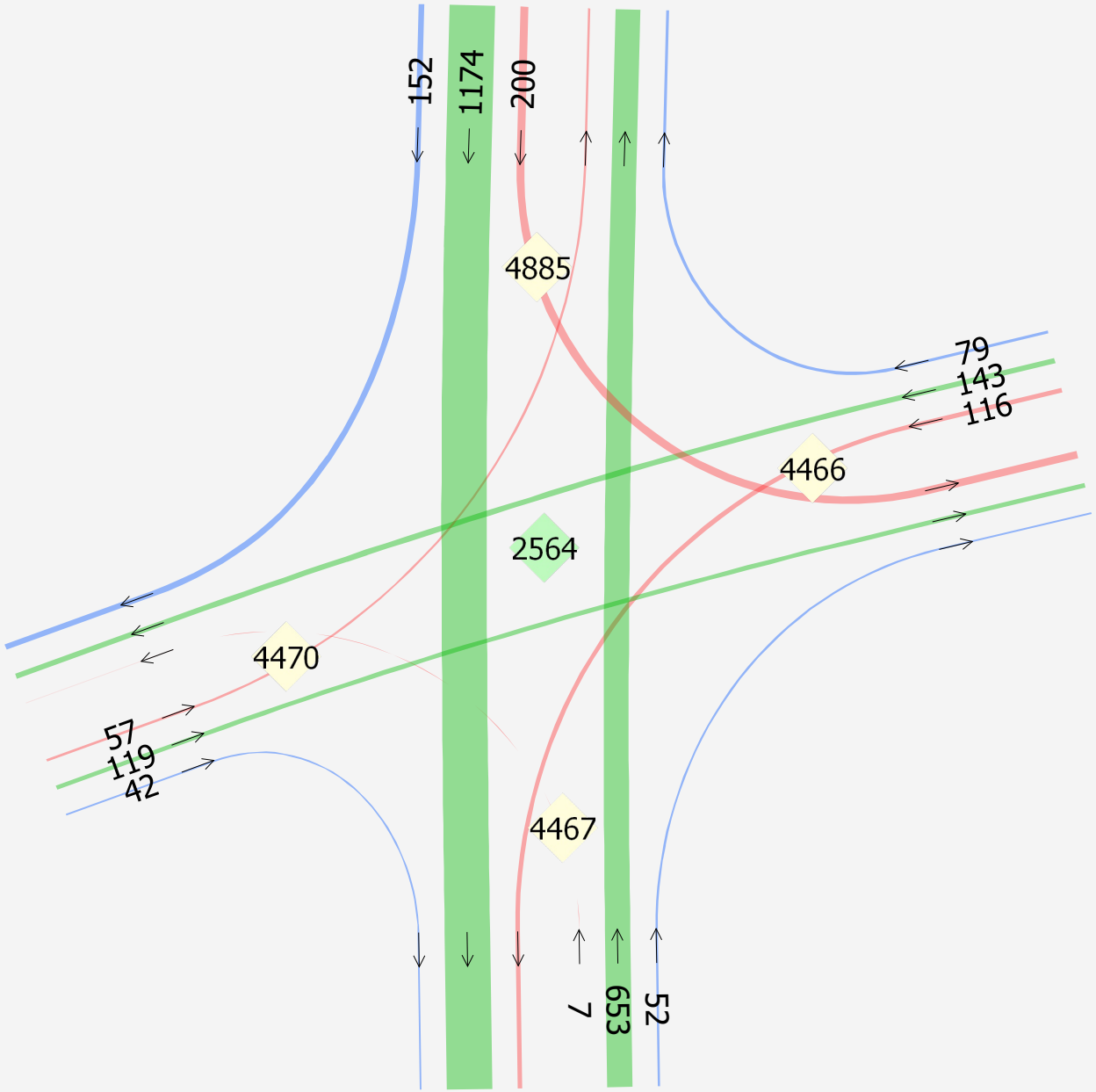
2045 PM Background Turn Volumes: Node 4887
Marvin Rd NE & Lacey Marketplace

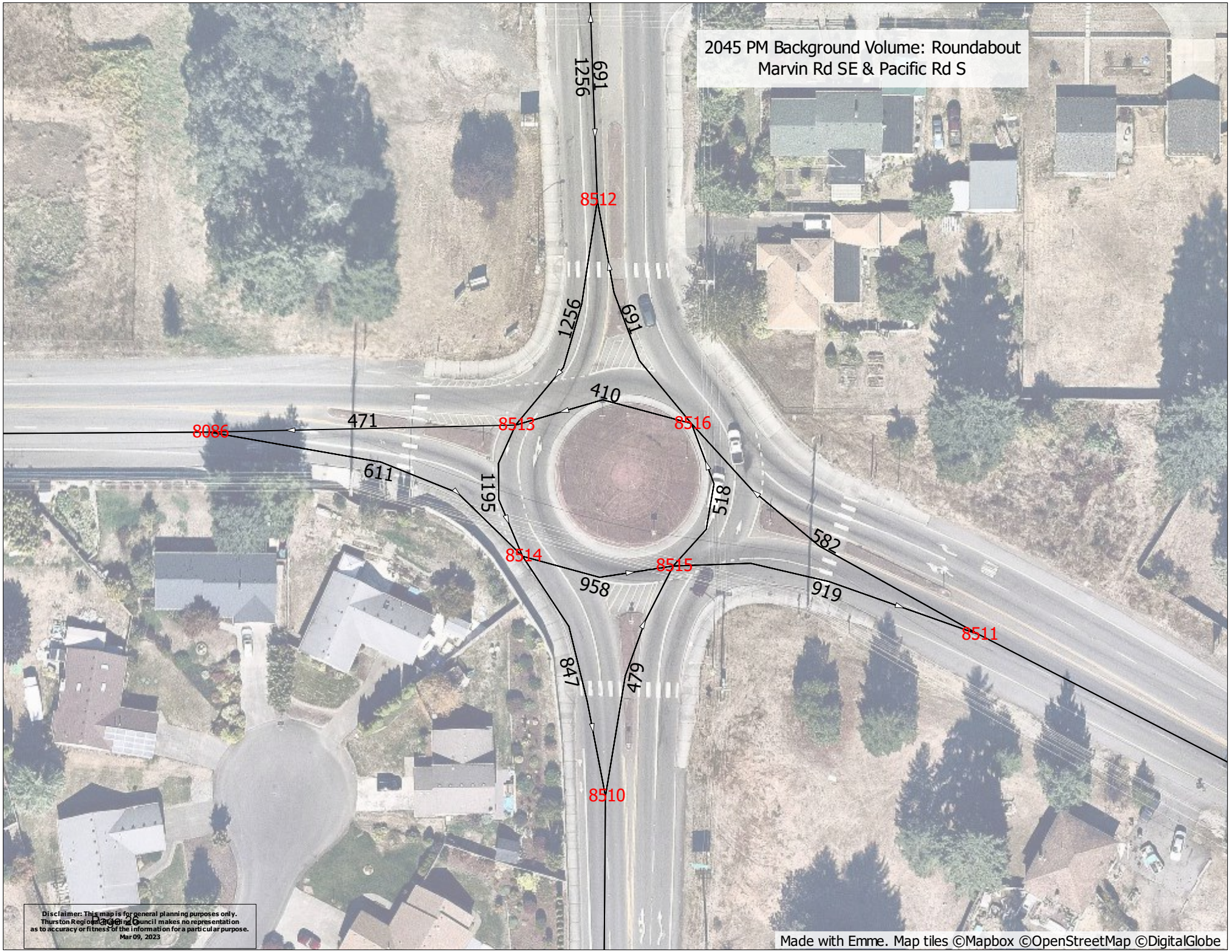


2045 PM Background Turn Volumes: Node 4886
Marvin Rd & Martin Way E



2045 PM Background Turn Volumes: Node 2564
Marvin Rd SE & Steilacoom Rd SE




2045 PM Background Volume: Roundabout
Marvin Rd SE & Pacific Rd S
1256
691
8512
1256
691
410
471
8513
8516
8086
611
1195
518
582
8514
8515
958
919
8511
847
479
8510
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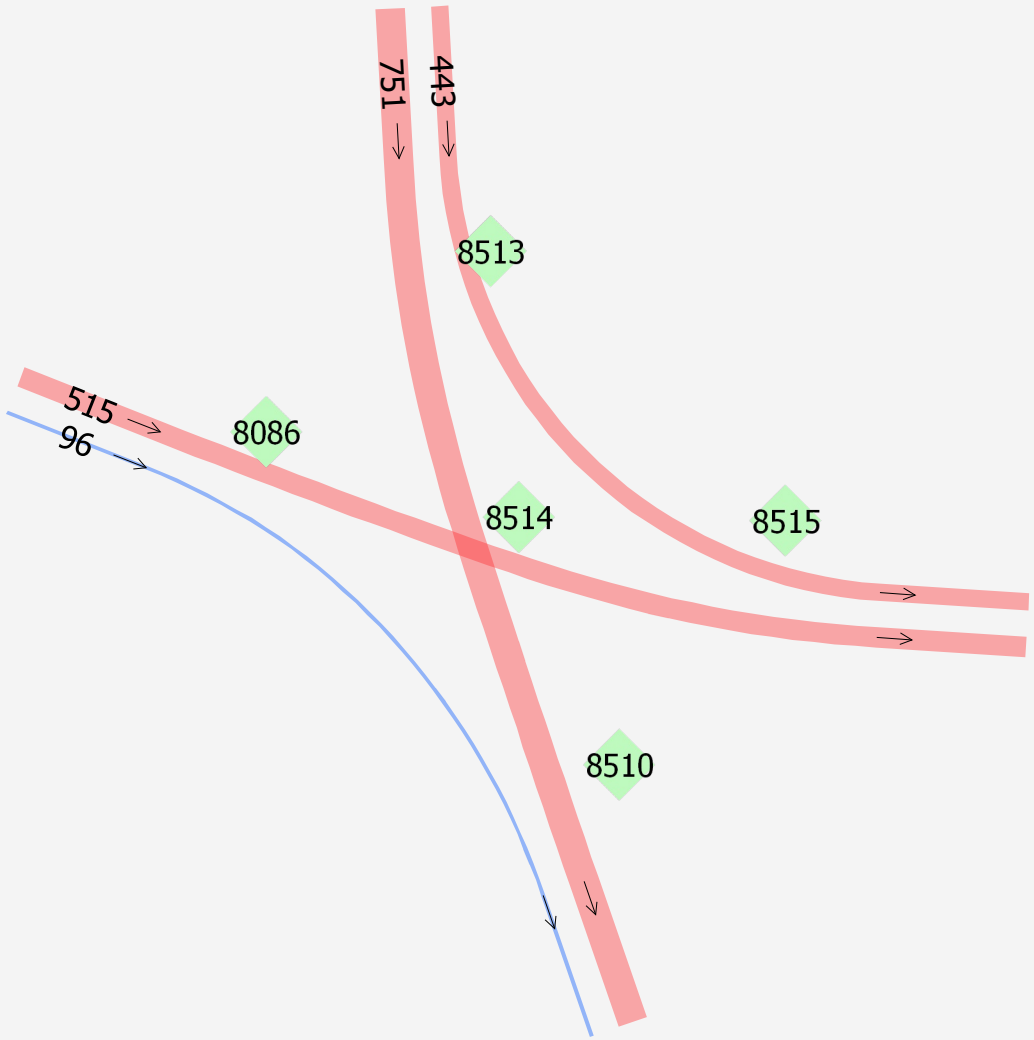
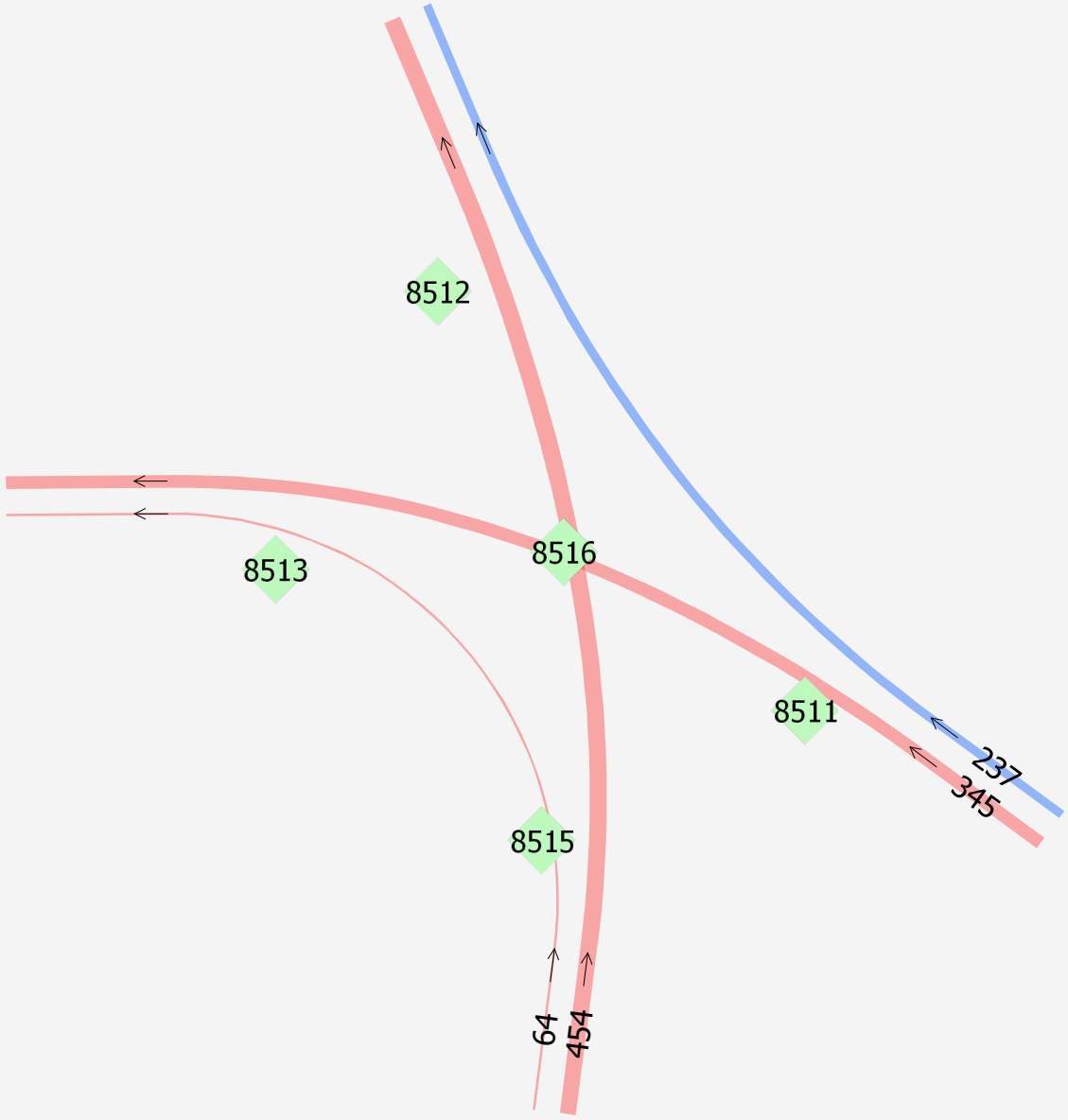
2045 PM Background Turn Volumes: Node 8513
Marvin Rd SE & Pacific Rd SE NW-Leg

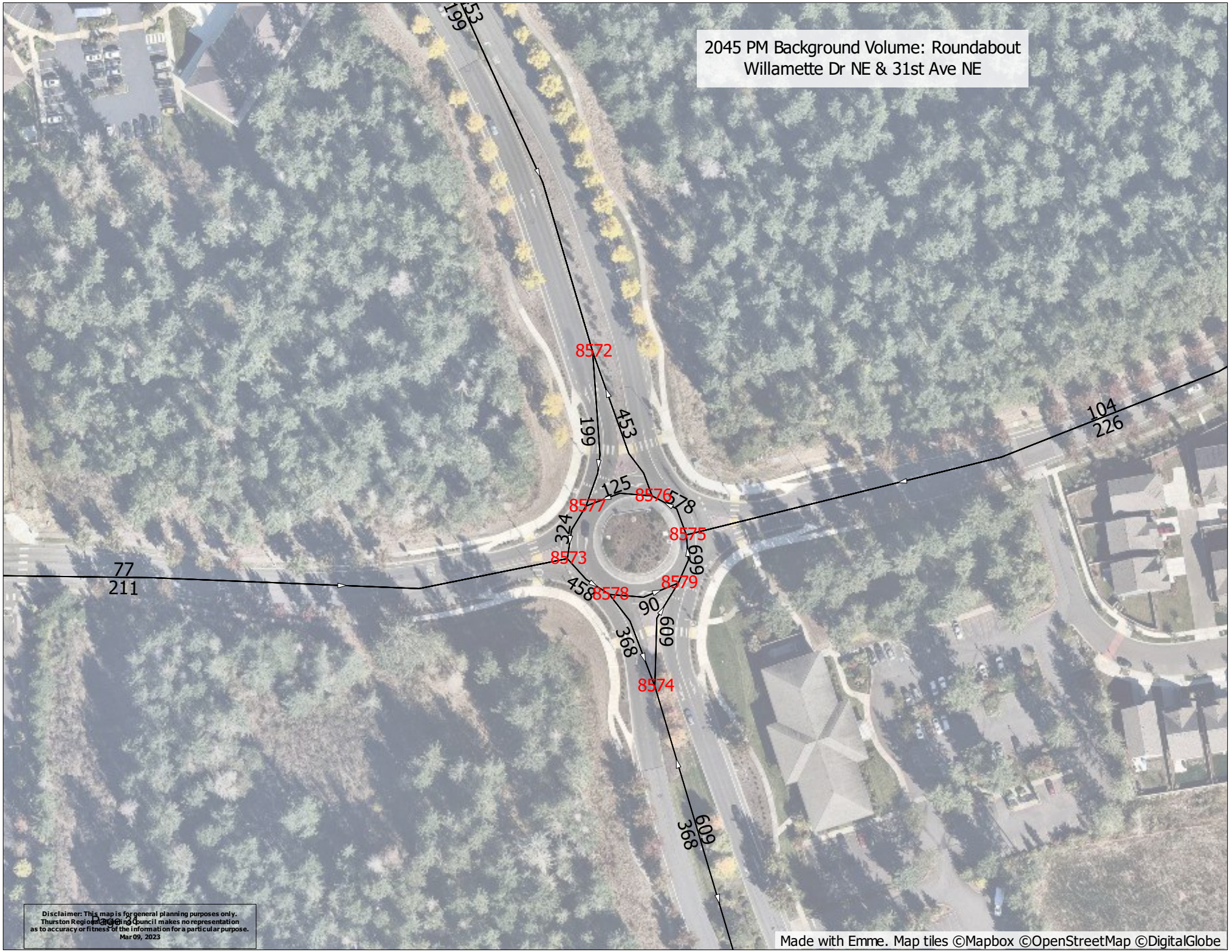
2045 PM Background Turn Volumes: Node 8514
Marvin Rd SE & Pacific Rd SE SW-Leg



2045 PM Background Turn Volumes: Node 8515
Marvin Rd SE & Pacific Rd SE SE-Leg

2045 PM Background Turn Volumes: Node 8516
Marvin Rd NE & Pacific Rd SE NE-Leg




2045 PM Background Volume: Roundabout
Willamette Dr NE & 31st Ave NE
8572
199
453
104
226
125
8576
578
8577
324
8575
8573
699
77
211
458
8578
8579
90
609
368
8574
609
368
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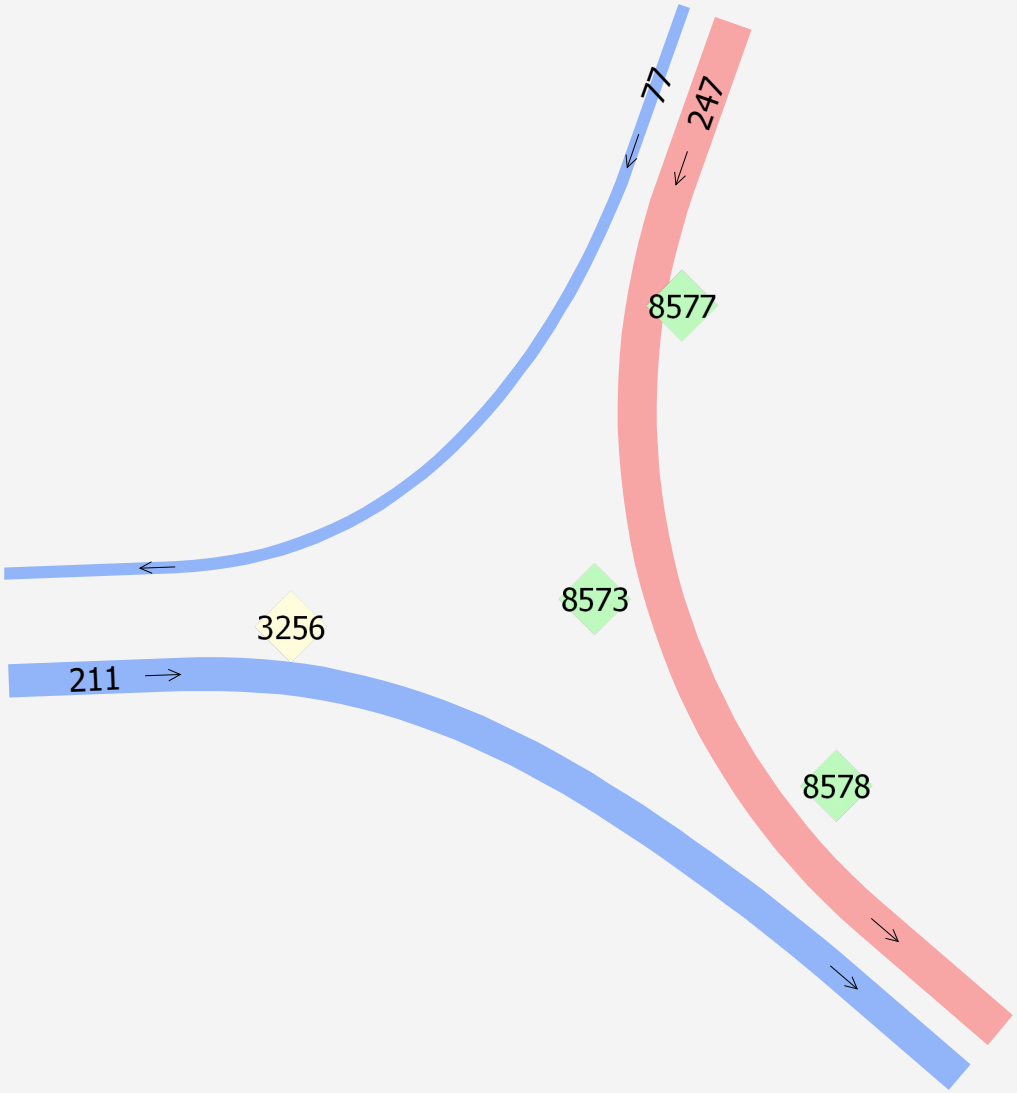
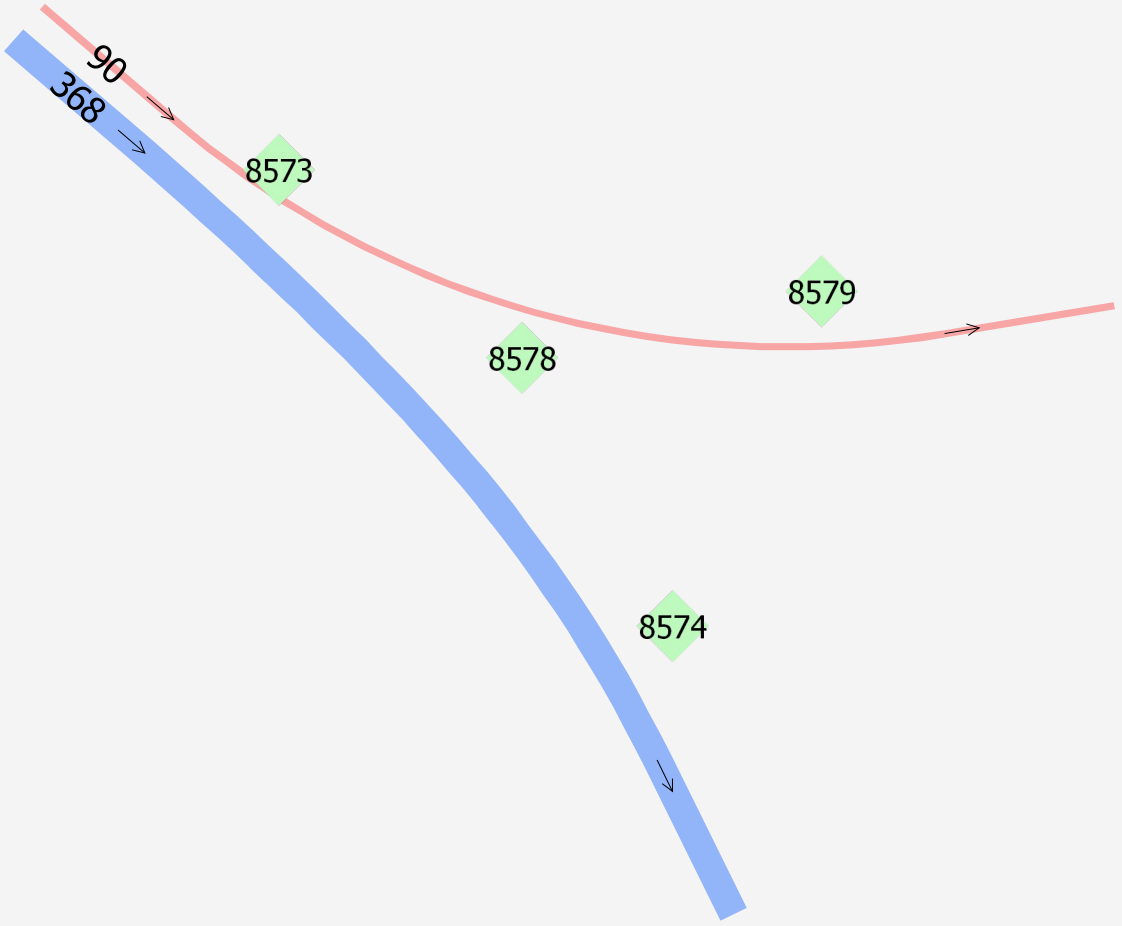
2045 PM Background Turn Volumes: Node 8576
Willamette Dr NE & 31st Ave NE NE-Leg

2045 PM Background Turn Volumes: Node 8577
Willamette Dr NE & 31st Ave NE NW-Leg

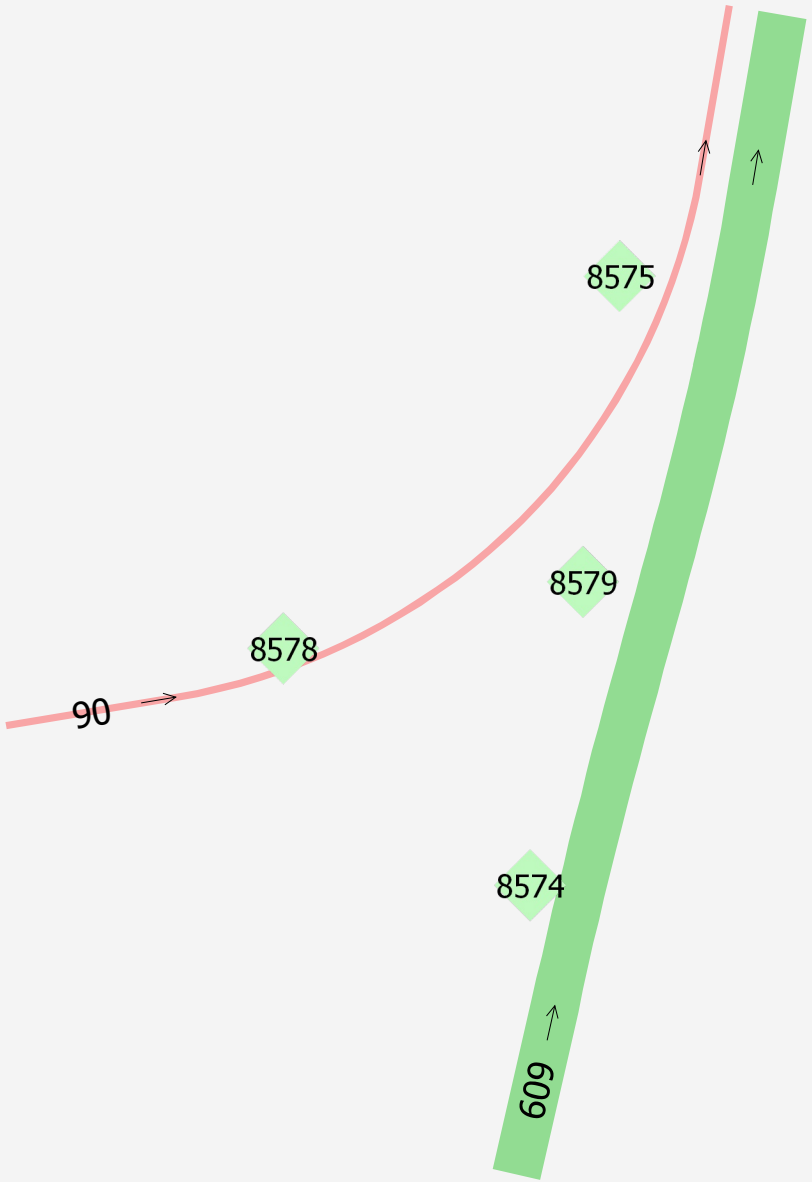
2045 PM Background Turn Volumes: Node 8573
Willamette Dr NE & 31st Ave NE W-Leg



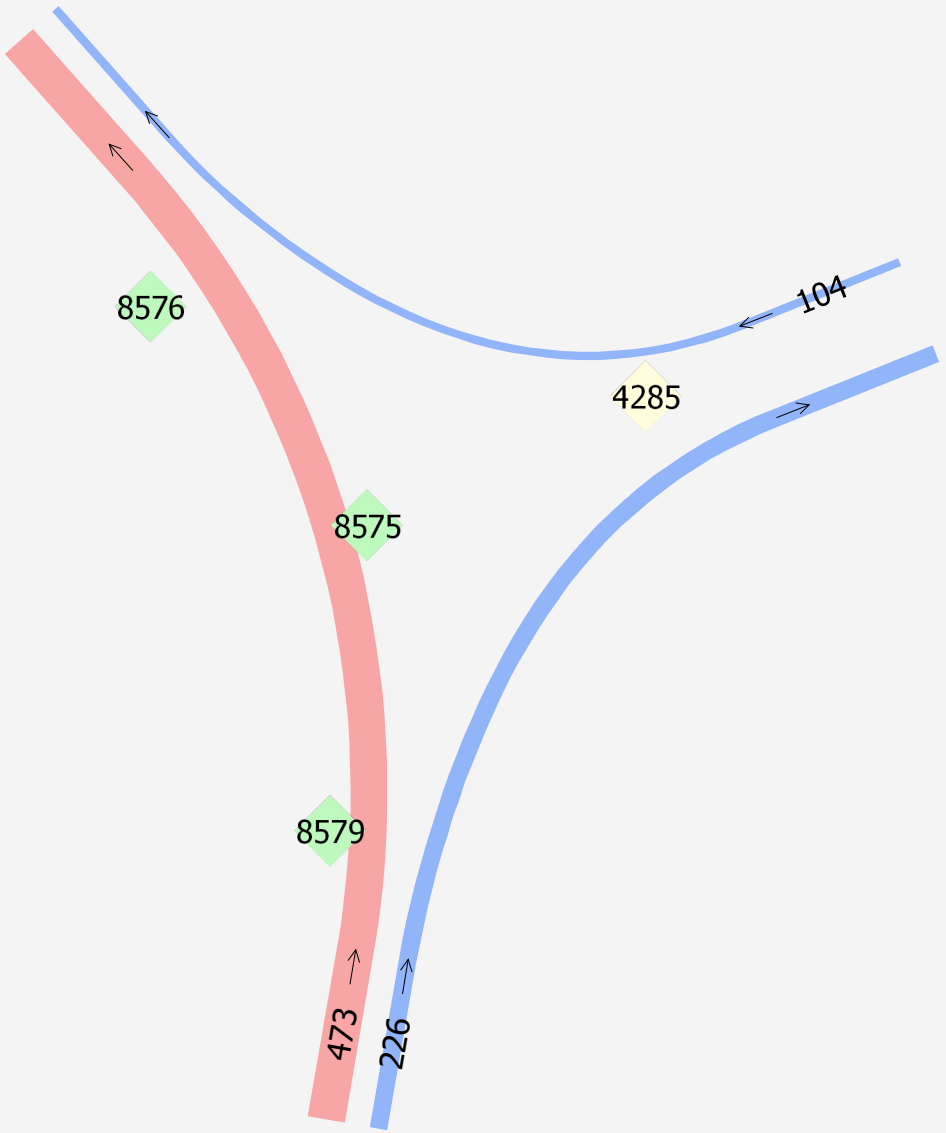
2045 PM Background Turn Volumes: Node 8578
Willamette Dr NE & 31st Ave NE SW-Leg

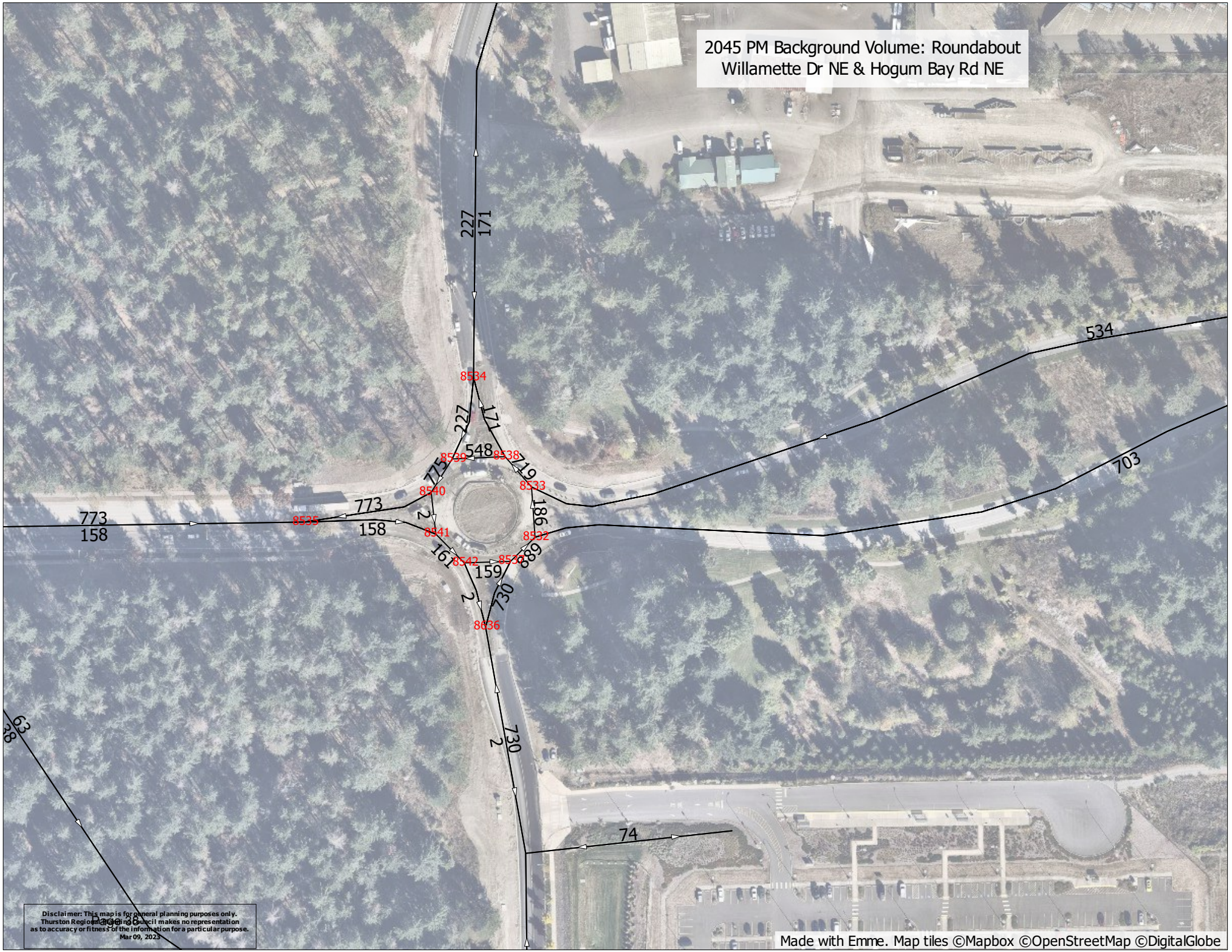


2045 PM Background Turn Volumes: Node 8579
Willamette Dr NE & 31st Ave NE SE-Leg



2045 PM Background Turn Volumes: Node 8575
Willamette Dr NE & 31st Ave NE E-Leg




2045 PM Background Volume: Roundabout
Willamette Dr NE & Hogum Bay Rd NE
227
171
8534
227
171
548
8539
8538
775
719
8540
8533
773
773
158
8535
158
2
8541
186
8532
161
8542
8537
159
889
730
2
8536
534
703
730
2
74
63
38
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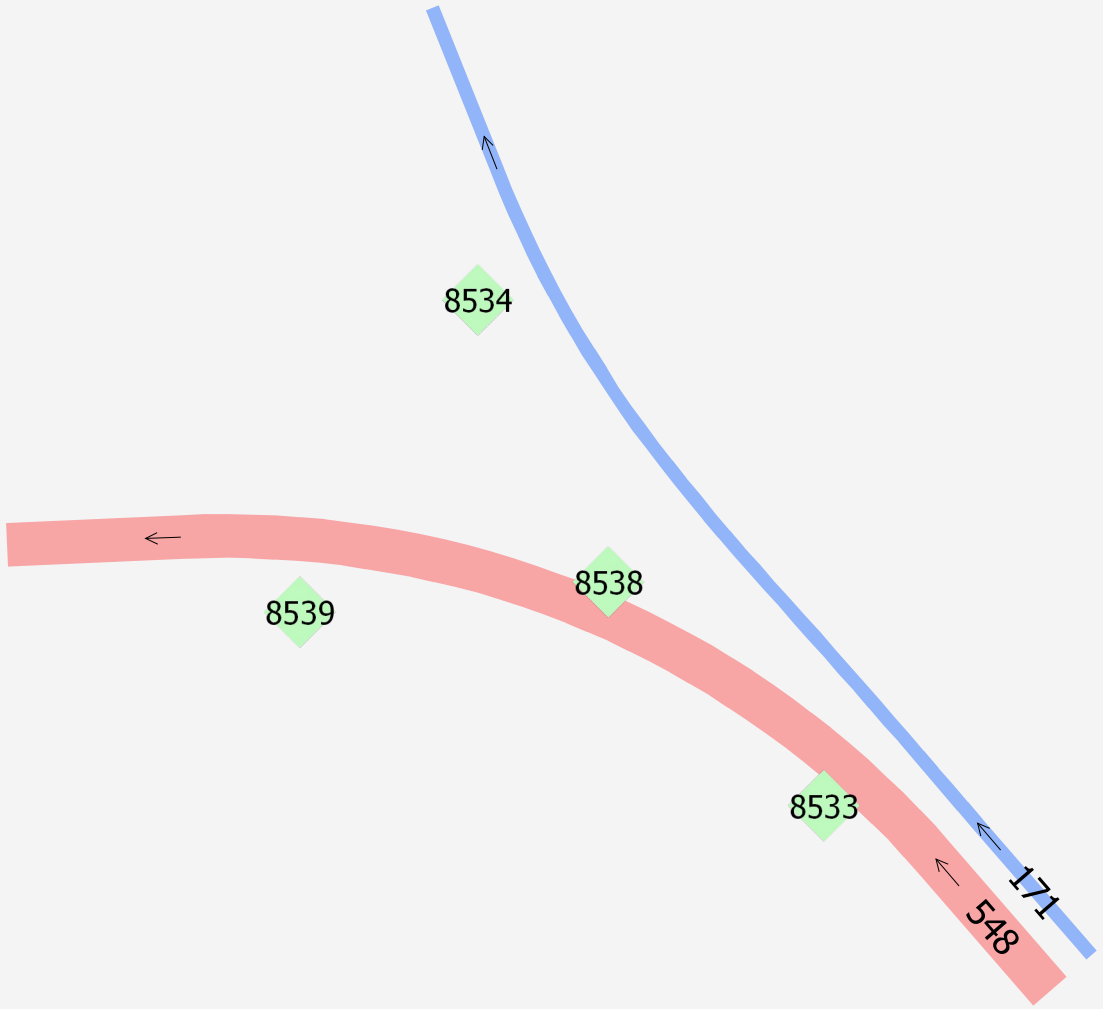
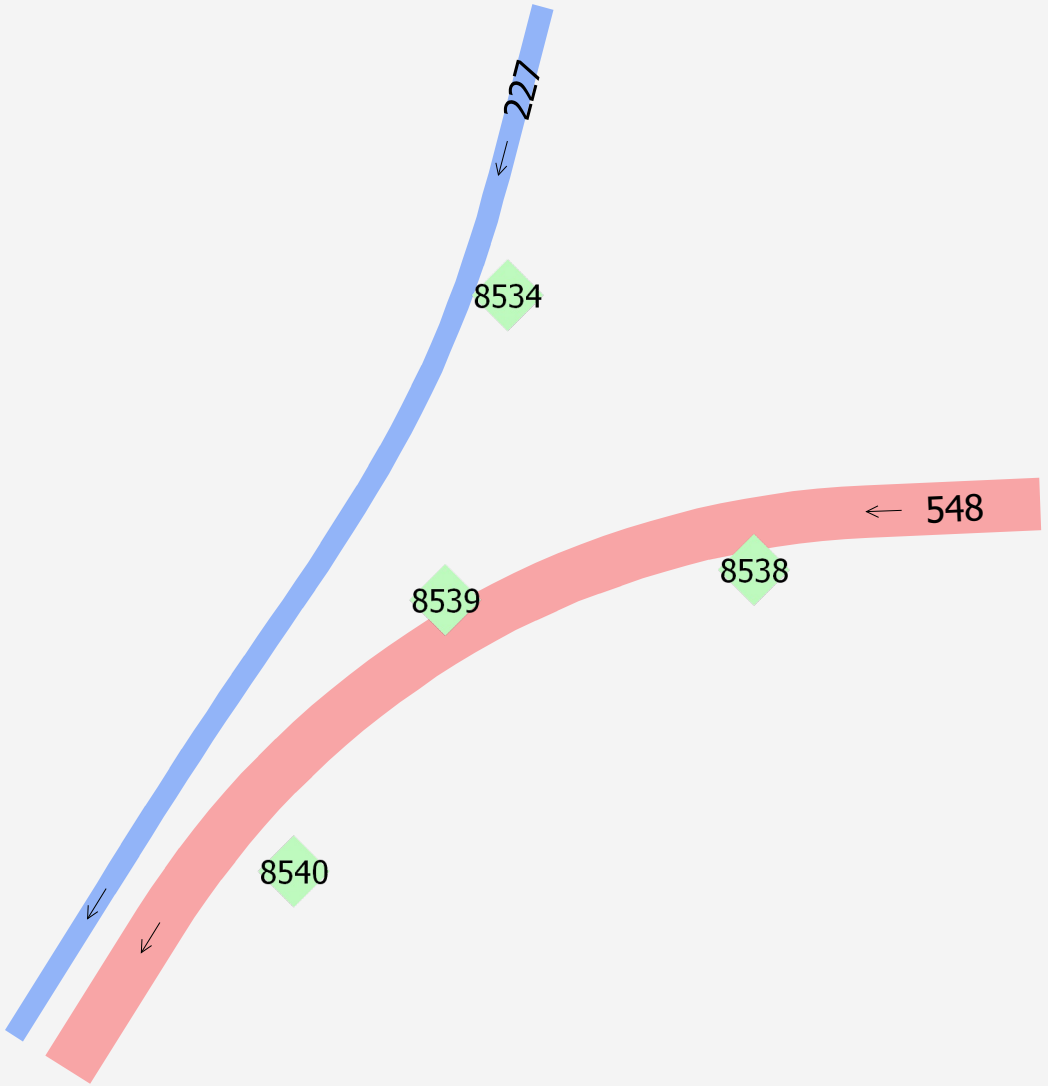
2045 PM Background Turn Volumes: Node 8538
Willamette Dr NE & Hogum Bay Rd NE NE-Leg

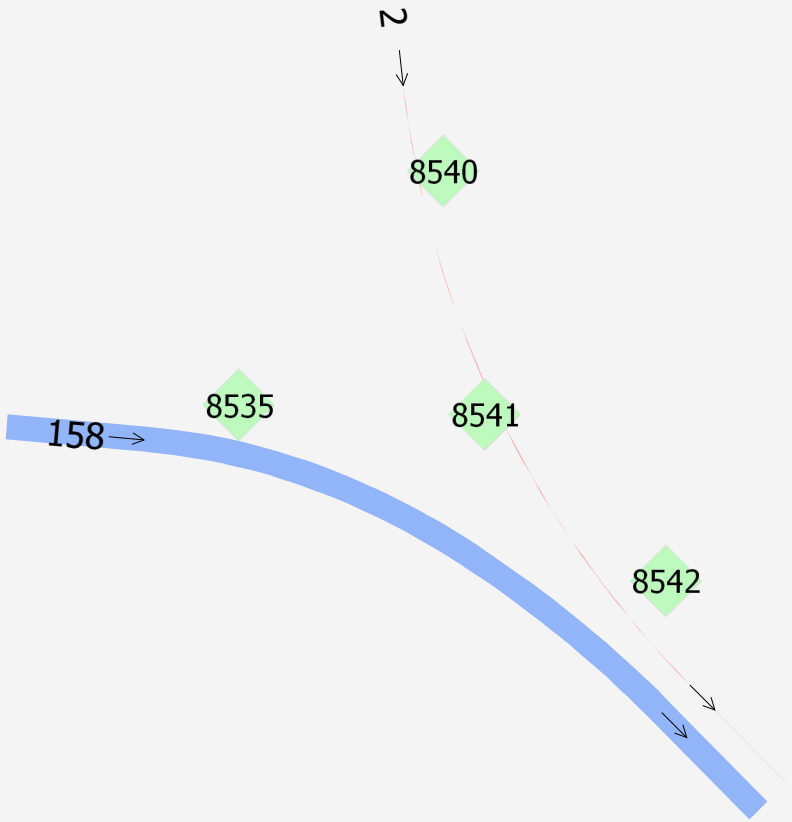


2045 PM Background Turn Volumes: Node 8539
Willamette Dr NE & Hogum Bay Rd NE NW-Leg

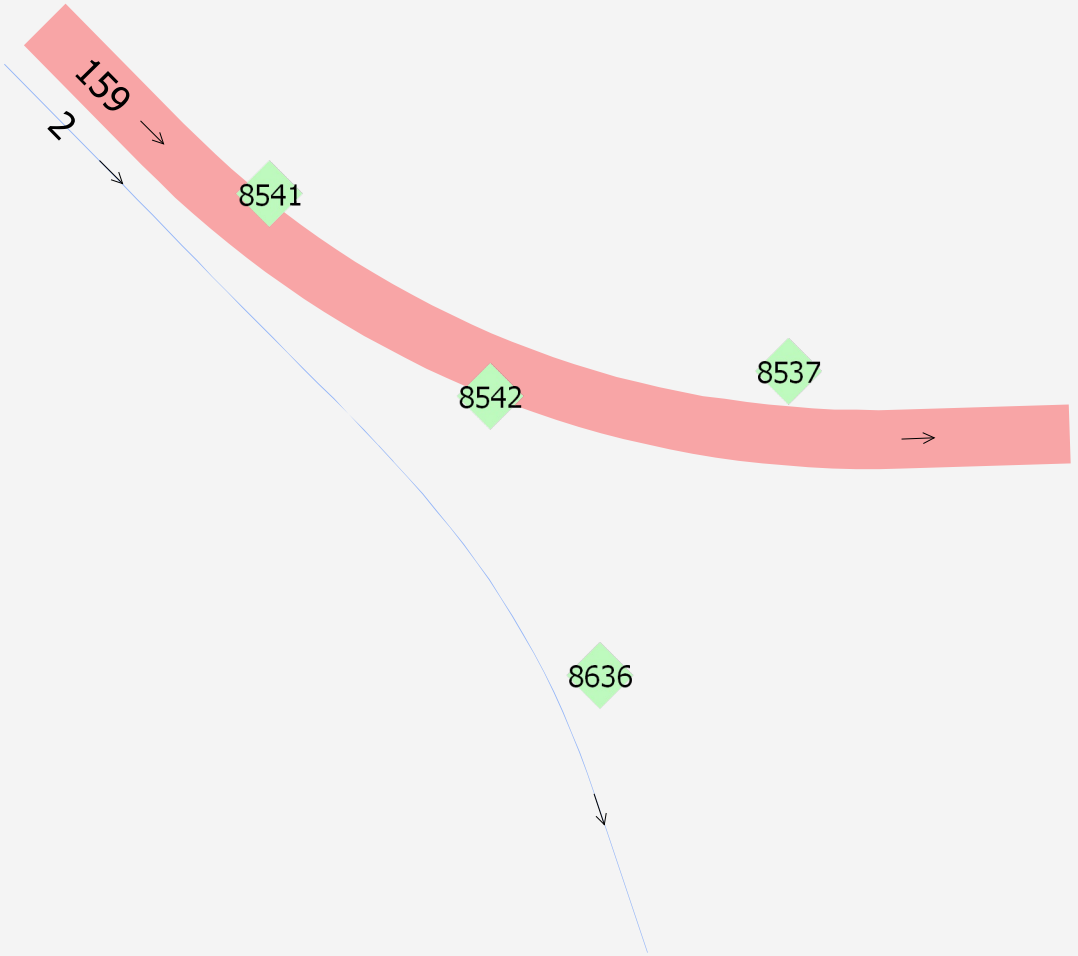


2045 PM Background Turn Volumes: Node 8540
Willamette Dr NE & Hogum Bay Rd NE W-Leg

2045 PM Background Turn Volumes: Node 8541
Willamette Dr NE & Hogum Bay Rd NE SW-Leg

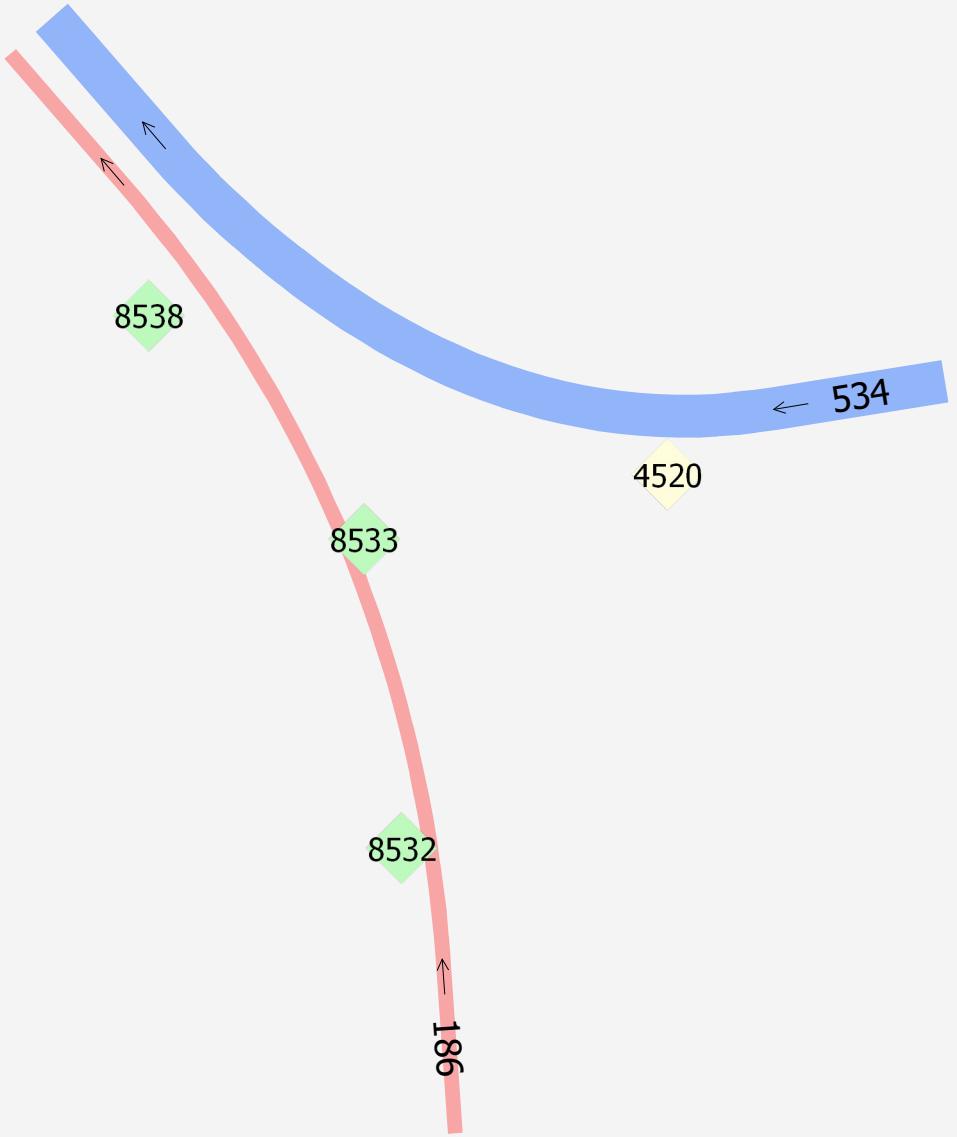


2045 PM Background Turn Volumes: Node 8542
Willamette Dr NE & Hogum Bay Rd NE SW-Leg

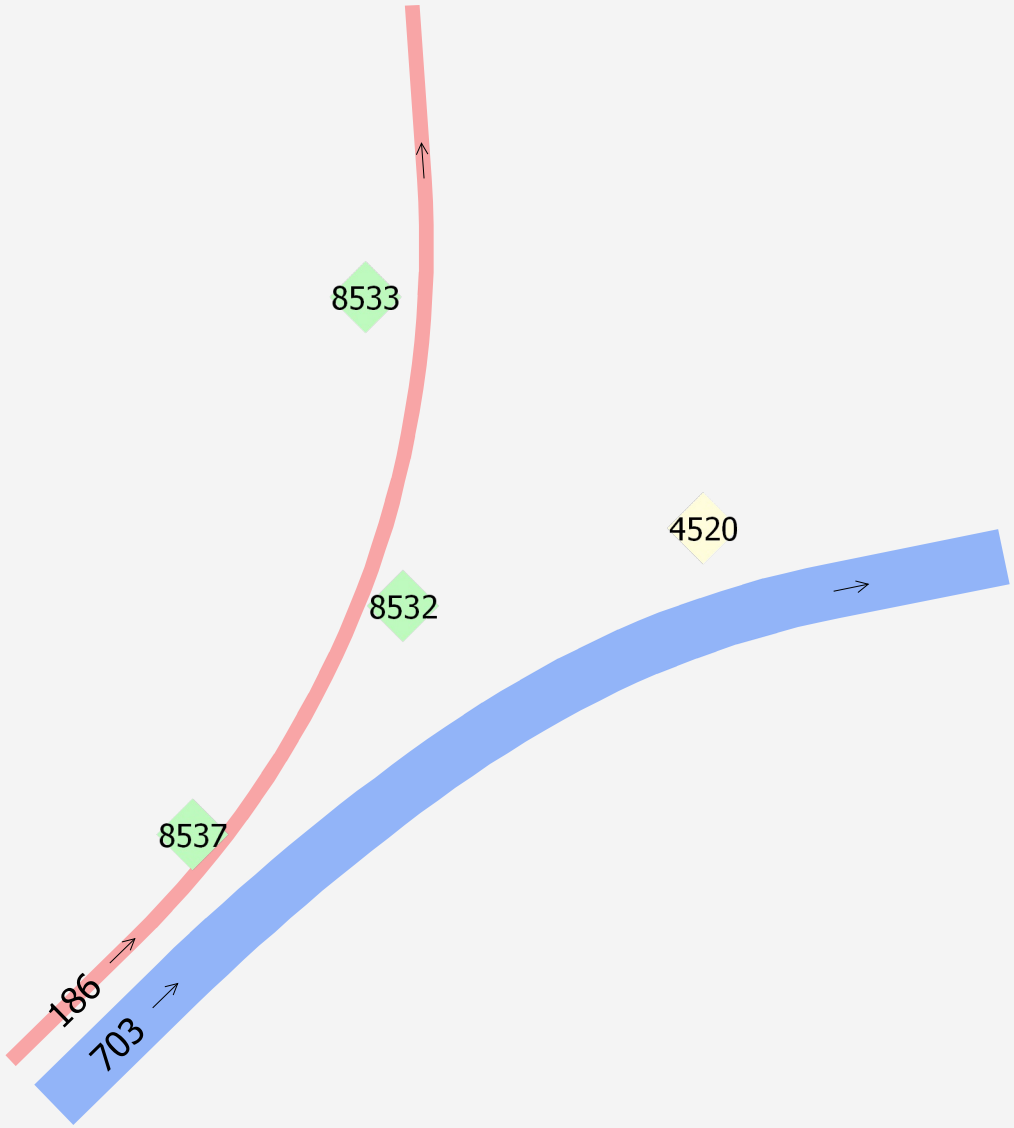


2045 PM Background Turn Volumes: Node 8537
Willamette Dr NE & Hogum Bay Rd NE SE-Leg

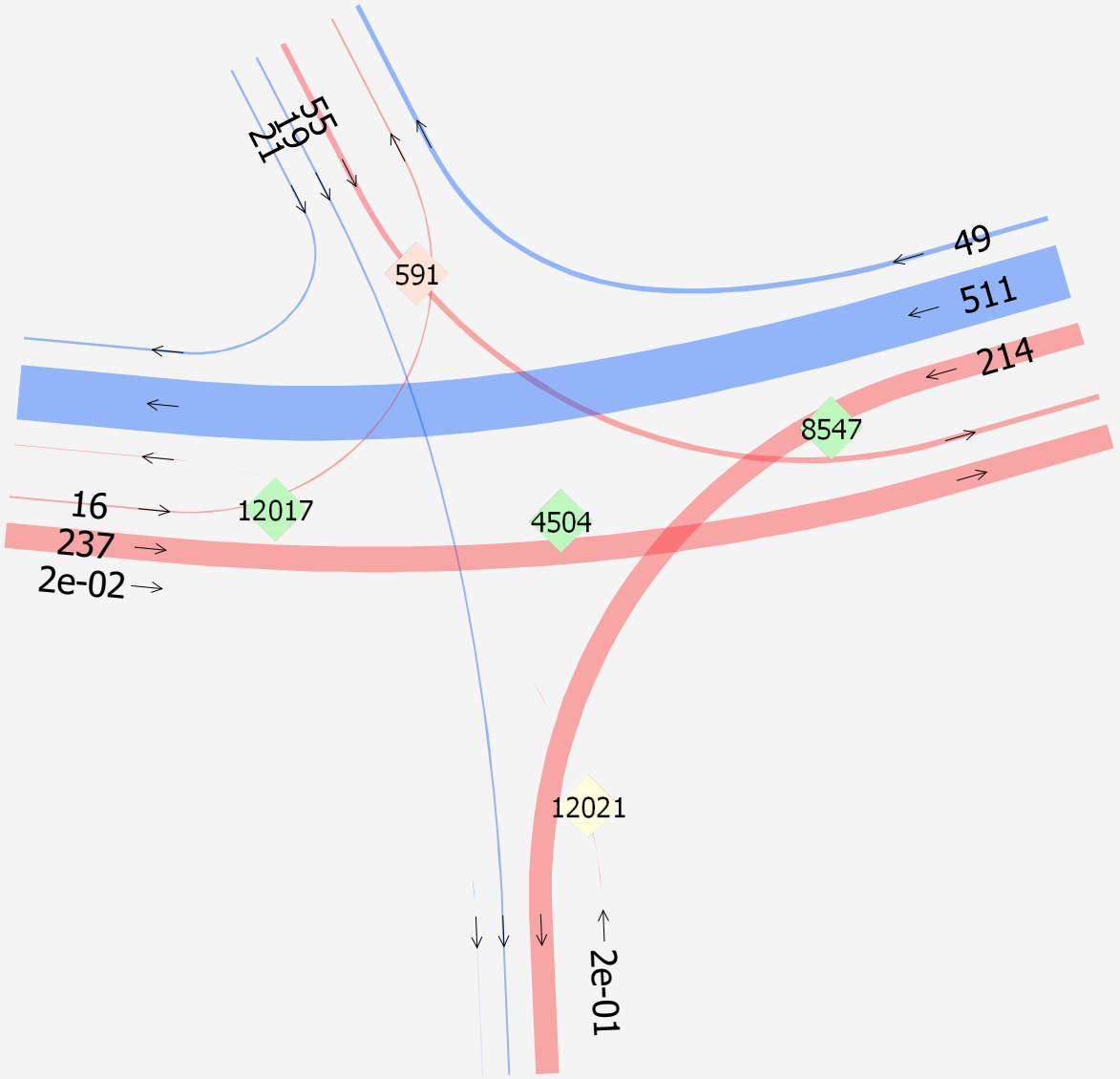
2045 PM Background Turn Volumes: Node 8533
Willamette Dr NE & Hogum Bay Rd NE NE-Leg



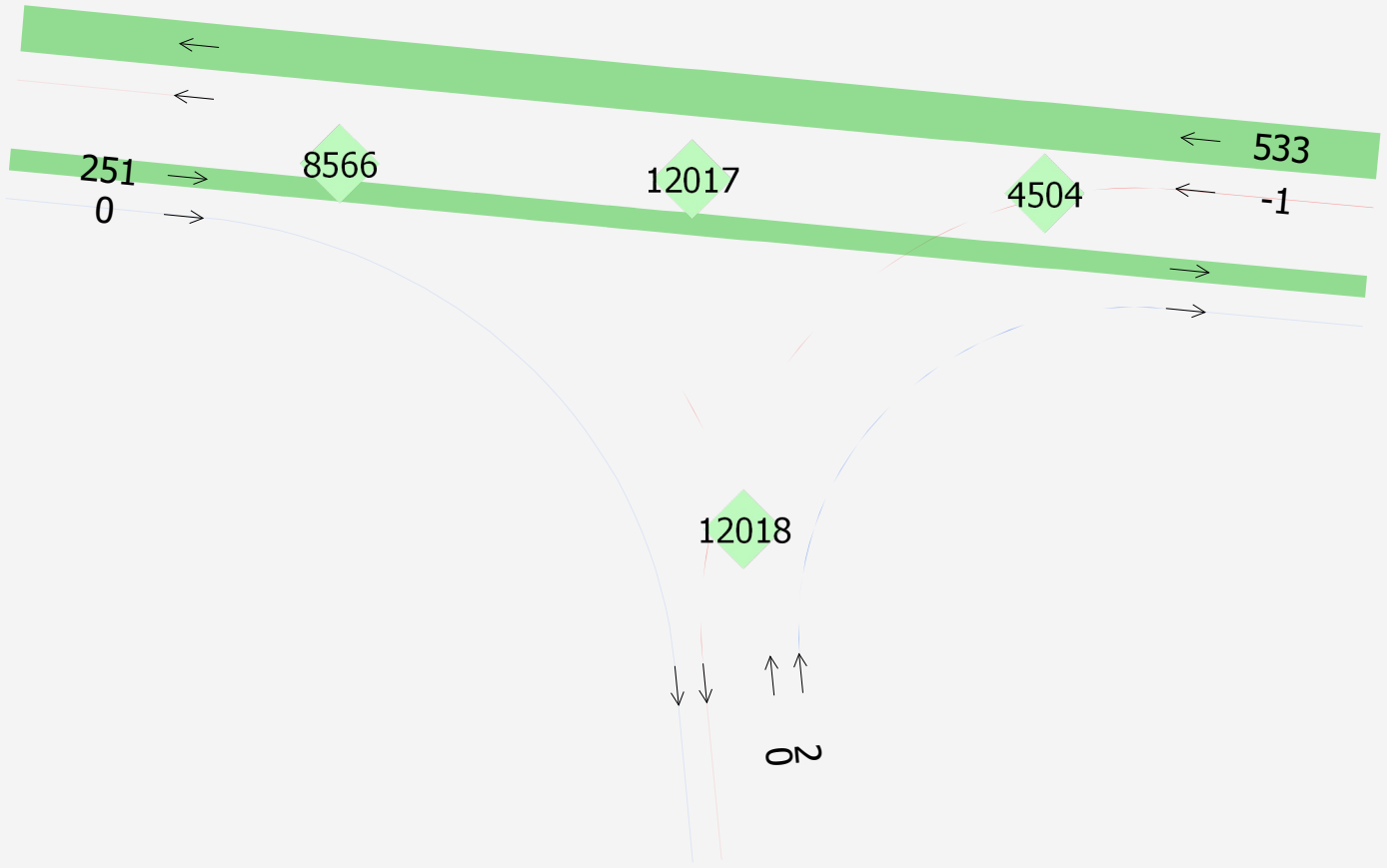
2045 PM Background Turn Volumes: Node 8532
Willamette Dr NE & Hogum Bay Rd NE E-Leg

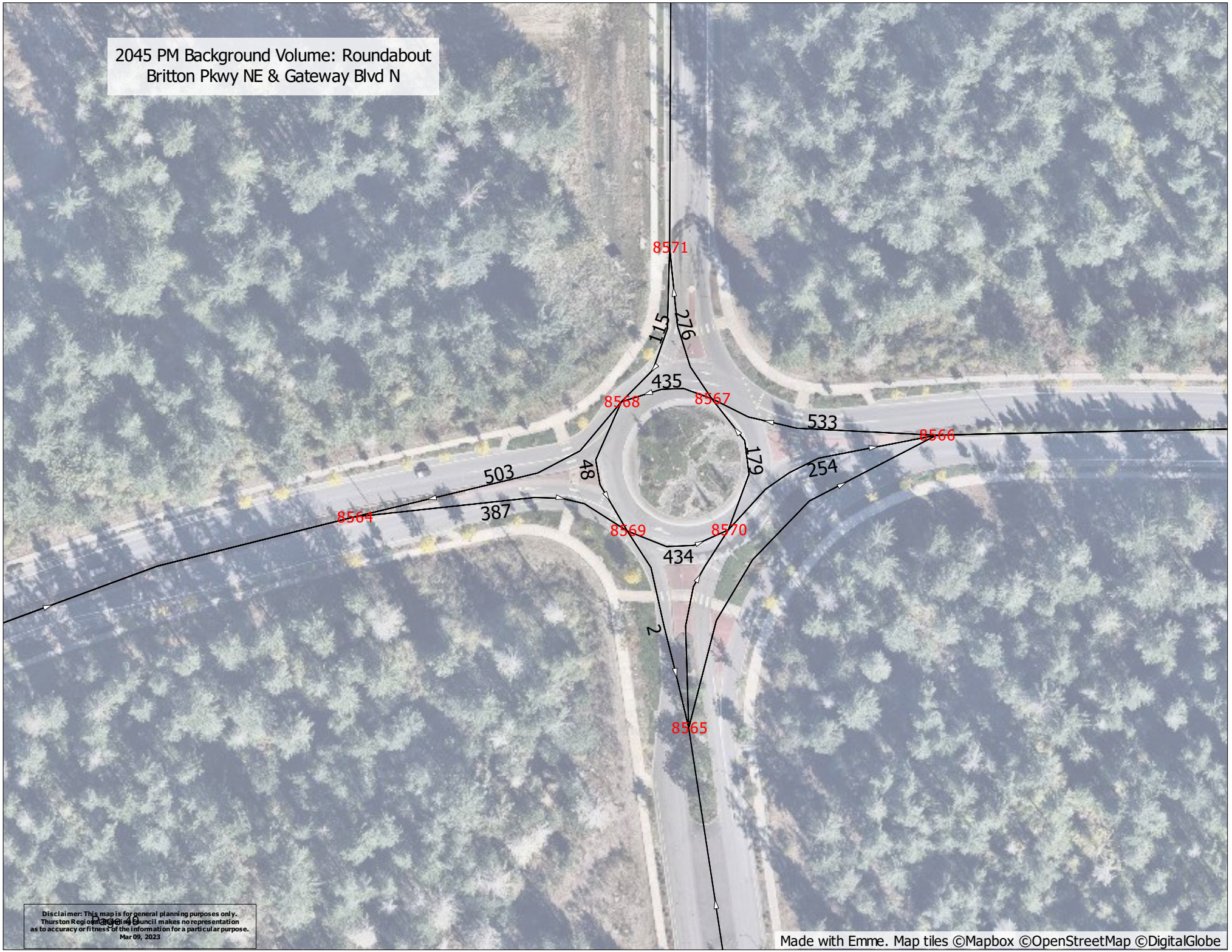


2045 PM Background Turn Volumes: Node 4504
Britton Pkwy NE & Eastern Pkwy NE



2045 PM Background Turn Volumes: Node 12017
Britton Pkwy NE & Central Pkwy NE




2045 PM Background Volume: Roundabout
Britton Pkwy NE & Gateway Blvd N
8571
115
276
435
8568
8567
533
8566
503
48
179
254
8564
387
8569
8570
434
2
8565
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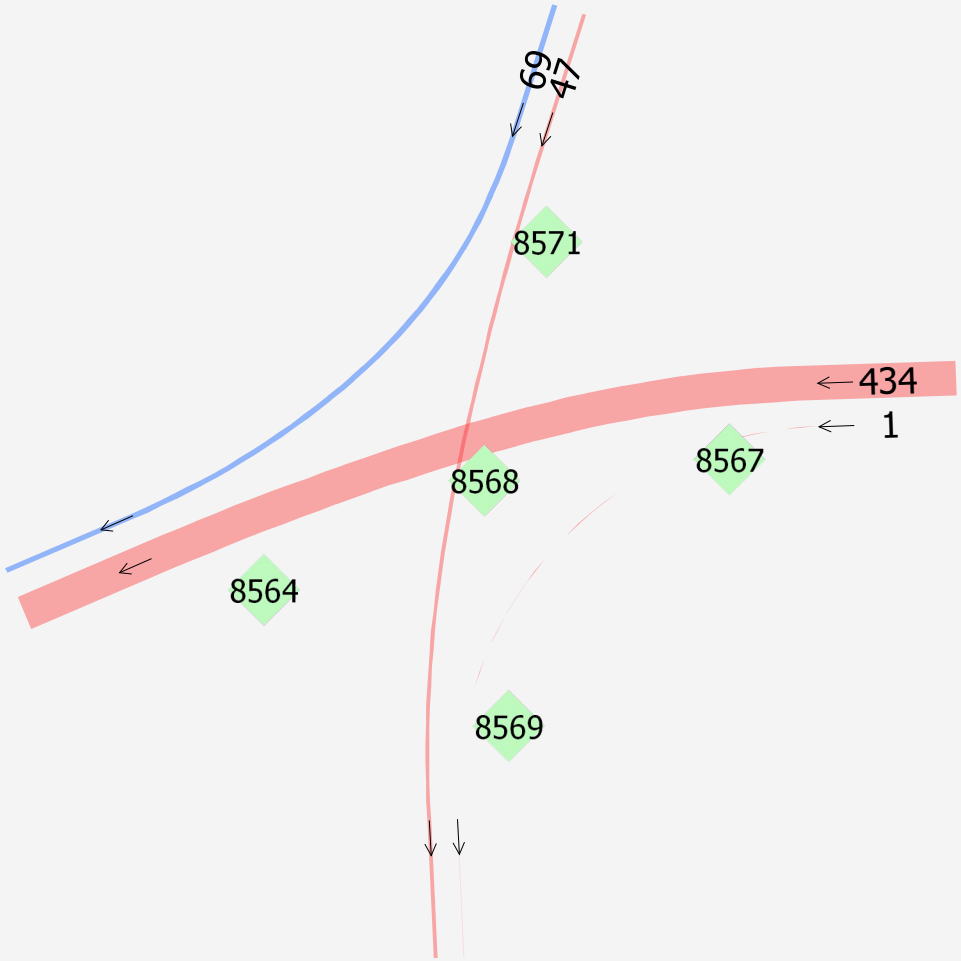
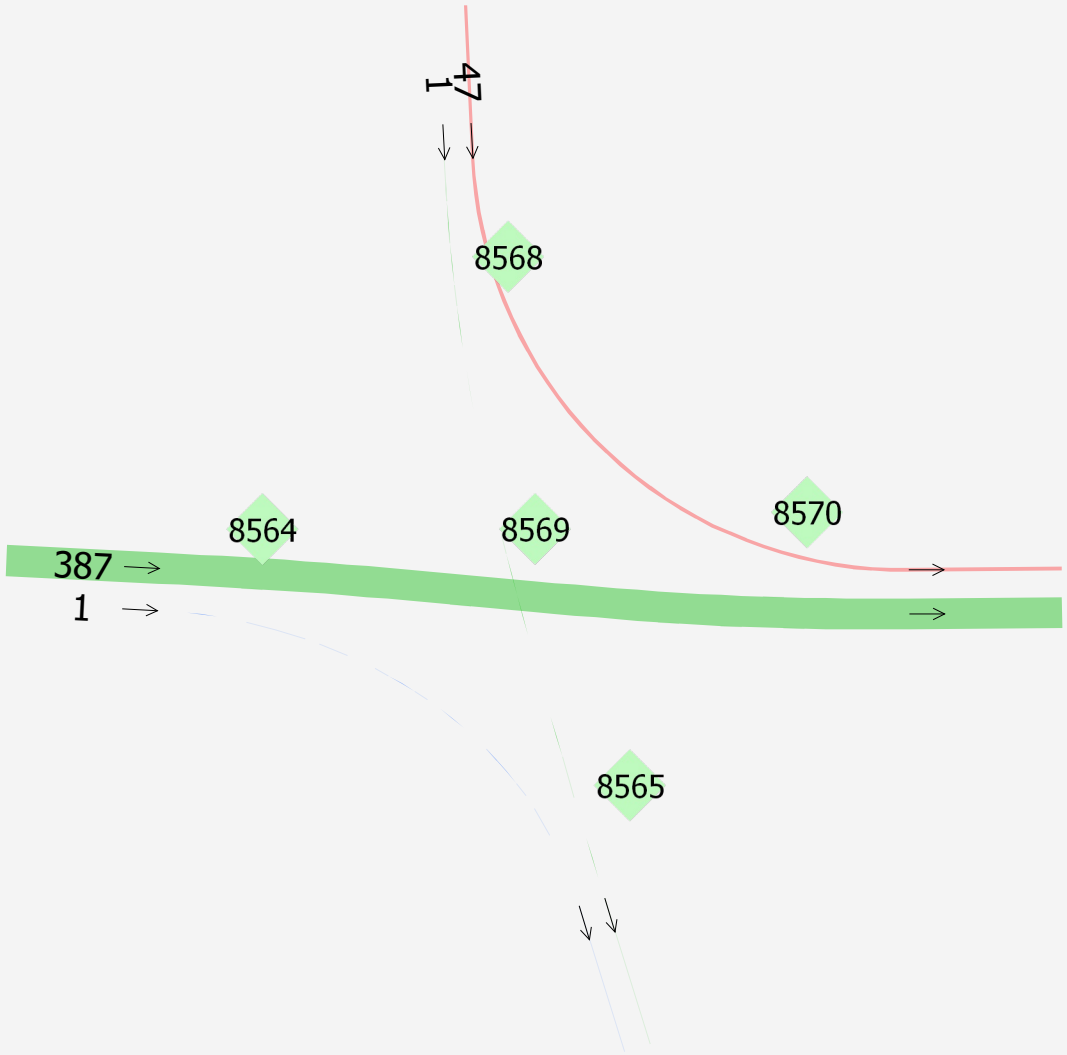
2045 PM Background Turn Volumes: Node 8567
Britton Pkwy NE & Gateway Blvd NE NE-Leg

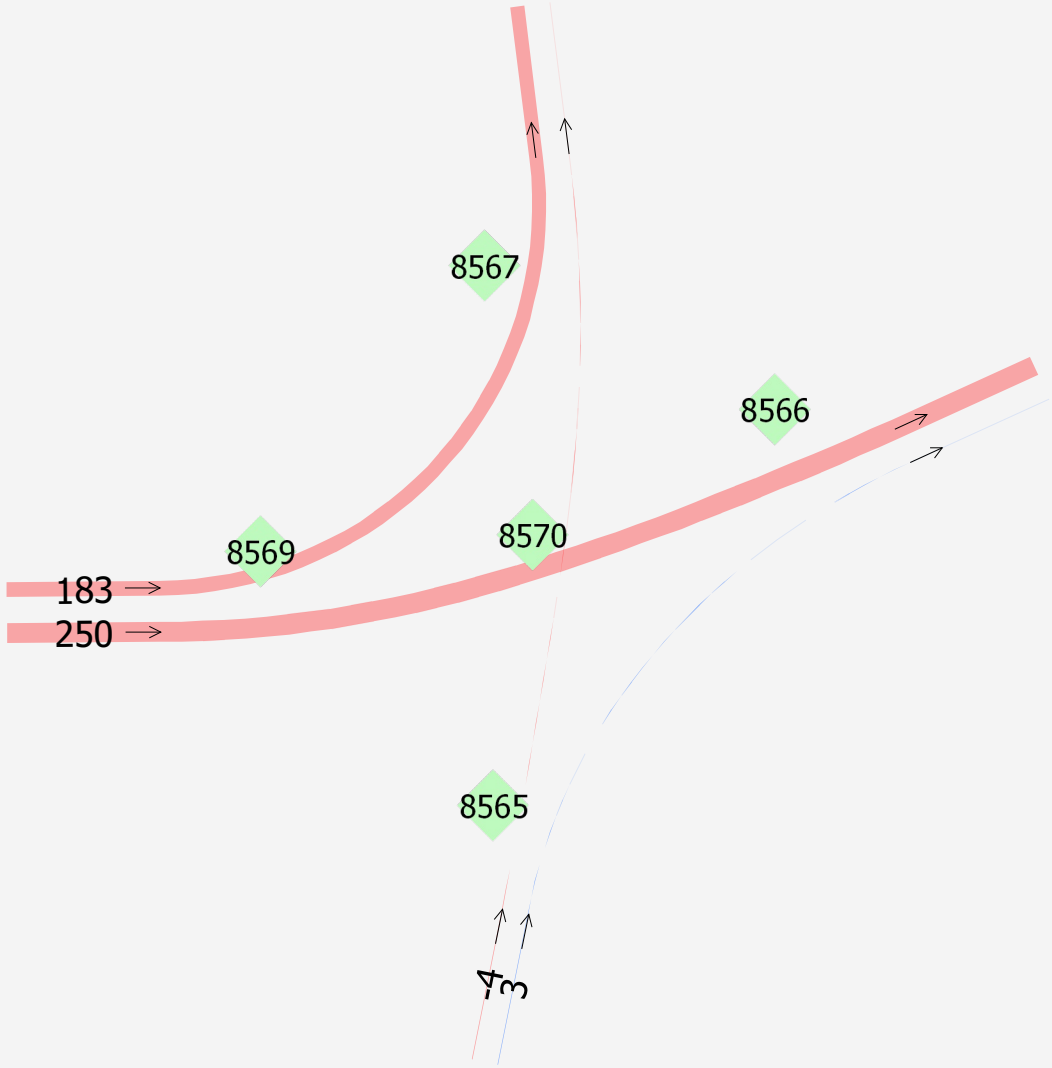
2045 PM Background Turn Volumes: Node 8568
Britton Pkwy NE & Gateway Blvd NE NW-Leg



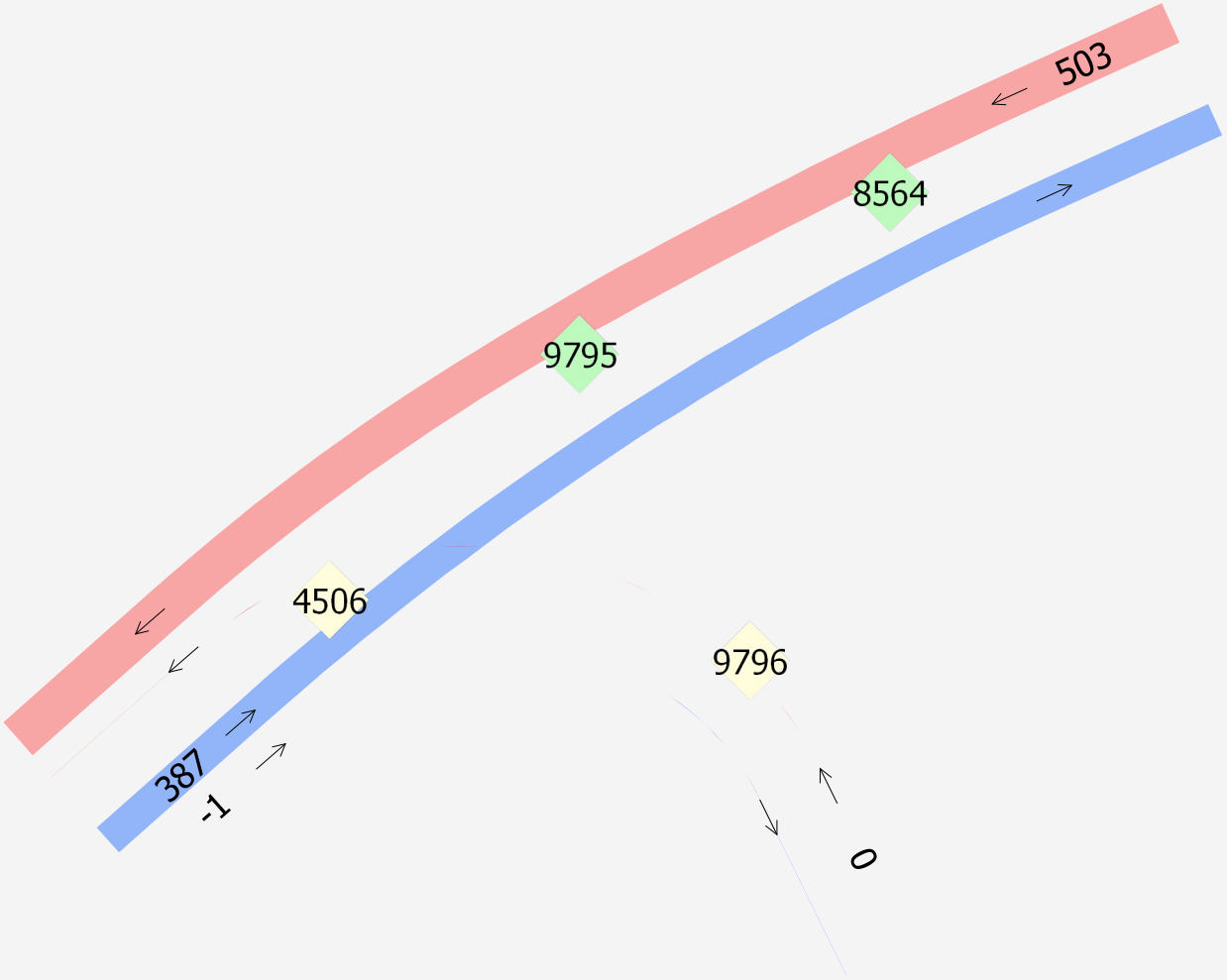
2045 PM Background Turn Volumes: Node 8569
Britton Pkwy NE & Gateway Blvd NE SW-Leg



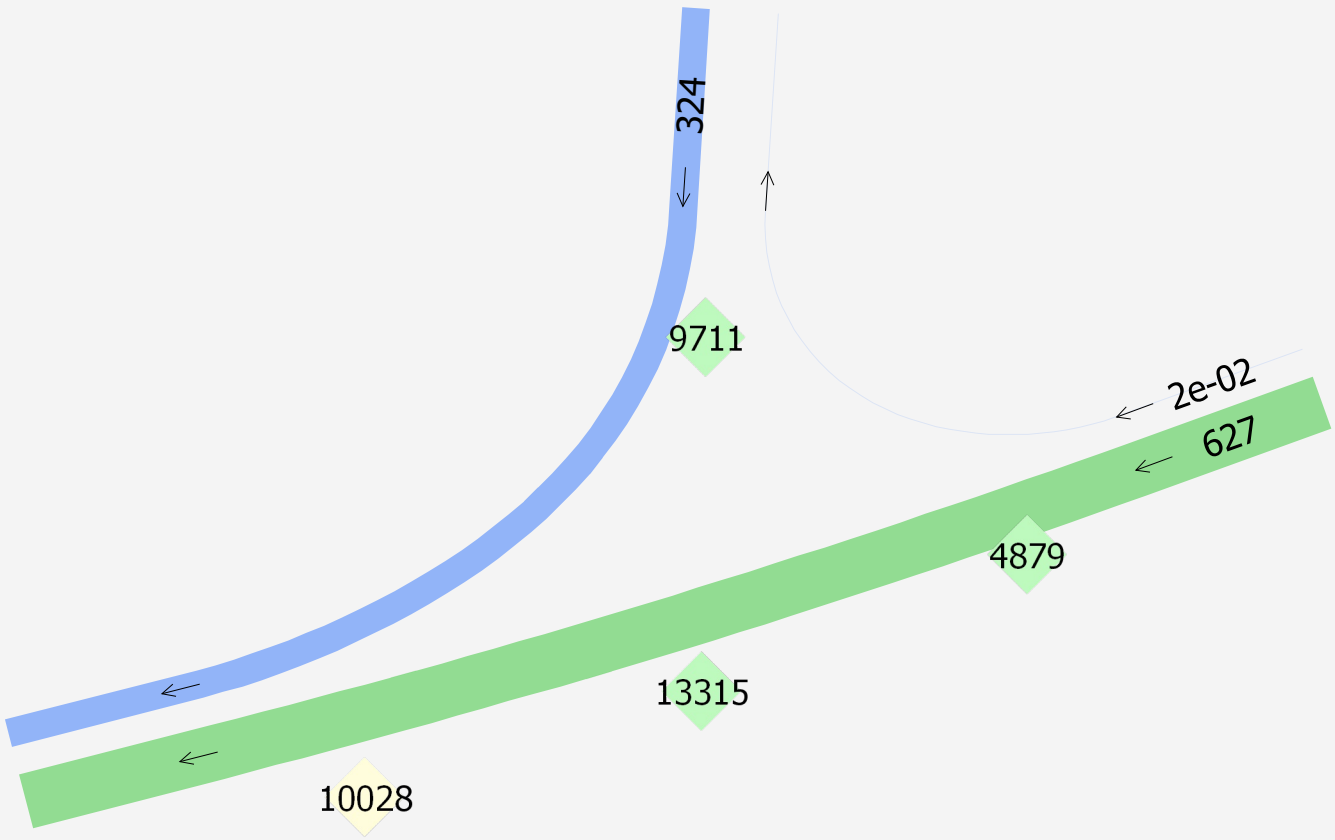
2045 PM Background Turn Volumes: Node 8570
Britton Pkwy NE & Gateway Blvd NE SE-Leg



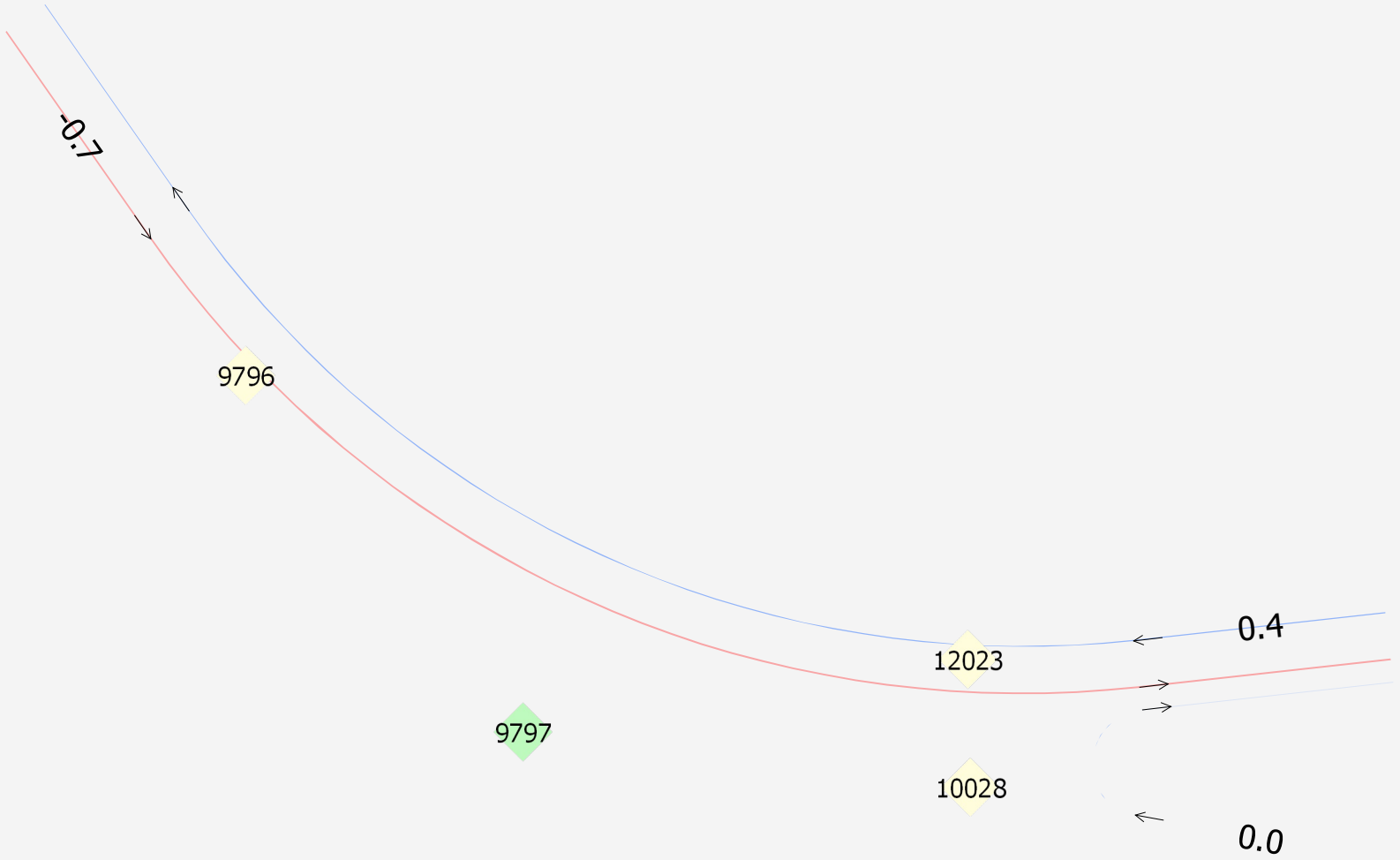
2045 PM Background Turn Volumes: Node 9795
Britton Pkwy NE & Western Pkwy NE



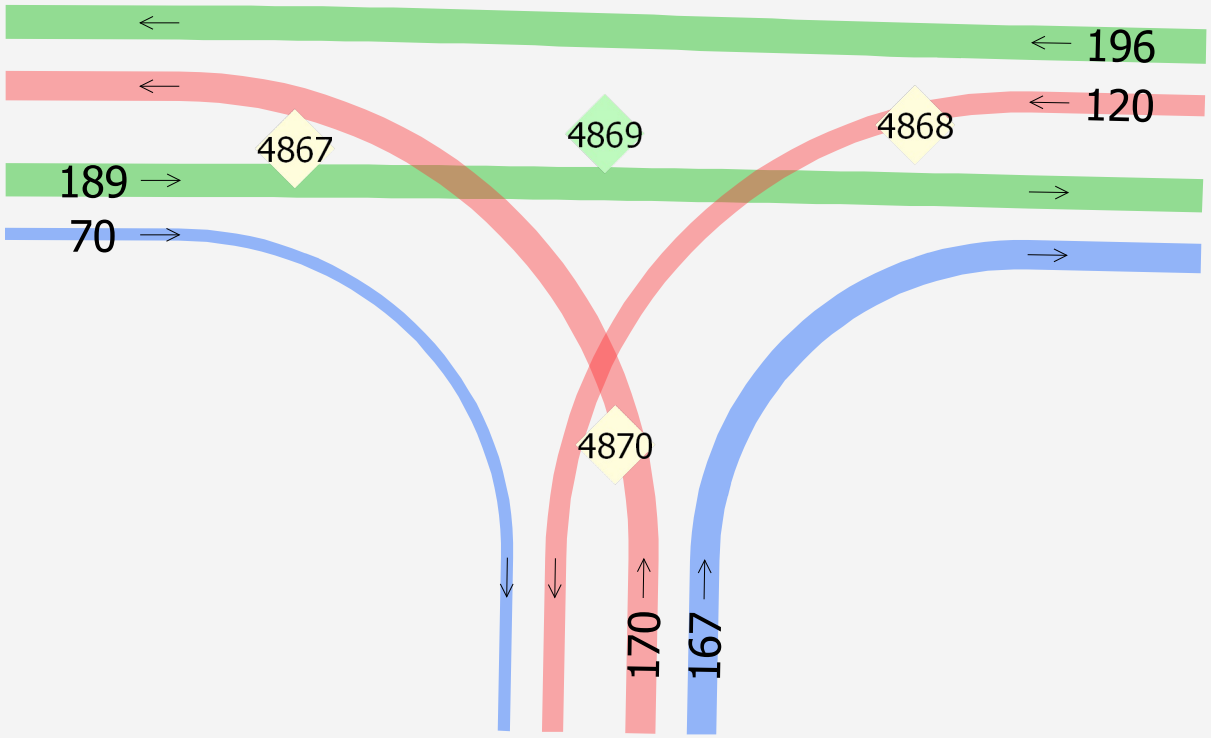
2045 PM Background Turn Volumes: Node 13315
I-5 SB Ramp & CD Rd



2045 PM Background Turn Volumes: Node 9797
CD Road & Western Pkwy NE



2045 PM Background Turn Volumes: Node 4869
Hawks Prairie Rd NE & Carpenter Rd NE




2045 PM Background Volume: Roundabout
Britton Pkwy NE & Carpenter Rd NE
423
324
710
4196
4167
611
4507
594
503
387
472
489
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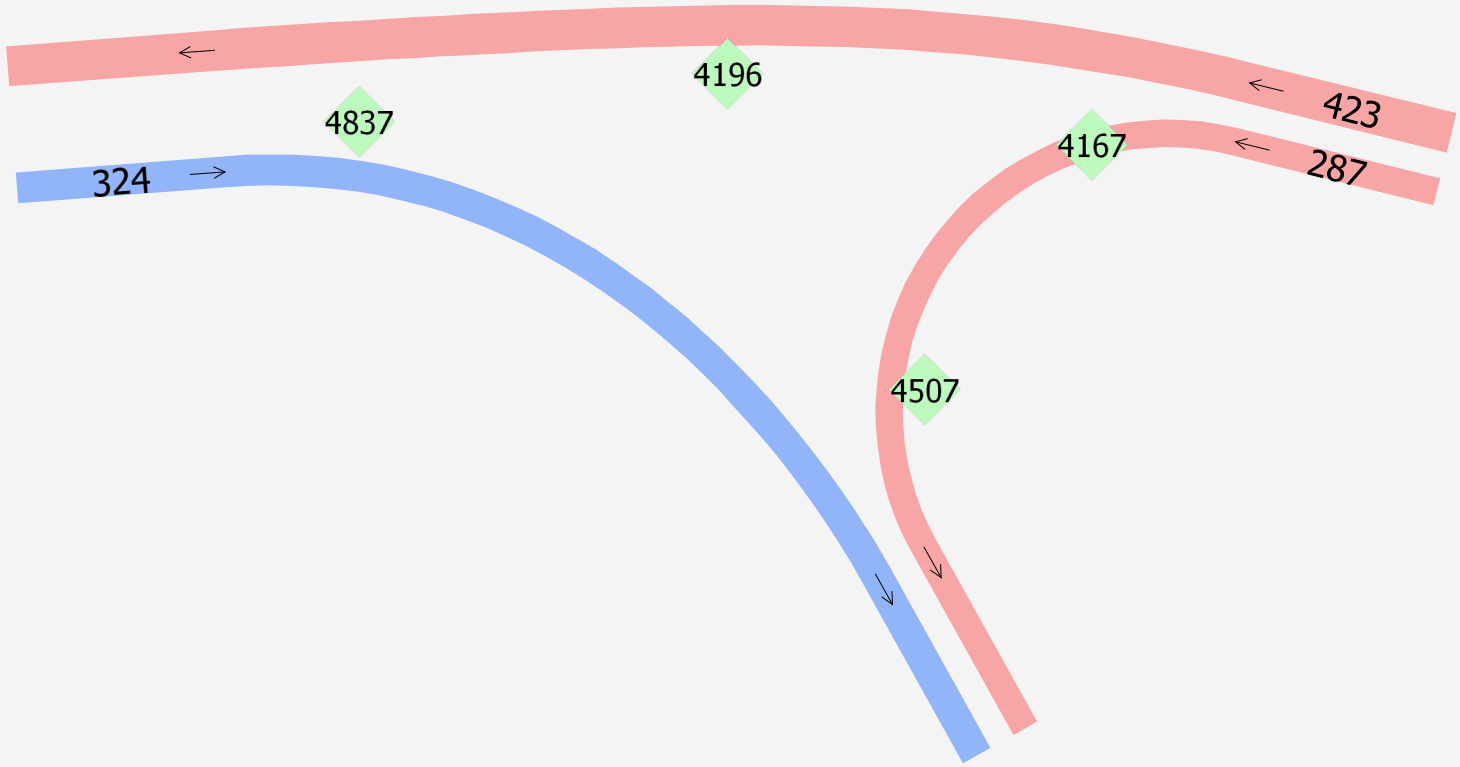
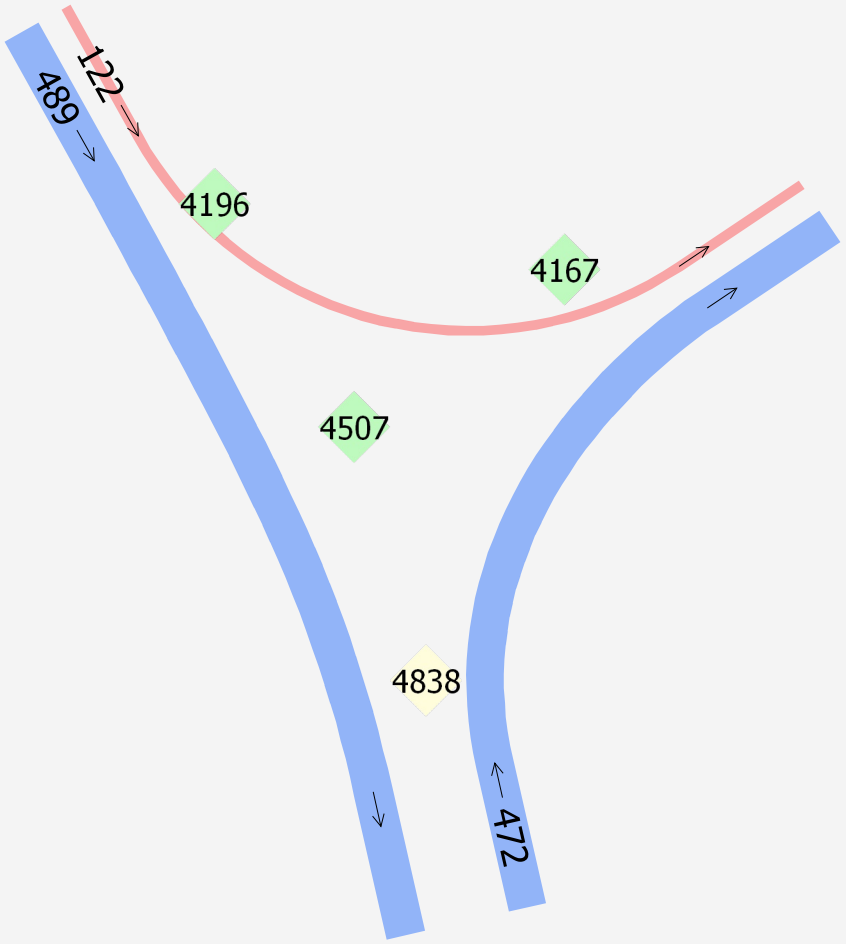
2045 PM Background Turn Volumes: Node 4167
Britton Pkwy NE & Carpenter Rd NE E-Leg

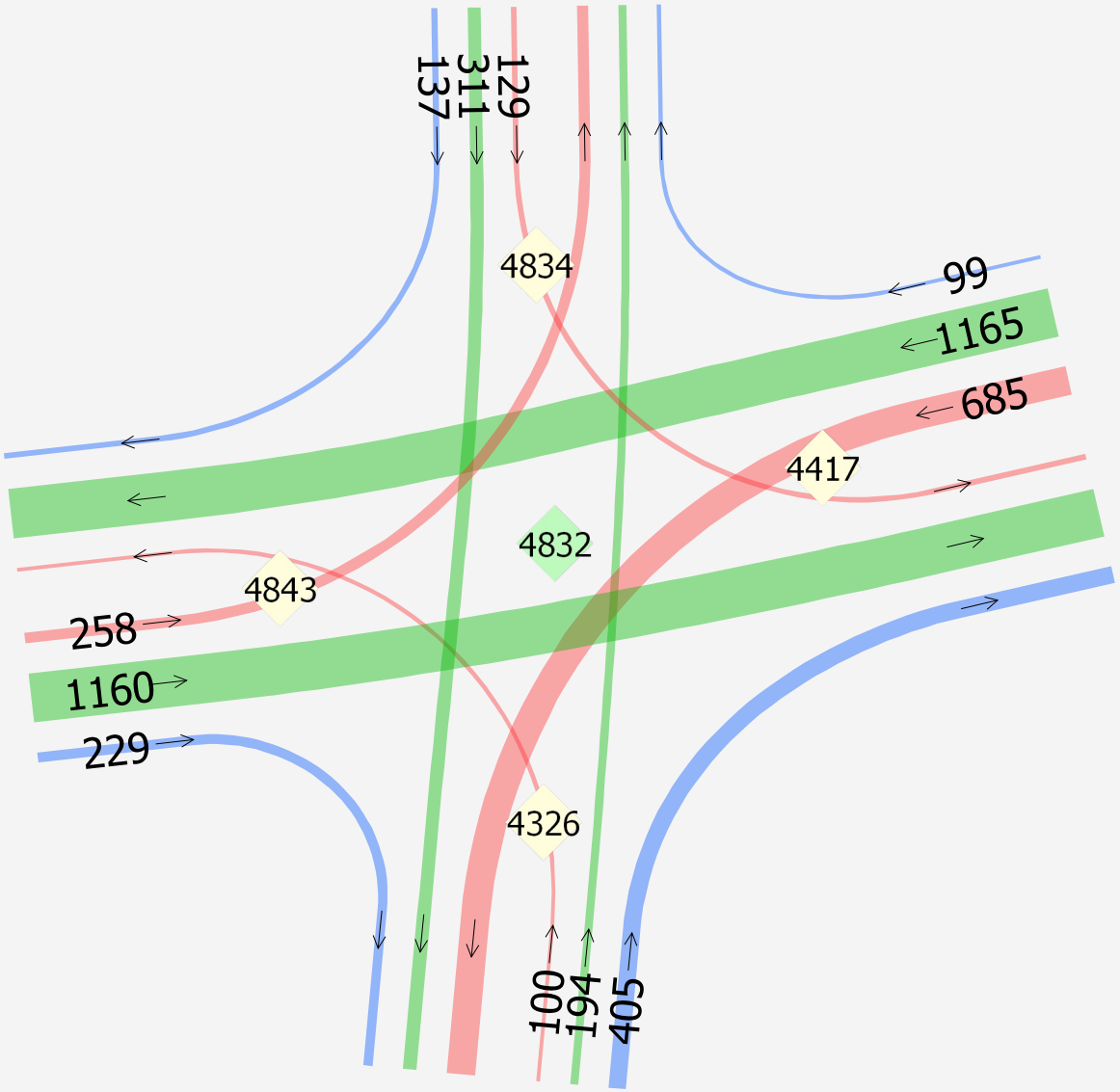
2045 PM Background Turn Volumes: Node 4196
Britton Pkwy NE & Carpenter Rd NE W-Leg



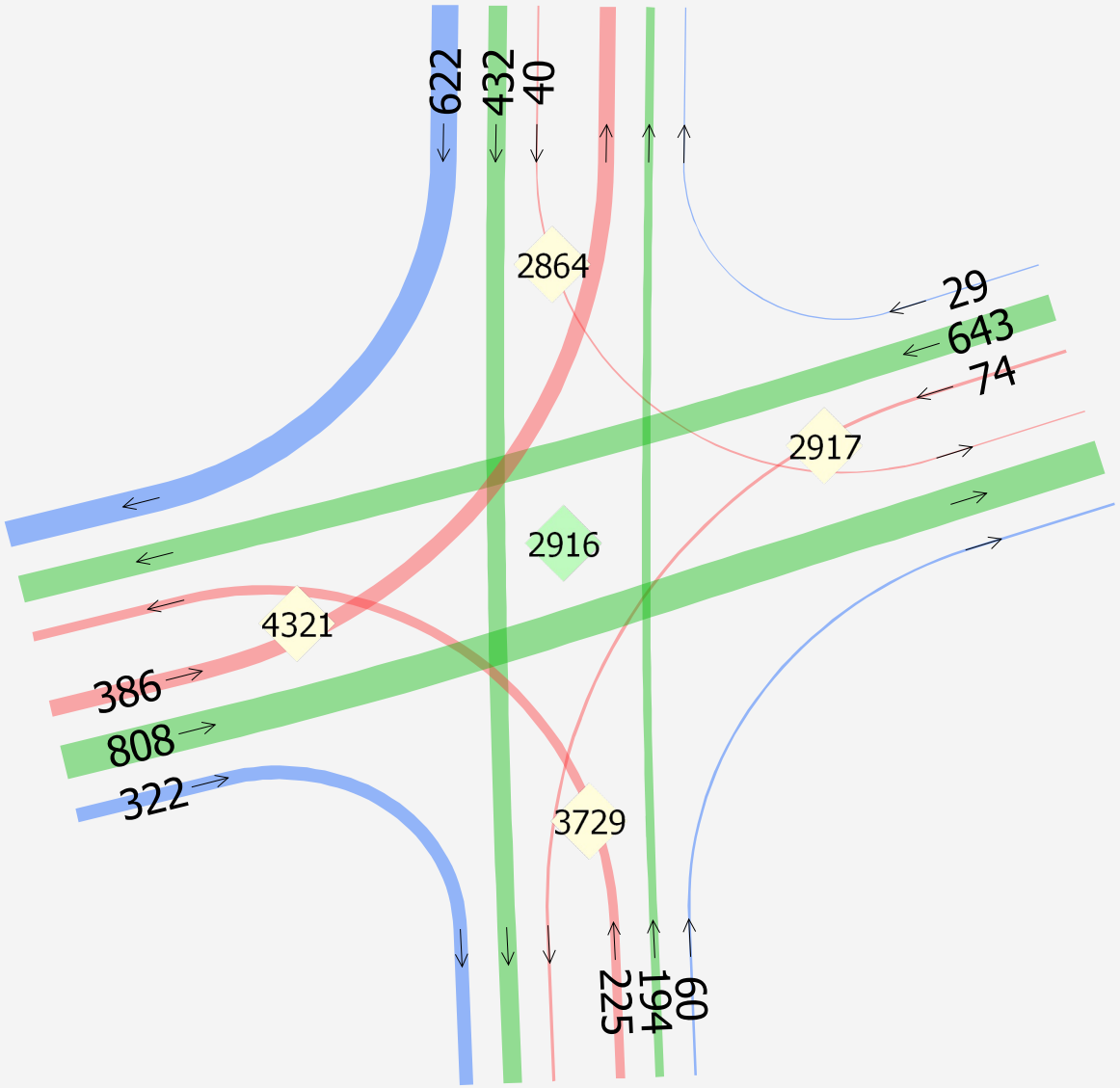
2045 PM Background Turn Volumes: Node 4507
Britton Pkwy NE & Carpenter Rd NE S-Leg



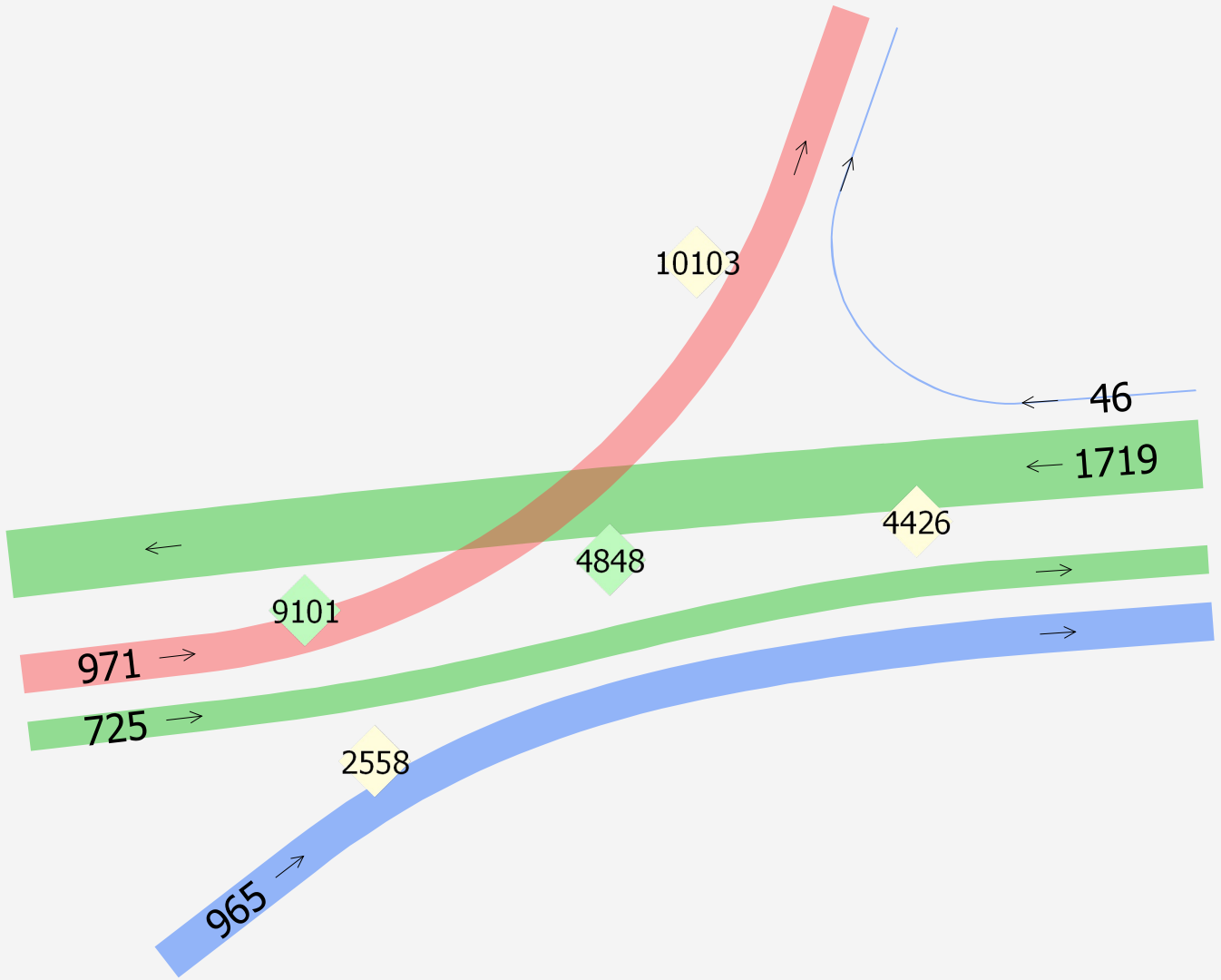
2045 PM Background Turn Volumes: Node 4832
Martin Way E & Carpenter Rd



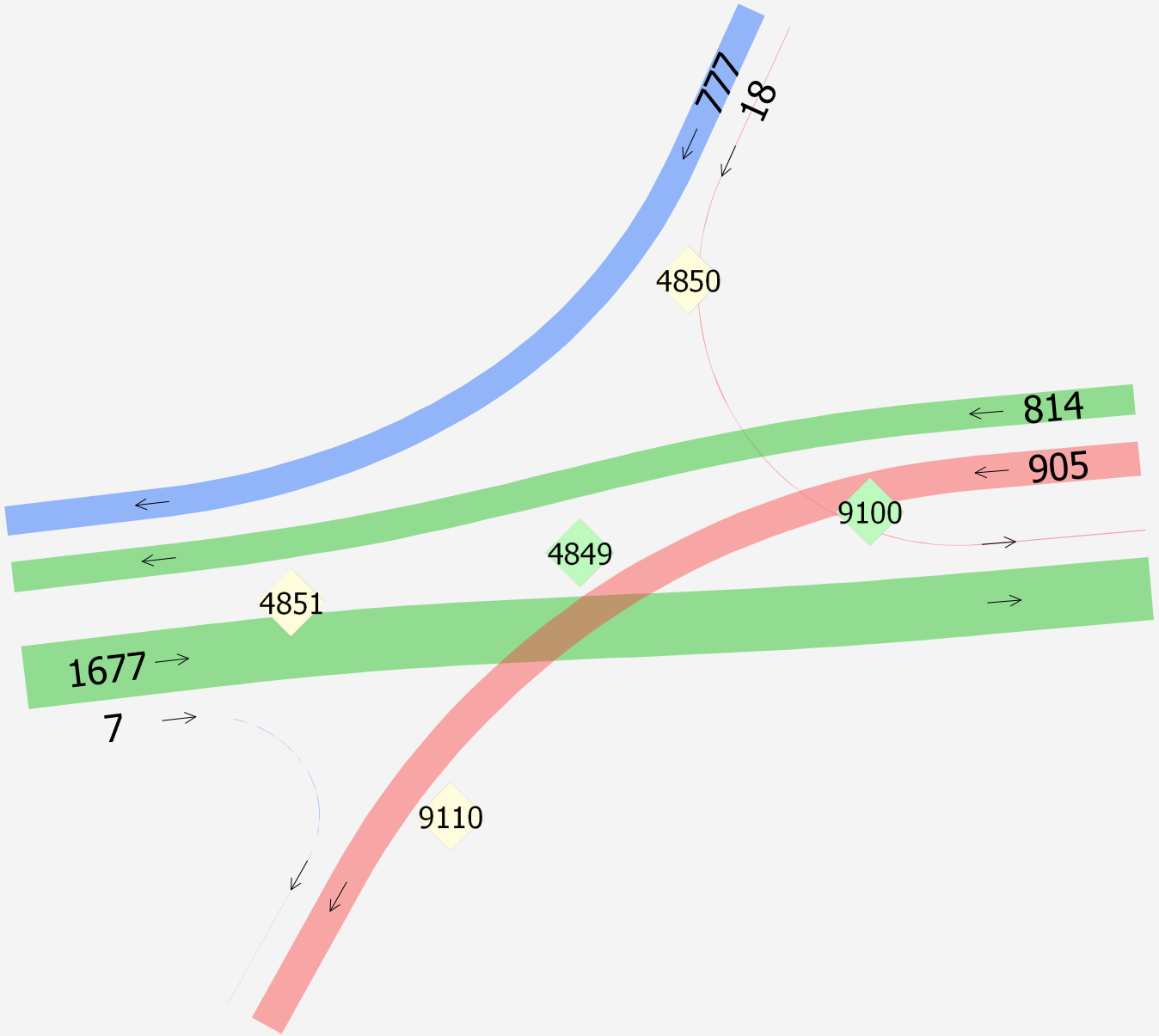
2045 PM Background Turn Volumes: Node 2916
Pacific Ave SE & Carpenter Rd SE



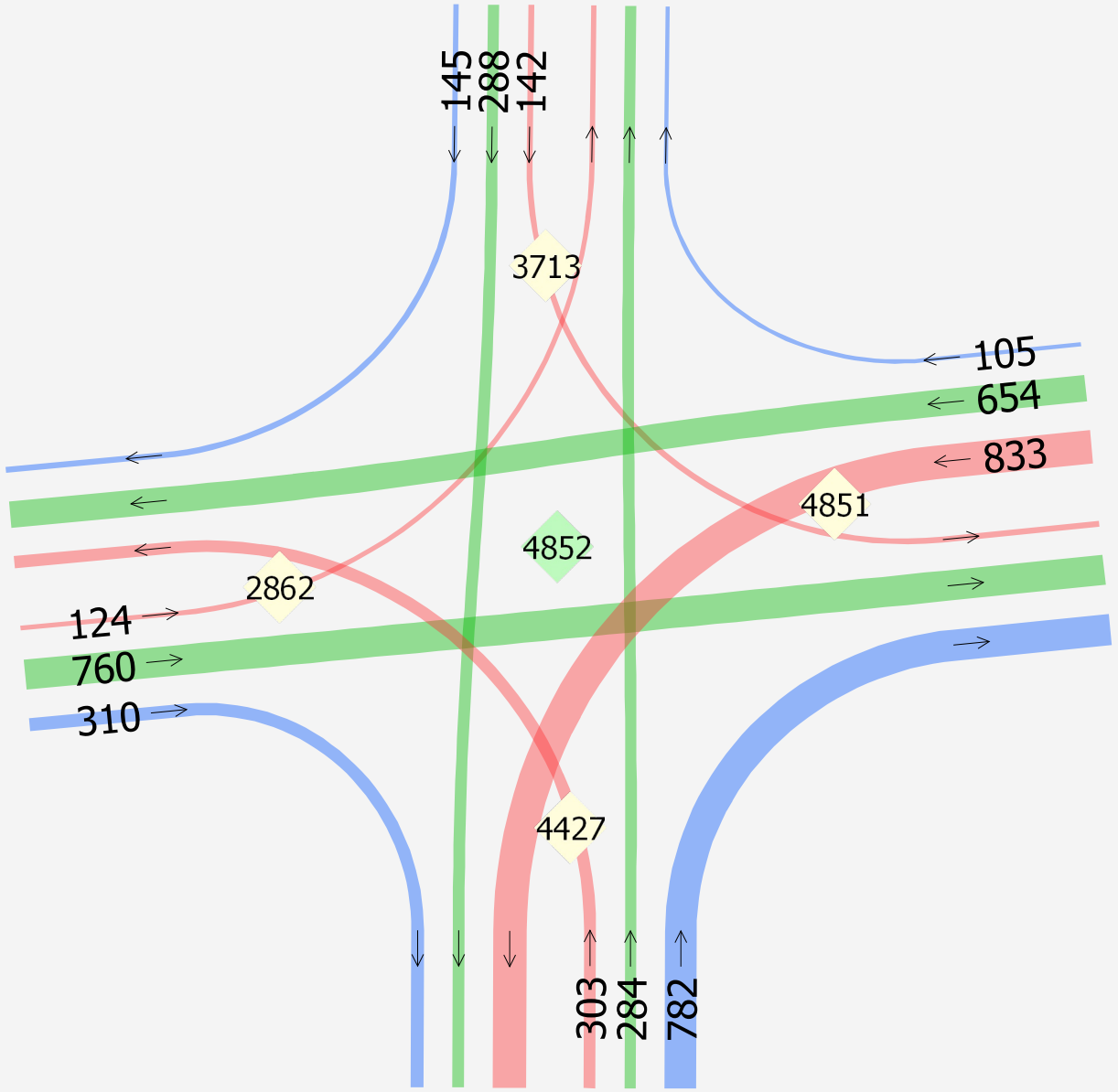
2045 PM Background Turn Volumes: Node 4848
Martin Way E & I-5 NB Ramps

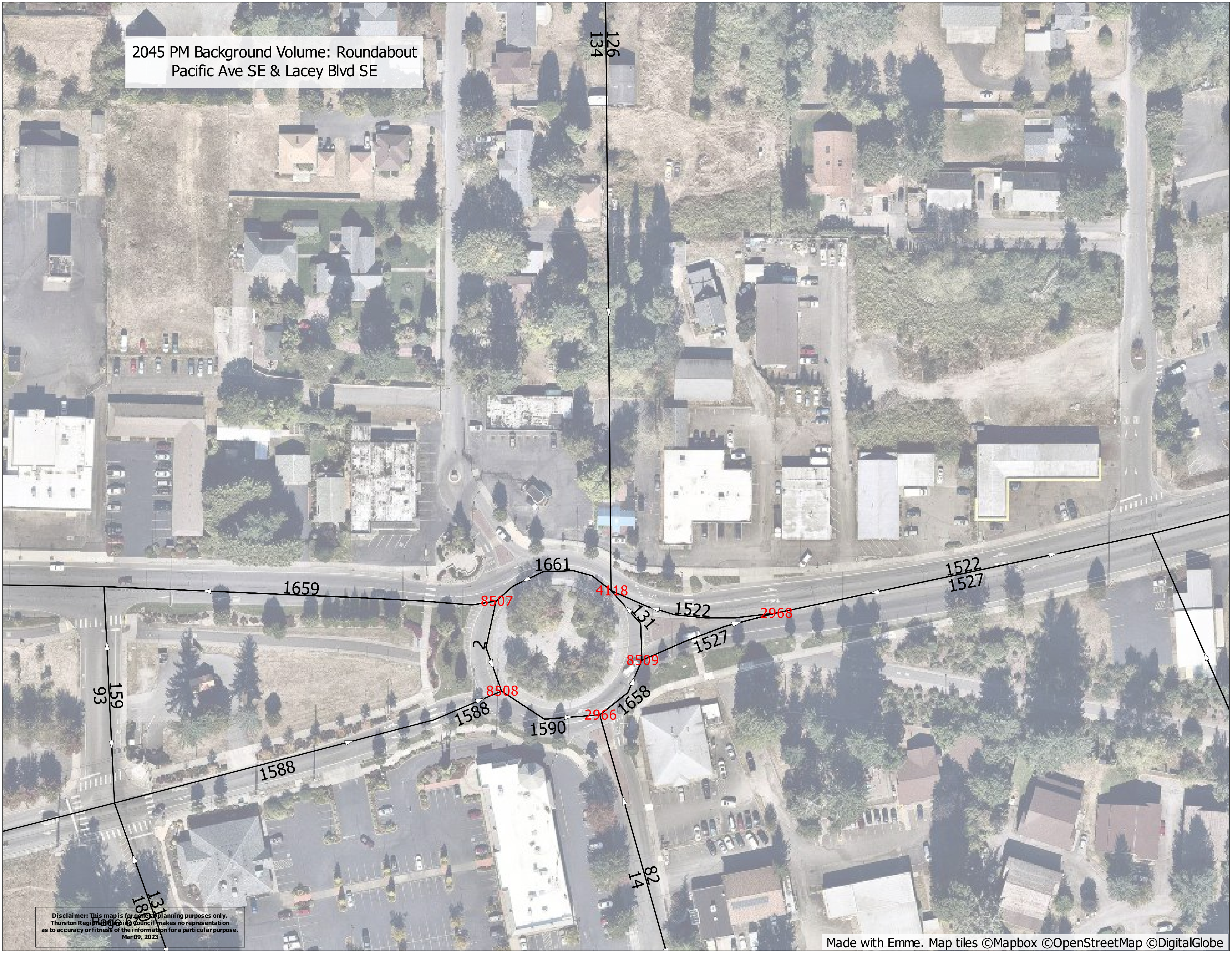


2045 PM Background Turn Volumes: Node 4849
Martin Way E & I-5 SB Ramps



2045 PM Background Turn Volumes: Node 4852
Martin Way E & College St





2045 PM Background Volume: Roundabout
Pacific Ave SE & Lacey Blvd SE
126
134
1661
1659
8507
4118
131
1522
2968
1522
1527
1527
2
8509
8508
1588
1658
2966
1590
1588
159
93
131
180
82
14
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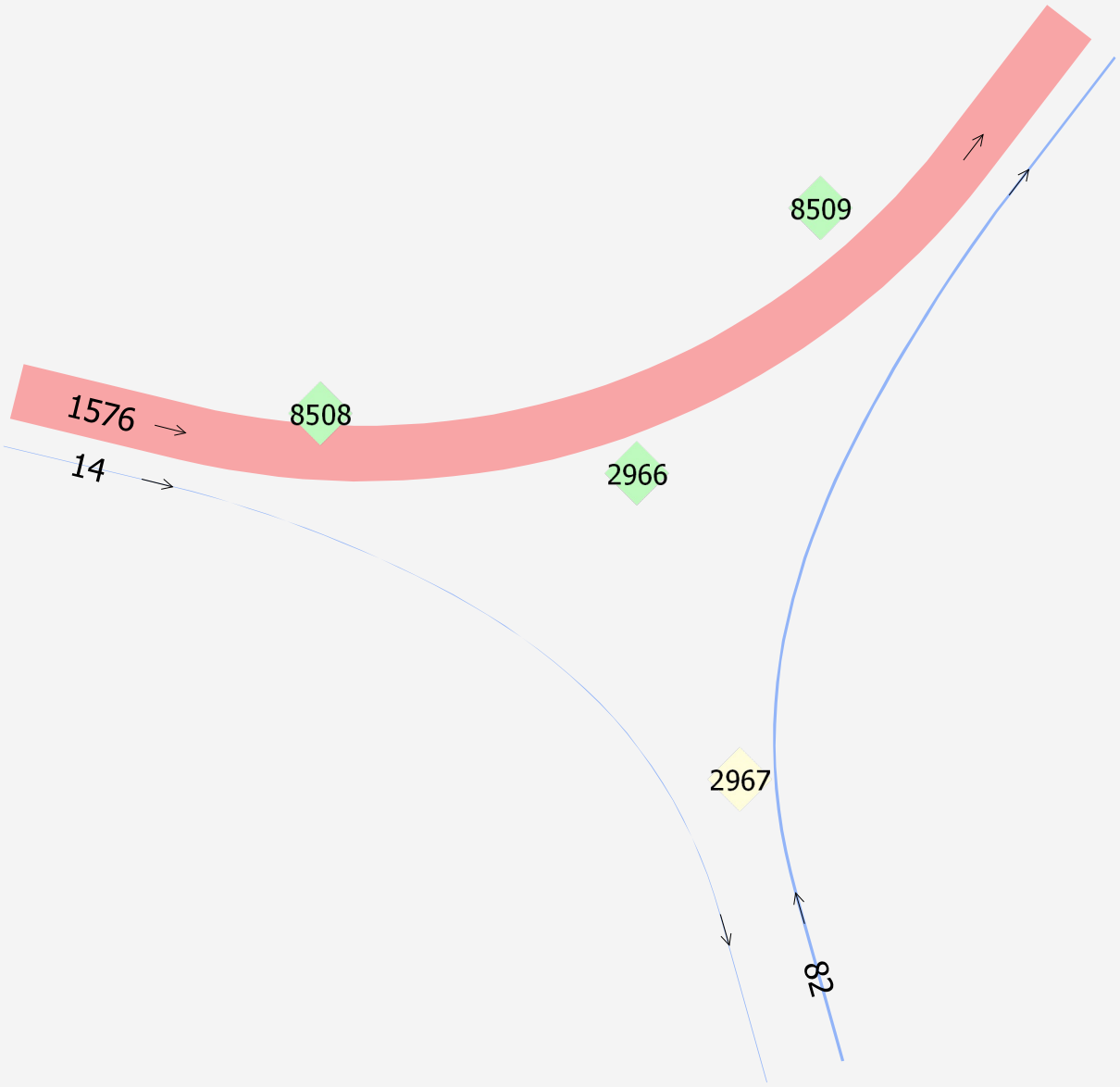
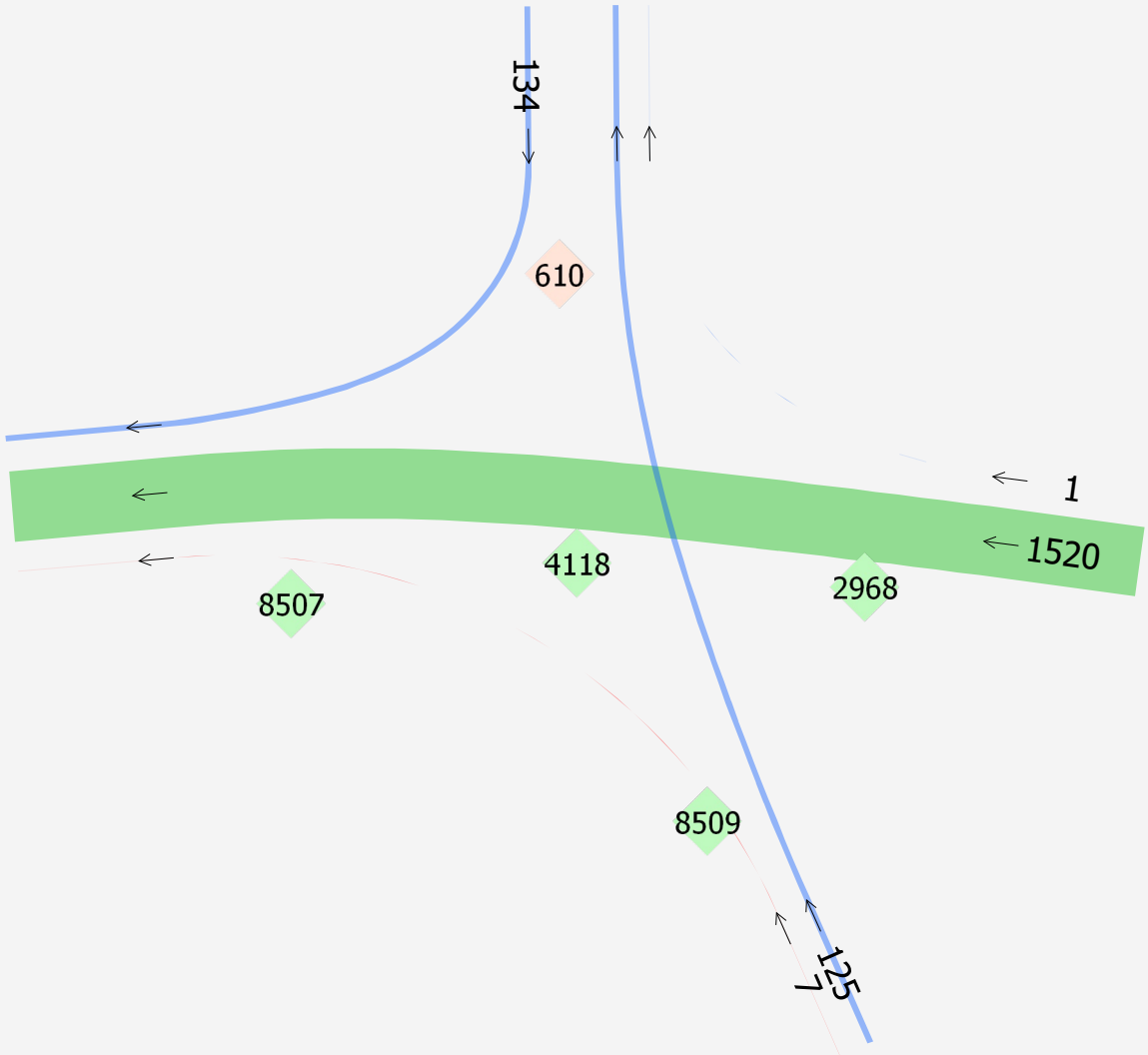
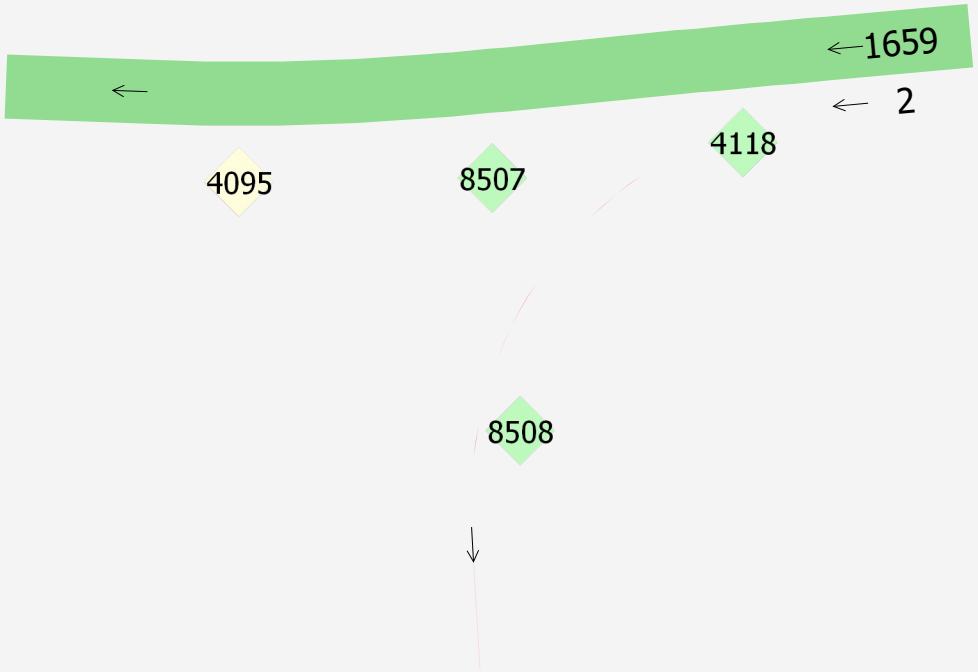
2045 PM Background Turn Volumes: Node 2966
Pacific Ave SE & Lacey Blvd SE E-Leg



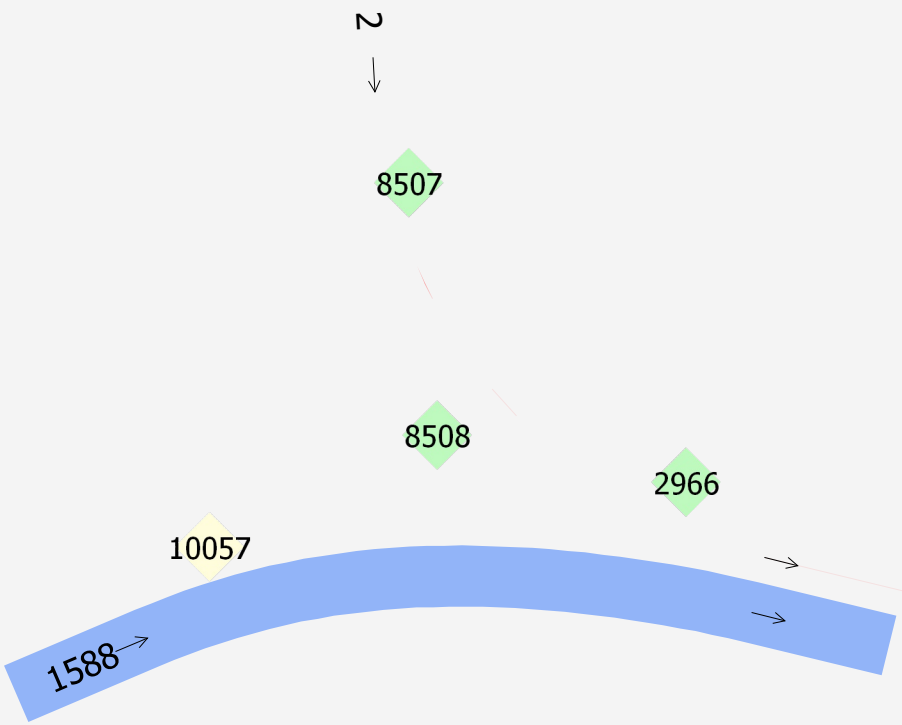
2045 PM Background Turn Volumes: Node 4118
Pacific Ave SE & Lacey Blvd SE NE-Leg



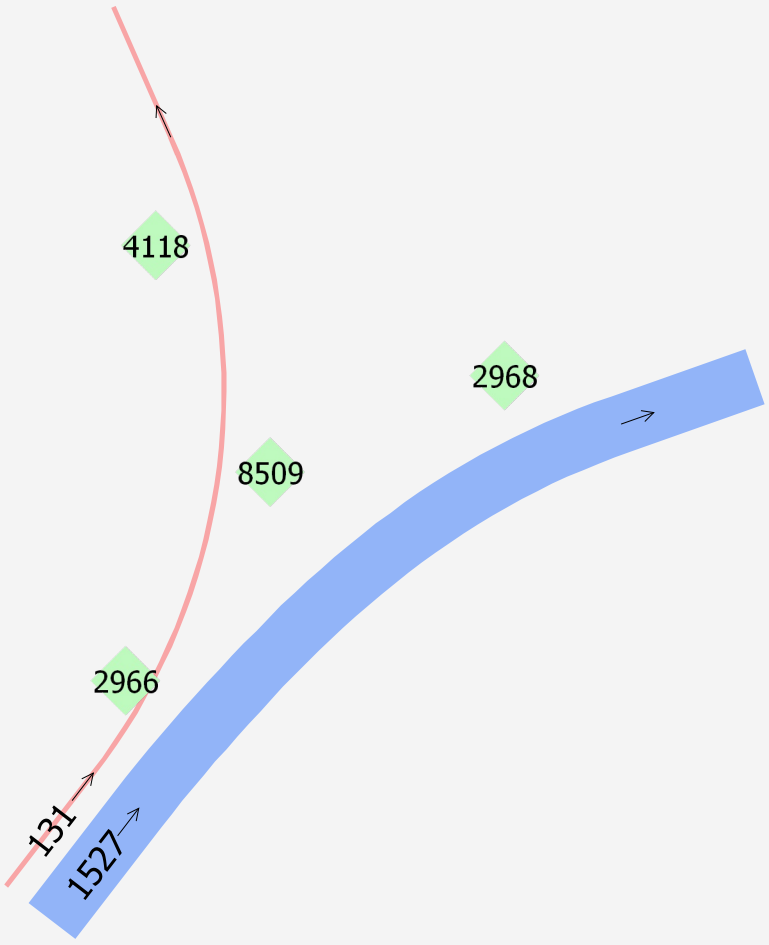
2045 PM Background Turn Volumes: Node 8507
Pacific Ave SE & Lacey Blvd SE NW-Leg



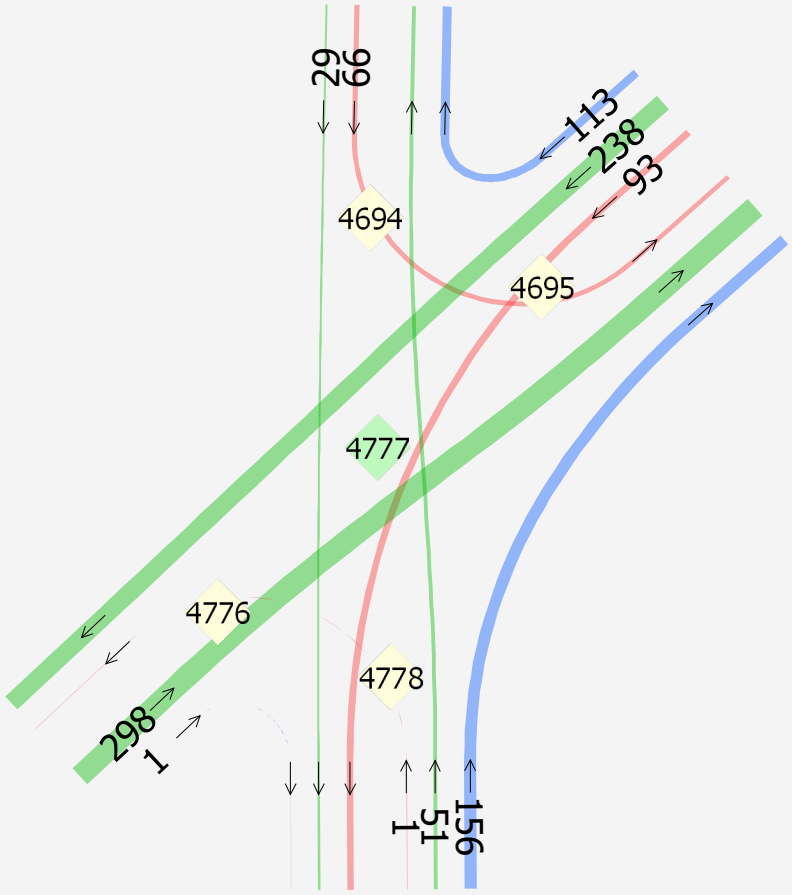
2045 PM Background Turn Volumes: Node 8508
Pacific Ave SE & Lacey Blvd SE SW-Leg



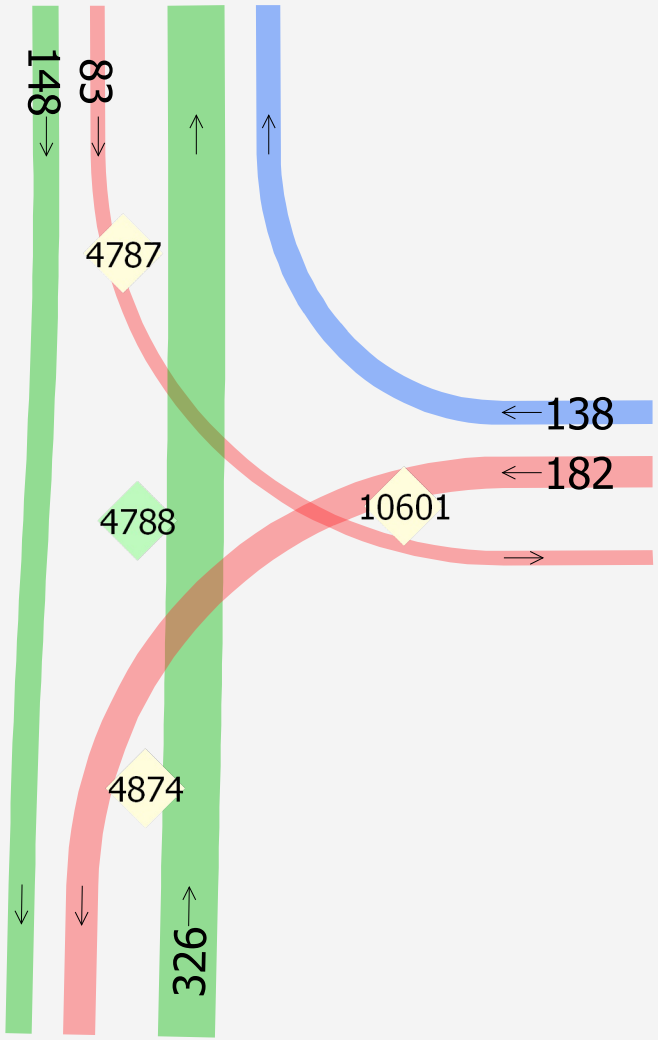
2045 PM Background Turn Volumes: Node 8509
Pacific Ave SE & Lacey Blvd SE SE-Leg



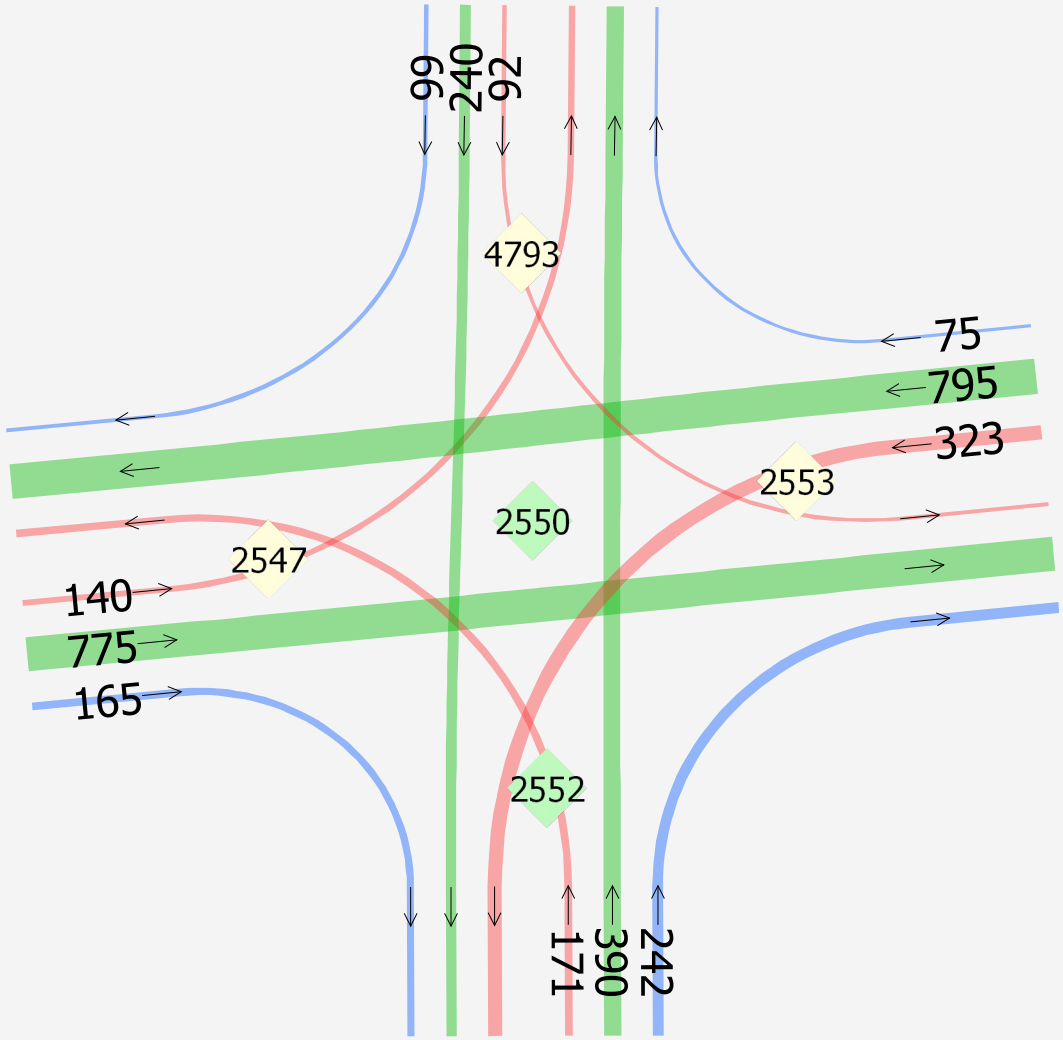
2045 PM Background Turn Volumes: Node 4777
Sleater Kinney Rd NE & South Bay Rd NE



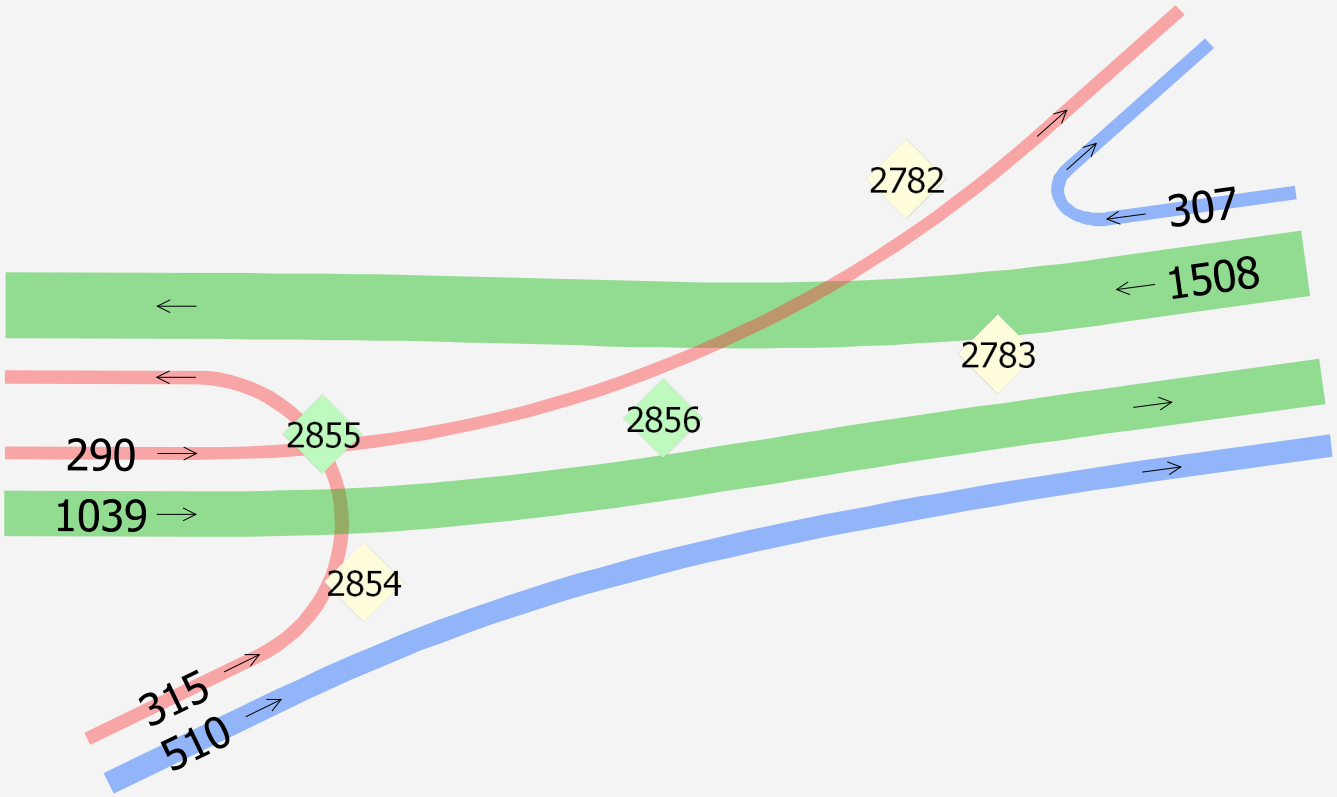
2045 PM Background Turn Volumes: Node 4788
Sleater Kinney Rd NE & 15th Ave NE



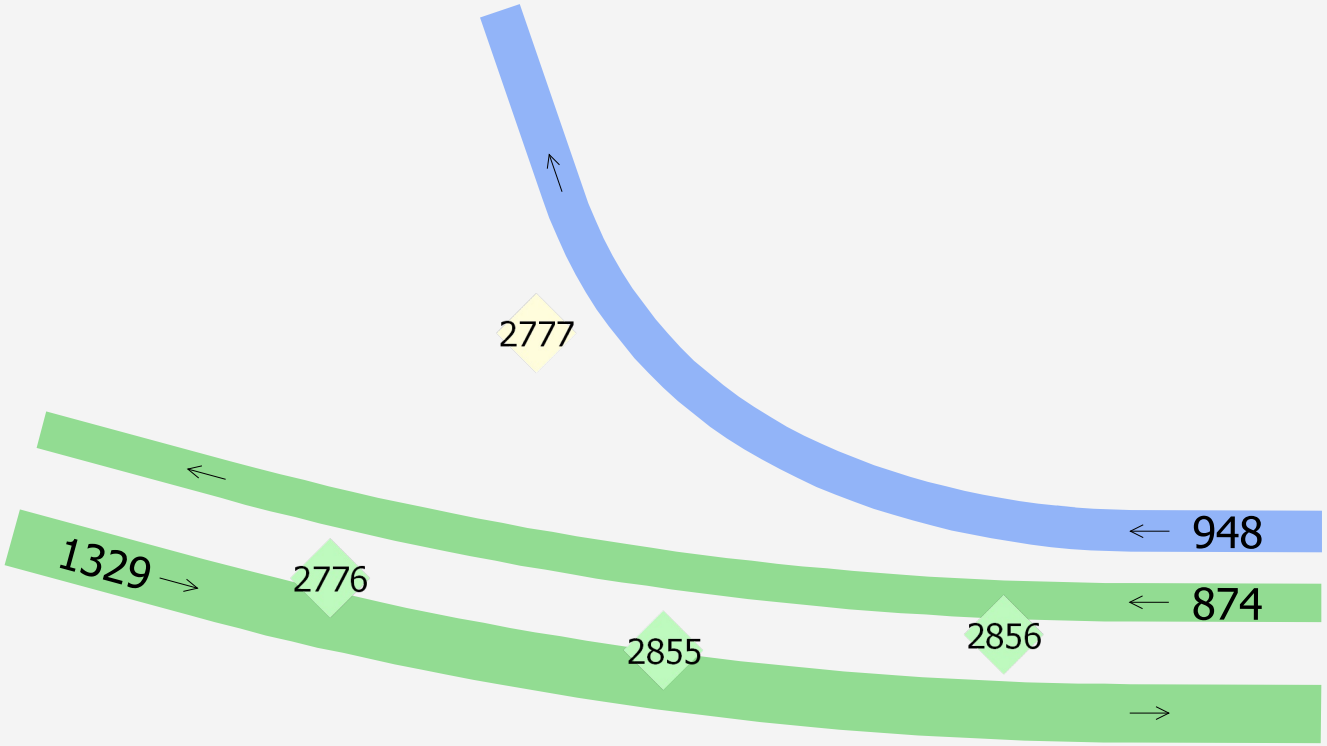
2045 PM Background Turn Volumes: Node 2550
Martin Way E & Sleater Kinney Rd



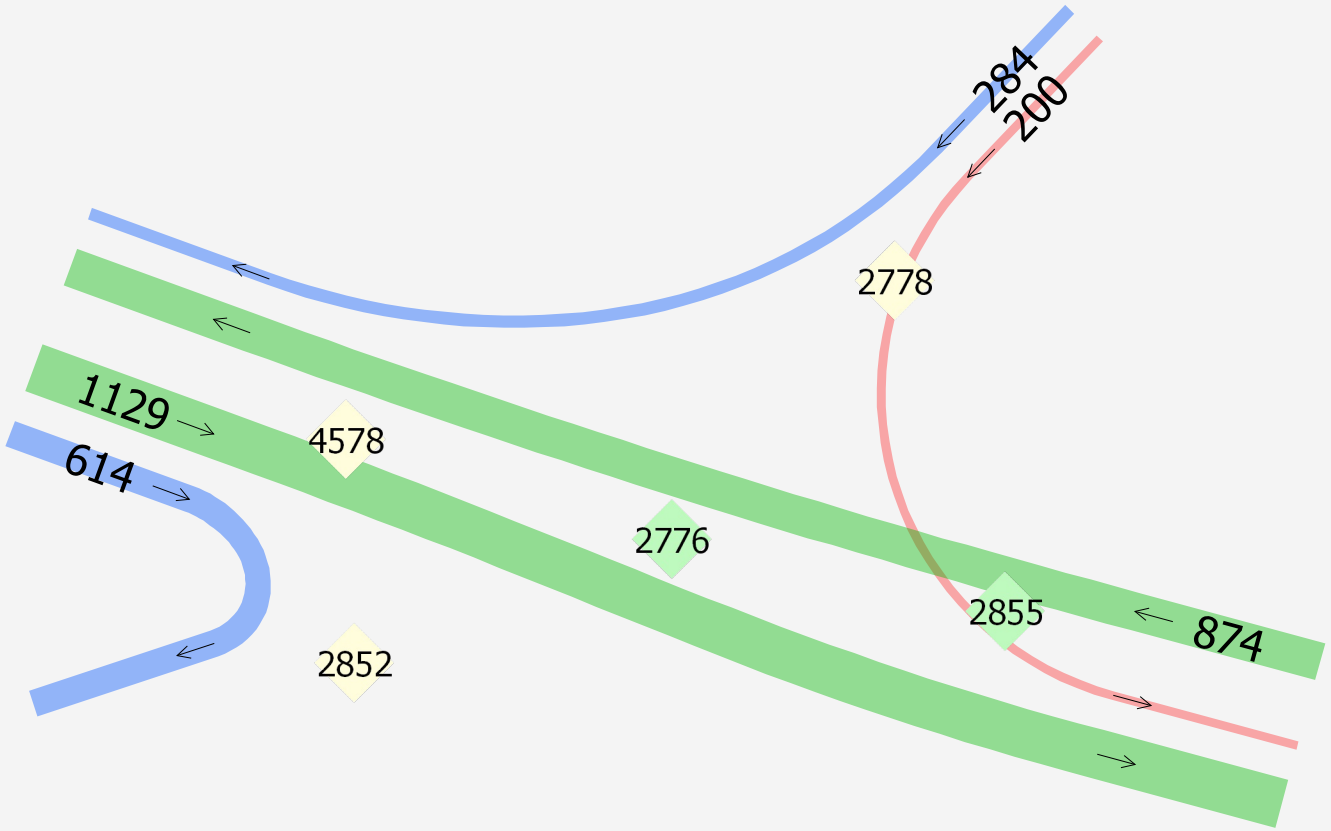
2045 PM Background Turn Volumes: Node 2856
Pacific Ave SE & I-5 NB Ramps



2045 PM Background Turn Volumes: Node 2855
Pacific Ave SE & I-5 SB Loop Ramp



2045 PM Background Turn Volumes: Node 2776
Pacific Ave SE & I-5 SB Ramps



2045 PM Background Turn Volumes: Node 4894
Marvin & Hogum Bay Rd NE


2045 PM Background Volume: Roundabout
Marvin Rd NE & 31st Ave NE
3922
980
705
3580
3280
970
616
10125
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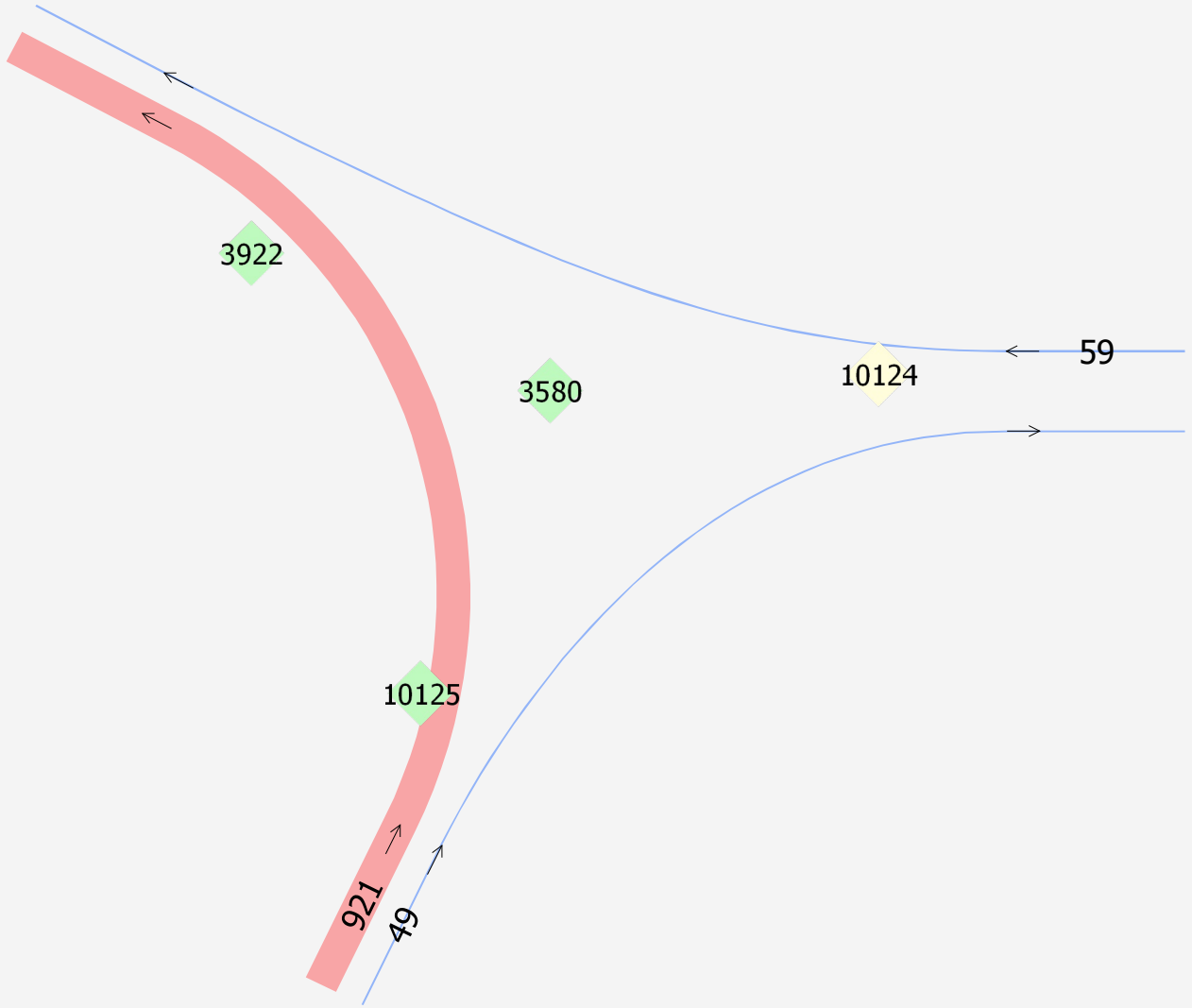
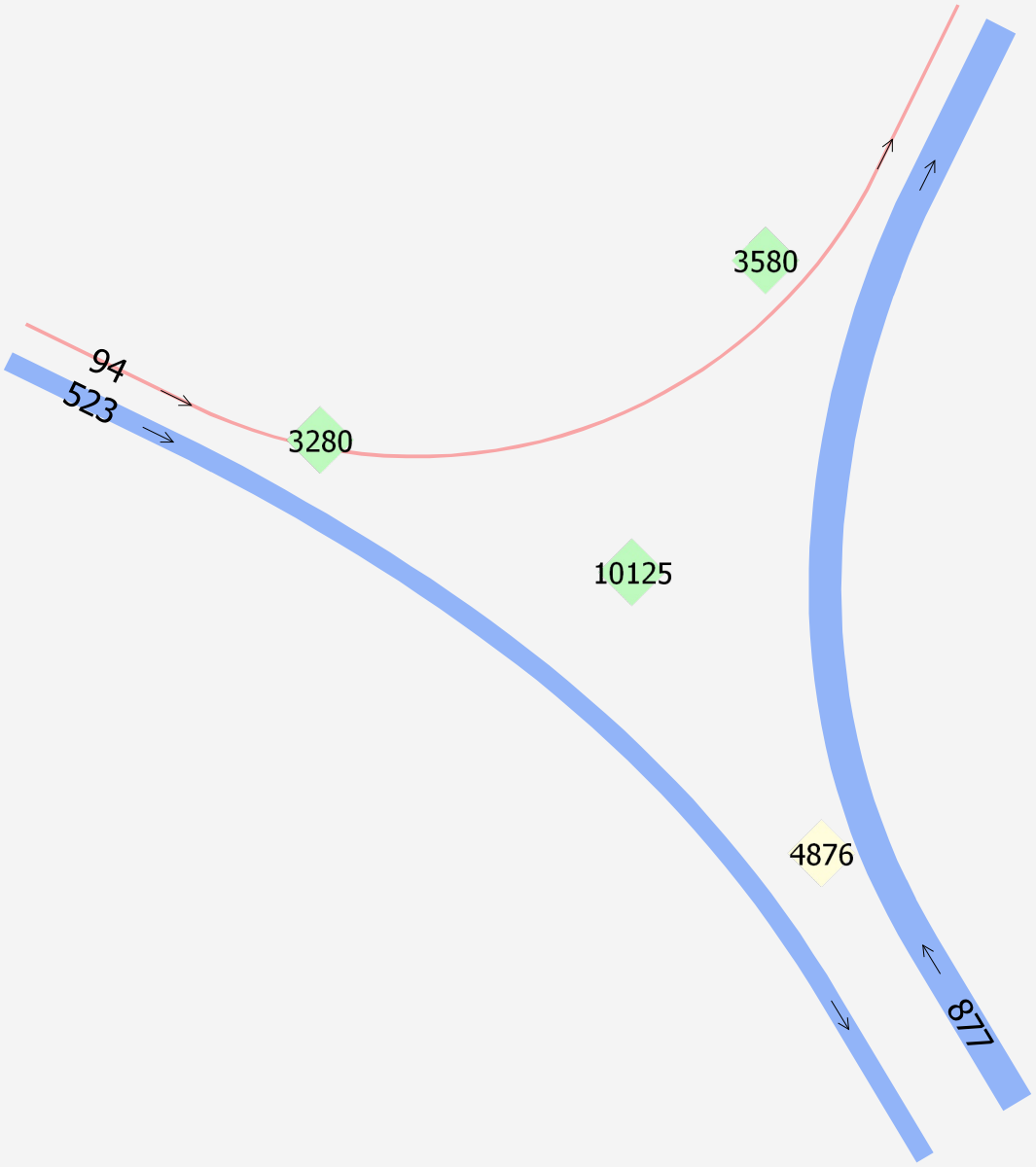
2045 PM Background Turn Volumes: Node 3280
Marvin Rd NE & 31st Ave NE W-Leg

2045 PM Background Turn Volumes: Node 3580
Marvin Rd NE & 31st Ave NE E-Leg



2045 PM Background Turn Volumes: Node 3922
Marvin Rd NE & 31st Ave NE N-Leg

2045 PM Background Turn Volumes: Node 10125
Marvin Rd NE & 31st Ave NE S-Leg



Data Sources

Mode Networks:

1) 2018 Comm. Netwk. Gateway Site
2) Committed Net 2045LU Tribe Proj. trips

Scenarios:

1) 81103 – 2018 PM Turns Sel_Link
2) 71113 – 2045 PM Turns
3) 81113 – 2045 PM Select Link Turns

Location:
W:\Data Request\Pipeline Model Projects\Committed Network\Models\

Appendix D: LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Highway Capacity Manual 2010/6th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix E: Intersection LOS Worksheets

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	225	0.0	250	0.0	0.227	10.1	LOS B	1.3	32.6	0.27	0.60	0.27	34.9
8	T1	380	0.0	422	0.0	0.227	4.4	LOS A	1.3	33.2	0.26	0.43	0.26	36.7
18	R2	5	0.0	6	0.0	0.227	4.4	LOS A	1.3	33.2	0.25	0.40	0.25	35.8
Approach		610	0.0	678	0.0	0.227	6.5	LOS A	1.3	33.2	0.26	0.49	0.26	36.0
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.289	14.2	LOS B	1.1	28.0	0.51	0.76	0.51	35.6
1	L2	135	3.0	150	3.0	0.289	11.8	LOS B	1.1	28.0	0.51	0.76	0.51	34.8
6	T1	75	3.0	83	3.0	0.289	6.0	LOS A	1.1	28.0	0.51	0.76	0.51	34.7
16	R2	25	3.0	28	3.0	0.289	6.0	LOS A	1.1	28.0	0.51	0.76	0.51	33.8
Approach		240	3.0	267	3.0	0.289	9.4	LOS A	1.1	28.0	0.51	0.76	0.51	34.7
North: Marvin Rd NE														
7	L2	10	2.0	11	2.0	0.165	12.1	LOS B	0.9	23.3	0.58	0.62	0.58	35.7
4	T1	250	2.0	278	2.0	0.165	6.2	LOS A	1.0	24.9	0.57	0.61	0.57	35.9
14	R2	70	2.0	78	2.0	0.165	6.0	LOS A	1.0	24.9	0.56	0.59	0.56	34.9
Approach		330	2.0	367	2.0	0.165	6.3	LOS A	1.0	24.9	0.57	0.61	0.57	35.7
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.195	13.5	LOS B	0.8	19.5	0.43	0.66	0.43	36.8
5	L2	50	3.0	56	3.0	0.195	11.1	LOS B	0.8	19.5	0.43	0.66	0.43	35.9
2	T1	15	3.0	17	3.0	0.195	5.4	LOS A	0.8	19.5	0.43	0.66	0.43	35.8
12	R2	105	3.0	117	3.0	0.195	5.3	LOS A	0.8	19.5	0.43	0.66	0.43	34.8
Approach		175	3.0	194	3.0	0.195	7.2	LOS A	0.8	19.5	0.43	0.66	0.43	35.2
All Vehicles		1355	1.4	1506	1.4	0.289	7.1	LOS A	1.3	33.2	0.40	0.59	0.40	35.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	270	2.0	281	2.0	0.452	11.0	LOS B	2.5	64.1	0.47	0.62	0.47	35.4
8	T1	775	2.0	807	2.0	0.452	4.9	LOS A	2.6	65.4	0.46	0.51	0.46	36.2
18	R2	25	2.0	26	2.0	0.452	5.0	LOS A	2.6	65.4	0.45	0.46	0.45	35.3
Approach		1070	2.0	1115	2.0	0.452	6.5	LOS A	2.6	65.4	0.46	0.54	0.46	35.9
East: Britton Pkwy NE														
1	L2	335	4.0	349	4.0	0.387	12.9	LOS B	2.0	51.3	0.70	0.88	0.76	33.4
6	T1	175	4.0	182	4.0	0.317	7.7	LOS A	1.4	36.1	0.69	0.74	0.71	35.7
16	R2	30	4.0	31	4.0	0.317	7.8	LOS A	1.4	36.1	0.69	0.74	0.71	34.5
Approach		540	4.0	563	4.0	0.387	10.9	LOS B	2.0	51.3	0.70	0.83	0.74	34.1
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	0.515	17.1	LOS B	3.2	83.8	0.74	0.87	0.89	36.0
7	L2	45	4.0	47	4.0	0.515	14.5	LOS B	3.2	83.8	0.74	0.87	0.89	35.1
4	T1	715	4.0	745	4.0	0.515	8.1	LOS A	3.5	89.2	0.74	0.82	0.87	35.3
14	R2	90	4.0	94	4.0	0.515	7.7	LOS A	3.5	89.2	0.74	0.78	0.86	34.3
Approach		860	4.0	896	4.0	0.515	8.5	LOS A	3.5	89.2	0.74	0.82	0.87	35.2
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.117	15.2	LOS B	0.5	13.7	0.66	0.85	0.66	34.2
5	L2	75	5.0	78	5.0	0.117	12.7	LOS B	0.5	13.7	0.66	0.85	0.66	33.3
2	T1	100	5.0	104	5.0	0.096	6.0	LOS A	0.5	13.5	0.68	0.56	0.68	35.6
12	R2	180	5.0	188	5.0	0.165	5.9	LOS A	0.9	22.9	0.67	0.67	0.67	35.0
Approach		365	5.0	380	5.0	0.165	7.6	LOS A	0.9	22.9	0.67	0.68	0.67	34.8
All Vehicles		2835	3.4	2954	3.4	0.515	8.1	LOS A	3.5	89.2	0.62	0.70	0.66	35.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

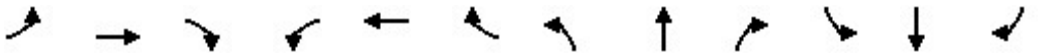
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	250	3.0	275	3.0	0.471	12.5	LOS B	4.0	101.8	0.18	0.52	0.18	28.3
3	L2	1	3.0	1	3.0	0.471	10.0	LOS B	4.0	101.8	0.18	0.52	0.18	34.5
8	T1	1060	3.0	1165	3.0	0.471	4.0	LOS A	4.0	102.9	0.18	0.41	0.18	33.8
18	R2	15	3.0	16	3.0	0.471	4.1	LOS A	4.0	102.9	0.17	0.36	0.17	34.9
Approach		1326	3.0	1457	3.0	0.471	5.6	LOS A	4.0	102.9	0.18	0.43	0.18	32.7
East: Main St NE														
1	L2	10	0.0	11	0.0	0.043	12.8	LOS B	0.2	3.9	0.58	0.76	0.58	34.1
6	T1	1	0.0	1	0.0	0.043	6.8	LOS A	0.2	3.9	0.58	0.76	0.58	35.4
16	R2	20	0.0	22	0.0	0.043	6.8	LOS A	0.2	3.9	0.58	0.76	0.58	33.0
Approach		31	0.0	34	0.0	0.043	8.7	LOS A	0.2	3.9	0.58	0.76	0.58	33.4
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.512	14.3	LOS B	3.6	93.4	0.59	0.57	0.59	34.5
7	L2	15	3.0	16	3.0	0.512	11.8	LOS B	3.6	93.4	0.59	0.57	0.59	34.9
4	T1	1180	3.0	1297	3.0	0.512	5.5	LOS A	3.8	97.0	0.57	0.54	0.57	32.2
14	R2	1	3.0	1	3.0	0.512	5.5	LOS A	3.8	97.0	0.56	0.52	0.56	33.5
Approach		1201	3.0	1320	3.0	0.512	5.7	LOS A	3.8	97.0	0.57	0.54	0.57	32.3
West: Main St NE														
5	L2	1	0.0	1	0.0	0.003	12.6	LOS B	0.0	0.3	0.70	0.63	0.70	33.5
2	T1	1	0.0	1	0.0	0.003	6.6	LOS A	0.0	0.3	0.70	0.63	0.70	34.6
12	R2	1	0.0	1	0.0	0.001	3.6	LOS A	0.0	0.0	0.00	0.43	0.00	36.4
Approach		3	0.0	3	0.0	0.003	7.6	LOS A	0.0	0.3	0.47	0.56	0.47	34.7
All Vehicles		2561	3.0	2814	3.0	0.512	5.7	LOS A	4.0	102.9	0.37	0.49	0.37	32.5

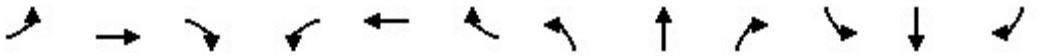
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	500	0	0	405	0	1145	615	0	900	510
Future Volume (vph)	0	0	500	0	0	405	0	1145	615	0	900	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.99	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3318	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3318	1409		3438	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	521	0	0	422	0	1193	641	0	938	531
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	521	0	0	422	0	1283	551	0	938	531
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1728	1409		1246	1538
v/s Ratio Prot			0.19			0.15		c0.39			c0.27	
v/s Ratio Perm									0.39			0.35
v/c Ratio			0.35			0.39		0.74	0.39		0.75	0.35
Uniform Delay, d1			15.8			26.5		22.5	0.0		33.5	0.0
Progression Factor			1.00			1.00		0.49	1.00		1.00	1.00
Incremental Delay, d2			0.1			0.2		2.4	0.7		4.2	0.6
Delay (s)			15.9			26.8		13.3	0.7		37.8	0.6
Level of Service			B			C		B	A		D	A
Approach Delay (s)		15.9			26.8			9.5			24.3	
Approach LOS		B			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

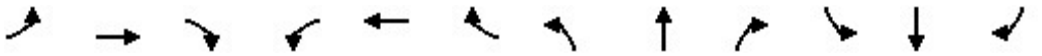
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	140	0	0	460	0	1300	235	0	1225	175
Future Volume (vph)	0	0	140	0	0	460	0	1300	235	0	1225	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	141	0	0	465	0	1313	237	0	1237	177
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	141	0	0	465	0	1313	237	0	1237	177
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.09			0.17		c0.26			c0.35	
v/s Ratio Perm									0.15			0.12
v/c Ratio			0.23			0.32		0.70	0.15		0.68	0.12
Uniform Delay, d1			24.8			15.5		32.0	0.0		21.3	0.0
Progression Factor			1.00			1.00		1.00	1.00		0.62	1.00
Incremental Delay, d2			0.2			0.1		1.6	0.2		1.6	0.1
Delay (s)			25.0			15.7		33.5	0.2		14.9	0.1
Level of Service			C			B		C	A		B	A
Approach Delay (s)		25.0			15.7			28.4			13.0	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

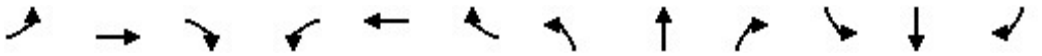
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	195	130	65	60	255	60	865	60	200	800	285
Future Volume (veh/h)	390	195	130	65	60	255	60	865	60	200	800	285
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		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	406	203	135	68	62	266	62	901	62	208	833	297
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	492	224	149	88	227	391	80	1433	99	224	1812	788
Arrive On Green	0.14	0.21	0.21	0.05	0.12	0.12	0.04	0.43	0.43	0.13	0.51	0.51
Sat Flow, veh/h	3483	1055	702	1795	1885	1590	1781	3367	232	1795	3582	1558
Grp Volume(v), veh/h	406	0	338	68	62	266	62	475	488	208	833	297
Grp Sat Flow(s),veh/h/ln	1742	0	1757	1795	1885	1590	1781	1777	1822	1795	1791	1558
Q Serve(g_s), s	13.6	0.0	22.5	4.5	3.6	11.5	4.1	25.2	25.2	13.8	18.0	7.3
Cycle Q Clear(g_c), s	13.6	0.0	22.5	4.5	3.6	11.5	4.1	25.2	25.2	13.8	18.0	7.3
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	492	0	374	88	227	391	80	756	776	224	1812	788
V/C Ratio(X)	0.83	0.00	0.90	0.77	0.27	0.68	0.78	0.63	0.63	0.93	0.46	0.38
Avail Cap(c_a), veh/h	566	0	403	150	283	438	119	756	776	224	1812	788
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	1.00	1.00	0.73	0.73	0.73	0.73	0.73	0.73
Uniform Delay (d), s/veh	50.1	0.0	46.1	56.4	48.0	18.8	56.7	27.0	27.0	52.0	19.1	4.9
Incr Delay (d2), s/veh	10.6	0.0	24.2	25.6	1.4	5.4	22.5	2.9	2.8	33.7	0.6	1.0
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	6.6	0.0	12.3	2.7	1.8	4.7	2.4	11.2	11.4	8.3	7.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	0.0	70.2	82.0	49.3	24.3	79.2	29.9	29.8	85.7	19.7	5.9
LnGrp LOS	E	A	E	F	D	C	E	C	C	F	B	A
Approach Vol, veh/h		744			396			1025			1338	
Approach Delay, s/veh		65.0			38.1			32.9			26.9	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	66.7	22.4	19.5	21.0	57.1	10.9	31.0
Change Period (Y+Rc), s	6.0	6.0	5.5	5.0	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	8.0	52.0	19.5	18.0	15.0	45.0	10.0	27.5
Max Q Clear Time (g_c+I1), s	6.1	20.0	15.6	13.5	15.8	27.2	6.5	24.5
Green Ext Time (p_c), s	0.0	15.7	1.1	1.0	0.0	10.0	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	55	120	135	55	100	160	680	150	125	760	85
Future Volume (veh/h)	135	55	120	135	55	100	160	680	150	125	760	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	138	56	122	138	56	102	163	694	153	128	776	87
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	185	69	151	164	71	130	191	897	198	565	1685	189
Arrive On Green	0.10	0.13	0.13	0.09	0.12	0.12	0.11	0.31	0.31	0.10	0.17	0.17
Sat Flow, veh/h	1810	527	1148	1795	592	1079	1767	2871	632	1795	3246	364
Grp Volume(v), veh/h	138	0	178	138	0	158	163	426	421	128	428	435
Grp Sat Flow(s),veh/h/ln	1810	0	1675	1795	0	1672	1767	1763	1740	1795	1791	1819
Q Serve(g_s), s	8.9	0.0	12.4	9.1	0.0	11.0	10.9	26.3	26.3	7.9	25.8	25.8
Cycle Q Clear(g_c), s	8.9	0.0	12.4	9.1	0.0	11.0	10.9	26.3	26.3	7.9	25.8	25.8
Prop In Lane	1.00		0.69	1.00		0.65	1.00		0.36	1.00		0.20
Lane Grp Cap(c), veh/h	185	0	221	164	0	202	191	551	544	565	929	944
V/C Ratio(X)	0.74	0.00	0.81	0.84	0.00	0.78	0.85	0.77	0.77	0.23	0.46	0.46
Avail Cap(c_a), veh/h	185	0	335	165	0	334	265	720	711	565	929	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	52.3	0.0	50.6	53.7	0.0	51.2	52.6	37.4	37.4	40.4	34.6	34.6
Incr Delay (d2), s/veh	14.3	0.0	6.8	29.8	0.0	4.9	15.8	4.2	4.2	0.1	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	4.8	0.0	5.6	5.5	0.0	4.9	5.7	11.9	11.8	3.7	12.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	0.0	57.4	83.5	0.0	56.2	68.4	41.6	41.7	40.5	35.0	35.0
LnGrp LOS	E	A	E	F	A	E	E	D	D	D	C	C
Approach Vol, veh/h		316			296			1010			991	
Approach Delay, s/veh		61.4			68.9			45.9			35.7	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	67.3	16.3	18.5	42.7	42.5	15.0	19.8
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	18.0	49.0	11.0	24.0	18.0	49.0	11.0	24.0
Max Q Clear Time (g_c+I1), s	12.9	27.8	10.9	13.0	9.9	28.3	11.1	14.4
Green Ext Time (p_c), s	0.1	6.6	0.0	0.5	0.1	6.4	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	470	345	320	465	255	215	460	185	225	755	245
Future Volume (veh/h)	290	470	345	320	465	255	215	460	185	225	755	245
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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	293	475	0	323	470	0	217	465	187	227	763	247
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	386	587		385	588		543	560	224	599	913	406
Arrive On Green	0.11	0.16	0.00	0.11	0.16	0.00	0.30	0.22	0.22	0.33	0.25	0.25
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2497	997	1810	3610	1606
Grp Volume(v), veh/h	293	475	0	323	470	0	217	333	319	227	763	247
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1703	1810	1805	1606
Q Serve(g_s), s	9.8	15.3	0.0	10.8	15.0	0.0	11.5	21.2	21.5	11.5	24.0	16.3
Cycle Q Clear(g_c), s	9.8	15.3	0.0	10.8	15.0	0.0	11.5	21.2	21.5	11.5	24.0	16.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	386	587		385	588		543	402	382	599	913	406
V/C Ratio(X)	0.76	0.81		0.84	0.80		0.40	0.83	0.84	0.38	0.84	0.61
Avail Cap(c_a), veh/h	551	761		556	767		543	537	511	599	1083	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	48.4	0.0	52.4	48.3	0.0	33.2	44.3	44.4	30.7	42.5	39.6
Incr Delay (d2), s/veh	2.0	5.4	0.0	5.2	4.9	0.0	0.2	17.6	19.1	0.1	8.9	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	7.2	0.0	5.0	7.1	0.0	5.0	11.3	11.1	5.1	11.8	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	53.7	0.0	57.6	53.2	0.0	33.4	61.9	63.6	30.8	51.4	46.2
LnGrp LOS	D	D		E	D		C	E	E	C	D	D
Approach Vol, veh/h		768			793			869			1237	
Approach Delay, s/veh		53.7			55.0			55.4			46.6	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	41.3	35.4	18.3	25.0	44.7	31.9	18.2	25.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	19.0	36.0	19.0	25.5	19.0	36.0	19.0	25.5
Max Q Clear Time (g_c+I1), s	13.5	26.0	11.8	17.0	13.5	23.5	12.8	17.3
Green Ext Time (p_c), s	0.2	4.3	0.3	2.1	0.2	3.3	0.3	2.1

Intersection Summary	
HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	185	15	90	215	185	25	470	15	255	845	190
Future Volume (veh/h)	140	185	15	90	215	185	25	470	15	255	845	190
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	149	197	16	96	229	197	27	500	16	271	899	202
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	187	520	42	124	253	217	60	799	26	317	1071	240
Arrive On Green	0.10	0.30	0.30	0.07	0.27	0.27	0.03	0.23	0.23	0.18	0.37	0.37
Sat Flow, veh/h	1781	1707	139	1810	942	811	1795	3542	113	1795	2904	652
Grp Volume(v), veh/h	149	0	213	96	0	426	27	253	263	271	554	547
Grp Sat Flow(s),veh/h/ln	1781	0	1845	1810	0	1753	1795	1791	1864	1795	1791	1765
Q Serve(g_s), s	6.8	0.0	7.5	4.3	0.0	19.5	1.2	10.6	10.6	12.2	23.5	23.6
Cycle Q Clear(g_c), s	6.8	0.0	7.5	4.3	0.0	19.5	1.2	10.6	10.6	12.2	23.5	23.6
Prop In Lane	1.00		0.08	1.00		0.46	1.00		0.06	1.00		0.37
Lane Grp Cap(c), veh/h	187	0	562	124	0	470	60	404	420	317	660	651
V/C Ratio(X)	0.80	0.00	0.38	0.77	0.00	0.91	0.45	0.63	0.63	0.85	0.84	0.84
Avail Cap(c_a), veh/h	437	0	562	226	0	514	224	777	809	786	777	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	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	36.4	0.0	22.7	38.1	0.0	29.4	39.4	29.0	29.1	33.2	24.0	24.0
Incr Delay (d2), s/veh	5.8	0.0	0.4	7.5	0.0	18.6	3.9	1.4	1.4	4.9	7.0	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	3.2	2.1	0.0	10.3	0.6	4.6	4.8	5.6	10.7	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	23.2	45.6	0.0	48.0	43.3	30.5	30.5	38.1	31.0	31.2
LnGrp LOS	D	A	C	D	A	D	D	C	C	D	C	C
Approach Vol, veh/h		362			522			543			1372	
Approach Delay, s/veh		31.0			47.6			31.1			32.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	35.6	13.3	26.9	19.3	23.7	10.3	29.9
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.2	25.6	8.8	21.5	14.2	12.6	6.3	9.5
Green Ext Time (p_c), s	0.0	5.0	0.2	0.7	0.6	2.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	65	1.0	72	1.0	0.237	14.0	LOS B	1.5	37.8	0.75	0.80	0.75	34.1
8	T1	285	1.0	317	1.0	0.237	7.9	LOS A	1.7	42.0	0.75	0.75	0.75	34.8
18	R2	30	1.0	33	1.0	0.237	7.7	LOS A	1.7	42.0	0.75	0.72	0.75	34.1
Approach		380	1.0	422	1.0	0.237	8.9	LOS A	1.7	42.0	0.75	0.75	0.75	34.7
East: Pacific Ave SE														
1	L2	25	1.0	28	1.0	0.251	11.0	LOS B	1.1	28.7	0.49	0.55	0.49	35.9
6	T1	210	1.0	233	1.0	0.251	5.4	LOS A	1.1	28.7	0.49	0.55	0.49	35.8
16	R2	235	1.0	261	1.0	0.225	5.3	LOS A	1.0	25.9	0.47	0.61	0.47	35.4
Approach		470	1.0	522	1.0	0.251	5.7	LOS A	1.1	28.7	0.48	0.58	0.48	35.6
North: Marvin Rd SE														
7u	U	5	1.0	6	1.0	0.412	14.0	LOS B	2.8	69.5	0.59	0.70	0.59	35.1
7	L2	280	1.0	311	1.0	0.412	11.6	LOS B	2.8	69.5	0.59	0.70	0.59	34.3
4	T1	550	1.0	611	1.0	0.412	5.7	LOS A	2.9	73.0	0.57	0.59	0.57	35.5
14	R2	75	1.0	83	1.0	0.412	5.7	LOS A	2.9	73.0	0.56	0.55	0.56	34.7
Approach		910	1.0	1011	1.0	0.412	7.6	LOS A	2.9	73.0	0.57	0.62	0.57	35.1
West: Pacific Ave SE														
5	L2	50	1.0	56	1.0	0.430	12.2	LOS B	2.3	58.3	0.69	0.70	0.74	35.2
2	T1	320	1.0	356	1.0	0.430	6.7	LOS A	2.3	58.3	0.69	0.70	0.74	35.1
12	R2	150	1.0	167	1.0	0.243	7.2	LOS A	1.0	25.5	0.63	0.81	0.63	34.9
Approach		520	1.0	578	1.0	0.430	7.4	LOS A	2.3	58.3	0.67	0.73	0.71	35.1
All Vehicles		2280	1.0	2533	1.0	0.430	7.4	LOS A	2.9	73.0	0.61	0.66	0.62	35.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	30	2.0	33	2.0	0.194	12.1	LOS B	1.1	27.4	0.12	0.48	0.12	37.4
3	L2	35	2.0	38	2.0	0.194	9.7	LOS A	1.1	27.4	0.12	0.48	0.12	36.5
8	T1	400	2.0	440	2.0	0.194	4.2	LOS A	1.1	27.5	0.11	0.44	0.11	37.0
18	R2	80	2.0	88	2.0	0.194	4.3	LOS A	1.1	27.5	0.11	0.40	0.11	36.2
Approach		545	2.0	599	2.0	0.194	5.0	LOS A	1.1	27.5	0.11	0.44	0.11	36.9
East: 31st Ave NE														
1	L2	60	3.0	66	3.0	0.083	11.0	LOS B	0.3	6.7	0.38	0.70	0.38	34.5
6	T1	5	3.0	5	3.0	0.083	5.5	LOS A	0.3	6.7	0.38	0.70	0.38	34.5
16	R2	10	3.0	11	3.0	0.083	5.4	LOS A	0.3	6.7	0.38	0.70	0.38	33.6
Approach		75	3.0	82	3.0	0.083	9.9	LOS A	0.3	6.7	0.38	0.70	0.38	34.4
North: Willamette Dr NE														
7	L2	1	1.0	1	1.0	0.089	10.2	LOS B	0.4	10.9	0.29	0.43	0.29	36.8
4	T1	225	1.0	247	1.0	0.089	4.6	LOS A	0.4	11.0	0.28	0.42	0.28	36.8
14	R2	5	1.0	5	1.0	0.089	4.6	LOS A	0.4	11.0	0.27	0.42	0.27	35.7
Approach		231	1.0	254	1.0	0.089	4.6	LOS A	0.4	11.0	0.28	0.42	0.28	36.8
West: 31st Ave NE														
5	L2	10	2.0	11	2.0	0.082	10.6	LOS B	0.3	6.9	0.33	0.57	0.33	36.6
2	T1	10	2.0	11	2.0	0.082	5.1	LOS A	0.3	6.9	0.33	0.57	0.33	36.6
12	R2	60	2.0	66	2.0	0.082	4.9	LOS A	0.3	6.9	0.33	0.57	0.33	35.5
Approach		80	2.0	88	2.0	0.082	5.7	LOS A	0.3	6.9	0.33	0.57	0.33	35.8
All Vehicles		931	1.8	1023	1.8	0.194	5.4	LOS A	1.1	27.5	0.19	0.47	0.19	36.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	25	13.0	27	13.0	0.474	11.0	LOS B	2.4	67.2	0.40	0.54	0.40	36.4
8	T1	170	13.0	183	13.0	0.474	5.1	LOS A	2.4	67.2	0.40	0.54	0.40	36.5
18	R2	260	13.0	280	13.0	0.474	5.0	LOS A	2.4	67.2	0.40	0.54	0.40	35.3
Approach		455	13.0	489	13.0	0.474	5.4	LOS A	2.4	67.2	0.40	0.54	0.40	35.8
East: Britton Pkwy NE														
1	L2	45	4.0	48	4.0	0.172	11.2	LOS B	0.9	24.0	0.46	0.57	0.46	35.8
6	T1	345	4.0	371	4.0	0.172	5.1	LOS A	1.0	25.0	0.44	0.51	0.44	36.2
16	R2	10	4.0	11	4.0	0.172	5.1	LOS A	1.0	25.0	0.44	0.48	0.44	35.2
Approach		400	4.0	430	4.0	0.172	5.8	LOS A	1.0	25.0	0.45	0.52	0.45	36.1
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.414	14.2	LOS B	1.9	50.1	0.52	0.65	0.53	37.1
7	L2	15	10.0	16	10.0	0.414	11.8	LOS B	1.9	50.1	0.52	0.65	0.53	36.2
4	T1	135	10.0	145	10.0	0.414	5.9	LOS A	1.9	50.1	0.52	0.65	0.53	36.2
14	R2	200	10.0	215	10.0	0.414	5.9	LOS A	1.9	50.1	0.52	0.65	0.53	35.0
Approach		355	10.0	382	10.0	0.414	6.2	LOS A	1.9	50.1	0.52	0.65	0.53	35.5
West: Britton Pkwy NE														
5u	U	5	7.0	5	7.0	0.068	13.3	LOS B	0.3	9.0	0.38	0.60	0.38	35.6
5	L2	45	7.0	48	7.0	0.068	10.8	LOS B	0.3	9.0	0.38	0.60	0.38	34.8
2	T1	95	7.0	102	7.0	0.068	4.8	LOS A	0.4	9.4	0.37	0.49	0.37	36.2
12	R2	15	7.0	16	7.0	0.068	4.9	LOS A	0.4	9.4	0.37	0.45	0.37	35.4
Approach		160	7.0	172	7.0	0.068	6.7	LOS A	0.4	9.4	0.37	0.52	0.37	35.7
All Vehicles		1370	8.9	1473	8.9	0.474	5.9	LOS A	2.4	67.2	0.44	0.56	0.44	35.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	330	10	530	5	5	10
Future Vol, veh/h	10	330	10	530	5	5	10
Conflicting Peds, #/hr	1	0	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	200	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	3	0	0
Mvmt Flow	11	351	11	564	5	5	11

Major/Minor	Major1		Major2			Minor2	
Conflicting Flow All	570	0	351	-	0	789	287
Stage 1	-	-	-	-	-	590	-
Stage 2	-	-	-	-	-	199	-
Critical Hdwy	4.18	-	6.46	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	2.53	-	-	3.5	3.3
Pot Cap-1 Maneuver	985	-	855	-	-	332	716
Stage 1	-	-	-	-	-	522	-
Stage 2	-	-	-	-	-	821	-
Platoon blocked, %		-		-	-		
Mov Cap-1 Maneuver	984	-	855	-	-	321	715
Mov Cap-2 Maneuver	-	-	-	-	-	321	-
Stage 1	-	-	-	-	-	516	-
Stage 2	-	-	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0.2	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	984	-	-	-	507
HCM Lane V/C Ratio	0.011	-	-	-	0.031
HCM Control Delay (s)	8.7	-	-	-	12.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	340	535	5	5	15
Future Vol, veh/h	5	340	535	5	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	0	0
Mvmt Flow	5	362	569	5	5	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	574	0	-	0	763	287
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	191	-
Critical Hdwy	4.18	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	981	-	-	-	345	716
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	828	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	981	-	-	-	343	716
Mov Cap-2 Maneuver	-	-	-	-	343	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	828	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	981	-	-	-	563
HCM Lane V/C Ratio	0.005	-	-	-	0.038
HCM Control Delay (s)	8.7	-	-	-	11.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	15	2.0	17	2.0	0.016	10.5	LOS B	0.0	1.1	0.28	0.61	0.28	35.4
8	T1	5	2.0	6	2.0	0.016	4.2	LOS A	0.0	1.1	0.28	0.61	0.28	35.2
18	R2	40	2.0	44	2.0	0.032	4.2	LOS A	0.1	2.2	0.25	0.48	0.25	36.5
Approach		60	2.0	67	2.0	0.032	5.8	LOS A	0.1	2.2	0.26	0.52	0.26	36.1
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.209	13.2	LOS B	1.1	29.1	0.32	0.46	0.32	38.2
1	L2	35	3.0	39	3.0	0.209	10.6	LOS B	1.1	29.1	0.32	0.46	0.32	37.0
6	T1	365	3.0	406	3.0	0.209	4.2	LOS A	1.2	29.7	0.31	0.45	0.31	37.1
16	R2	140	3.0	156	3.0	0.209	4.4	LOS A	1.2	29.7	0.30	0.43	0.30	36.1
Approach		545	3.0	606	3.0	0.209	4.7	LOS A	1.2	29.7	0.31	0.45	0.31	36.9
North: Gateway Blvd NE														
7	L2	65	2.0	72	2.0	0.143	11.2	LOS B	0.5	13.2	0.41	0.66	0.41	36.0
4	T1	5	2.0	6	2.0	0.143	4.9	LOS A	0.5	13.2	0.41	0.66	0.41	35.8
14	R2	65	2.0	72	2.0	0.143	5.0	LOS A	0.5	13.2	0.41	0.66	0.41	34.7
Approach		135	2.0	150	2.0	0.143	8.0	LOS A	0.5	13.2	0.41	0.66	0.41	35.4
West: Britton Pkwy NE														
5u	U	5	5.0	6	5.0	0.137	13.1	LOS B	0.7	18.2	0.28	0.57	0.28	36.6
5	L2	100	5.0	111	5.0	0.137	10.5	LOS B	0.7	18.2	0.28	0.57	0.28	35.6
2	T1	235	5.0	261	5.0	0.137	4.1	LOS A	0.7	18.6	0.27	0.43	0.27	37.0
12	R2	15	5.0	17	5.0	0.137	4.3	LOS A	0.7	18.6	0.26	0.39	0.26	36.1
Approach		355	5.0	394	5.0	0.137	6.0	LOS A	0.7	18.6	0.27	0.47	0.27	36.6
All Vehicles		1095	3.5	1217	3.5	0.209	5.6	LOS A	1.2	29.7	0.30	0.49	0.30	36.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	345	5	25	460	15	5
Future Vol, veh/h	345	5	25	460	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	363	5	26	484	16	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	368	0	899	363
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	536	-
Critical Hdwy	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1191	-	312	686
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1191	-	305	686
Mov Cap-2 Maneuver	-	-	-	-	305	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	686	-	-	1191	-
HCM Lane V/C Ratio	0.052	0.008	-	-	0.022	-
HCM Control Delay (s)	17.4	10.3	-	-	8.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	175	40	45	250	55	65
Future Vol, veh/h	175	40	45	250	55	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	197	45	51	281	62	73

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	242	0	603	220
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1336	-	462	820
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1336	-	441	820
Mov Cap-2 Maneuver	-	-	-	-	441	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	658	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	588	-	-	1336	-
HCM Lane V/C Ratio	0.229	-	-	0.038	-
HCM Control Delay (s)	12.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

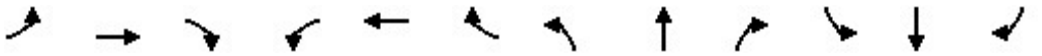
Intersection	
Int Delay, s/veh	18.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	175	105	255	180	0	115	5	170	0	5	0
Future Vol, veh/h	0	175	105	255	180	0	115	5	170	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	300	-	-	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	4	4	4	5	5	5	4	4	4	0	0	0
Mvmt Flow	0	211	127	307	217	0	139	6	205	0	6	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	217	0	0	338	0	0	1109	1106	275	1211	1169	217
Stage 1	-	-	-	-	-	-	275	275	-	831	831	-
Stage 2	-	-	-	-	-	-	834	831	-	380	338	-
Critical Hdwy	4.14	-	-	4.15	-	-	7.14	6.54	6.24	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.1	5.5	-
Follow-up Hdwy	2.236	-	-	2.245	-	-	3.536	4.036	3.336	3.5	4	3.3
Pot Cap-1 Maneuver	1341	-	-	1205	-	-	185	209	759	161	195	828
Stage 1	-	-	-	-	-	-	727	679	-	367	387	-
Stage 2	-	-	-	-	-	-	360	382	-	646	644	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1341	-	-	1205	-	-	144	156	759	92	145	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	156	-	92	145	-
Stage 1	-	-	-	-	-	-	727	679	-	367	288	-
Stage 2	-	-	-	-	-	-	263	285	-	467	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.3	57.5	30.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	684	1341	-	-	1205	-	-	145
HCM Lane V/C Ratio	0.962	0.308	-	-	-	0.255	-	-	0.042
HCM Control Delay (s)	125.9	12.6	0	-	-	9	-	-	30.9
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	6.9	1.3	0	-	-	1	-	-	0.1



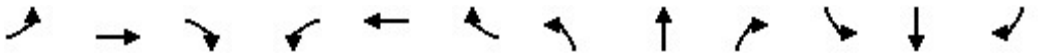
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	950	365	350	750	85	175	120	240	105	225	70
Future Volume (veh/h)	80	950	365	350	750	85	175	120	240	105	225	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	82	969	372	357	765	87	179	122	245	107	230	71
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	104	1632	907	418	1667	189	206	308	454	135	335	101
Arrive On Green	0.06	0.46	0.46	0.12	0.52	0.52	0.11	0.16	0.16	0.08	0.13	0.13
Sat Flow, veh/h	1795	3582	1590	3456	3213	365	1795	1885	1592	1767	2667	802
Grp Volume(v), veh/h	82	969	372	357	423	429	179	122	245	107	150	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1590	1728	1777	1802	1795	1885	1592	1767	1763	1707
Q Serve(g_s), s	5.4	24.2	15.8	12.2	18.0	18.1	11.8	6.9	15.6	7.1	9.8	10.2
Cycle Q Clear(g_c), s	5.4	24.2	15.8	12.2	18.0	18.1	11.8	6.9	15.6	7.1	9.8	10.2
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	104	1632	907	418	922	935	206	308	454	135	221	214
V/C Ratio(X)	0.79	0.59	0.41	0.85	0.46	0.46	0.87	0.40	0.54	0.79	0.68	0.70
Avail Cap(c_a), veh/h	142	1632	907	562	922	935	217	463	585	214	433	420
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)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	24.4	14.5	51.7	18.2	18.2	52.2	44.9	36.3	54.5	50.2	50.3
Incr Delay (d2), s/veh	11.3	1.4	1.2	7.4	1.6	1.6	27.1	1.0	1.2	4.0	3.6	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	10.5	5.9	5.7	7.7	7.8	6.8	3.3	6.2	3.3	4.5	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	25.8	15.7	59.1	19.9	19.9	79.4	45.9	37.5	58.4	53.8	54.5
LnGrp LOS	E	C	B	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		1423			1209			546			408	
Approach Delay, s/veh		25.5			31.5			53.1			55.3	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	67.7	14.7	25.1	20.0	60.2	19.3	20.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	7.4	20.1	9.1	17.6	14.2	26.2	13.8	12.2
Green Ext Time (p_c), s	0.0	6.8	0.1	1.4	0.4	5.3	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

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



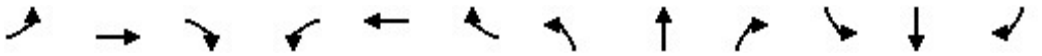
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	705	120	115	695	30	145	200	80	90	295	405
Future Volume (veh/h)	220	705	120	115	695	30	145	200	80	90	295	405
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	227	727	124	119	716	31	149	206	82	93	304	418
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	258	977	167	147	886	38	178	778	299	118	499	441
Arrive On Green	0.14	0.32	0.32	0.08	0.25	0.25	0.10	0.31	0.31	0.07	0.28	0.28
Sat Flow, veh/h	1795	3058	521	1795	3496	151	1767	2483	955	1795	1791	1584
Grp Volume(v), veh/h	227	426	425	119	367	380	149	144	144	93	304	418
Grp Sat Flow(s),veh/h/ln	1795	1791	1788	1795	1791	1857	1767	1763	1675	1795	1791	1584
Q Serve(g_s), s	13.3	22.7	22.8	7.0	20.6	20.6	8.9	6.5	6.9	5.5	15.8	27.7
Cycle Q Clear(g_c), s	13.3	22.7	22.8	7.0	20.6	20.6	8.9	6.5	6.9	5.5	15.8	27.7
Prop In Lane	1.00		0.29	1.00		0.08	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	258	572	571	147	454	470	178	553	525	118	499	441
V/C Ratio(X)	0.88	0.74	0.74	0.81	0.81	0.81	0.84	0.26	0.27	0.79	0.61	0.95
Avail Cap(c_a), veh/h	318	669	667	243	593	615	198	553	525	201	501	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	32.5	32.5	48.4	37.6	37.6	47.3	27.5	27.6	49.3	33.6	37.9
Incr Delay (d2), s/veh	18.2	3.8	3.8	4.0	6.7	6.5	22.1	0.2	0.3	4.4	2.1	29.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	10.3	10.3	3.3	9.8	10.1	5.0	2.8	2.8	2.6	7.1	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.1	36.3	36.4	52.3	44.2	44.0	69.4	27.7	27.9	53.7	35.7	67.5
LnGrp LOS	E	D	D	D	D	D	E	C	C	D	D	E
Approach Vol, veh/h		1078			866			437			815	
Approach Delay, s/veh		42.0			45.3			42.0			54.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.4	33.1	13.0	39.6	14.3	40.2	16.8	35.9
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	15.3	22.6	7.5	8.9	9.0	24.8	10.9	29.7
Green Ext Time (p_c), s	0.1	4.3	0.0	1.6	0.1	4.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



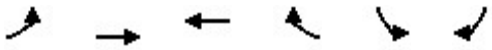
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1375	5	0	970	30	70	5	25	55	5	30
Future Volume (veh/h)	40	1375	5	0	970	30	70	5	25	55	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	42	1447	0	0	1021	32	74	5	26	58	5	32
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, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	87	2899		1	2641	83	158	212	180	202	15	180
Arrive On Green	0.05	1.00	0.00	0.00	0.75	0.75	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3582	1598	1781	3517	110	1393	1900	1610	1290	136	1610
Grp Volume(v), veh/h	42	1447	0	0	516	537	74	5	26	63	0	32
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1851	1393	1900	1610	1426	0	1610
Q Serve(g_s), s	1.4	0.0	0.0	0.0	12.2	12.2	6.3	0.3	1.7	4.7	0.0	2.2
Cycle Q Clear(g_c), s	1.4	0.0	0.0	0.0	12.2	12.2	11.2	0.3	1.7	5.0	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	87	2899		1	1334	1389	158	212	180	217	0	180
V/C Ratio(X)	0.48	0.50		0.00	0.39	0.39	0.47	0.02	0.14	0.29	0.00	0.18
Avail Cap(c_a), veh/h	290	2899		82	1334	1389	478	649	550	546	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.82	0.82	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.2	0.0	0.0	0.0	5.3	5.3	54.8	47.5	48.1	49.6	0.0	48.3
Incr Delay (d2), s/veh	2.9	0.6	0.0	0.0	0.7	0.7	1.6	0.0	0.3	0.5	0.0	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	0.6	0.2	0.0	0.0	4.2	4.4	2.3	0.1	0.7	1.8	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	0.6	0.0	0.0	5.9	5.9	56.4	47.5	48.4	50.1	0.0	48.7
LnGrp LOS	E	A		A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1489			1053			105			95	
Approach Delay, s/veh		2.2			5.9			54.0			49.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	95.6		17.4	0.0	102.6		17.4				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.4	14.2		13.2	0.0	2.0		7.0				
Green Ext Time (p_c), s	0.0	10.4		0.2	0.0	20.7		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	7.3	
HCM 6th LOS	A	

Notes

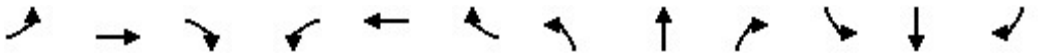
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1425	990	25	30	50
Future Volume (veh/h)	50	1425	990	25	30	50
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	53	1516	1053	27	32	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	991	4497	1205	31	85	76
Arrive On Green	0.49	0.87	0.68	0.68	0.05	0.05
Sat Flow, veh/h	1795	5316	3634	91	1810	1610
Grp Volume(v), veh/h	53	1516	528	552	32	53
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1854	1810	1610
Q Serve(g_s), s	0.0	6.3	28.1	28.1	2.1	3.9
Cycle Q Clear(g_c), s	0.0	6.3	28.1	28.1	2.1	3.9
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	991	4497	605	631	85	76
V/C Ratio(X)	0.05	0.34	0.87	0.87	0.38	0.70
Avail Cap(c_a), veh/h	991	4497	1029	1074	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	11.0	1.4	17.1	17.1	55.5	56.3
Incr Delay (d2), s/veh	0.0	0.2	15.1	14.6	1.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.0	8.9	9.2	1.0	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.0	1.6	32.3	31.7	56.5	60.7
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1569	1080		85	
Approach Delay, s/veh		1.9	32.0		59.1	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	64.0	46.3				110.4	9.6
Change Period (Y+Rc), s	5.5	5.5				5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5				82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	30.1				8.3	5.9
Green Ext Time (p_c), s	0.0	10.7				22.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B



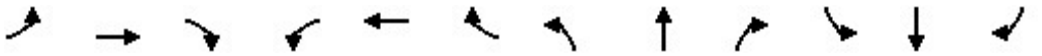
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	560	820	0	0	980	65	15	0	675	0	0	0
Future Volume (veh/h)	560	820	0	0	980	65	15	0	675	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	609	891	0	0	1065	0	16	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3249	0	0	1980		25	0				
Arrive On Green	0.10	0.30	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	609	891	0	0	1065	0	16	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	22.8	0.0	0.0	22.7	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	22.8	0.0	0.0	22.7	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3249	0	0	1980		25	0				
V/C Ratio(X)	1.12	0.27	0.00	0.00	0.54		0.65	0.00				
Avail Cap(c_a), veh/h	546	3249	0	0	1980		389	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.14	0.14	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	54.0	11.9	0.0	0.0	16.8	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	56.0	0.0	0.0	0.0	1.1	0.0	24.9	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			
%ile BackOfQ(50%),veh/ln	26.1	10.9	0.0	0.0	9.3	0.0	0.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.9	11.9	0.0	0.0	17.9	0.0	83.8	0.0	0.0			
LnGrp LOS	F	B	A	A	B		F	A				
Approach Vol, veh/h		1500			1065			16				
Approach Delay, s/veh		51.7			17.9			83.8				
Approach LOS		D			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.3		5.7		114.3			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	24.7		3.1		24.8			
Green Ext Time (p_c), s	0.0	8.3		0.0		9.5			

Intersection Summary		
HCM 6th Ctrl Delay	37.9	
HCM 6th LOS	D	

Notes

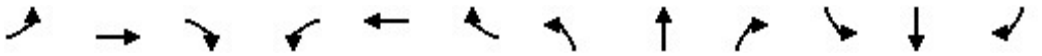
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1330	385	380	635	0	0	0	0	85	5	690
Future Volume (vph)	0	1330	385	380	635	0	0	0	0	85	5	690
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1792	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1792	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1371	397	392	655	0	0	0	0	88	5	711
RTOR Reduction (vph)	0	0	242	0	0	0	0	0	0	0	0	153
Lane Group Flow (vph)	0	1371	155	392	655	0	0	0	0	0	93	558
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		47.0	47.0	30.0	67.5						28.0	43.0
Effective Green, g (s)		47.0	47.0	30.0	67.5						28.0	43.0
Actuated g/C Ratio		0.39	0.39	0.25	0.56						0.23	0.36
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1399	626	442	1990						418	572
v/s Ratio Prot		c0.38		c0.22	0.19							c0.35
v/s Ratio Perm			0.10								0.05	
v/c Ratio		0.98	0.25	0.89	0.33						0.22	0.97
Uniform Delay, d1		36.0	24.6	43.4	14.1						37.2	38.0
Progression Factor		0.90	1.69	0.23	0.75						1.00	1.00
Incremental Delay, d2		16.9	0.7	11.1	0.2						0.3	31.2
Delay (s)		49.4	42.3	21.2	10.8						37.5	69.1
Level of Service		D	D	C	B						D	E
Approach Delay (s)		47.8			14.7			0.0			65.5	
Approach LOS		D			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	800	260	585	575	170	140	225	780	140	185	45
Future Volume (veh/h)	25	800	260	585	575	170	140	225	780	140	185	45
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		0.97	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	26	833	0	609	599	0	146	234	812	146	193	47
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	35	1420		685	2059		174	267	945	174	382	91
Arrive On Green	0.02	0.40	0.00	0.33	0.97	0.00	0.10	0.14	0.14	0.10	0.13	0.13
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2732	1795	2861	679
Grp Volume(v), veh/h	26	833	0	609	599	0	146	234	812	146	119	121
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1366	1795	1791	1748
Q Serve(g_s), s	1.7	22.0	0.0	20.0	0.9	0.0	9.6	14.6	17.0	9.6	7.4	7.7
Cycle Q Clear(g_c), s	1.7	22.0	0.0	20.0	0.9	0.0	9.6	14.6	17.0	9.6	7.4	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	35	1420		685	2059		174	267	945	174	239	233
V/C Ratio(X)	0.75	0.59		0.89	0.29		0.84	0.88	0.86	0.84	0.50	0.52
Avail Cap(c_a), veh/h	90	1420		850	2059		254	267	945	359	358	350
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.69	0.69	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	28.5	0.0	38.9	0.8	0.0	53.3	50.5	37.1	53.3	48.3	48.4
Incr Delay (d2), s/veh	11.3	1.8	0.0	7.3	0.2	0.0	13.1	25.8	7.9	4.1	0.6	0.7
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	0.9	9.7	0.0	8.2	0.3	0.0	5.0	8.8	12.0	4.5	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.9	30.3	0.0	46.2	1.1	0.0	66.3	76.3	45.0	57.3	48.8	49.1
LnGrp LOS	E	C		D	A		E	E	D	E	D	D
Approach Vol, veh/h		859			1208			1192			386	
Approach Delay, s/veh		31.5			23.8			53.8			52.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	75.0	15.6	22.0	29.3	53.1	16.6	21.0
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	3.7	2.9	11.6	19.0	22.0	24.0	11.6	9.7
Green Ext Time (p_c), s	0.0	5.6	0.1	0.0	1.7	3.1	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Existing)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Existing PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	70	2.0	73	2.0	0.170	12.4	LOS B	0.6	16.2	0.56	0.77	0.56	36.1
8	T1	5	2.0	5	2.0	0.170	5.4	LOS A	0.6	16.2	0.56	0.77	0.56	35.7
18	R2	70	2.0	73	2.0	0.170	5.7	LOS A	0.6	16.2	0.56	0.77	0.56	34.5
Approach		145	2.0	151	2.0	0.170	8.9	LOS A	0.6	16.2	0.56	0.77	0.56	35.3
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.440	13.8	LOS B	3.1	77.3	0.43	0.46	0.43	38.6
1	L2	90	1.0	94	1.0	0.440	11.1	LOS B	3.1	77.3	0.43	0.46	0.43	37.4
6	T1	1110	1.0	1156	1.0	0.440	4.0	LOS A	3.1	79.2	0.41	0.42	0.41	37.4
16	R2	60	1.0	63	1.0	0.440	4.3	LOS A	3.1	79.2	0.39	0.39	0.39	36.1
Approach		1265	1.0	1318	1.0	0.440	4.6	LOS A	3.1	79.2	0.41	0.43	0.41	37.3
North: Lacey St SE														
7	L2	20	2.0	21	2.0	0.089	12.9	LOS B	0.3	8.8	0.61	0.77	0.61	36.5
4	T1	5	2.0	5	2.0	0.089	6.0	LOS A	0.3	8.8	0.61	0.77	0.61	36.1
14	R2	40	2.0	42	2.0	0.089	6.2	LOS A	0.3	8.8	0.61	0.77	0.61	34.8
Approach		65	2.0	68	2.0	0.089	8.3	LOS A	0.3	8.8	0.61	0.77	0.61	35.4
SouthWest: Lacey Blvd SE														
5bx	L3	35	1.0	36	1.0	0.402	12.1	LOS B	2.3	58.0	0.32	0.44	0.32	38.8
5ax	L1	50	1.0	52	1.0	0.402	9.4	LOS A	2.3	58.0	0.32	0.44	0.32	37.4
12ax	R1	940	1.0	979	1.0	0.402	3.5	LOS A	2.3	58.9	0.31	0.41	0.31	37.6
12bx	R3	60	1.0	62	1.0	0.402	4.2	LOS A	2.3	58.9	0.30	0.39	0.30	36.2
Approach		1085	1.0	1130	1.0	0.402	4.1	LOS A	2.3	58.9	0.31	0.42	0.31	37.5
All Vehicles		2560	1.1	2667	1.1	0.440	4.7	LOS A	3.1	79.2	0.38	0.45	0.38	37.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	210	5	75	225	45	10	30	145	20	20	5
Future Vol, veh/h	5	210	5	75	225	45	10	30	145	20	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	6	239	6	85	256	51	11	34	165	23	23	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	11.2	13.9	10	9.7
HCM LOS	B	B	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	0%	2%	22%	44%
Vol Thru, %	75%	0%	95%	65%	44%
Vol Right, %	0%	100%	2%	13%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	145	220	345	45
LT Vol	10	0	5	75	20
Through Vol	30	0	210	225	20
RT Vol	0	145	5	45	5
Lane Flow Rate	45	165	250	392	51
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.08	0.253	0.361	0.546	0.086
Departure Headway (Hd)	6.36	5.522	5.198	5.012	6.069
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	563	649	693	725	589
Service Time	4.101	3.263	3.23	3.012	4.12
HCM Lane V/C Ratio	0.08	0.254	0.361	0.541	0.087
HCM Control Delay	9.7	10.1	11.2	13.9	9.7
HCM Lane LOS	A	B	B	B	A
HCM 95th-tile Q	0.3	1	1.6	3.3	0.3

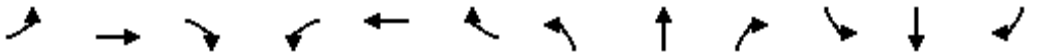
Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	35	435	150	35	320
Future Vol, veh/h	115	35	435	150	35	320
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	-	-	170	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	119	36	448	155	36	330

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	850	448	0	0	603	0
Stage 1	448	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.2	-
Pot Cap-1 Maneuver	332	613	-	-	984	-
Stage 1	646	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	317	613	-	-	984	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	647	-	-	-	-	-

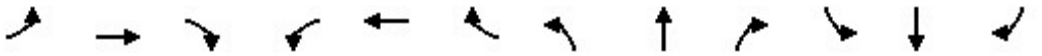
Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	357	984	-
HCM Lane V/C Ratio	-	-	0.433	0.037	-
HCM Control Delay (s)	-	-	22.6	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	580	275	250	460	55	180	355	220	85	240	55
Future Volume (vph)	100	580	275	250	460	55	180	355	220	85	240	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1567	1752	3505	1537	1595	3349	1539	1626	3317	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	3574	1567	1752	3505	1537	1595	3349	1539	1626	3317	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	108	624	296	269	495	59	194	382	237	91	258	59
RTOR Reduction (vph)	0	0	225	0	0	38	0	0	192	0	15	0
Lane Group Flow (vph)	108	624	71	269	495	21	175	401	45	82	311	0
Confl. Peds. (#/hr)	9		8	8		9	3		7	7		3
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			
Actuated Green, G (s)	9.6	23.3	23.3	20.7	34.4	34.4	18.4	18.4	18.4	14.3	14.3	
Effective Green, g (s)	9.6	23.3	23.3	20.7	34.4	34.4	18.4	18.4	18.4	14.3	14.3	
Actuated g/C Ratio	0.10	0.24	0.24	0.21	0.36	0.36	0.19	0.19	0.19	0.15	0.15	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	177	861	377	375	1246	546	303	637	292	240	490	
v/s Ratio Prot	0.06	c0.17		c0.15	0.14		0.11	c0.12		0.05	c0.09	
v/s Ratio Perm			0.05			0.01			0.03			
v/c Ratio	0.61	0.72	0.19	0.72	0.40	0.04	0.58	0.63	0.15	0.34	0.63	
Uniform Delay, d1	41.8	33.8	29.2	35.3	23.4	20.3	35.6	36.0	32.7	37.0	38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.2	2.9	0.2	6.0	0.2	0.0	2.2	1.7	0.2	0.6	2.3	
Delay (s)	47.0	36.6	29.4	41.3	23.5	20.4	37.8	37.7	32.8	37.6	41.1	
Level of Service	D	D	C	D	C	C	D	D	C	D	D	
Approach Delay (s)		35.6			29.1			36.3			40.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



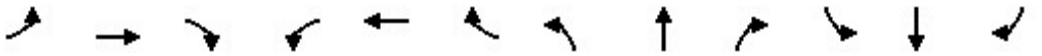
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	715	0	0	1000	270	170	0	480	0	0	0
Future Volume (veh/h)	205	715	0	0	1000	270	170	0	480	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	220	769	0	0	1075	0	183	0	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	256	2719	0	0	1994		231	0				
Arrive On Green	0.14	0.76	0.00	0.00	0.56	0.00	0.13	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	220	769	0	0	1075	0	183	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	10.8	5.9	0.0	0.0	17.1	0.0	9.0	0.0	0.0			
Cycle Q Clear(g_c), s	10.8	5.9	0.0	0.0	17.1	0.0	9.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	256	2719	0	0	1994		231	0				
V/C Ratio(X)	0.86	0.28	0.00	0.00	0.54		0.79	0.00				
Avail Cap(c_a), veh/h	299	2719	0	0	1994		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.7	3.3	0.0	0.0	12.4	0.0	38.0	0.0	0.0			
Incr Delay (d2), s/veh	18.5	0.3	0.0	0.0	1.1	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	6.0	1.6	0.0	0.0	6.5	0.0	4.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	3.6	0.0	0.0	13.5	0.0	42.5	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		989			1075			183				
Approach Delay, s/veh		15.3			13.5			42.5				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	17.8	55.5		16.7		73.3			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	12.8	19.1		11.0		7.9			
Green Ext Time (p_c), s	0.1	6.0		0.7		5.2			

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	700	225	0	675	0	0	0	0	220	5	345
Future Volume (veh/h)	0	700	225	0	675	0	0	0	0	220	5	345
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	729	0	0	703	0				229	5	359
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2272		0	2254	0				444	10	403
Arrive On Green	0.00	0.63	0.00	0.00	0.63	0.00				0.25	0.25	0.25
Sat Flow, veh/h	0	3770	0	0	3741	0				1745	38	1585
Grp Volume(v), veh/h	0	729	0	0	703	0				234	0	359
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	8.4	0.0	0.0	8.1	0.0				10.1	0.0	19.6
Cycle Q Clear(g_c), s	0.0	8.4	0.0	0.0	8.1	0.0				10.1	0.0	19.6
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2272		0	2254	0				454	0	403
V/C Ratio(X)	0.00	0.32		0.00	0.31	0.00				0.52	0.00	0.89
Avail Cap(c_a), veh/h	0	2272		0	2254	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.6	0.0	0.0	7.5	0.0				28.8	0.0	32.3
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.4	0.0				0.7	0.0	15.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	0.0	0.0	2.9	0.0				4.3	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.9	0.0	0.0	7.9	0.0				29.5	0.0	47.4
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		729			703						593	
Approach Delay, s/veh		7.9			7.9						40.3	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		62.1				62.1		27.9				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		10.1				10.4		21.6				
Green Ext Time (p_c), s		4.6				4.8		1.3				

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

Notes

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

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	405	0.0	450	0.0	0.340	10.5	LOS B	2.2	55.6	0.39	0.64	0.39	34.0
8	T1	435	0.0	483	0.0	0.319	4.6	LOS A	2.1	52.3	0.36	0.44	0.36	36.7
18	R2	5	0.0	6	0.0	0.319	4.7	LOS A	2.1	52.3	0.36	0.44	0.36	35.5
Approach		845	0.0	939	0.0	0.340	7.4	LOS A	2.2	55.6	0.38	0.54	0.38	35.3
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.381	15.3	LOS B	1.7	43.4	0.64	0.84	0.69	35.1
1	L2	155	3.0	172	3.0	0.381	12.9	LOS B	1.7	43.4	0.64	0.84	0.69	34.3
6	T1	85	3.0	94	3.0	0.381	7.2	LOS A	1.7	43.4	0.64	0.84	0.69	34.2
16	R2	30	3.0	33	3.0	0.381	7.1	LOS A	1.7	43.4	0.64	0.84	0.69	33.3
Approach		275	3.0	306	3.0	0.381	10.6	LOS B	1.7	43.4	0.64	0.84	0.69	34.2
North: Marvin Rd NE														
7	L2	10	2.0	11	2.0	0.237	14.1	LOS B	1.5	36.9	0.72	0.75	0.72	35.2
4	T1	305	2.0	339	2.0	0.237	8.0	LOS A	1.6	40.9	0.72	0.73	0.72	35.3
14	R2	80	2.0	89	2.0	0.237	7.6	LOS A	1.6	40.9	0.72	0.71	0.72	34.3
Approach		395	2.0	439	2.0	0.237	8.1	LOS A	1.6	40.9	0.72	0.73	0.72	35.1
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.283	13.9	LOS B	1.2	31.0	0.51	0.72	0.51	36.2
5	L2	100	3.0	111	3.0	0.283	11.5	LOS B	1.2	31.0	0.51	0.72	0.51	35.4
2	T1	15	3.0	17	3.0	0.283	5.7	LOS A	1.2	31.0	0.51	0.72	0.51	35.3
12	R2	120	3.0	133	3.0	0.283	5.7	LOS A	1.2	31.0	0.51	0.72	0.51	34.3
Approach		240	3.0	267	3.0	0.283	8.3	LOS A	1.2	31.0	0.51	0.72	0.51	34.8
All Vehicles		1755	1.3	1950	1.3	0.381	8.2	LOS A	2.2	55.6	0.51	0.65	0.52	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	445	2.0	464	2.0	0.674	12.6	LOS B	5.7	144.8	0.68	0.78	0.77	34.5
8	T1	1030	2.0	1073	2.0	0.674	6.3	LOS A	5.7	146.0	0.67	0.65	0.74	35.4
18	R2	30	2.0	31	2.0	0.674	6.2	LOS A	5.7	146.0	0.66	0.61	0.73	34.6
Approach		1505	2.0	1568	2.0	0.674	8.1	LOS A	5.7	146.0	0.67	0.69	0.74	35.1
East: Britton Pkwy NE														
1	L2	565	4.0	589	4.0	0.864	24.0	LOS D	9.1	235.0	0.96	1.28	1.85	29.1
6	T1	240	4.0	250	4.0	0.620	12.9	LOS B	3.7	96.4	0.86	1.01	1.18	33.3
16	R2	45	4.0	47	4.0	0.620	13.0	LOS B	3.7	96.4	0.86	1.01	1.18	32.3
Approach		850	4.0	885	4.0	0.864	20.3	LOS C	9.1	235.0	0.93	1.19	1.62	30.3
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	1.094	85.7	LOS F	28.9	745.3	1.00	2.14	4.46	17.3
7	L2	65	4.0	68	4.0	1.094	83.2	LOS F	28.9	745.3	1.00	2.14	4.46	17.1
4	T1	1010	4.0	1052	4.0	1.094	75.2	LOS F	36.8	948.9	1.00	2.26	4.65	17.3
14	R2	100	4.0	104	4.0	1.094	73.8	LOS F	36.8	948.9	1.00	2.34	4.79	17.3
Approach		1185	4.0	1235	4.0	1.094	75.6	LOS E	36.8	948.9	1.00	2.26	4.65	17.3
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.209	17.8	LOS B	1.1	28.4	0.83	0.94	0.83	33.3
5	L2	90	5.0	94	5.0	0.209	15.3	LOS B	1.1	28.4	0.83	0.94	0.83	32.5
2	T1	145	5.0	151	5.0	0.209	8.7	LOS A	1.4	37.5	0.92	0.82	0.92	34.7
12	R2	280	5.0	292	5.0	0.377	8.7	LOS A	2.7	69.4	0.93	0.97	0.96	34.2
Approach		525	5.0	547	5.0	0.377	10.0	LOS A	2.7	69.4	0.91	0.92	0.92	34.0
All Vehicles		4065	3.4	4235	3.4	1.094	30.6	LOS C	36.8	948.9	0.85	1.28	2.09	26.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

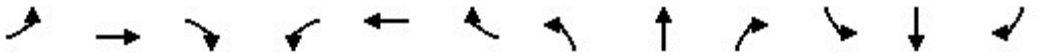
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	280	3.0	308	3.0	0.663	12.7	LOS B	8.7	223.9	0.35	0.48	0.35	28.1
3	L2	1	3.0	1	3.0	0.663	10.2	LOS B	8.7	223.9	0.35	0.48	0.35	34.3
8	T1	1485	3.0	1632	3.0	0.663	4.1	LOS A	8.8	225.5	0.33	0.41	0.33	32.9
18	R2	75	3.0	82	3.0	0.663	4.3	LOS A	8.8	225.5	0.32	0.37	0.32	34.2
Approach		1841	3.0	2023	3.0	0.663	5.5	LOS A	8.8	225.5	0.34	0.42	0.34	32.3
East: Main St NE														
1	L2	105	0.0	115	0.0	0.249	15.1	LOS B	1.1	28.0	0.76	0.91	0.76	31.0
6	T1	1	0.0	1	0.0	0.249	9.1	LOS A	1.1	28.0	0.76	0.91	0.76	33.0
16	R2	30	0.0	33	0.0	0.249	9.1	LOS A	1.1	28.0	0.76	0.91	0.76	30.3
Approach		136	0.0	149	0.0	0.249	13.8	LOS B	1.1	28.0	0.76	0.91	0.76	30.9
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.830	22.0	LOS C	13.7	351.6	0.96	1.06	1.40	29.5
7	L2	25	3.0	27	3.0	0.830	19.5	LOS B	13.7	351.6	0.96	1.06	1.40	31.3
4	T1	1730	3.0	1901	3.0	0.830	12.3	LOS B	14.3	365.6	0.94	1.01	1.33	28.1
14	R2	1	3.0	1	3.0	0.830	11.5	LOS B	14.3	365.6	0.92	0.96	1.27	31.2
Approach		1761	3.0	1935	3.0	0.830	12.4	LOS B	14.3	365.6	0.94	1.01	1.33	28.2
West: Main St NE														
5	L2	1	0.0	1	0.0	0.006	18.4	LOS B	0.0	0.9	0.95	0.71	0.95	30.7
2	T1	1	0.0	1	0.0	0.006	12.3	LOS B	0.0	0.9	0.95	0.71	0.95	32.3
12	R2	1	0.0	1	0.0	0.001	3.6	LOS A	0.0	0.0	0.00	0.43	0.00	36.4
Approach		3	0.0	3	0.0	0.006	11.4	LOS B	0.0	0.9	0.63	0.62	0.63	32.7
All Vehicles		3741	2.9	4111	2.9	0.830	9.0	LOS A	14.3	365.6	0.63	0.71	0.82	30.2

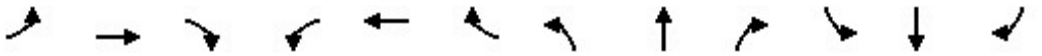
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	580	0	0	630	0	1560	700	0	1295	785
Future Volume (vph)	0	0	580	0	0	630	0	1560	700	0	1295	785
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.99	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3333	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3333	1409		3438	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	604	0	0	656	0	1625	729	0	1349	818
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	604	0	0	656	0	1698	656	0	1349	818
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1735	1409		1246	1538
v/s Ratio Prot			0.22			0.24		c0.51			c0.39	
v/s Ratio Perm									0.47			0.53
v/c Ratio			0.40			0.61		0.98	0.47		1.08	0.53
Uniform Delay, d1			16.4			29.4		28.1	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.61	1.00		1.00	1.00
Incremental Delay, d2			0.2			1.0		13.5	0.8		51.0	1.3
Delay (s)			16.6			30.4		30.6	0.8		89.2	1.3
Level of Service			B			C		C	A		F	A
Approach Delay (s)		16.6			30.4			22.3			56.1	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

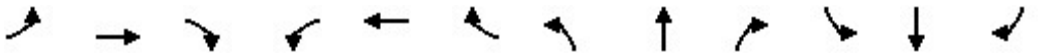
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	155	0	0	665	0	1595	275	0	1565	310
Future Volume (vph)	0	0	155	0	0	665	0	1595	275	0	1565	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	157	0	0	672	0	1611	278	0	1581	313
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	157	0	0	672	0	1611	278	0	1581	313
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.10			0.25		c0.32			c0.45	
v/s Ratio Perm									0.18			0.20
v/c Ratio			0.26			0.47		0.85	0.18		0.87	0.20
Uniform Delay, d1			25.0			17.1		34.8	0.0		25.1	0.0
Progression Factor			1.00			1.00		0.77	1.00		0.55	1.00
Incremental Delay, d2			0.2			0.2		3.4	0.2		2.8	0.1
Delay (s)			25.3			17.4		30.3	0.2		16.7	0.1
Level of Service			C			B		C	A		B	A
Approach Delay (s)		25.3			17.4			25.8			13.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	445	220	160	75	65	295	65	1095	65	230	1030	330
Future Volume (veh/h)	445	220	160	75	65	295	65	1095	65	230	1030	330
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		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	464	229	167	78	68	307	68	1141	68	240	1073	344
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	552	228	166	75	196	391	232	1375	82	254	1488	646
Arrive On Green	0.16	0.22	0.22	0.04	0.10	0.10	0.13	0.40	0.40	0.14	0.42	0.42
Sat Flow, veh/h	3483	1012	738	1795	1885	1588	1781	3402	203	1795	3582	1556
Grp Volume(v), veh/h	464	0	396	78	68	307	68	596	613	240	1073	344
Grp Sat Flow(s),veh/h/ln	1742	0	1750	1795	1885	1588	1781	1777	1828	1795	1791	1556
Q Serve(g_s), s	15.5	0.0	27.0	5.0	4.0	12.5	4.1	36.0	36.1	15.9	30.0	11.2
Cycle Q Clear(g_c), s	15.5	0.0	27.0	5.0	4.0	12.5	4.1	36.0	36.1	15.9	30.0	11.2
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	552	0	394	75	196	391	232	718	739	254	1488	646
V/C Ratio(X)	0.84	0.00	1.01	1.04	0.35	0.78	0.29	0.83	0.83	0.94	0.72	0.53
Avail Cap(c_a), veh/h	653	0	394	75	196	391	232	718	739	254	1746	758
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	1.00	1.00	0.53	0.53	0.53	0.48	0.48	0.48
Uniform Delay (d), s/veh	49.0	0.0	46.5	57.5	50.0	42.3	47.2	32.0	32.1	51.0	29.3	8.4
Incr Delay (d2), s/veh	10.3	0.0	46.8	116.3	2.2	11.5	0.8	6.0	5.9	26.2	1.5	1.5
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	7.5	0.0	16.8	4.7	2.0	9.7	1.9	16.4	16.9	9.0	13.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.3	0.0	93.3	173.8	52.2	53.8	48.0	38.0	37.9	77.3	30.8	9.9
LnGrp LOS	E	A	F	F	D	D	D	D	D	E	C	A
Approach Vol, veh/h		860			453			1277			1657	
Approach Delay, s/veh		75.0			74.2			38.5			33.2	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	55.9	24.5	18.0	23.0	54.5	10.0	32.5
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	22.5	* 9.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	6.1	32.0	17.5	14.5	17.9	38.1	7.0	29.0
Green Ext Time (p_c), s	0.0	17.9	1.5	0.0	0.0	7.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

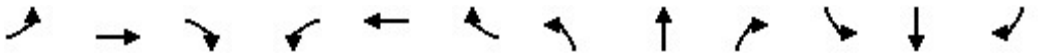
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	60	135	150	60	115	180	890	170	145	990	95
Future Volume (veh/h)	150	60	135	150	60	115	180	890	170	145	990	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	61	138	153	61	117	184	908	173	148	1010	97
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	186	73	166	165	75	145	211	1133	216	416	1637	157
Arrive On Green	0.10	0.14	0.14	0.09	0.13	0.13	0.12	0.38	0.38	0.08	0.16	0.16
Sat Flow, veh/h	1810	513	1161	1795	572	1097	1767	2954	563	1795	3302	317
Grp Volume(v), veh/h	153	0	199	153	0	178	184	542	539	148	548	559
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1795	0	1670	1767	1763	1753	1795	1791	1828
Q Serve(g_s), s	9.9	0.0	13.9	10.2	0.0	12.4	12.3	32.8	32.8	9.4	34.1	34.2
Cycle Q Clear(g_c), s	9.9	0.0	13.9	10.2	0.0	12.4	12.3	32.8	32.8	9.4	34.1	34.2
Prop In Lane	1.00		0.69	1.00		0.66	1.00		0.32	1.00		0.17
Lane Grp Cap(c), veh/h	186	0	240	165	0	220	211	676	673	416	888	906
V/C Ratio(X)	0.82	0.00	0.83	0.93	0.00	0.81	0.87	0.80	0.80	0.36	0.62	0.62
Avail Cap(c_a), veh/h	186	0	335	165	0	334	250	720	716	416	888	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	52.7	0.0	50.0	54.1	0.0	50.6	51.9	32.9	32.9	46.9	39.6	39.6
Incr Delay (d2), s/veh	23.8	0.0	10.4	49.6	0.0	6.9	22.9	6.3	6.4	0.3	1.0	1.0
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	5.8	0.0	6.5	6.8	0.0	5.6	6.8	15.0	14.9	4.5	16.7	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.5	0.0	60.4	103.7	0.0	57.6	74.8	39.2	39.3	47.2	40.6	40.6
LnGrp LOS	E	A	E	F	A	E	E	D	D	D	D	D
Approach Vol, veh/h		352			331			1265			1255	
Approach Delay, s/veh		67.4			78.9			44.4			41.4	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	64.5	16.4	19.8	32.8	51.0	15.0	21.2
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	50.0	11.0	24.0	18.0	49.0	11.0	24.0
Max Q Clear Time (g_c+I1), s	14.3	36.2	11.9	14.4	11.4	34.8	12.2	15.9
Green Ext Time (p_c), s	0.1	7.0	0.0	0.5	0.1	7.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	355	550	405	380	545	300	255	610	230	275	975	305
Future Volume (veh/h)	355	550	405	380	545	300	255	610	230	275	975	305
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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	359	556	0	384	551	0	258	616	232	278	985	308
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	421	648		447	692		350	724	272	420	1161	517
Arrive On Green	0.12	0.18	0.00	0.13	0.19	0.00	0.19	0.28	0.28	0.23	0.32	0.32
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2544	957	1810	3610	1607
Grp Volume(v), veh/h	359	556	0	384	551	0	258	433	415	278	985	308
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1710	1810	1805	1607
Q Serve(g_s), s	12.1	18.1	0.0	12.9	17.5	0.0	16.2	27.4	27.5	16.7	30.5	13.5
Cycle Q Clear(g_c), s	12.1	18.1	0.0	12.9	17.5	0.0	16.2	27.4	27.5	16.7	30.5	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	421	648		447	692		350	510	487	420	1161	517
V/C Ratio(X)	0.85	0.86		0.86	0.80		0.74	0.85	0.85	0.66	0.85	0.60
Avail Cap(c_a), veh/h	581	731		614	767		350	642	613	420	1324	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	47.6	0.0	51.3	46.3	0.0	45.4	40.5	40.5	41.8	38.0	16.7
Incr Delay (d2), s/veh	6.7	9.4	0.0	6.8	5.5	0.0	7.1	16.2	17.0	3.1	7.8	5.0
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	5.6	8.8	0.0	6.0	8.3	0.0	7.9	14.3	13.8	7.8	14.6	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	57.0	0.0	58.1	51.8	0.0	52.5	56.7	57.5	44.9	45.7	21.7
LnGrp LOS	E	E		E	D		D	E	E	D	D	C
Approach Vol, veh/h		915			935			1106			1571	
Approach Delay, s/veh		57.5			54.4			56.0			40.9	
Approach LOS		E			D			E			D	

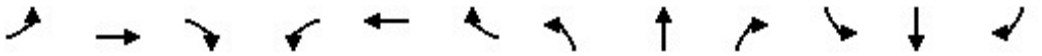
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.4	43.6	19.5	28.5	32.8	39.1	20.8	27.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.5	* 5.5
Max Green Setting (Gmax), s	10.0	44.0	20.0	25.5	11.0	43.0	21.0	* 25
Max Q Clear Time (g_c+I1), s	18.2	32.5	14.1	19.5	18.7	29.5	14.9	20.1
Green Ext Time (p_c), s	0.0	6.1	0.4	2.0	0.0	4.7	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	215	25	145	245	215	30	625	30	295	1100	220
Future Volume (veh/h)	165	215	25	145	245	215	30	625	30	295	1100	220
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	176	229	27	154	261	229	32	665	32	314	1170	234
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	211	438	52	186	234	206	64	837	40	354	1197	238
Arrive On Green	0.12	0.27	0.27	0.10	0.25	0.25	0.04	0.24	0.24	0.20	0.40	0.40
Sat Flow, veh/h	1781	1642	194	1810	933	819	1795	3478	167	1795	2976	591
Grp Volume(v), veh/h	176	0	256	154	0	490	32	342	355	314	701	703
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1810	0	1752	1795	1791	1854	1795	1791	1776
Q Serve(g_s), s	9.4	0.0	11.5	8.1	0.0	24.4	1.7	17.4	17.5	16.5	37.4	38.1
Cycle Q Clear(g_c), s	9.4	0.0	11.5	8.1	0.0	24.4	1.7	17.4	17.5	16.5	37.4	38.1
Prop In Lane	1.00		0.11	1.00		0.47	1.00		0.09	1.00		0.33
Lane Grp Cap(c), veh/h	211	0	490	186	0	440	64	431	446	354	721	715
V/C Ratio(X)	0.83	0.00	0.52	0.83	0.00	1.11	0.50	0.79	0.79	0.89	0.97	0.98
Avail Cap(c_a), veh/h	374	0	490	194	0	440	192	665	689	672	721	715
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	41.9	0.0	30.3	42.8	0.0	36.4	46.0	34.6	34.6	38.0	28.5	28.7
Incr Delay (d2), s/veh	6.3	0.0	1.0	23.7	0.0	77.8	4.4	3.4	3.3	5.7	26.8	29.5
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	4.5	0.0	5.2	4.8	0.0	19.7	0.8	7.9	8.1	7.7	20.6	21.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	31.3	66.5	0.0	114.2	50.4	38.0	38.0	43.7	55.3	58.3
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	E	E
Approach Vol, veh/h		432			644			729			1718	
Approach Delay, s/veh		38.2			102.8			38.5			54.4	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	44.0	16.1	29.0	23.8	28.3	14.6	30.6
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.7	40.1	11.4	26.4	18.5	19.5	10.1	13.5
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	3.7	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	130	1.0	144	1.0	0.464	18.8	LOS B	3.8	95.8	0.93	1.02	1.08	31.7
8	T1	415	1.0	461	1.0	0.464	11.7	LOS B	4.2	106.8	0.95	0.96	1.06	33.3
18	R2	35	1.0	39	1.0	0.464	11.2	LOS B	4.2	106.8	0.96	0.93	1.05	32.9
Approach		580	1.0	644	1.0	0.464	13.3	LOS B	4.2	106.8	0.95	0.97	1.06	32.9
East: Pacific Ave SE														
1	L2	35	1.0	39	1.0	0.374	11.7	LOS B	1.9	47.6	0.64	0.63	0.65	35.4
6	T1	260	1.0	289	1.0	0.374	6.2	LOS A	1.9	47.6	0.64	0.63	0.65	35.3
16	R2	295	1.0	328	1.0	0.324	5.8	LOS A	1.6	41.4	0.62	0.66	0.62	35.0
Approach		590	1.0	656	1.0	0.374	6.3	LOS A	1.9	47.6	0.63	0.65	0.63	35.2
North: Marvin Rd SE														
7u	U	5	1.0	6	1.0	0.630	17.1	LOS B	6.3	158.6	0.82	0.90	0.97	33.9
7	L2	375	1.0	417	1.0	0.630	14.7	LOS B	6.3	158.6	0.82	0.90	0.97	33.1
4	T1	780	1.0	867	1.0	0.630	8.3	LOS A	6.5	164.7	0.80	0.82	0.92	34.6
14	R2	85	1.0	94	1.0	0.630	8.1	LOS A	6.5	164.7	0.80	0.79	0.91	33.9
Approach		1245	1.0	1383	1.0	0.630	10.2	LOS B	6.5	164.7	0.81	0.84	0.93	34.1
West: Pacific Ave SE														
5	L2	55	1.0	61	1.0	0.688	15.4	LOS B	5.2	130.1	0.89	1.04	1.18	34.3
2	T1	400	1.0	444	1.0	0.688	9.9	LOS A	5.2	130.1	0.89	1.04	1.18	34.3
12	R2	270	1.0	300	1.0	0.550	10.0	LOS A	3.2	80.1	0.83	0.97	1.02	33.5
Approach		725	1.0	806	1.0	0.688	10.3	LOS B	5.2	130.1	0.87	1.01	1.12	34.0
All Vehicles		3140	1.0	3489	1.0	0.688	10.1	LOS B	6.5	164.7	0.81	0.87	0.94	34.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	35	2.0	38	2.0	0.265	12.3	LOS B	1.6	40.5	0.20	0.50	0.20	36.9
3	L2	85	2.0	93	2.0	0.265	9.9	LOS A	1.6	40.5	0.20	0.50	0.20	36.0
8	T1	500	2.0	549	2.0	0.265	4.3	LOS A	1.6	41.0	0.19	0.45	0.19	36.7
18	R2	105	2.0	115	2.0	0.265	4.4	LOS A	1.6	41.0	0.19	0.41	0.19	35.9
Approach		725	2.0	797	2.0	0.265	5.4	LOS A	1.6	41.0	0.19	0.45	0.19	36.5
East: 31st Ave NE														
1	L2	90	3.0	99	3.0	0.137	11.5	LOS B	0.5	11.9	0.46	0.75	0.46	34.4
6	T1	15	3.0	16	3.0	0.137	5.9	LOS A	0.5	11.9	0.46	0.75	0.46	34.3
16	R2	10	3.0	11	3.0	0.137	5.8	LOS A	0.5	11.9	0.46	0.75	0.46	33.5
Approach		115	3.0	126	3.0	0.137	10.3	LOS B	0.5	11.9	0.46	0.75	0.46	34.3
North: Willamette Dr NE														
7	L2	5	1.0	5	1.0	0.127	10.7	LOS B	0.6	16.2	0.39	0.49	0.39	36.4
4	T1	290	1.0	319	1.0	0.127	5.0	LOS A	0.7	16.7	0.38	0.48	0.38	36.4
14	R2	10	1.0	11	1.0	0.127	5.0	LOS A	0.7	16.7	0.37	0.47	0.37	35.3
Approach		305	1.0	335	1.0	0.127	5.1	LOS A	0.7	16.7	0.38	0.48	0.38	36.4
West: 31st Ave NE														
5	L2	20	2.0	22	2.0	0.125	10.9	LOS B	0.4	11.2	0.40	0.62	0.40	36.3
2	T1	20	2.0	22	2.0	0.125	5.4	LOS A	0.4	11.2	0.40	0.62	0.40	36.2
12	R2	75	2.0	82	2.0	0.125	5.3	LOS A	0.4	11.2	0.40	0.62	0.40	35.2
Approach		115	2.0	126	2.0	0.125	6.3	LOS A	0.4	11.2	0.40	0.62	0.40	35.6
All Vehicles		1260	1.8	1385	1.8	0.265	5.8	LOS A	1.6	41.0	0.28	0.50	0.28	36.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	35	13.0	38	13.0	0.716	13.2	LOS B	6.1	167.9	0.65	0.76	0.75	35.6
8	T1	260	13.0	280	13.0	0.716	7.2	LOS A	6.1	167.9	0.65	0.76	0.75	35.6
18	R2	355	13.0	382	13.0	0.716	7.2	LOS A	6.1	167.9	0.65	0.76	0.75	34.5
Approach		650	13.0	699	13.0	0.716	7.5	LOS A	6.1	167.9	0.65	0.76	0.75	35.0
East: Britton Pkwy NE														
1	L2	60	4.0	65	4.0	0.283	12.2	LOS B	1.8	45.7	0.62	0.65	0.62	35.3
6	T1	510	4.0	548	4.0	0.283	6.0	LOS A	1.9	49.1	0.61	0.59	0.61	35.6
16	R2	10	4.0	11	4.0	0.283	5.9	LOS A	1.9	49.1	0.61	0.56	0.61	34.6
Approach		580	4.0	624	4.0	0.283	6.6	LOS A	1.9	49.1	0.61	0.60	0.61	35.6
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.657	16.7	LOS B	4.4	118.2	0.73	0.91	0.92	36.1
7	L2	15	10.0	16	10.0	0.657	14.2	LOS B	4.4	118.2	0.73	0.91	0.92	35.2
4	T1	155	10.0	167	10.0	0.657	8.3	LOS A	4.4	118.2	0.73	0.91	0.92	35.2
14	R2	325	10.0	349	10.0	0.657	8.3	LOS A	4.4	118.2	0.73	0.91	0.92	34.2
Approach		500	10.0	538	10.0	0.657	8.6	LOS A	4.4	118.2	0.73	0.91	0.92	34.6
West: Britton Pkwy NE														
5u	U	5	7.0	5	7.0	0.107	13.5	LOS B	0.6	15.1	0.44	0.62	0.44	35.7
5	L2	65	7.0	70	7.0	0.107	11.0	LOS B	0.6	15.1	0.44	0.62	0.44	34.8
2	T1	155	7.0	167	7.0	0.107	5.0	LOS A	0.6	15.8	0.43	0.51	0.43	36.0
12	R2	15	7.0	16	7.0	0.107	5.0	LOS A	0.6	15.8	0.42	0.47	0.42	35.2
Approach		240	7.0	258	7.0	0.107	6.8	LOS A	0.6	15.8	0.43	0.54	0.43	35.6
All Vehicles		1970	8.9	2118	8.9	0.716	7.4	LOS A	6.1	167.9	0.63	0.72	0.72	35.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	15	415	10	675	35	35	25
Future Vol, veh/h	15	415	10	675	35	35	25
Conflicting Peds, #/hr	1	0	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	200	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	3	0	0
Mvmt Flow	16	441	11	718	37	37	27

Major/Minor	Major1		Major2			Minor2	
Conflicting Flow All	756	0	441	-	0	1014	380
Stage 1	-	-	-	-	-	760	-
Stage 2	-	-	-	-	-	254	-
Critical Hdwy	4.18	-	6.46	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	2.53	-	-	3.5	3.3
Pot Cap-1 Maneuver	837	-	750	-	-	238	624
Stage 1	-	-	-	-	-	428	-
Stage 2	-	-	-	-	-	771	-
Platoon blocked, %		-		-	-		
Mov Cap-1 Maneuver	836	-	750	-	-	227	623
Mov Cap-2 Maneuver	-	-	-	-	-	227	-
Stage 1	-	-	-	-	-	419	-
Stage 2	-	-	-	-	-	751	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0.1	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	836	-	-	-	309
HCM Lane V/C Ratio	0.019	-	-	-	0.207
HCM Control Delay (s)	9.4	-	-	-	19.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	430	700	5	5	25
Future Vol, veh/h	10	430	700	5	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	0	0
Mvmt Flow	11	457	745	5	5	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	750	0	-	0	999	375
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	251	-
Critical Hdwy	4.18	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	842	-	-	-	244	628
Stage 1	-	-	-	-	434	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	842	-	-	-	241	628
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	842	-	-	-	495
HCM Lane V/C Ratio	0.013	-	-	-	0.064
HCM Control Delay (s)	9.3	-	-	-	12.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	15	2.0	17	2.0	0.017	10.6	LOS B	0.0	1.2	0.32	0.62	0.32	35.4
8	T1	5	2.0	6	2.0	0.017	4.3	LOS A	0.0	1.2	0.32	0.62	0.32	35.1
18	R2	45	2.0	50	2.0	0.037	4.3	LOS A	0.1	2.6	0.28	0.50	0.28	36.5
Approach		65	2.0	72	2.0	0.037	5.8	LOS A	0.1	2.6	0.29	0.54	0.29	36.1
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.281	13.4	LOS B	1.6	42.1	0.37	0.47	0.37	38.1
1	L2	40	3.0	44	3.0	0.281	10.8	LOS B	1.6	42.1	0.37	0.47	0.37	36.9
6	T1	500	3.0	556	3.0	0.281	4.4	LOS A	1.7	43.2	0.36	0.46	0.36	37.0
16	R2	175	3.0	194	3.0	0.281	4.5	LOS A	1.7	43.2	0.34	0.45	0.34	35.9
Approach		720	3.0	800	3.0	0.281	4.8	LOS A	1.7	43.2	0.36	0.46	0.36	36.7
North: Gateway Blvd NE														
7	L2	65	2.0	72	2.0	0.171	11.6	LOS B	0.6	16.3	0.47	0.70	0.47	36.0
4	T1	5	2.0	6	2.0	0.171	5.2	LOS A	0.6	16.3	0.47	0.70	0.47	35.8
14	R2	80	2.0	89	2.0	0.171	5.3	LOS A	0.6	16.3	0.47	0.70	0.47	34.7
Approach		150	2.0	167	2.0	0.171	8.0	LOS A	0.6	16.3	0.47	0.70	0.47	35.3
West: Britton Pkwy NE														
5u	U	5	5.0	6	5.0	0.173	13.1	LOS B	0.9	23.9	0.30	0.57	0.30	36.7
5	L2	120	5.0	133	5.0	0.173	10.6	LOS B	0.9	23.9	0.30	0.57	0.30	35.6
2	T1	305	5.0	339	5.0	0.173	4.1	LOS A	0.9	24.5	0.28	0.44	0.28	37.0
12	R2	15	5.0	17	5.0	0.173	4.3	LOS A	0.9	24.5	0.28	0.39	0.28	36.0
Approach		445	5.0	494	5.0	0.173	6.0	LOS A	0.9	24.5	0.29	0.47	0.29	36.6
All Vehicles		1380	3.5	1533	3.5	0.281	5.6	LOS A	1.7	43.2	0.34	0.49	0.34	36.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	420	5	30	585	25	15	0	5	10	0	35
Future Vol, veh/h	50	420	5	30	585	25	15	0	5	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	0	0	0	0	0	0
Mvmt Flow	53	442	5	32	616	26	16	0	5	11	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	642	0	0	447	0	0	923	1257	224	1020	1246	321
Stage 1	-	-	-	-	-	-	551	551	-	693	693	-
Stage 2	-	-	-	-	-	-	372	706	-	327	553	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	945	-	-	1110	-	-	228	173	786	194	175	681
Stage 1	-	-	-	-	-	-	491	519	-	405	448	-
Stage 2	-	-	-	-	-	-	626	442	-	665	518	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	945	-	-	1110	-	-	202	159	786	180	160	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	159	-	180	160	-
Stage 1	-	-	-	-	-	-	464	490	-	382	435	-
Stage 2	-	-	-	-	-	-	575	429	-	624	489	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.4	20.6	14.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	202	786	945	-	-	1110	-	-	180	681
HCM Lane V/C Ratio	0.078	0.007	0.056	-	-	0.028	-	-	0.058	0.054
HCM Control Delay (s)	24.3	9.6	9	-	-	8.3	-	-	26.2	10.6
HCM Lane LOS	C	A	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.3	0	0.2	-	-	0.1	-	-	0.2	0.2

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	45	50	280	60	75
Future Vol, veh/h	195	45	50	280	60	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	219	51	56	315	67	84

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	270	0	672	245
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1305	-	421	794
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1305	-	399	794
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	796	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	551	-	-	1305	-
HCM Lane V/C Ratio	0.275	-	-	0.043	-
HCM Control Delay (s)	14	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

MOVEMENT SUMMARY

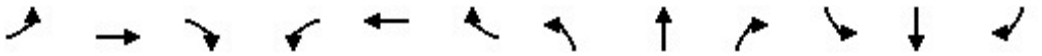
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	155	4.0	187	4.0	0.199	11.9	LOS B	1.2	30.1	0.56	0.72	0.56	31.6
8	T1	5	4.0	6	4.0	0.274	5.3	LOS A	1.8	46.5	0.57	0.61	0.57	33.0
18	R2	260	4.0	313	4.0	0.274	5.5	LOS A	1.8	46.5	0.57	0.61	0.57	33.7
Approach		420	4.0	506	4.0	0.274	7.8	LOS A	1.8	46.5	0.57	0.65	0.57	32.9
East: Britton Pkwy NE														
1	L2	350	5.0	422	5.0	0.345	10.8	LOS B	1.9	48.7	0.40	0.65	0.40	32.2
6	T1	300	5.0	361	5.0	0.345	5.0	LOS A	1.9	48.7	0.40	0.49	0.40	36.3
16	R2	1	5.0	1	5.0	0.345	4.9	LOS A	1.9	48.7	0.40	0.49	0.40	33.6
Approach		651	5.0	784	5.0	0.345	8.1	LOS A	1.9	48.7	0.40	0.58	0.40	34.3
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.012	12.3	LOS B	0.0	1.0	0.53	0.63	0.53	35.0
4	T1	5	0.0	6	0.0	0.012	6.5	LOS A	0.0	1.0	0.53	0.63	0.53	32.0
14	R2	1	0.0	1	0.0	0.012	6.4	LOS A	0.0	1.0	0.53	0.63	0.53	33.3
Approach		7	0.0	8	0.0	0.012	7.3	LOS A	0.0	1.0	0.53	0.63	0.53	32.8
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.615	14.2	LOS B	4.6	118.0	0.70	0.83	0.83	34.6
2	T1	290	4.0	349	4.0	0.615	8.0	LOS A	4.6	118.0	0.70	0.83	0.83	35.8
12	R2	140	4.0	169	4.0	0.615	8.1	LOS A	4.6	118.0	0.70	0.83	0.83	32.6
Approach		431	4.0	519	4.0	0.615	8.1	LOS A	4.6	118.0	0.70	0.83	0.83	34.9
All Vehicles		1509	4.4	1818	4.4	0.615	8.0	LOS A	4.6	118.0	0.53	0.67	0.57	34.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



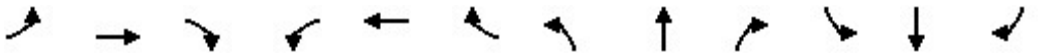
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1100	410	400	870	110	195	175	275	130	280	105
Future Volume (veh/h)	110	1100	410	400	870	110	195	175	275	130	280	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	112	1122	418	408	888	112	199	179	281	133	286	107
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	137	1466	844	467	1485	187	217	341	504	161	382	140
Arrive On Green	0.08	0.41	0.41	0.14	0.47	0.47	0.12	0.18	0.18	0.09	0.15	0.15
Sat Flow, veh/h	1795	3582	1589	3456	3172	400	1795	1885	1592	1767	2525	923
Grp Volume(v), veh/h	112	1122	418	408	497	503	199	179	281	133	198	195
Grp Sat Flow(s),veh/h/ln	1795	1791	1589	1728	1777	1795	1795	1885	1592	1767	1763	1685
Q Serve(g_s), s	7.4	32.3	20.1	13.9	24.8	24.8	13.2	10.3	17.6	8.9	12.9	13.4
Cycle Q Clear(g_c), s	7.4	32.3	20.1	13.9	24.8	24.8	13.2	10.3	17.6	8.9	12.9	13.4
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	137	1466	844	467	832	840	217	341	504	161	267	255
V/C Ratio(X)	0.82	0.77	0.50	0.87	0.60	0.60	0.92	0.52	0.56	0.83	0.74	0.77
Avail Cap(c_a), veh/h	142	1466	844	562	832	840	217	463	607	214	433	414
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)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	30.5	18.0	50.9	23.6	23.6	52.2	44.5	34.1	53.6	48.7	48.9
Incr Delay (d2), s/veh	23.3	3.2	1.7	11.0	3.2	3.1	38.4	1.5	1.1	13.8	4.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	14.4	7.6	6.7	11.0	11.1	8.2	5.0	6.9	4.6	6.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.9	33.7	19.7	61.9	26.7	26.7	90.6	45.9	35.2	67.4	52.7	53.7
LnGrp LOS	E	C	B	E	C	C	F	D	D	E	D	D
Approach Vol, veh/h		1652			1408			659			526	
Approach Delay, s/veh		33.2			36.9			54.8			56.8	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	61.7	16.4	27.2	21.7	54.6	20.0	23.7
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	9.4	26.8	10.9	19.6	15.9	34.3	15.2	15.4
Green Ext Time (p_c), s	0.0	7.2	0.1	1.7	0.3	0.1	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

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



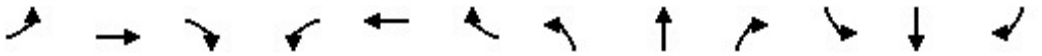
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	840	135	130	810	35	165	235	90	100	345	460
Future Volume (veh/h)	255	840	135	130	810	35	165	235	90	100	345	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	263	866	139	134	835	36	170	242	93	103	356	474
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	289	1079	173	161	957	41	182	722	270	128	460	407
Arrive On Green	0.16	0.35	0.35	0.09	0.27	0.27	0.10	0.29	0.29	0.07	0.26	0.26
Sat Flow, veh/h	1795	3088	496	1795	3497	151	1767	2506	935	1795	1791	1583
Grp Volume(v), veh/h	263	502	503	134	428	443	170	168	167	103	356	474
Grp Sat Flow(s),veh/h/ln	1795	1791	1793	1795	1791	1857	1767	1763	1678	1795	1791	1583
Q Serve(g_s), s	16.8	29.6	29.6	8.6	26.6	26.6	11.2	8.8	9.2	6.6	21.5	30.0
Cycle Q Clear(g_c), s	16.8	29.6	29.6	8.6	26.6	26.6	11.2	8.8	9.2	6.6	21.5	30.0
Prop In Lane	1.00		0.28	1.00		0.08	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	289	626	626	161	490	508	182	508	484	128	460	407
V/C Ratio(X)	0.91	0.80	0.80	0.83	0.87	0.87	0.94	0.33	0.34	0.80	0.77	1.17
Avail Cap(c_a), veh/h	292	626	626	223	544	564	182	508	484	184	460	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	34.4	34.4	52.3	40.5	40.5	52.0	32.7	32.8	53.4	40.2	43.4
Incr Delay (d2), s/veh	29.5	7.5	7.5	12.5	13.7	13.3	48.0	0.4	0.4	9.8	8.0	98.3
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	9.9	14.0	14.0	4.4	13.5	13.9	7.4	3.8	3.8	3.3	10.4	22.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.6	41.8	41.8	64.8	54.2	53.8	100.0	33.1	33.3	63.2	48.3	141.7
LnGrp LOS	E	D	D	E	D	D	F	C	C	E	D	F
Approach Vol, veh/h		1268			1005			505			933	
Approach Delay, s/veh		49.3			55.4			55.7			97.4	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.8	38.0	14.3	39.7	16.0	46.8	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	18.8	28.6	8.6	11.2	10.6	31.6	13.2	32.0
Green Ext Time (p_c), s	0.0	3.4	0.0	1.9	0.1	4.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



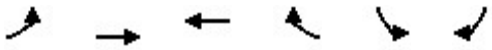
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1565	5	0	1100	35	80	5	30	60	5	35
Future Volume (veh/h)	45	1565	5	0	1100	35	80	5	30	60	5	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1647	0	0	1158	37	84	5	32	63	5	37
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, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	92	2859		1	2596	83	168	233	197	216	15	197
Arrive On Green	0.05	1.00	0.00	0.00	0.74	0.74	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	3483	3582	1598	1781	3515	112	1386	1900	1610	1292	123	1610
Grp Volume(v), veh/h	47	1647	0	0	585	610	84	5	32	68	0	37
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1850	1386	1900	1610	1415	0	1610
Q Serve(g_s), s	1.6	0.0	0.0	0.0	15.4	15.4	7.1	0.3	2.1	5.1	0.0	2.5
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.0	15.4	15.4	12.5	0.3	2.1	5.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	92	2859		1	1312	1366	168	233	197	231	0	197
V/C Ratio(X)	0.51	0.58		0.00	0.45	0.45	0.50	0.02	0.16	0.29	0.00	0.19
Avail Cap(c_a), veh/h	290	2859		82	1312	1366	472	649	550	542	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.00	0.00	0.66	0.66	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	0.0	0.0	0.0	6.1	6.1	54.3	46.3	47.1	48.6	0.0	47.3
Incr Delay (d2), s/veh	3.0	0.8	0.0	0.0	0.7	0.7	1.7	0.0	0.3	0.5	0.0	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	0.7	0.3	0.0	0.0	5.4	5.6	2.6	0.1	0.9	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	0.8	0.0	0.0	6.8	6.8	56.0	46.3	47.4	49.1	0.0	47.6
LnGrp LOS	E	A		A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1694			1195			121			105	
Approach Delay, s/veh		2.4			6.8			53.3			48.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	94.1		18.7	0.0	101.3		18.7				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.6	17.4		14.5	0.0	2.0		7.4				
Green Ext Time (p_c), s	0.0	12.4		0.2	0.0	26.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay	7.6	
HCM 6th LOS	A	

Notes

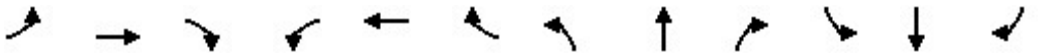
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	1620	1125	30	35	55
Future Volume (veh/h)	55	1620	1125	30	35	55
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	59	1723	1197	32	37	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	915	4474	1338	36	93	83
Arrive On Green	0.44	0.87	0.76	0.76	0.05	0.05
Sat Flow, veh/h	1795	5316	3629	94	1810	1610
Grp Volume(v), veh/h	59	1723	601	628	37	59
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1853	1810	1610
Q Serve(g_s), s	0.0	7.9	30.5	30.6	2.4	4.3
Cycle Q Clear(g_c), s	0.0	7.9	30.5	30.6	2.4	4.3
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	915	4474	673	702	93	83
V/C Ratio(X)	0.06	0.39	0.89	0.89	0.40	0.71
Avail Cap(c_a), veh/h	915	4474	1029	1073	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	12.8	1.5	12.8	12.8	55.1	56.0
Incr Delay (d2), s/veh	0.0	0.3	15.4	14.9	1.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.4	7.7	7.9	1.1	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	1.8	28.1	27.7	56.1	60.2
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1782	1229		96	
Approach Delay, s/veh		2.2	27.9		58.6	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	58.9	50.9				109.8	10.2
Change Period (Y+Rc), s	5.5	5.5				5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5				82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	32.6				9.9	6.3
Green Ext Time (p_c), s	0.0	12.8				28.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B



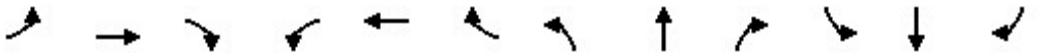
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	635	940	0	0	1115	75	15	0	760	0	0	0
Future Volume (veh/h)	635	940	0	0	1115	75	15	0	760	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	690	1022	0	0	1212	0	16	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3249	0	0	1980		25	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	690	1022	0	0	1212	0	16	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	16.6	0.0	0.0	27.5	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	16.6	0.0	0.0	27.5	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3249	0	0	1980		25	0				
V/C Ratio(X)	1.26	0.31	0.00	0.00	0.61		0.65	0.00				
Avail Cap(c_a), veh/h	546	3249	0	0	1980		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.4	0.0	0.0	17.9	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	120.0	0.0	0.0	0.0	1.4	0.0	24.9	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			
%ile BackOfQ(50%),veh/ln	35.1	7.1	0.0	0.0	11.3	0.0	0.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	167.8	5.5	0.0	0.0	19.3	0.0	83.8	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1712			1212			16				
Approach Delay, s/veh		70.9			19.3			83.8				
Approach LOS		E			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.3		5.7		114.3			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	29.5		3.1		18.6			
Green Ext Time (p_c), s	0.0	7.7		0.0		11.8			

Intersection Summary		
HCM 6th Ctrl Delay	49.7	
HCM 6th LOS	D	

Notes

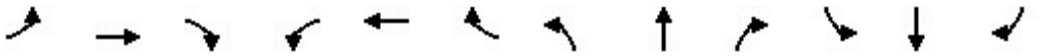
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1520	435	425	725	0	0	0	0	95	5	780
Future Volume (vph)	0	1520	435	425	725	0	0	0	0	95	5	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1791	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1791	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1567	448	438	747	0	0	0	0	98	5	804
RTOR Reduction (vph)	0	0	259	0	0	0	0	0	0	0	0	33
Lane Group Flow (vph)	0	1567	189	438	747	0	0	0	0	0	103	771
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	33.9	39.9						20.6	70.6
Effective Green, g (s)		50.5	50.5	33.9	39.9						20.6	70.6
Actuated g/C Ratio		0.42	0.42	0.28	0.33						0.17	0.59
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	500	1176						307	940
v/s Ratio Prot		c0.44		c0.25	0.21							c0.48
v/s Ratio Perm			0.12								0.06	
v/c Ratio		1.04	0.28	0.88	0.64						0.34	0.82
Uniform Delay, d1		34.8	22.8	41.0	33.9						43.7	19.7
Progression Factor		0.90	1.48	0.55	0.22						1.00	1.00
Incremental Delay, d2		29.9	0.6	5.8	0.8						0.7	6.1
Delay (s)		61.0	34.3	28.4	8.2						44.4	25.8
Level of Service		E	C	C	A						D	C
Approach Delay (s)		55.1			15.7			0.0			27.9	
Approach LOS		E			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	900	295	675	645	195	160	290	885	165	225	65
Future Volume (veh/h)	35	900	295	675	645	195	160	290	885	165	225	65
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		0.97	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	938	0	703	672	0	167	302	922	172	234	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	46	1282		767	1985		195	267	1011	201	374	106
Arrive On Green	0.03	0.36	0.00	0.37	0.93	0.00	0.11	0.14	0.14	0.11	0.14	0.14
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2732	1795	2743	777
Grp Volume(v), veh/h	36	938	0	703	672	0	167	302	922	172	151	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1366	1795	1791	1729
Q Serve(g_s), s	2.4	27.3	0.0	23.3	2.2	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Cycle Q Clear(g_c), s	2.4	27.3	0.0	23.3	2.2	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	46	1282		767	1985		195	267	1011	201	244	236
V/C Ratio(X)	0.78	0.73		0.92	0.34		0.86	1.13	0.91	0.86	0.62	0.64
Avail Cap(c_a), veh/h	90	1282		850	1985		254	267	1011	359	358	346
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.60	0.60	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	33.5	0.0	36.7	1.9	0.0	52.6	51.5	36.5	52.3	48.8	49.0
Incr Delay (d2), s/veh	10.3	3.7	0.0	9.2	0.3	0.0	18.2	95.0	12.0	4.1	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	12.4	0.0	9.6	0.7	0.0	5.9	15.0	14.3	5.3	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	37.2	0.0	45.9	2.1	0.0	70.7	146.5	48.5	56.4	49.8	50.1
LnGrp LOS	E	D		D	A		E	F	D	E	D	D
Approach Vol, veh/h		974			1375			1391			474	
Approach Delay, s/veh		38.4			24.5			72.5			52.3	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	72.5	17.4	22.0	32.1	48.4	18.0	21.4
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	4.4	4.2	13.3	19.0	25.3	29.3	13.0	11.9
Green Ext Time (p_c), s	0.0	6.4	0.2	0.0	1.4	0.4	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	83	2.0	0.206	12.7	LOS B	0.8	20.6	0.60	0.79	0.60	35.9
8	T1	5	2.0	5	2.0	0.206	5.8	LOS A	0.8	20.6	0.60	0.79	0.60	35.5
18	R2	80	2.0	83	2.0	0.206	6.0	LOS A	0.8	20.6	0.60	0.79	0.60	34.3
Approach		165	2.0	172	2.0	0.206	9.3	LOS A	0.8	20.6	0.60	0.79	0.60	35.1
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.504	14.0	LOS B	3.8	95.3	0.49	0.48	0.49	38.3
1	L2	100	1.0	104	1.0	0.504	11.3	LOS B	3.8	95.3	0.49	0.48	0.49	37.2
6	T1	1255	1.0	1307	1.0	0.504	4.2	LOS A	3.9	98.0	0.47	0.44	0.47	37.1
16	R2	65	1.0	68	1.0	0.504	4.5	LOS A	3.9	98.0	0.45	0.41	0.45	35.9
Approach		1425	1.0	1484	1.0	0.504	4.8	LOS A	3.9	98.0	0.47	0.44	0.47	37.1
North: Lacey St SE														
7	L2	20	2.0	21	2.0	0.106	13.4	LOS B	0.4	11.0	0.66	0.81	0.66	36.4
4	T1	5	2.0	5	2.0	0.106	6.5	LOS A	0.4	11.0	0.66	0.81	0.66	36.0
14	R2	45	2.0	47	2.0	0.106	6.7	LOS A	0.4	11.0	0.66	0.81	0.66	34.7
Approach		70	2.0	73	2.0	0.106	8.6	LOS A	0.4	11.0	0.66	0.81	0.66	35.2
SouthWest: Lacey Blvd SE														
5bx	L3	40	1.0	42	1.0	0.456	12.2	LOS B	2.8	71.5	0.36	0.45	0.36	38.6
5ax	L1	55	1.0	57	1.0	0.456	9.5	LOS A	2.8	71.5	0.36	0.45	0.36	37.3
12ax	R1	1060	1.0	1104	1.0	0.456	3.6	LOS A	2.9	72.8	0.35	0.42	0.35	37.4
12bx	R3	65	1.0	68	1.0	0.456	4.3	LOS A	2.9	72.8	0.34	0.40	0.34	36.0
Approach		1220	1.0	1271	1.0	0.456	4.2	LOS A	2.9	72.8	0.35	0.42	0.35	37.4
All Vehicles		2880	1.1	3000	1.1	0.504	4.9	LOS A	3.9	98.0	0.43	0.46	0.43	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	235	5	85	255	50	10	35	165	20	20	5
Future Vol, veh/h	5	235	5	85	255	50	10	35	165	20	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	6	267	6	97	290	57	11	40	188	23	23	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

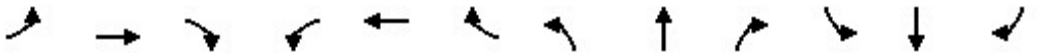
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	12.3	16.8	10.8	10.1
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	2%	22%	44%
Vol Thru, %	78%	0%	96%	65%	44%
Vol Right, %	0%	100%	2%	13%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	165	245	390	45
LT Vol	10	0	5	85	20
Through Vol	35	0	235	255	20
RT Vol	0	165	5	50	5
Lane Flow Rate	51	188	278	443	51
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.094	0.3	0.418	0.635	0.091
Departure Headway (Hd)	6.595	5.769	5.408	5.157	6.417
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	543	623	665	700	556
Service Time	4.345	3.518	3.453	3.195	4.484
HCM Lane V/C Ratio	0.094	0.302	0.418	0.633	0.092
HCM Control Delay	10	11	12.3	16.8	10.1
HCM Lane LOS	A	B	B	C	B
HCM 95th-tile Q	0.3	1.3	2.1	4.6	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	130	45	575	170	45	410
Future Volume (veh/h)	130	45	575	170	45	410
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	1885	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	134	46	593	175	46	423
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	0	0
Cap, veh/h	203	180	977	828	90	1276
Arrive On Green	0.11	0.11	0.51	0.51	0.05	0.67
Sat Flow, veh/h	1795	1598	1900	1610	1810	1900
Grp Volume(v), veh/h	134	46	593	175	46	423
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1810	1900
Q Serve(g_s), s	3.0	1.1	9.2	2.5	1.0	3.9
Cycle Q Clear(g_c), s	3.0	1.1	9.2	2.5	1.0	3.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	203	180	977	828	90	1276
V/C Ratio(X)	0.66	0.26	0.61	0.21	0.51	0.33
Avail Cap(c_a), veh/h	775	690	977	828	217	1276
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	17.7	16.9	7.2	5.5	19.3	2.9
Incr Delay (d2), s/veh	3.7	0.7	2.8	0.6	4.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	3.1	0.7	0.5	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.4	17.6	10.0	6.1	23.8	3.6
LnGrp LOS	C	B	A	A	C	A
Approach Vol, veh/h	180		768			469
Approach Delay, s/veh	20.4		9.1			5.6
Approach LOS	C		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.6	25.9			32.5	9.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	3.0	11.2			5.9	5.0
Green Ext Time (p_c), s	0.0	2.7			2.6	0.4

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	650	310	280	525	70	200	460	245	105	305	70
Future Volume (veh/h)	130	650	310	280	525	70	200	460	245	105	305	70
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		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	140	699	333	301	565	75	215	495	263	113	328	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	169	803	349	333	1121	496	404	849	352	294	487	110
Arrive On Green	0.09	0.22	0.22	0.19	0.32	0.32	0.23	0.23	0.23	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1558	1767	3526	1559	1767	3711	1538	1795	2971	669
Grp Volume(v), veh/h	140	699	333	301	565	75	215	495	263	113	206	197
Grp Sat Flow(s),veh/h/ln	1795	1791	1558	1767	1763	1559	1767	1856	1538	1795	1885	1755
Q Serve(g_s), s	7.9	19.3	21.6	17.1	13.3	3.5	11.0	12.2	16.3	5.8	10.5	10.8
Cycle Q Clear(g_c), s	7.9	19.3	21.6	17.1	13.3	3.5	11.0	12.2	16.3	5.8	10.5	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	169	803	349	333	1121	496	404	849	352	294	309	288
V/C Ratio(X)	0.83	0.87	0.95	0.91	0.50	0.15	0.53	0.58	0.75	0.38	0.67	0.68
Avail Cap(c_a), veh/h	175	803	349	379	1203	532	620	1302	540	595	625	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	38.4	39.3	40.7	28.4	25.1	34.7	35.2	36.8	38.3	40.3	40.4
Incr Delay (d2), s/veh	25.4	10.0	35.8	22.2	0.3	0.1	0.8	0.5	2.4	0.6	1.9	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	9.5	11.6	9.4	5.6	1.3	4.8	5.5	6.3	2.6	5.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	48.4	75.1	63.0	28.7	25.2	35.5	35.7	39.2	38.9	42.1	42.5
LnGrp LOS	E	D	E	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1172			941			973			516	
Approach Delay, s/veh		58.7			39.4			36.6			41.6	
Approach LOS		E			D			D			D	

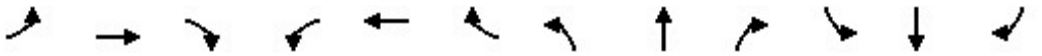
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	37.6		28.5	24.3	28.0		21.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	35.0		36.0	22.0	23.0		34.0				
Max Q Clear Time (g_c+I1), s	9.9	15.3		18.3	19.1	23.6		12.8				
Green Ext Time (p_c), s	0.0	3.3		3.8	0.2	0.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		45.2	
HCM 6th LOS		D	

Notes

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

User approved volume balancing among the lanes for turning movement.



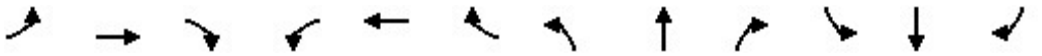
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	805	0	0	1125	305	190	0	540	0	0	0
Future Volume (veh/h)	230	805	0	0	1125	305	190	0	540	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	247	866	0	0	1210	0	204	0	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	282	2675	0	0	1898		253	0				
Arrive On Green	0.16	0.75	0.00	0.00	0.53	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	247	866	0	0	1210	0	204	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	12.1	7.3	0.0	0.0	21.6	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	12.1	7.3	0.0	0.0	21.6	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	282	2675	0	0	1898		253	0				
V/C Ratio(X)	0.88	0.32	0.00	0.00	0.64		0.81	0.00				
Avail Cap(c_a), veh/h	299	2675	0	0	1898		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.1	3.8	0.0	0.0	14.8	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	22.7	0.3	0.0	0.0	1.7	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	7.0	2.1	0.0	0.0	8.5	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	4.1	0.0	0.0	16.5	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1113			1210			204				
Approach Delay, s/veh		16.5			16.5			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	19.1	53.1		17.8		72.2			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	14.1	23.6		12.0		9.3			
Green Ext Time (p_c), s	0.1	5.7		0.7		6.0			

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

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	785	255	0	760	0	0	0	0	245	5	390
Future Volume (veh/h)	0	785	255	0	760	0	0	0	0	245	5	390
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	818	0	0	792	0				255	5	406
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2178		0	2161	0				491	10	445
Arrive On Green	0.00	0.61	0.00	0.00	0.61	0.00				0.28	0.28	0.28
Sat Flow, veh/h	0	3770	0	0	3741	0				1749	34	1585
Grp Volume(v), veh/h	0	818	0	0	792	0				260	0	406
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.4	0.0	0.0	10.1	0.0				11.1	0.0	22.3
Cycle Q Clear(g_c), s	0.0	10.4	0.0	0.0	10.1	0.0				11.1	0.0	22.3
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2178		0	2161	0				501	0	445
V/C Ratio(X)	0.00	0.38		0.00	0.37	0.00				0.52	0.00	0.91
Avail Cap(c_a), veh/h	0	2178		0	2161	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.0	0.0	0.0	8.9	0.0				27.3	0.0	31.3
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.6	0.0	19.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	0.0	0.0	3.7	0.0				4.7	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.5	0.0	0.0	9.4	0.0				27.9	0.0	51.0
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		818			792						666	
Approach Delay, s/veh		9.5			9.4						42.0	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		59.7				59.7		30.3				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.1				12.4		24.3				
Green Ext Time (p_c), s		5.3				5.5		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

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

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	230	0.0	230	0.0	0.227	10.4	LOS B	1.3	32.8	0.35	0.61	0.35	34.8
8	T1	410	0.0	410	0.0	0.227	4.6	LOS A	1.3	33.7	0.34	0.47	0.34	36.4
18	R2	5	0.0	5	0.0	0.227	4.7	LOS A	1.3	33.7	0.34	0.44	0.34	35.5
Approach		645	0.0	645	0.0	0.227	6.6	LOS A	1.3	33.7	0.34	0.52	0.34	35.8
East: Hawks Prairie Rd NE														
1u	U	5	3.0	5	3.0	0.300	14.3	LOS B	1.2	30.2	0.54	0.76	0.54	35.7
1	L2	140	3.0	140	3.0	0.300	11.9	LOS B	1.2	30.2	0.54	0.76	0.54	34.9
6	T1	85	3.0	85	3.0	0.300	6.2	LOS A	1.2	30.2	0.54	0.76	0.54	34.8
16	R2	40	3.0	40	3.0	0.300	6.1	LOS A	1.2	30.2	0.54	0.76	0.54	33.9
Approach		270	3.0	270	3.0	0.300	9.3	LOS A	1.2	30.2	0.54	0.76	0.54	34.7
North: Marvin Rd NE														
7	L2	10	2.0	10	2.0	0.184	12.0	LOS B	1.0	26.1	0.57	0.62	0.57	35.8
4	T1	295	2.0	295	2.0	0.184	6.1	LOS A	1.1	27.8	0.56	0.60	0.56	35.9
14	R2	110	2.0	110	2.0	0.184	5.9	LOS A	1.1	27.8	0.55	0.59	0.55	35.0
Approach		415	2.0	415	2.0	0.184	6.2	LOS A	1.1	27.8	0.56	0.60	0.56	35.7
West: Hawks Prairie Rd NE														
5u	U	5	3.0	5	3.0	0.257	13.6	LOS B	1.1	27.1	0.46	0.70	0.46	36.2
5	L2	115	3.0	115	3.0	0.257	11.2	LOS B	1.1	27.1	0.46	0.70	0.46	35.4
2	T1	20	3.0	20	3.0	0.257	5.5	LOS A	1.1	27.1	0.46	0.70	0.46	35.3
12	R2	115	3.0	115	3.0	0.257	5.4	LOS A	1.1	27.1	0.46	0.70	0.46	34.3
Approach		255	3.0	255	3.0	0.257	8.2	LOS A	1.1	27.1	0.46	0.70	0.46	34.9
All Vehicles		1585	1.5	1585	1.5	0.300	7.2	LOS A	1.3	33.7	0.45	0.61	0.45	35.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	435	2.0	435	2.0	0.605	12.5	LOS B	4.3	109.8	0.65	0.80	0.73	34.5
8	T1	875	2.0	875	2.0	0.605	6.1	LOS A	4.4	111.3	0.64	0.64	0.70	35.5
18	R2	50	2.0	50	2.0	0.605	6.1	LOS A	4.4	111.3	0.63	0.60	0.69	34.7
Approach		1360	2.0	1360	2.0	0.605	8.1	LOS A	4.4	111.3	0.64	0.69	0.71	35.2
East: Britton Pkwy NE														
1	L2	430	4.0	430	4.0	0.588	15.2	LOS B	4.0	102.1	0.85	1.02	1.08	32.7
6	T1	310	4.0	310	4.0	0.588	10.9	LOS B	4.0	102.1	0.83	0.98	1.09	34.2
16	R2	35	4.0	35	4.0	0.588	11.1	LOS B	3.5	90.3	0.83	0.98	1.09	33.2
Approach		775	4.0	775	4.0	0.588	13.3	LOS B	4.0	102.1	0.84	1.00	1.08	33.3
North: Marvin Rd NE														
7u	U	10	4.0	10	4.0	0.752	24.6	LOS C	6.5	169.0	0.92	1.14	1.48	32.3
7	L2	70	4.0	70	4.0	0.752	22.1	LOS C	6.5	169.0	0.92	1.14	1.48	31.5
4	T1	805	4.0	805	4.0	0.752	14.9	LOS B	7.5	193.6	0.93	1.15	1.47	32.2
14	R2	120	4.0	120	4.0	0.752	14.1	LOS B	7.5	193.6	0.94	1.15	1.47	31.8
Approach		1005	4.0	1005	4.0	0.752	15.4	LOS B	7.5	193.6	0.93	1.15	1.47	32.1
West: Britton Pkwy NE														
5u	U	15	5.0	15	5.0	0.204	16.0	LOS B	1.0	26.6	0.75	0.87	0.75	34.6
5	L2	85	5.0	85	5.0	0.204	13.4	LOS B	1.0	26.6	0.75	0.87	0.75	33.7
2	T1	220	5.0	220	5.0	0.204	6.9	LOS A	1.3	33.4	0.80	0.67	0.80	34.9
12	R2	205	5.0	205	5.0	0.208	6.5	LOS A	1.2	32.4	0.77	0.74	0.77	34.7
Approach		525	5.0	525	5.0	0.208	8.1	LOS A	1.3	33.4	0.78	0.74	0.78	34.6
All Vehicles		3665	3.4	3665	3.4	0.752	11.2	LOS B	7.5	193.6	0.78	0.89	1.01	33.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

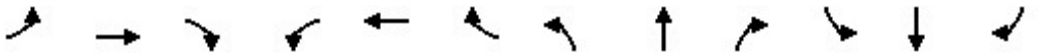
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	335	3.0	335	3.0	0.556	12.6	LOS B	5.6	143.2	0.21	0.52	0.21	28.1
3	L2	20	3.0	20	3.0	0.556	10.0	LOS B	5.6	143.2	0.21	0.52	0.21	34.3
8	T1	1355	3.0	1355	3.0	0.556	4.0	LOS A	5.6	144.1	0.19	0.41	0.19	33.7
18	R2	15	3.0	15	3.0	0.556	4.2	LOS A	5.6	144.1	0.19	0.35	0.19	34.8
Approach		1725	3.0	1725	3.0	0.556	5.7	LOS A	5.6	144.1	0.20	0.43	0.20	32.5
East: Main St NE														
1	L2	10	0.0	10	0.0	0.044	13.7	LOS B	0.2	4.3	0.65	0.79	0.65	33.4
6	T1	1	0.0	1	0.0	0.044	7.7	LOS A	0.2	4.3	0.65	0.79	0.65	35.0
16	R2	20	0.0	20	0.0	0.044	7.7	LOS A	0.2	4.3	0.65	0.79	0.65	32.4
Approach		31	0.0	31	0.0	0.044	9.6	LOS A	0.2	4.3	0.65	0.79	0.65	32.8
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.564	15.4	LOS B	4.6	116.8	0.68	0.69	0.73	33.9
7	L2	15	3.0	15	3.0	0.564	12.9	LOS B	4.6	116.8	0.68	0.69	0.73	34.5
4	T1	1355	3.0	1355	3.0	0.564	6.4	LOS A	4.6	116.8	0.66	0.63	0.69	31.6
14	R2	1	3.0	1	3.0	0.564	6.1	LOS A	4.5	114.9	0.65	0.58	0.66	33.1
Approach		1376	3.0	1376	3.0	0.564	6.5	LOS A	4.6	116.8	0.66	0.63	0.69	31.7
West: Main St NE														
5	L2	1	0.0	1	0.0	0.003	13.2	LOS B	0.0	0.4	0.76	0.64	0.76	33.2
2	T1	1	0.0	1	0.0	0.003	7.2	LOS A	0.0	0.4	0.76	0.64	0.76	34.4
12	R2	1	0.0	1	0.0	0.001	3.6	LOS A	0.0	0.0	0.00	0.43	0.00	36.4
Approach		3	0.0	3	0.0	0.003	8.0	LOS A	0.0	0.4	0.51	0.57	0.51	34.5
All Vehicles		3135	3.0	3135	3.0	0.564	6.1	LOS A	5.6	144.1	0.41	0.52	0.42	32.2

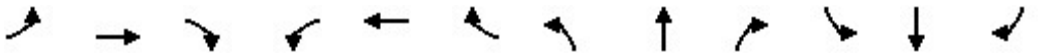
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	375	0	0	490	0	1395	695	0	1240	435
Future Volume (vph)	0	0	375	0	0	490	0	1395	695	0	1240	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frt			0.85			0.85		0.99	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3366	1441		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3366	1441		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	375	0	0	490	0	1395	695	0	1240	435
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	375	0	0	490	0	1465	625	0	1240	435
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1753	1441		1282	1583
v/s Ratio Prot			0.13			0.18		c0.44			c0.35	
v/s Ratio Perm									0.43			0.27
v/c Ratio			0.25			0.45		0.84	0.43		0.97	0.27
Uniform Delay, d1			14.8			27.3		24.4	0.0		37.6	0.0
Progression Factor			1.00			1.00		0.57	1.00		1.00	1.00
Incremental Delay, d2			0.1			0.3		3.3	0.6		18.4	0.4
Delay (s)			14.9			27.6		17.2	0.6		56.0	0.4
Level of Service			B			C		B	A		E	A
Approach Delay (s)		14.9			27.6			12.3			41.6	
Approach LOS		B			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

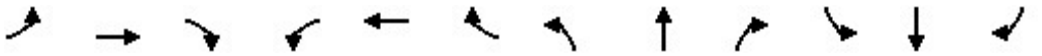
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	260	0	0	460	0	1630	275	0	1360	255
Future Volume (vph)	0	0	260	0	0	460	0	1630	275	0	1360	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	260	0	0	460	0	1630	275	0	1360	255
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	260	0	0	460	0	1630	275	0	1360	255
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			624			1498		1885	1583		1843	1583
v/s Ratio Prot			0.16			0.17		c0.32			c0.38	
v/s Ratio Perm									0.17			0.16
v/c Ratio			0.42			0.31		0.86	0.17		0.74	0.16
Uniform Delay, d1			26.8			15.4		35.0	0.0		22.4	0.0
Progression Factor			1.00			1.00		0.84	1.00		0.46	1.00
Incremental Delay, d2			0.5			0.1		3.9	0.2		1.6	0.1
Delay (s)			27.3			15.5		33.1	0.2		11.8	0.1
Level of Service			C			B		C	A		B	A
Approach Delay (s)		27.3			15.5			28.3			10.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



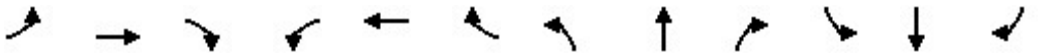
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	475	175	140	80	70	290	90	1110	65	260	950	330
Future Volume (veh/h)	475	175	140	80	70	290	90	1110	65	260	950	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	475	175	140	80	70	290	90	1110	65	260	950	330
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	568	197	157	75	146	349	104	1452	85	254	1825	794
Arrive On Green	0.16	0.20	0.20	0.04	0.08	0.08	0.06	0.43	0.43	0.14	0.51	0.51
Sat Flow, veh/h	3483	968	775	1795	1885	1585	1781	3406	199	1795	3582	1558
Grp Volume(v), veh/h	475	0	315	80	70	290	90	579	596	260	950	330
Grp Sat Flow(s),veh/h/ln	1742	0	1743	1795	1885	1585	1781	1777	1829	1795	1791	1558
Q Serve(g_s), s	15.9	0.0	21.1	5.0	4.3	9.3	6.0	33.3	33.3	17.0	21.2	15.8
Cycle Q Clear(g_c), s	15.9	0.0	21.1	5.0	4.3	9.3	6.0	33.3	33.3	17.0	21.2	15.8
Prop In Lane	1.00		0.44	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	568	0	354	75	146	349	104	757	779	254	1825	794
V/C Ratio(X)	0.84	0.00	0.89	1.07	0.48	0.83	0.87	0.76	0.76	1.02	0.52	0.42
Avail Cap(c_a), veh/h	682	0	392	75	146	349	104	757	779	254	1825	794
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	1.00	1.00	0.54	0.54	0.54	0.67	0.67	0.67
Uniform Delay (d), s/veh	48.7	0.0	46.5	57.5	53.1	44.8	56.0	29.3	29.3	51.5	19.6	18.3
Incr Delay (d2), s/veh	9.6	0.0	22.4	124.3	5.2	17.0	33.4	4.0	3.9	52.0	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	11.3	4.9	2.3	9.8	3.7	14.8	15.2	11.3	8.9	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	0.0	69.0	181.8	58.2	61.8	89.4	33.3	33.2	103.5	20.4	19.4
LnGrp LOS	E	A	E	F	E	E	F	C	C	F	C	B
Approach Vol, veh/h		790			440			1265			1540	
Approach Delay, s/veh		62.5			83.0			37.3			34.2	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	67.1	25.1	14.8	23.0	57.1	10.0	29.9
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	23.5	* 8.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	8.0	23.2	17.9	11.3	19.0	35.3	7.0	23.1
Green Ext Time (p_c), s	0.0	19.2	1.7	0.0	0.0	9.5	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

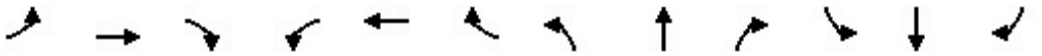
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	55	150	165	55	120	180	940	175	150	925	85
Future Volume (veh/h)	135	55	150	165	55	120	180	940	175	150	925	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	135	55	150	165	55	120	180	940	175	150	925	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	162	66	179	192	86	187	225	1088	202	412	1555	143
Arrive On Green	0.09	0.15	0.15	0.11	0.16	0.16	0.13	0.37	0.37	0.08	0.15	0.15
Sat Flow, veh/h	1810	446	1217	1795	523	1142	1767	2966	552	1795	3316	305
Grp Volume(v), veh/h	135	0	205	165	0	175	180	558	557	150	500	510
Grp Sat Flow(s),veh/h/ln	1810	0	1663	1795	0	1665	1767	1763	1755	1795	1791	1830
Q Serve(g_s), s	8.8	0.0	14.4	10.8	0.0	11.8	11.9	35.2	35.3	9.5	31.2	31.2
Cycle Q Clear(g_c), s	8.8	0.0	14.4	10.8	0.0	11.8	11.9	35.2	35.3	9.5	31.2	31.2
Prop In Lane	1.00		0.73	1.00		0.69	1.00		0.31	1.00		0.17
Lane Grp Cap(c), veh/h	162	0	245	192	0	273	225	646	644	412	840	858
V/C Ratio(X)	0.83	0.00	0.84	0.86	0.00	0.64	0.80	0.86	0.86	0.36	0.59	0.59
Avail Cap(c_a), veh/h	196	0	333	195	0	333	225	734	731	412	840	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	53.8	0.0	49.8	52.7	0.0	46.8	50.9	35.2	35.2	47.1	40.1	40.1
Incr Delay (d2), s/veh	20.8	0.0	11.7	29.6	0.0	2.3	17.7	9.8	9.9	0.3	1.0	1.0
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	5.0	0.0	6.8	6.5	0.0	5.1	6.4	16.6	16.6	4.6	15.2	15.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	0.0	61.5	82.3	0.0	49.2	68.6	45.0	45.1	47.4	41.1	41.1
LnGrp LOS	E	A	E	F	A	D	E	D	D	D	D	D
Approach Vol, veh/h		340			340			1295			1160	
Approach Delay, s/veh		66.7			65.2			48.3			41.9	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.3	61.3	14.7	23.7	32.6	49.0	16.8	21.6
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	15.0	50.0	13.0	24.0	15.0	50.0	13.0	24.0
Max Q Clear Time (g_c+I1), s	13.9	33.2	10.8	13.8	11.5	37.3	12.8	16.4
Green Ext Time (p_c), s	0.0	7.1	0.1	0.5	0.1	6.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D



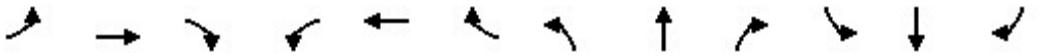
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	610	465	475	645	290	305	665	250	290	920	220
Future Volume (veh/h)	350	610	465	475	645	290	305	665	250	290	920	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	350	610	0	475	645	0	305	665	250	290	920	220
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	502	696		529	725		358	727	273	359	1027	457
Arrive On Green	0.14	0.19	0.00	0.15	0.20	0.00	0.20	0.29	0.29	0.20	0.28	0.28
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2545	957	1810	3610	1607
Grp Volume(v), veh/h	350	610	0	475	645	0	305	468	447	290	920	220
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1711	1810	1805	1607
Q Serve(g_s), s	11.5	19.8	0.0	15.9	20.9	0.0	19.7	30.3	30.3	18.4	29.4	13.6
Cycle Q Clear(g_c), s	11.5	19.8	0.0	15.9	20.9	0.0	19.7	30.3	30.3	18.4	29.4	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	502	696		529	725		358	512	489	359	1027	457
V/C Ratio(X)	0.70	0.88		0.90	0.89		0.85	0.91	0.91	0.81	0.90	0.48
Avail Cap(c_a), veh/h	551	761		556	767		358	537	513	359	1083	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	46.9	0.0	50.0	46.7	0.0	46.3	41.4	41.4	45.9	41.2	35.6
Incr Delay (d2), s/veh	2.6	10.8	0.0	16.2	12.3	0.0	16.7	23.4	24.2	12.0	12.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	9.8	0.0	8.1	10.5	0.0	10.4	16.6	16.0	9.4	14.7	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	57.8	0.0	66.2	58.9	0.0	63.0	64.8	65.6	57.9	53.2	39.2
LnGrp LOS	D	E		E	E		E	E	E	E	D	D
Approach Vol, veh/h		960			1120			1220			1430	
Approach Delay, s/veh		55.5			62.0			64.6			52.0	
Approach LOS		E			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	39.1	22.3	29.6	28.8	39.3	23.1	28.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	19.0	36.0	19.0	25.5	19.0	36.0	19.0	25.5
Max Q Clear Time (g_c+I1), s	21.7	31.4	13.5	22.9	20.4	32.3	17.9	21.8
Green Ext Time (p_c), s	0.0	2.8	0.4	1.2	0.0	2.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	58.3
HCM 6th LOS	E

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	220	30	160	275	195	25	685	30	290	1155	225
Future Volume (veh/h)	150	220	30	160	275	195	25	685	30	290	1155	225
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	150	220	30	160	275	195	25	685	30	290	1155	225
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	185	418	57	193	271	192	55	869	38	332	1205	233
Arrive On Green	0.10	0.26	0.26	0.11	0.26	0.26	0.03	0.25	0.25	0.18	0.40	0.40
Sat Flow, veh/h	1781	1611	220	1810	1034	733	1795	3495	153	1795	2990	579
Grp Volume(v), veh/h	150	0	250	160	0	470	25	351	364	290	689	691
Grp Sat Flow(s),veh/h/ln	1781	0	1831	1810	0	1767	1795	1791	1857	1795	1791	1778
Q Serve(g_s), s	7.7	0.0	10.9	8.1	0.0	24.4	1.3	17.1	17.1	14.6	34.8	35.4
Cycle Q Clear(g_c), s	7.7	0.0	10.9	8.1	0.0	24.4	1.3	17.1	17.1	14.6	34.8	35.4
Prop In Lane	1.00		0.12	1.00		0.41	1.00		0.08	1.00		0.33
Lane Grp Cap(c), veh/h	185	0	475	193	0	463	55	446	462	332	721	716
V/C Ratio(X)	0.81	0.00	0.53	0.83	0.00	1.02	0.45	0.79	0.79	0.87	0.96	0.96
Avail Cap(c_a), veh/h	390	0	479	202	0	463	200	694	719	702	721	716
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	40.8	0.0	29.6	40.8	0.0	34.4	44.4	32.7	32.7	36.9	27.0	27.2
Incr Delay (d2), s/veh	6.2	0.0	1.0	22.9	0.0	45.8	4.3	3.0	2.9	5.5	23.0	25.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	4.9	4.8	0.0	16.1	0.6	7.6	7.9	6.8	18.7	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	30.7	63.6	0.0	80.2	48.7	35.7	35.6	42.4	50.0	52.2
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	D	D
Approach Vol, veh/h		400			630			740			1670	
Approach Delay, s/veh		36.8			76.0			36.1			49.6	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	42.4	14.3	29.0	21.8	28.1	14.5	28.7
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.3	37.4	9.7	26.4	16.6	19.1	10.1	12.9
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	3.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	80	1.0	80	1.0	0.343	15.5	LOS B	2.4	59.3	0.84	0.88	0.84	33.6
8	T1	430	1.0	430	1.0	0.343	9.3	LOS A	2.7	67.2	0.85	0.83	0.85	34.4
18	R2	35	1.0	35	1.0	0.343	8.9	LOS A	2.7	67.2	0.86	0.81	0.86	33.7
Approach		545	1.0	545	1.0	0.343	10.2	LOS B	2.7	67.2	0.85	0.84	0.85	34.2
East: Pacific Ave SE														
1	L2	30	1.0	30	1.0	0.285	11.4	LOS B	1.3	33.4	0.57	0.60	0.57	35.7
6	T1	235	1.0	235	1.0	0.285	5.9	LOS A	1.3	33.4	0.57	0.60	0.57	35.6
16	R2	300	1.0	300	1.0	0.279	5.6	LOS A	1.3	33.9	0.55	0.64	0.55	35.2
Approach		565	1.0	565	1.0	0.285	6.0	LOS A	1.3	33.9	0.56	0.62	0.56	35.4
North: Marvin Rd SE														
7u	U	10	1.0	10	1.0	0.532	14.4	LOS B	4.1	103.0	0.67	0.73	0.68	34.9
7	L2	400	1.0	400	1.0	0.532	12.0	LOS B	4.1	103.0	0.67	0.73	0.68	34.1
4	T1	770	1.0	770	1.0	0.532	6.1	LOS A	4.2	107.0	0.65	0.62	0.65	35.2
14	R2	110	1.0	110	1.0	0.532	6.0	LOS A	4.2	107.0	0.65	0.58	0.65	34.4
Approach		1290	1.0	1290	1.0	0.532	8.0	LOS A	4.2	107.0	0.66	0.65	0.66	34.8
West: Pacific Ave SE														
5	L2	65	1.0	65	1.0	0.515	13.4	LOS B	3.2	79.9	0.79	0.83	0.93	34.8
2	T1	365	1.0	365	1.0	0.515	7.8	LOS A	3.2	79.9	0.79	0.83	0.93	34.7
12	R2	170	1.0	170	1.0	0.288	7.8	LOS A	1.3	32.1	0.71	0.85	0.71	34.6
Approach		600	1.0	600	1.0	0.515	8.4	LOS A	3.2	79.9	0.77	0.83	0.86	34.7
All Vehicles		3000	1.0	3000	1.0	0.532	8.1	LOS A	4.2	107.0	0.70	0.71	0.72	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	30	2.0	30	2.0	0.210	12.3	LOS B	1.2	30.1	0.18	0.50	0.18	37.0
3	L2	70	2.0	70	2.0	0.210	9.8	LOS A	1.2	30.1	0.18	0.50	0.18	36.1
8	T1	445	2.0	445	2.0	0.210	4.3	LOS A	1.2	30.3	0.17	0.45	0.17	36.8
18	R2	90	2.0	90	2.0	0.210	4.4	LOS A	1.2	30.3	0.17	0.41	0.17	36.0
Approach		635	2.0	635	2.0	0.210	5.3	LOS A	1.2	30.3	0.17	0.45	0.17	36.6
East: 31st Ave NE														
1	L2	65	3.0	65	3.0	0.092	11.1	LOS B	0.3	7.7	0.40	0.71	0.40	34.7
6	T1	10	3.0	10	3.0	0.092	5.6	LOS A	0.3	7.7	0.40	0.71	0.40	34.6
16	R2	15	3.0	15	3.0	0.092	5.5	LOS A	0.3	7.7	0.40	0.71	0.40	33.7
Approach		90	3.0	90	3.0	0.092	9.6	LOS A	0.3	7.7	0.40	0.71	0.40	34.5
North: Willamette Dr NE														
7	L2	1	1.0	1	1.0	0.095	10.3	LOS B	0.5	11.7	0.32	0.44	0.32	36.7
4	T1	255	1.0	255	1.0	0.095	4.7	LOS A	0.5	11.9	0.31	0.44	0.31	36.7
14	R2	10	1.0	10	1.0	0.095	4.7	LOS A	0.5	11.9	0.30	0.44	0.30	35.6
Approach		266	1.0	266	1.0	0.095	4.8	LOS A	0.5	11.9	0.31	0.44	0.31	36.7
West: 31st Ave NE														
5	L2	20	2.0	20	2.0	0.117	10.7	LOS B	0.4	10.2	0.35	0.58	0.35	36.5
2	T1	25	2.0	25	2.0	0.117	5.1	LOS A	0.4	10.2	0.35	0.58	0.35	36.4
12	R2	80	2.0	80	2.0	0.117	5.0	LOS A	0.4	10.2	0.35	0.58	0.35	35.4
Approach		125	2.0	125	2.0	0.117	5.9	LOS A	0.4	10.2	0.35	0.58	0.35	35.8
All Vehicles		1116	1.8	1116	1.8	0.210	5.6	LOS A	1.2	30.3	0.24	0.48	0.24	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	25	13.0	25	13.0	0.464	11.4	LOS B	2.2	61.9	0.46	0.59	0.46	36.3
8	T1	170	13.0	170	13.0	0.464	5.4	LOS A	2.2	61.9	0.46	0.59	0.46	36.3
18	R2	260	13.0	260	13.0	0.464	5.4	LOS A	2.2	61.9	0.46	0.59	0.46	35.2
Approach		455	13.0	455	13.0	0.464	5.7	LOS A	2.2	61.9	0.46	0.59	0.46	35.6
East: Britton Pkwy NE														
1	L2	45	4.0	45	4.0	0.180	11.3	LOS B	1.0	25.3	0.47	0.57	0.47	35.8
6	T1	390	4.0	390	4.0	0.180	5.2	LOS A	1.0	26.5	0.46	0.52	0.46	36.2
16	R2	10	4.0	10	4.0	0.180	5.2	LOS A	1.0	26.5	0.45	0.49	0.45	35.1
Approach		445	4.0	445	4.0	0.180	5.8	LOS A	1.0	26.5	0.46	0.52	0.46	36.1
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.439	14.5	LOS B	2.1	55.7	0.54	0.68	0.57	37.0
7	L2	15	10.0	15	10.0	0.439	12.0	LOS B	2.1	55.7	0.54	0.68	0.57	36.1
4	T1	135	10.0	135	10.0	0.439	6.1	LOS A	2.1	55.7	0.54	0.68	0.57	36.1
14	R2	245	10.0	245	10.0	0.439	6.1	LOS A	2.1	55.7	0.54	0.68	0.57	35.0
Approach		400	10.0	400	10.0	0.439	6.4	LOS A	2.1	55.7	0.54	0.68	0.57	35.5
West: Britton Pkwy NE														
5u	U	15	7.0	15	7.0	0.102	13.3	LOS B	0.5	13.9	0.38	0.61	0.38	35.5
5	L2	70	7.0	70	7.0	0.102	10.8	LOS B	0.5	13.9	0.38	0.61	0.38	34.6
2	T1	160	7.0	160	7.0	0.102	4.7	LOS A	0.5	14.4	0.37	0.48	0.37	36.2
12	R2	15	7.0	15	7.0	0.102	4.8	LOS A	0.5	14.4	0.36	0.45	0.36	35.4
Approach		260	7.0	260	7.0	0.102	6.8	LOS A	0.5	14.4	0.37	0.52	0.37	35.7
All Vehicles		1560	8.7	1560	8.7	0.464	6.1	LOS A	2.2	61.9	0.47	0.58	0.47	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	20	485	10	815	25	30	20
Future Vol, veh/h	20	485	10	815	25	30	20
Conflicting Peds, #/hr	1	0	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	200	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	3	3	3	0	0
Mvmt Flow	20	485	10	815	25	30	20

Major/Minor	Major1		Major2			Minor2	
Conflicting Flow All	841	0	485	-	0	1133	422
Stage 1	-	-	-	-	-	849	-
Stage 2	-	-	-	-	-	284	-
Critical Hdwy	4.18	-	6.46	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	2.53	-	-	3.5	3.3
Pot Cap-1 Maneuver	777	-	703	-	-	200	586
Stage 1	-	-	-	-	-	385	-
Stage 2	-	-	-	-	-	745	-
Platoon blocked, %		-		-	-		
Mov Cap-1 Maneuver	776	-	703	-	-	189	585
Mov Cap-2 Maneuver	-	-	-	-	-	189	-
Stage 1	-	-	-	-	-	375	-
Stage 2	-	-	-	-	-	724	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0.1	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	776	-	-	-	259
HCM Lane V/C Ratio	0.026	-	-	-	0.193
HCM Control Delay (s)	9.8	-	-	-	22.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	505	830	5	5	15
Future Vol, veh/h	5	505	830	5	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	3	3	0	0
Mvmt Flow	5	505	830	5	5	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	835	0	-	0	1096	418
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	263	-
Critical Hdwy	4.18	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.24	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	782	-	-	-	211	589
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	782	-	-	-	210	589
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	763	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	782	-	-	-	406
HCM Lane V/C Ratio	0.006	-	-	-	0.049
HCM Control Delay (s)	9.6	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	15	2.0	15	2.0	0.016	10.9	LOS B	0.0	1.2	0.37	0.64	0.37	35.2
8	T1	5	2.0	5	2.0	0.016	4.5	LOS A	0.0	1.2	0.37	0.64	0.37	35.0
18	R2	40	2.0	40	2.0	0.030	4.4	LOS A	0.1	2.2	0.30	0.51	0.30	36.4
Approach		60	2.0	60	2.0	0.030	6.0	LOS A	0.1	2.2	0.33	0.55	0.33	35.9
East: Britton Pkwy NE														
1u	U	5	3.0	5	3.0	0.317	13.9	LOS B	1.9	49.6	0.48	0.52	0.48	37.7
1	L2	35	3.0	35	3.0	0.317	11.4	LOS B	1.9	49.6	0.48	0.52	0.48	36.6
6	T1	570	3.0	570	3.0	0.317	4.9	LOS A	2.0	51.7	0.47	0.51	0.47	36.6
16	R2	230	3.0	230	3.0	0.317	4.9	LOS A	2.0	51.7	0.46	0.50	0.46	35.6
Approach		840	3.0	840	3.0	0.317	5.2	LOS A	2.0	51.7	0.47	0.51	0.47	36.3
North: Gateway Blvd NE														
7	L2	95	2.0	95	2.0	0.230	11.7	LOS B	0.9	23.8	0.51	0.72	0.51	35.9
4	T1	5	2.0	5	2.0	0.230	5.4	LOS A	0.9	23.8	0.51	0.72	0.51	35.7
14	R2	120	2.0	120	2.0	0.230	5.4	LOS A	0.9	23.8	0.51	0.72	0.51	34.6
Approach		220	2.0	220	2.0	0.230	8.1	LOS A	0.9	23.8	0.51	0.72	0.51	35.2
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.222	13.2	LOS B	1.3	32.6	0.33	0.61	0.33	35.8
5	L2	230	5.0	230	5.0	0.222	10.6	LOS B	1.3	32.6	0.33	0.61	0.33	34.8
2	T1	370	5.0	370	5.0	0.222	4.2	LOS A	1.3	33.5	0.31	0.43	0.31	37.0
12	R2	15	5.0	15	5.0	0.222	4.4	LOS A	1.3	33.5	0.31	0.40	0.31	35.9
Approach		625	5.0	625	5.0	0.222	6.7	LOS A	1.3	33.5	0.32	0.50	0.32	36.1
All Vehicles		1745	3.6	1745	3.6	0.317	6.1	LOS A	2.0	51.7	0.42	0.53	0.42	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	615	5	25	730	0	15	0	5	0	0	0
Future Vol, veh/h	0	615	5	25	730	0	15	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	0	0	0	2	2	2
Mvmt Flow	0	615	5	25	730	0	15	0	5	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	730	0	0	620	0	0	1033	1398	310	1088	1400	365
Stage 1	-	-	-	-	-	-	618	618	-	780	780	-
Stage 2	-	-	-	-	-	-	415	780	-	308	620	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.5	6.5	6.9	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.5	4	3.3	3.52	4.02	3.32
Pot Cap-1 Maneuver	877	-	-	956	-	-	189	142	692	170	139	632
Stage 1	-	-	-	-	-	-	448	484	-	354	404	-
Stage 2	-	-	-	-	-	-	591	409	-	677	478	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	877	-	-	956	-	-	185	138	692	165	135	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	138	-	165	135	-
Stage 1	-	-	-	-	-	-	448	484	-	354	393	-
Stage 2	-	-	-	-	-	-	576	398	-	672	478	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	22.2	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	185	692	877	-	-	956	-	-	-	-
HCM Lane V/C Ratio	0.081	0.007	-	-	-	0.026	-	-	-	-
HCM Control Delay (s)	26.2	10.2	0	-	-	8.9	-	-	0	0
HCM Lane LOS	D	B	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0	0	-	-	0.1	-	-	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	220	65	100	240	145	120
Future Vol, veh/h	220	65	100	240	145	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	220	65	100	240	145	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	285	0	693	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1289	-	409	786
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1289	-	372	786
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	489	-	-	1289	-
HCM Lane V/C Ratio	0.542	-	-	0.078	-
HCM Control Delay (s)	20.7	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.2	-	-	0.3	-

MOVEMENT SUMMARY

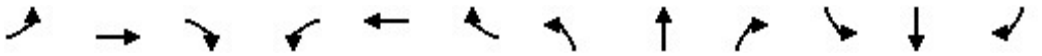
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	205	4.0	205	4.0	0.186	11.3	LOS B	1.1	27.6	0.49	0.68	0.49	31.9
8	T1	5	4.0	5	4.0	0.240	4.8	LOS A	1.5	39.6	0.48	0.55	0.48	33.4
18	R2	330	4.0	330	4.0	0.240	4.9	LOS A	1.5	39.6	0.48	0.55	0.48	34.0
Approach		540	4.0	540	4.0	0.240	7.3	LOS A	1.5	39.6	0.48	0.60	0.48	33.1
East: Britton Pkwy NE														
1	L2	420	5.0	420	5.0	0.287	10.8	LOS B	1.5	38.4	0.38	0.63	0.38	32.5
6	T1	280	5.0	280	5.0	0.287	4.8	LOS A	1.5	38.4	0.37	0.52	0.37	36.1
16	R2	1	5.0	1	5.0	0.287	4.8	LOS A	1.5	38.4	0.37	0.52	0.37	33.4
Approach		701	5.0	701	5.0	0.287	8.4	LOS A	1.5	38.4	0.38	0.59	0.38	34.1
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.008	11.8	LOS B	0.0	0.7	0.50	0.59	0.50	35.2
4	T1	5	0.0	5	0.0	0.008	6.0	LOS A	0.0	0.7	0.50	0.59	0.50	32.2
14	R2	1	0.0	1	0.0	0.008	5.9	LOS A	0.0	0.7	0.50	0.59	0.50	33.5
Approach		7	0.0	7	0.0	0.008	6.8	LOS A	0.0	0.7	0.50	0.59	0.50	33.0
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.469	12.2	LOS B	2.6	66.9	0.58	0.64	0.60	35.3
2	T1	285	4.0	285	4.0	0.469	6.0	LOS A	2.6	66.9	0.58	0.64	0.60	36.4
12	R2	170	4.0	170	4.0	0.469	6.1	LOS A	2.6	66.9	0.58	0.64	0.60	33.3
Approach		456	4.0	456	4.0	0.469	6.0	LOS A	2.6	66.9	0.58	0.64	0.60	35.4
All Vehicles		1704	4.4	1704	4.4	0.469	7.4	LOS A	2.6	66.9	0.46	0.60	0.47	34.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



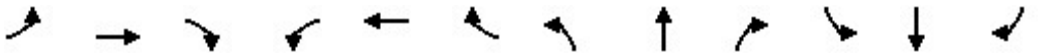
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	1135	375	470	860	120	210	220	275	165	365	120
Future Volume (veh/h)	210	1135	375	470	860	120	210	220	275	165	365	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	210	1135	375	470	860	120	210	220	275	165	365	120
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1318	777	525	1378	192	217	355	542	192	461	149
Arrive On Green	0.08	0.37	0.37	0.15	0.44	0.44	0.12	0.19	0.19	0.11	0.18	0.18
Sat Flow, veh/h	1795	3582	1588	3456	3128	436	1795	1885	1593	1767	2615	847
Grp Volume(v), veh/h	210	1135	375	470	489	491	210	220	275	165	244	241
Grp Sat Flow(s),veh/h/ln	1795	1791	1588	1728	1777	1788	1795	1885	1593	1767	1763	1700
Q Serve(g_s), s	9.5	35.2	19.0	16.0	25.5	25.5	14.0	12.9	16.5	11.0	15.9	16.3
Cycle Q Clear(g_c), s	9.5	35.2	19.0	16.0	25.5	25.5	14.0	12.9	16.5	11.0	15.9	16.3
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	142	1318	777	525	783	788	217	355	542	192	311	299
V/C Ratio(X)	1.48	0.86	0.48	0.90	0.62	0.62	0.97	0.62	0.51	0.86	0.79	0.80
Avail Cap(c_a), veh/h	142	1318	777	562	783	788	217	463	634	214	433	418
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)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	35.1	20.5	50.0	25.9	25.9	52.5	44.8	31.6	52.6	47.3	47.4
Incr Delay (d2), s/veh	243.2	6.3	1.8	15.5	3.7	3.7	51.6	2.1	0.9	24.0	6.3	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	16.3	7.3	8.0	11.4	11.5	9.4	6.2	6.5	6.2	7.5	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	298.5	41.4	22.3	65.5	29.6	29.6	104.1	46.8	32.4	76.6	53.6	55.0
LnGrp LOS	F	D	C	E	C	C	F	D	C	E	D	E
Approach Vol, veh/h		1720			1450			705			650	
Approach Delay, s/veh		68.6			41.3			58.3			60.0	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	58.4	18.5	28.1	23.7	49.6	20.0	26.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	27.5	13.0	18.5	18.0	37.2	16.0	18.3
Green Ext Time (p_c), s	0.0	6.9	0.0	2.0	0.2	0.0	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	57.0
HCM 6th LOS	E

Notes

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



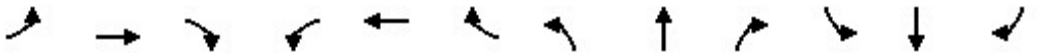
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	940	215	140	925	50	160	240	100	105	335	575
Future Volume (veh/h)	310	940	215	140	925	50	160	240	100	105	335	575
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	310	940	215	140	925	50	160	240	100	105	335	575
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	285	1039	237	167	999	54	177	681	275	130	449	397
Arrive On Green	0.16	0.36	0.36	0.09	0.29	0.29	0.10	0.28	0.28	0.07	0.25	0.25
Sat Flow, veh/h	1795	2893	661	1795	3454	187	1767	2444	987	1795	1791	1582
Grp Volume(v), veh/h	310	581	574	140	480	495	160	171	169	105	335	575
Grp Sat Flow(s),veh/h/ln	1795	1791	1762	1795	1791	1850	1767	1763	1668	1795	1791	1582
Q Serve(g_s), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	9.3	9.7	6.9	20.6	30.0
Cycle Q Clear(g_c), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	9.3	9.7	6.9	20.6	30.0
Prop In Lane	1.00		0.37	1.00		0.10	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	285	644	633	167	518	535	177	492	465	130	449	397
V/C Ratio(X)	1.09	0.90	0.91	0.84	0.93	0.93	0.90	0.35	0.36	0.81	0.75	1.45
Avail Cap(c_a), veh/h	285	644	633	218	532	549	177	492	465	180	449	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	36.3	36.4	53.4	41.3	41.3	53.2	34.4	34.6	54.7	41.3	44.8
Incr Delay (d2), s/veh	78.4	16.2	16.7	15.8	22.2	21.7	40.2	0.4	0.5	12.0	6.7	215.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	18.7	18.6	4.9	16.8	17.2	6.7	4.0	4.0	3.5	9.9	35.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.7	52.5	53.1	69.2	63.4	62.9	93.4	34.9	35.1	66.6	48.0	260.4
LnGrp LOS	F	D	D	E	E	E	F	C	D	E	D	F
Approach Vol, veh/h		1465			1115			500			1015	
Approach Delay, s/veh		68.9			63.9			53.7			170.3	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	40.6	14.7	39.3	16.6	49.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	33.1	8.9	11.7	11.2	39.0	12.7	32.0
Green Ext Time (p_c), s	0.0	1.5	0.0	1.9	0.1	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	90.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



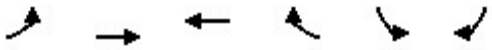
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1690	5	0	1235	30	70	5	25	55	5	30
Future Volume (veh/h)	40	1690	5	0	1235	30	70	5	25	55	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	1690	0	0	1235	30	70	5	25	55	5	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	2911		1	2677	65	154	202	171	194	15	171
Arrive On Green	0.05	1.00	0.00	0.00	0.75	0.75	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3582	1598	1781	3546	86	1373	1870	1585	1265	141	1585
Grp Volume(v), veh/h	40	1690	0	0	619	646	70	5	25	60	0	30
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1855	1373	1870	1585	1407	0	1585
Q Serve(g_s), s	1.3	0.0	0.0	0.0	15.7	15.7	6.0	0.3	1.7	4.5	0.0	2.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.0	15.7	15.7	10.8	0.3	1.7	4.8	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	85	2911		1	1341	1400	154	202	171	209	0	171
V/C Ratio(X)	0.47	0.58		0.00	0.46	0.46	0.46	0.02	0.15	0.29	0.00	0.18
Avail Cap(c_a), veh/h	290	2911		82	1341	1400	475	639	542	539	0	542
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.00	0.00	0.50	0.50	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.3	0.0	0.0	0.0	5.5	5.5	54.9	47.9	48.5	49.9	0.0	48.7
Incr Delay (d2), s/veh	2.7	0.8	0.0	0.0	0.6	0.5	1.6	0.0	0.3	0.6	0.0	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	0.6	0.3	0.0	0.0	5.2	5.5	2.1	0.1	0.7	1.7	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	0.8	0.0	0.0	6.1	6.1	56.5	47.9	48.8	50.4	0.0	49.0
LnGrp LOS	E	A		A	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1730			1265			100			90	
Approach Delay, s/veh		2.1			6.1			54.1			50.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	96.1		17.0	0.0	103.0		17.0				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.3	17.7		12.8	0.0	2.0		6.8				
Green Ext Time (p_c), s	0.0	13.5		0.2	0.0	27.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		6.7	
HCM 6th LOS		A	

Notes

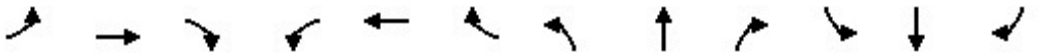
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1740	1255	25	30	50
Future Volume (veh/h)	50	1740	1255	25	30	50
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	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	1740	1255	25	30	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	905	4507	1392	28	81	72
Arrive On Green	0.44	0.88	0.78	0.78	0.05	0.05
Sat Flow, veh/h	1795	5316	3657	71	1781	1585
Grp Volume(v), veh/h	50	1740	626	654	30	50
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1858	1781	1585
Q Serve(g_s), s	0.0	7.6	31.2	31.3	2.0	3.7
Cycle Q Clear(g_c), s	0.0	7.6	31.2	31.3	2.0	3.7
Prop In Lane	1.00			0.04	1.00	1.00
Lane Grp Cap(c), veh/h	905	4507	694	726	81	72
V/C Ratio(X)	0.06	0.39	0.90	0.90	0.37	0.70
Avail Cap(c_a), veh/h	905	4507	1029	1076	416	370
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.89	0.89	1.00	1.00
Uniform Delay (d), s/veh	12.6	1.4	11.4	11.4	55.6	56.5
Incr Delay (d2), s/veh	0.0	0.3	15.6	15.1	1.1	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.2	7.5	7.7	0.9	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.6	1.7	27.0	26.5	56.7	61.0
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1790	1280		80	
Approach Delay, s/veh		2.0	26.8		59.4	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	58.2	52.4			110.6	9.4
Change Period (Y+Rc), s	5.5	5.5			5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5			82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	33.3			9.6	5.7
Green Ext Time (p_c), s	0.0	13.6			28.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B



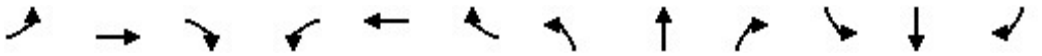
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	620	1020	0	0	1240	70	15	0	790	0	0	0
Future Volume (veh/h)	620	1020	0	0	1240	70	15	0	790	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	620	1020	0	0	1240	0	15	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3251	0	0	1982		24	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	620	1020	0	0	1240	0	15	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	16.5	0.0	0.0	28.4	0.0	1.0	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	16.5	0.0	0.0	28.4	0.0	1.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3251	0	0	1982		24	0				
V/C Ratio(X)	1.14	0.31	0.00	0.00	0.63		0.64	0.00				
Avail Cap(c_a), veh/h	546	3251	0	0	1982		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.4	0.0	0.0	18.0	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	63.3	0.0	0.0	0.0	1.5	0.0	25.1	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			
%ile BackOfQ(50%),veh/ln	26.5	7.0	0.0	0.0	11.7	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.1	5.4	0.0	0.0	19.5	0.0	84.0	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1640			1240			15				
Approach Delay, s/veh		45.4			19.5			84.0				
Approach LOS		D			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.4		5.6		114.4			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	30.4		3.0		18.5			
Green Ext Time (p_c), s	0.0	7.5		0.0		11.8			

Intersection Summary									
HCM 6th Ctrl Delay			34.5						
HCM 6th LOS			C						

Notes

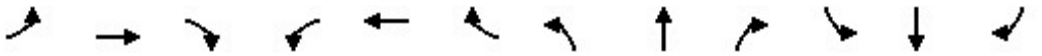
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1585	355	445	830	0	0	0	0	85	5	635
Future Volume (vph)	0	1585	355	445	830	0	0	0	0	85	5	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1792	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1792	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1585	355	445	830	0	0	0	0	85	5	635
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	0	33
Lane Group Flow (vph)	0	1585	149	445	830	0	0	0	0	0	90	602
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	38.7	45.2						15.8	65.3
Effective Green, g (s)		50.5	50.5	38.7	45.2						15.8	65.3
Actuated g/C Ratio		0.42	0.42	0.32	0.38						0.13	0.54
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	570	1333						235	870
v/s Ratio Prot		c0.44		c0.25	0.23							c0.38
v/s Ratio Perm			0.09								0.05	
v/c Ratio		1.05	0.22	0.78	0.62						0.38	0.69
Uniform Delay, d1		34.8	22.2	36.8	30.5						47.6	20.0
Progression Factor		0.87	1.56	0.62	0.31						1.00	1.00
Incremental Delay, d2		34.8	0.5	2.2	0.7						1.2	2.6
Delay (s)		65.0	35.1	25.1	10.2						48.8	22.6
Level of Service		E	D	C	B						D	C
Approach Delay (s)		59.5			15.4			0.0			25.8	
Approach LOS		E			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	935	365	565	725	185	260	360	835	175	315	110
Future Volume (veh/h)	75	935	365	565	725	185	260	360	835	175	315	110
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		0.98	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	935	0	565	725	0	260	360	835	175	315	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	90	1239		644	1729		254	353	1040	204	394	135
Arrive On Green	0.05	0.35	0.00	0.31	0.81	0.00	0.14	0.19	0.19	0.11	0.15	0.15
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2752	1795	2607	892
Grp Volume(v), veh/h	75	935	0	565	725	0	260	360	835	175	214	211
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1376	1795	1791	1708
Q Serve(g_s), s	5.0	27.7	0.0	18.6	7.0	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Cycle Q Clear(g_c), s	5.0	27.7	0.0	18.6	7.0	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	90	1239		644	1729		254	353	1040	204	270	258
V/C Ratio(X)	0.84	0.75		0.88	0.42		1.02	1.02	0.80	0.86	0.79	0.82
Avail Cap(c_a), veh/h	90	1239		850	1729		254	353	1040	359	358	342
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.70	0.70	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	34.7	0.0	40.0	6.4	0.0	51.5	48.8	33.7	52.2	49.1	49.3
Incr Delay (d2), s/veh	44.4	4.3	0.0	6.3	0.5	0.0	62.3	52.7	4.5	4.1	6.2	8.4
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	3.4	12.7	0.0	7.6	2.2	0.0	12.0	15.7	11.4	5.4	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.9	39.0	0.0	46.3	7.0	0.0	113.8	101.5	38.2	56.3	55.4	57.7
LnGrp LOS	F	D		D	A		F	F	D	E	E	E
Approach Vol, veh/h		1010			1290			1455			600	
Approach Delay, s/veh		43.6			24.2			67.4			56.5	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	63.9	17.6	27.5	27.9	47.0	22.0	23.1
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	7.0	9.0	13.5	24.5	20.6	29.7	19.0	16.3
Green Ext Time (p_c), s	0.0	7.0	0.2	0.0	1.8	0.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future Without-Project)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) Without-Project PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	80	2.0	0.214	13.3	LOS B	0.9	22.7	0.67	0.84	0.67	35.6
8	T1	5	2.0	5	2.0	0.214	6.4	LOS A	0.9	22.7	0.67	0.84	0.67	35.2
18	R2	75	2.0	75	2.0	0.214	6.6	LOS A	0.9	22.7	0.67	0.84	0.67	34.1
Approach		160	2.0	160	2.0	0.214	10.0	LOS A	0.9	22.7	0.67	0.84	0.67	34.9
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.581	14.4	LOS B	4.7	119.2	0.57	0.50	0.57	38.1
1	L2	90	1.0	90	1.0	0.581	11.7	LOS B	4.7	119.2	0.57	0.50	0.57	37.0
6	T1	1510	1.0	1510	1.0	0.581	4.5	LOS A	4.9	122.8	0.54	0.47	0.54	36.9
16	R2	75	1.0	75	1.0	0.581	4.8	LOS A	4.9	122.8	0.52	0.44	0.52	35.6
Approach		1680	1.0	1680	1.0	0.581	4.9	LOS A	4.9	122.8	0.55	0.47	0.55	36.8
North: Lacey St SE														
7	L2	30	2.0	30	2.0	0.188	14.2	LOS B	0.8	21.3	0.73	0.86	0.73	36.1
4	T1	5	2.0	5	2.0	0.188	7.3	LOS A	0.8	21.3	0.73	0.86	0.73	35.7
14	R2	80	2.0	80	2.0	0.188	7.5	LOS A	0.8	21.3	0.73	0.86	0.73	34.4
Approach		115	2.0	115	2.0	0.188	9.2	LOS A	0.8	21.3	0.73	0.86	0.73	34.9
SouthWest: Lacey Blvd SE														
5bx	L3	60	1.0	60	1.0	0.549	12.3	LOS B	3.9	99.2	0.40	0.46	0.40	38.4
5ax	L1	75	1.0	75	1.0	0.549	9.6	LOS A	3.9	99.2	0.40	0.46	0.40	37.1
12ax	R1	1340	1.0	1340	1.0	0.549	3.7	LOS A	4.0	100.7	0.39	0.43	0.39	37.2
12bx	R3	60	1.0	60	1.0	0.549	4.3	LOS A	4.0	100.7	0.38	0.40	0.38	35.9
Approach		1535	1.0	1535	1.0	0.549	4.3	LOS A	4.0	100.7	0.39	0.43	0.39	37.2
All Vehicles		3490	1.1	3490	1.1	0.581	5.0	LOS A	4.9	122.8	0.49	0.48	0.49	36.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	295	5	85	300	55	10	40	165	30	20	5
Future Vol, veh/h	5	295	5	85	300	55	10	40	165	30	20	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	2	2	2
Mvmt Flow	5	295	5	85	300	55	10	40	165	30	20	5
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

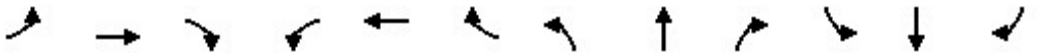
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	12.8	16.5	10.6	10.3
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	0%	2%	19%	55%
Vol Thru, %	80%	0%	97%	68%	36%
Vol Right, %	0%	100%	2%	12%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	165	305	440	55
LT Vol	10	0	5	85	30
Through Vol	40	0	295	300	20
RT Vol	0	165	5	55	5
Lane Flow Rate	50	165	305	440	55
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.092	0.267	0.454	0.628	0.099
Departure Headway (Hd)	6.639	5.824	5.353	5.142	6.49
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	539	615	671	700	550
Service Time	4.391	3.575	3.395	3.18	4.558
HCM Lane V/C Ratio	0.093	0.268	0.455	0.629	0.1
HCM Control Delay	10.1	10.7	12.8	16.5	10.3
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.1	2.4	4.5	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	210	85	540	150	75	355
Future Volume (veh/h)	210	85	540	150	75	355
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	1885	1885	1900	1900	1870	1870
Adj Flow Rate, veh/h	210	85	540	150	75	355
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	0	0	2	2
Cap, veh/h	298	266	877	743	121	1180
Arrive On Green	0.17	0.17	0.46	0.46	0.07	0.63
Sat Flow, veh/h	1795	1598	1900	1610	1781	1870
Grp Volume(v), veh/h	210	85	540	150	75	355
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1781	1870
Q Serve(g_s), s	4.9	2.1	9.5	2.5	1.8	3.8
Cycle Q Clear(g_c), s	4.9	2.1	9.5	2.5	1.8	3.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	298	266	877	743	121	1180
V/C Ratio(X)	0.70	0.32	0.62	0.20	0.62	0.30
Avail Cap(c_a), veh/h	728	648	877	743	201	1180
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	17.5	16.3	9.0	7.1	20.1	3.7
Incr Delay (d2), s/veh	3.0	0.7	3.2	0.6	5.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.7	3.6	0.7	0.8	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.5	17.0	12.2	7.7	25.2	4.4
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	295		690			430
Approach Delay, s/veh	19.5		11.2			8.0
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.5	25.0			32.5	11.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	11.5			5.8	6.9
Green Ext Time (p_c), s	0.0	2.3			2.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	780	345	355	690	80	225	485	255	105	305	110
Future Volume (veh/h)	175	780	345	355	690	80	225	485	255	105	305	110
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		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	175	780	345	355	690	80	225	485	255	105	305	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	204	929	405	335	1181	523	381	801	332	293	433	153
Arrive On Green	0.11	0.26	0.26	0.19	0.34	0.34	0.22	0.22	0.22	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1561	1767	3526	1560	1767	3711	1537	1795	2653	935
Grp Volume(v), veh/h	175	780	345	355	690	80	225	485	255	105	215	200
Grp Sat Flow(s),veh/h/ln	1795	1791	1561	1767	1763	1560	1767	1856	1537	1795	1885	1702
Q Serve(g_s), s	11.1	23.9	24.4	22.0	18.8	4.2	13.3	13.7	18.1	6.0	12.5	13.0
Cycle Q Clear(g_c), s	11.1	23.9	24.4	22.0	18.8	4.2	13.3	13.7	18.1	6.0	12.5	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	204	929	405	335	1181	523	381	801	332	293	308	278
V/C Ratio(X)	0.86	0.84	0.85	1.06	0.58	0.15	0.59	0.61	0.77	0.36	0.70	0.72
Avail Cap(c_a), veh/h	278	1018	443	335	1181	523	548	1150	476	526	552	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	40.7	40.9	47.1	31.9	27.1	40.9	41.1	42.8	43.2	45.9	46.1
Incr Delay (d2), s/veh	15.9	5.7	13.4	66.1	0.6	0.1	1.1	0.6	3.8	0.5	2.1	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	11.2	10.8	15.7	8.1	1.6	5.9	6.3	7.2	2.7	6.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	46.4	54.3	113.2	32.6	27.2	42.0	41.6	46.6	43.7	48.0	48.7
LnGrp LOS	E	D	D	F	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1300			1125			965			520	
Approach Delay, s/veh		51.2			57.6			43.0			47.4	
Approach LOS		D			E			D			D	

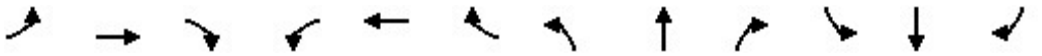
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.2	43.9		30.1	27.0	35.1		24.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	18.0	37.0		36.0	22.0	33.0		34.0				
Max Q Clear Time (g_c+I1), s	13.1	20.8		20.1	24.0	26.4		15.0				
Green Ext Time (p_c), s	0.1	3.9		3.6	0.0	3.1		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		50.5	
HCM 6th LOS		D	

Notes

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

User approved volume balancing among the lanes for turning movement.



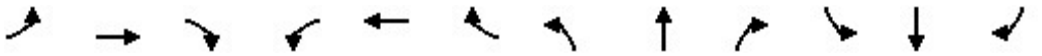
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	850	0	0	1090	300	205	0	555	0	0	0
Future Volume (veh/h)	230	850	0	0	1090	300	205	0	555	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	230	850	0	0	1090	0	205	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	266	2673	0	0	1928		254	0				
Arrive On Green	0.15	0.75	0.00	0.00	0.54	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	230	850	0	0	1090	0	205	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	11.3	7.1	0.0	0.0	18.2	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	11.3	7.1	0.0	0.0	18.2	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	266	2673	0	0	1928		254	0				
V/C Ratio(X)	0.87	0.32	0.00	0.00	0.57		0.81	0.00				
Avail Cap(c_a), veh/h	299	2673	0	0	1928		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.5	3.8	0.0	0.0	13.6	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	20.1	0.3	0.0	0.0	1.2	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	6.3	2.0	0.0	0.0	7.0	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	4.1	0.0	0.0	14.8	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1080			1090			205				
Approach Delay, s/veh		15.5			14.8			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	18.3	53.8		17.8		72.2			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	13.3	20.2		12.0		9.1			
Green Ext Time (p_c), s	0.1	5.9		0.7		5.9			

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

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	835	305	0	850	0	0	0	0	245	5	365
Future Volume (veh/h)	0	835	305	0	850	0	0	0	0	245	5	365
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	835	0	0	850	0				245	5	365
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2259		0	2241	0				451	9	409
Arrive On Green	0.00	0.63	0.00	0.00	0.63	0.00				0.26	0.26	0.26
Sat Flow, veh/h	0	3770	0	0	3741	0				1747	36	1585
Grp Volume(v), veh/h	0	835	0	0	850	0				250	0	365
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.1	0.0	0.0	10.5	0.0				10.9	0.0	20.0
Cycle Q Clear(g_c), s	0.0	10.1	0.0	0.0	10.5	0.0				10.9	0.0	20.0
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2259		0	2241	0				461	0	409
V/C Ratio(X)	0.00	0.37		0.00	0.38	0.00				0.54	0.00	0.89
Avail Cap(c_a), veh/h	0	2259		0	2241	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	0.0	0.0	8.1	0.0				28.8	0.0	32.2
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.7	0.0	15.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	0.0	0.0	3.7	0.0				4.6	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.5	0.0	0.0	8.6	0.0				29.5	0.0	47.6
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		835			850						615	
Approach Delay, s/veh		8.5			8.6						40.3	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		61.8				61.8		28.2				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.5				12.1		22.0				
Green Ext Time (p_c), s		5.8				5.7		1.3				

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

Notes

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

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	405	0.0	450	0.0	0.352	10.5	LOS B	2.3	58.4	0.40	0.63	0.40	34.1
8	T1	490	0.0	544	0.0	0.352	4.6	LOS A	2.4	60.0	0.38	0.45	0.38	36.6
18	R2	5	0.0	6	0.0	0.352	4.7	LOS A	2.4	60.0	0.38	0.45	0.38	35.4
Approach		900	0.0	1000	0.0	0.352	7.3	LOS A	2.4	60.0	0.39	0.53	0.39	35.4
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.389	15.5	LOS B	1.7	44.7	0.65	0.85	0.71	35.0
1	L2	155	3.0	172	3.0	0.389	13.1	LOS B	1.7	44.7	0.65	0.85	0.71	34.3
6	T1	85	3.0	94	3.0	0.389	7.3	LOS A	1.7	44.7	0.65	0.85	0.71	34.2
16	R2	30	3.0	33	3.0	0.389	7.3	LOS A	1.7	44.7	0.65	0.85	0.71	33.3
Approach		275	3.0	306	3.0	0.389	10.7	LOS B	1.7	44.7	0.65	0.85	0.71	34.1
North: Marvin Rd NE														
7	L2	10	2.0	11	2.0	0.261	14.2	LOS B	1.6	41.1	0.73	0.76	0.73	35.2
4	T1	344	2.0	382	2.0	0.261	8.1	LOS A	1.8	45.6	0.73	0.74	0.73	35.3
14	R2	80	2.0	89	2.0	0.261	7.7	LOS A	1.8	45.6	0.73	0.72	0.73	34.3
Approach		434	2.0	482	2.0	0.261	8.1	LOS A	1.8	45.6	0.73	0.74	0.73	35.1
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.300	14.0	LOS B	1.3	33.3	0.53	0.74	0.53	36.2
5	L2	100	3.0	111	3.0	0.300	11.6	LOS B	1.3	33.3	0.53	0.74	0.53	35.4
2	T1	15	3.0	17	3.0	0.300	5.9	LOS A	1.3	33.3	0.53	0.74	0.53	35.3
12	R2	128	3.0	142	3.0	0.300	5.8	LOS A	1.3	33.3	0.53	0.74	0.53	34.3
Approach		248	3.0	276	3.0	0.300	8.3	LOS A	1.3	33.3	0.53	0.74	0.53	34.8
All Vehicles		1857	1.3	2063	1.3	0.389	8.1	LOS A	2.4	60.0	0.53	0.66	0.54	35.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	425	2.0	443	2.0	0.729	14.1	LOS B	6.5	163.9	0.79	0.94	0.99	33.9
8	T1	998	2.0	1040	2.0	0.729	7.6	LOS A	6.7	169.1	0.78	0.81	0.95	35.0
18	R2	42	2.0	44	2.0	0.729	7.5	LOS A	6.7	169.1	0.77	0.77	0.94	34.2
Approach		1465	2.0	1526	2.0	0.729	9.5	LOS A	6.7	169.1	0.78	0.85	0.96	34.6
East: Britton Pkwy NE														
1	L2	564	4.0	588	4.0	0.941	33.0	LOS D	12.9	333.3	1.00	1.48	2.44	26.1
6	T1	357	4.0	372	4.0	0.941	31.8	LOS D	12.9	333.3	0.98	1.42	2.38	26.1
16	R2	45	4.0	47	4.0	0.941	31.9	LOS D	10.4	268.7	0.98	1.42	2.38	25.5
Approach		966	4.0	1006	4.0	0.941	32.5	LOS C	12.9	333.3	0.99	1.45	2.42	26.1
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	1.222	133.4	LOS F	42.8	1103.3	1.00	2.67	6.15	12.7
7	L2	65	4.0	68	4.0	1.222	130.9	LOS F	42.8	1103.3	1.00	2.67	6.15	12.6
4	T1	966	4.0	1006	4.0	1.222	123.3	LOS F	56.2	1450.1	1.00	2.86	6.51	12.6
14	R2	189	4.0	197	4.0	1.222	121.9	LOS F	56.2	1450.1	1.00	3.02	6.81	12.6
Approach		1230	4.0	1282	4.0	1.222	123.6	LOS F	56.2	1450.1	1.00	2.87	6.53	12.6
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.320	17.6	LOS B	1.7	45.2	0.83	0.95	0.85	33.4
5	L2	160	5.0	167	5.0	0.320	15.1	LOS B	1.7	45.2	0.83	0.95	0.85	32.6
2	T1	244	5.0	254	5.0	0.320	8.3	LOS A	2.2	57.8	0.91	0.78	0.91	34.8
12	R2	516	5.0	538	5.0	0.636	11.7	LOS B	6.0	155.7	0.96	1.11	1.31	32.7
Approach		930	5.0	969	5.0	0.636	11.5	LOS B	6.0	155.7	0.92	0.99	1.12	33.2
All Vehicles		4591	3.6	4783	3.6	1.222	45.3	LOS D	56.2	1450.1	0.91	1.55	2.79	22.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

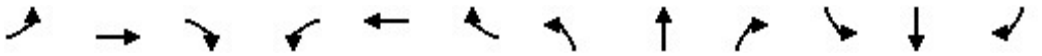
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	280	3.0	308	3.0	0.729	13.0	LOS B	10.0	255.0	0.45	0.52	0.45	27.0
3	L2	222	3.0	244	3.0	0.729	10.5	LOS B	10.0	255.0	0.45	0.52	0.45	33.3
8	T1	1425	3.0	1566	3.0	0.729	4.4	LOS A	10.1	257.7	0.42	0.43	0.42	32.3
18	R2	75	3.0	82	3.0	0.729	4.5	LOS A	10.1	257.7	0.41	0.39	0.41	33.8
Approach		2002	3.0	2200	3.0	0.729	6.3	LOS A	10.1	257.7	0.43	0.45	0.43	31.8
East: Main St NE														
1	L2	105	0.0	115	0.0	0.291	16.5	LOS B	1.4	35.3	0.81	0.94	0.84	30.2
6	T1	1	0.0	1	0.0	0.291	10.5	LOS B	1.4	35.3	0.81	0.94	0.84	32.4
16	R2	30	0.0	33	0.0	0.291	10.5	LOS B	1.4	35.3	0.81	0.94	0.84	29.6
Approach		136	0.0	149	0.0	0.291	15.2	LOS B	1.4	35.3	0.81	0.94	0.84	30.1
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	1.138	95.9	LOS F	58.4	1494.8	1.00	2.68	5.17	10.4
7	L2	25	3.0	27	3.0	1.138	93.3	LOS F	58.4	1494.8	1.00	2.68	5.17	13.3
4	T1	1884	3.0	2070	3.0	1.138	85.2	LOS F	72.5	1856.2	1.00	2.78	5.29	9.5
14	R2	37	3.0	41	3.0	1.138	83.7	LOS F	72.5	1856.2	1.00	2.85	5.39	13.5
Approach		1951	3.0	2144	3.0	1.138	85.3	LOS F	72.5	1856.2	1.00	2.78	5.29	9.6
West: Main St NE														
5	L2	20	0.0	22	0.0	0.165	18.2	LOS B	1.0	25.6	0.96	0.98	0.96	31.2
2	T1	1	0.0	1	0.0	0.165	12.1	LOS B	1.0	25.6	0.96	0.98	0.96	32.7
12	R2	288	0.0	316	0.0	0.165	4.6	LOS A	1.0	25.6	0.12	0.50	0.12	35.3
Approach		309	0.0	340	0.0	0.165	5.5	LOS A	1.0	25.6	0.18	0.53	0.18	34.9
All Vehicles		4398	2.7	4833	2.7	1.138	41.5	LOS D	72.5	1856.2	0.68	1.50	2.58	16.4

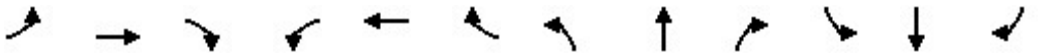
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	580	0	0	852	0	1500	1457	0	1948	675
Future Volume (vph)	0	0	580	0	0	852	0	1500	1457	0	1948	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.96	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3210	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3210	1409		3438	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	604	0	0	888	0	1562	1518	0	2029	703
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	604	0	0	888	0	2125	956	0	2029	703
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1671	1409		1246	1538
v/s Ratio Prot			0.22			0.32		c0.66			c0.59	
v/s Ratio Perm									0.68			0.46
v/c Ratio			0.40			0.82		1.27	0.68		1.63	0.46
Uniform Delay, d1			16.4			33.0		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.63	1.00		1.00	1.00
Incremental Delay, d2			0.2			5.2		124.2	1.1		286.5	1.0
Delay (s)			16.6			38.2		142.3	1.1		324.7	1.0
Level of Service			B			D		F	A		F	A
Approach Delay (s)		16.6			38.2			98.5			241.4	
Approach LOS		B			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	137.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

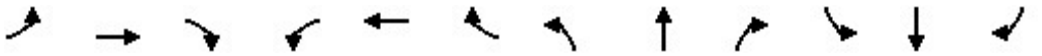
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	155	0	0	974	0	1983	275	0	1932	596
Future Volume (vph)	0	0	155	0	0	974	0	1983	275	0	1932	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	157	0	0	984	0	2003	278	0	1952	602
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	157	0	0	984	0	2003	278	0	1952	602
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.10			0.37		c0.39			c0.56	
v/s Ratio Perm									0.18			0.39
v/c Ratio			0.26			0.68		1.06	0.18		1.07	0.39
Uniform Delay, d1			25.0			20.3		37.8	0.0		28.8	0.0
Progression Factor			1.00			1.00		0.80	1.00		0.61	1.00
Incremental Delay, d2			0.2			1.4		33.5	0.1		32.6	0.1
Delay (s)			25.3			21.6		63.6	0.1		50.3	0.1
Level of Service			C			C		E	A		D	A
Approach Delay (s)		25.3			21.6			55.8			38.4	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



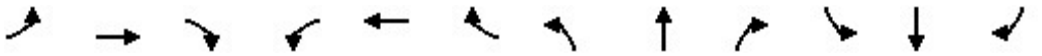
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	220	160	75	65	334	65	1343	65	262	1303	392
Future Volume (veh/h)	546	220	160	75	65	334	65	1343	65	262	1303	392
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	569	229	167	78	68	348	68	1399	68	273	1357	408
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	631	228	166	75	153	355	141	1392	68	254	1671	726
Arrive On Green	0.18	0.22	0.22	0.04	0.08	0.08	0.08	0.40	0.40	0.14	0.47	0.47
Sat Flow, veh/h	3483	1012	738	1795	1885	1586	1781	3445	167	1795	3582	1557
Grp Volume(v), veh/h	569	0	396	78	68	348	68	720	747	273	1357	408
Grp Sat Flow(s),veh/h/ln	1742	0	1750	1795	1885	1586	1781	1777	1835	1795	1791	1557
Q Serve(g_s), s	19.2	0.0	27.0	5.0	4.1	9.7	4.4	48.5	48.5	17.0	39.0	10.9
Cycle Q Clear(g_c), s	19.2	0.0	27.0	5.0	4.1	9.7	4.4	48.5	48.5	17.0	39.0	10.9
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	631	0	394	75	153	355	141	718	742	254	1671	726
V/C Ratio(X)	0.90	0.00	1.01	1.04	0.44	0.98	0.48	1.00	1.01	1.07	0.81	0.56
Avail Cap(c_a), veh/h	653	0	394	75	153	355	141	718	742	254	1746	759
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	1.00	1.00	0.26	0.26	0.26	0.09	0.09	0.09
Uniform Delay (d), s/veh	48.1	0.0	46.5	57.5	52.5	46.4	52.9	35.7	35.8	51.5	27.5	5.3
Incr Delay (d2), s/veh	16.4	0.0	46.8	116.3	4.3	42.5	1.4	17.7	18.6	40.6	0.4	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	9.7	0.0	16.8	4.7	2.2	14.4	2.0	24.0	25.0	10.5	16.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	93.3	173.8	56.8	88.9	54.3	53.4	54.4	92.1	27.9	5.6
LnGrp LOS	E	A	F	F	E	F	D	F	F	F	C	A
Approach Vol, veh/h		965			494			1535			2038	
Approach Delay, s/veh		76.3			97.9			53.9			32.0	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	62.0	27.3	15.2	23.0	54.5	10.0	32.5
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	22.5	* 9.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	6.4	41.0	21.2	11.7	19.0	50.5	7.0	29.0
Green Ext Time (p_c), s	0.0	14.9	0.6	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	60	135	150	60	145	180	1108	170	173	1235	95
Future Volume (veh/h)	150	60	135	150	60	145	180	1108	170	173	1235	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	61	138	153	61	148	184	1131	173	177	1260	97
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	166	73	166	176	72	175	211	1266	193	352	1650	127
Arrive On Green	0.09	0.14	0.14	0.10	0.15	0.15	0.12	0.41	0.41	0.06	0.16	0.16
Sat Flow, veh/h	1810	513	1161	1795	484	1173	1767	3066	468	1795	3370	259
Grp Volume(v), veh/h	153	0	199	153	0	209	184	649	655	177	668	689
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1795	0	1657	1767	1763	1771	1795	1791	1838
Q Serve(g_s), s	10.1	0.0	13.9	10.1	0.0	14.7	12.3	41.0	41.4	11.4	42.8	43.0
Cycle Q Clear(g_c), s	10.1	0.0	13.9	10.1	0.0	14.7	12.3	41.0	41.4	11.4	42.8	43.0
Prop In Lane	1.00		0.69	1.00		0.71	1.00		0.26	1.00		0.14
Lane Grp Cap(c), veh/h	166	0	240	176	0	247	211	728	731	352	877	900
V/C Ratio(X)	0.92	0.00	0.83	0.87	0.00	0.84	0.87	0.89	0.90	0.50	0.76	0.77
Avail Cap(c_a), veh/h	166	0	335	176	0	331	250	728	731	352	877	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.56	0.56	0.56
Uniform Delay (d), s/veh	54.1	0.0	50.0	53.4	0.0	49.7	51.9	32.7	32.8	50.5	43.6	43.7
Incr Delay (d2), s/veh	47.5	0.0	10.4	34.0	0.0	12.7	22.9	13.3	13.8	0.5	2.3	2.3
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	6.8	0.0	6.5	6.2	0.0	7.0	6.8	19.8	20.2	5.6	21.1	21.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	0.0	60.4	87.4	0.0	62.4	74.8	46.1	46.7	50.9	46.0	46.0
LnGrp LOS	F	A	E	F	A	E	E	D	D	D	D	D
Approach Vol, veh/h		352			362			1488			1534	
Approach Delay, s/veh		78.3			72.9			49.9			46.6	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	63.7	15.0	21.9	28.5	54.6	15.7	21.2
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	50.0	11.0	24.0	18.0	49.0	11.0	24.0
Max Q Clear Time (g_c+I1), s	14.3	45.0	12.1	16.7	13.4	43.4	12.1	15.9
Green Ext Time (p_c), s	0.1	3.7	0.0	0.6	0.1	4.1	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

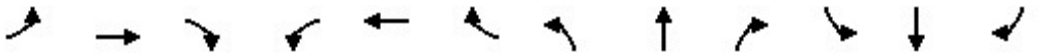
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	409	550	405	380	545	343	255	721	230	303	1125	359
Future Volume (veh/h)	409	550	405	380	545	343	255	721	230	303	1125	359
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	413	556	0	384	551	0	258	728	232	306	1136	363
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	473	648		480	657		288	833	265	361	1266	564
Arrive On Green	0.14	0.18	0.00	0.14	0.18	0.00	0.16	0.31	0.31	0.20	0.35	0.35
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2670	851	1810	3610	1607
Grp Volume(v), veh/h	413	556	0	384	551	0	258	488	472	306	1136	363
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1730	1810	1805	1607
Q Serve(g_s), s	13.9	18.1	0.0	12.7	17.7	0.0	16.9	31.0	31.0	19.6	35.8	22.7
Cycle Q Clear(g_c), s	13.9	18.1	0.0	12.7	17.7	0.0	16.9	31.0	31.0	19.6	35.8	22.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	473	648		480	657		288	558	539	361	1266	564
V/C Ratio(X)	0.87	0.86		0.80	0.84		0.89	0.87	0.87	0.85	0.90	0.64
Avail Cap(c_a), veh/h	581	731		614	767		288	642	620	361	1324	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	47.6	0.0	50.2	47.4	0.0	49.4	39.1	39.1	46.3	36.9	32.7
Incr Delay (d2), s/veh	10.3	9.4	0.0	4.4	7.5	0.0	27.2	17.2	17.7	16.2	10.2	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	8.8	0.0	5.8	8.5	0.0	9.7	16.1	15.6	10.4	17.3	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.2	57.0	0.0	54.6	54.9	0.0	76.6	56.3	56.8	62.4	47.1	38.2
LnGrp LOS	E	E		D	D		E	E	E	E	D	D
Approach Vol, veh/h		969			935			1218			1805	
Approach Delay, s/veh		58.8			54.8			60.8			47.9	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	47.1	21.3	27.3	28.9	42.4	21.4	27.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	10.0	44.0	20.0	25.5	11.0	43.0	21.0	24.5
Max Q Clear Time (g_c+I1), s	18.9	37.8	15.9	19.7	21.6	33.0	14.7	20.1
Green Ext Time (p_c), s	0.0	4.3	0.4	1.9	0.0	4.5	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	215	25	145	245	228	30	706	30	309	1219	224
Future Volume (veh/h)	165	215	25	145	245	228	30	706	30	309	1219	224
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	176	229	27	154	261	243	32	751	32	329	1297	238
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	209	416	49	183	215	200	63	907	39	367	1297	235
Arrive On Green	0.12	0.25	0.25	0.10	0.24	0.24	0.03	0.26	0.26	0.20	0.43	0.43
Sat Flow, veh/h	1781	1642	194	1810	905	842	1795	3499	149	1795	3026	549
Grp Volume(v), veh/h	176	0	256	154	0	504	32	384	399	329	762	773
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1810	0	1747	1795	1791	1857	1795	1791	1784
Q Serve(g_s), s	10.0	0.0	12.4	8.6	0.0	24.4	1.8	20.8	20.8	18.4	43.5	44.1
Cycle Q Clear(g_c), s	10.0	0.0	12.4	8.6	0.0	24.4	1.8	20.8	20.8	18.4	43.5	44.1
Prop In Lane	1.00		0.11	1.00		0.48	1.00		0.08	1.00		0.31
Lane Grp Cap(c), veh/h	209	0	465	183	0	414	63	464	482	367	768	765
V/C Ratio(X)	0.84	0.00	0.55	0.84	0.00	1.22	0.51	0.83	0.83	0.90	0.99	1.01
Avail Cap(c_a), veh/h	353	0	465	183	0	414	181	628	652	635	768	765
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	44.5	0.0	33.3	45.4	0.0	39.2	48.8	35.9	35.9	39.9	29.2	29.4
Incr Delay (d2), s/veh	6.7	0.0	1.4	27.7	0.0	117.6	4.7	6.4	6.2	7.1	30.6	35.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	5.7	5.2	0.0	23.8	0.9	9.8	10.1	8.7	24.3	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	0.0	34.7	73.2	0.0	156.9	53.5	42.4	42.2	47.0	59.8	64.6
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	E	F
Approach Vol, veh/h		432			658			815			1864	
Approach Delay, s/veh		41.4			137.3			42.7			59.5	
Approach LOS		D			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	49.0	16.7	29.0	25.6	31.6	15.0	30.7
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.8	46.1	12.0	26.4	20.4	22.8	10.6	14.4
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.7	3.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	67.4
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	130	1.0	144	1.0	0.532	22.1	LOS C	4.8	122.2	0.97	1.09	1.25	30.3
8	T1	454	1.0	504	1.0	0.532	14.7	LOS B	5.6	140.1	0.99	1.05	1.23	31.9
18	R2	35	1.0	39	1.0	0.532	14.1	LOS B	5.6	140.1	1.00	1.03	1.23	31.6
Approach		619	1.0	688	1.0	0.532	16.3	LOS B	5.6	140.1	0.99	1.06	1.24	31.5
East: Pacific Ave SE														
1	L2	35	1.0	39	1.0	0.394	12.0	LOS B	2.1	51.8	0.67	0.66	0.70	35.3
6	T1	260	1.0	289	1.0	0.394	6.4	LOS A	2.1	51.8	0.67	0.66	0.70	35.2
16	R2	334	1.0	371	1.0	0.378	6.0	LOS A	2.0	50.6	0.66	0.68	0.66	34.9
Approach		629	1.0	699	1.0	0.394	6.5	LOS A	2.1	51.8	0.66	0.67	0.68	35.1
North: Marvin Rd SE														
7u	U	5	1.0	6	1.0	0.689	18.2	LOS B	7.9	197.9	0.86	0.95	1.08	33.3
7	L2	430	1.0	478	1.0	0.689	15.8	LOS B	7.9	197.9	0.86	0.95	1.08	32.6
4	T1	839	1.0	932	1.0	0.689	9.2	LOS A	8.2	207.0	0.85	0.87	1.03	34.3
14	R2	85	1.0	94	1.0	0.689	9.0	LOS A	8.2	207.0	0.84	0.85	1.01	33.7
Approach		1359	1.0	1510	1.0	0.689	11.3	LOS B	8.2	207.0	0.85	0.89	1.05	33.7
West: Pacific Ave SE														
5	L2	55	1.0	61	1.0	0.757	17.7	LOS B	6.2	156.4	0.94	1.10	1.34	33.2
2	T1	400	1.0	444	1.0	0.757	12.2	LOS B	6.2	156.4	0.94	1.10	1.34	33.1
12	R2	270	1.0	300	1.0	0.614	11.5	LOS B	3.7	94.3	0.87	1.01	1.12	32.7
Approach		725	1.0	806	1.0	0.757	12.3	LOS B	6.2	156.4	0.91	1.07	1.26	33.0
All Vehicles		3332	1.0	3702	1.0	0.757	11.5	LOS B	8.2	207.0	0.85	0.92	1.06	33.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	35	2.0	38	2.0	0.280	12.3	LOS B	1.7	43.9	0.20	0.50	0.20	37.0
3	L2	85	2.0	93	2.0	0.280	9.9	LOS A	1.7	43.9	0.20	0.50	0.20	36.1
8	T1	514	2.0	565	2.0	0.280	4.3	LOS A	1.7	44.3	0.20	0.45	0.20	36.7
18	R2	133	2.0	146	2.0	0.280	4.4	LOS A	1.7	44.3	0.19	0.42	0.19	35.9
Approach		767	2.0	843	2.0	0.280	5.3	LOS A	1.7	44.3	0.20	0.45	0.20	36.5
East: 31st Ave NE														
1	L2	115	3.0	126	3.0	0.168	11.6	LOS B	0.6	15.1	0.47	0.77	0.47	34.2
6	T1	15	3.0	16	3.0	0.168	6.0	LOS A	0.6	15.1	0.47	0.77	0.47	34.2
16	R2	10	3.0	11	3.0	0.168	5.9	LOS A	0.6	15.1	0.47	0.77	0.47	33.3
Approach		140	3.0	154	3.0	0.168	10.6	LOS B	0.6	15.1	0.47	0.77	0.47	34.2
North: Willamette Dr NE														
7	L2	5	1.0	5	1.0	0.135	10.8	LOS B	0.7	17.6	0.42	0.51	0.42	36.3
4	T1	303	1.0	333	1.0	0.135	5.2	LOS A	0.7	18.2	0.41	0.50	0.41	36.3
14	R2	10	1.0	11	1.0	0.135	5.1	LOS A	0.7	18.2	0.40	0.49	0.40	35.2
Approach		318	1.0	349	1.0	0.135	5.2	LOS A	0.7	18.2	0.41	0.50	0.41	36.3
West: 31st Ave NE														
5	L2	20	2.0	22	2.0	0.127	11.0	LOS B	0.5	11.6	0.42	0.63	0.42	36.2
2	T1	20	2.0	22	2.0	0.127	5.5	LOS A	0.5	11.6	0.42	0.63	0.42	36.2
12	R2	75	2.0	82	2.0	0.127	5.4	LOS A	0.5	11.6	0.42	0.63	0.42	35.2
Approach		115	2.0	126	2.0	0.127	6.4	LOS A	0.5	11.6	0.42	0.63	0.42	35.5
All Vehicles		1340	1.9	1473	1.9	0.280	5.9	LOS A	1.7	44.3	0.30	0.51	0.30	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	35	13.0	38	13.0	0.760	14.6	LOS B	6.8	188.7	0.74	0.91	0.94	35.0
8	T1	260	13.0	280	13.0	0.760	8.6	LOS A	6.8	188.7	0.74	0.91	0.94	35.0
18	R2	355	13.0	382	13.0	0.760	8.6	LOS A	6.8	188.7	0.74	0.91	0.94	34.0
Approach		650	13.0	699	13.0	0.760	8.9	LOS A	6.8	188.7	0.74	0.91	0.94	34.4
East: Britton Pkwy NE														
1	L2	60	4.0	65	4.0	0.334	12.4	LOS B	2.2	56.4	0.66	0.66	0.66	35.2
6	T1	600	4.0	645	4.0	0.334	6.2	LOS A	2.4	60.9	0.65	0.61	0.65	35.5
16	R2	10	4.0	11	4.0	0.334	6.1	LOS A	2.4	60.9	0.65	0.57	0.65	34.5
Approach		670	4.0	720	4.0	0.334	6.7	LOS A	2.4	60.9	0.65	0.61	0.65	35.5
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.711	17.7	LOS B	5.1	138.2	0.79	0.98	1.06	35.6
7	L2	15	10.0	16	10.0	0.711	15.3	LOS B	5.1	138.2	0.79	0.98	1.06	34.8
4	T1	155	10.0	167	10.0	0.711	9.3	LOS A	5.1	138.2	0.79	0.98	1.06	34.8
14	R2	338	10.0	363	10.0	0.711	9.3	LOS A	5.1	138.2	0.79	0.98	1.06	33.7
Approach		513	10.0	552	10.0	0.711	9.6	LOS A	5.1	138.2	0.79	0.98	1.06	34.1
West: Britton Pkwy NE														
5u	U	5	7.0	5	7.0	0.150	13.6	LOS B	0.8	22.1	0.46	0.61	0.46	35.9
5	L2	79	7.0	85	7.0	0.150	11.1	LOS B	0.8	22.1	0.46	0.61	0.46	35.0
2	T1	238	7.0	256	7.0	0.150	5.0	LOS A	0.9	23.2	0.45	0.52	0.45	36.0
12	R2	15	7.0	16	7.0	0.150	5.1	LOS A	0.9	23.2	0.44	0.48	0.44	35.1
Approach		337	7.0	362	7.0	0.150	6.6	LOS A	0.9	23.2	0.45	0.54	0.45	35.7
All Vehicles		2170	8.6	2333	8.6	0.760	8.0	LOS A	6.8	188.7	0.68	0.77	0.80	34.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	15	760	39	10	136	725	35	37	0	60	35	0	25
Future Vol, veh/h	15	760	39	10	136	725	35	37	0	60	35	0	25
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	16	809	41	11	145	771	37	39	0	64	37	0	27

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	809	0	0	850	850	0	0	1561	1983	426	1541	1985	406
Stage 1	-	-	-	-	-	-	-	862	862	-	1103	1103	-
Stage 2	-	-	-	-	-	-	-	699	1121	-	438	882	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	800	-	-	411	778	-	-	76	61	577	80	62	600
Stage 1	-	-	-	-	-	-	-	316	370	-	229	290	-
Stage 2	-	-	-	-	-	-	-	397	280	-	573	367	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	799	-	-	723	723	-	-	60	47	576	58	48	599
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	60	47	-	58	48	-
Stage 1	-	-	-	-	-	-	-	310	363	-	224	228	-
Stage 2	-	-	-	-	-	-	-	298	220	-	499	360	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.8	88.1	103.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	135	799	-	-	723	-	-	93
HCM Lane V/C Ratio	0.764	0.02	-	-	0.215	-	-	0.686
HCM Control Delay (s)	88.1	9.6	-	-	11.3	-	-	103.3
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.5	0.1	-	-	0.8	-	-	3.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	764	45	70	717	5	0	0	49	5	0	25
Future Vol, veh/h	10	764	45	70	717	5	0	0	49	5	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	11	813	48	74	763	5	0	0	52	5	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	768	0	0	861	0	0	1389	1775	431	1343	1797	384
Stage 1	-	-	-	-	-	-	859	859	-	914	914	-
Stage 2	-	-	-	-	-	-	530	916	-	429	883	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	829	-	-	770	-	-	102	82	573	112	81	620
Stage 1	-	-	-	-	-	-	317	371	-	298	355	-
Stage 2	-	-	-	-	-	-	500	349	-	580	367	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	829	-	-	770	-	-	90	73	573	93	72	620
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	73	-	93	72	-
Stage 1	-	-	-	-	-	-	313	366	-	294	321	-
Stage 2	-	-	-	-	-	-	433	315	-	520	362	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	11.9	17.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	573	829	-	-	770	-	-	319
HCM Lane V/C Ratio	0.091	0.013	-	-	0.097	-	-	0.1
HCM Control Delay (s)	11.9	9.4	-	-	10.2	-	-	17.5
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.3	-	-	0.3

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	510	2.0	567	2.0	0.541	12.1	LOS B	3.1	78.6	0.63	0.83	0.71	34.1
8	T1	54	2.0	60	2.0	0.541	5.7	LOS A	3.1	78.6	0.63	0.83	0.71	33.9
18	R2	257	2.0	286	2.0	0.230	4.7	LOS A	0.8	21.2	0.43	0.55	0.43	36.0
Approach		821	2.0	912	2.0	0.541	9.4	LOS A	3.1	78.6	0.57	0.74	0.62	34.6
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.484	19.4	LOS B	4.0	102.8	0.89	0.96	1.01	33.9
1	L2	185	3.0	206	3.0	0.484	16.8	LOS B	4.0	102.8	0.89	0.96	1.01	33.0
6	T1	372	3.0	413	3.0	0.484	9.2	LOS A	4.4	112.9	0.90	0.90	0.98	34.4
16	R2	175	3.0	194	3.0	0.484	8.8	LOS A	4.4	112.9	0.90	0.86	0.97	34.0
Approach		737	3.0	819	3.0	0.484	11.1	LOS B	4.4	112.9	0.90	0.91	0.99	33.9
North: Gateway Blvd NE														
7	L2	85	2.0	94	2.0	0.346	14.5	LOS B	1.8	46.5	0.76	0.89	0.80	34.7
4	T1	41	2.0	46	2.0	0.346	8.1	LOS A	1.8	46.5	0.76	0.89	0.80	34.5
14	R2	80	2.0	89	2.0	0.346	8.2	LOS A	1.8	46.5	0.76	0.89	0.80	33.5
Approach		206	2.0	229	2.0	0.346	10.8	LOS B	1.8	46.5	0.76	0.89	0.80	34.2
West: Britton Pkwy NE														
5u	U	5	5.0	6	5.0	0.336	14.5	LOS B	2.2	56.3	0.59	0.63	0.59	36.5
5	L2	120	5.0	133	5.0	0.336	11.9	LOS B	2.2	56.3	0.59	0.63	0.59	35.5
2	T1	472	5.0	524	5.0	0.336	5.3	LOS A	2.3	60.1	0.58	0.57	0.58	36.0
12	R2	122	5.0	136	5.0	0.336	5.4	LOS A	2.3	60.1	0.57	0.53	0.57	35.1
Approach		719	5.0	799	5.0	0.336	6.5	LOS A	2.3	60.1	0.58	0.57	0.58	35.8
All Vehicles		2483	3.2	2759	3.2	0.541	9.2	LOS A	4.4	112.9	0.68	0.76	0.73	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	661	93	30	952	25	15	0	129	10	0	35
Future Vol, veh/h	50	661	93	30	952	25	15	0	129	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	696	98	32	1002	26	16	0	136	11	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1028	0	0	794	0	0	1416	1943	397	1533	1979	514
Stage 1	-	-	-	-	-	-	851	851	-	1079	1079	-
Stage 2	-	-	-	-	-	-	565	1092	-	454	900	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	677	-	-	823	-	-	97	64	602	81	62	511
Stage 1	-	-	-	-	-	-	321	375	-	237	297	-
Stage 2	-	-	-	-	-	-	477	289	-	560	360	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	677	-	-	823	-	-	82	57	602	57	55	511
Mov Cap-2 Maneuver	-	-	-	-	-	-	82	57	-	57	55	-
Stage 1	-	-	-	-	-	-	296	346	-	219	285	-
Stage 2	-	-	-	-	-	-	425	278	-	400	332	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	17.5	28
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	82	602	677	-	-	823	-	-	57	511
HCM Lane V/C Ratio	0.193	0.226	0.078	-	-	0.038	-	-	0.185	0.072
HCM Control Delay (s)	59.1	12.7	10.8	-	-	9.5	-	-	81.9	12.6
HCM Lane LOS	F	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.7	0.9	0.3	-	-	0.1	-	-	0.6	0.2

Intersection	
Int Delay, s/veh	10.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	18	9	10	20	10	86	114	205	20	10	10
Future Vol, veh/h	9	18	9	10	20	10	86	114	205	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	20	10	11	22	11	93	124	223	22	11	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	30	0	0	106	100	25	269	100	28
Stage 1	-	-	-	-	-	-	45	45	-	50	50	-
Stage 2	-	-	-	-	-	-	61	55	-	219	50	-
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	1579	-	-	1583	-	-	873	790	1051	684	790	1047
Stage 1	-	-	-	-	-	-	969	857	-	963	853	-
Stage 2	-	-	-	-	-	-	950	849	-	783	853	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1583	-	-	846	780	1051	469	780	1047
Mov Cap-2 Maneuver	-	-	-	-	-	-	846	780	-	469	780	-
Stage 1	-	-	-	-	-	-	963	852	-	957	847	-
Stage 2	-	-	-	-	-	-	922	843	-	524	848	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.8	12.5	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	915	1579	-	-	1583	-	-	615
HCM Lane V/C Ratio	0.481	0.006	-	-	0.007	-	-	0.071
HCM Control Delay (s)	12.5	7.3	0	-	7.3	0	-	11.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.7	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	199	72	50	280	107	75
Future Vol, veh/h	199	72	50	280	107	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	224	81	56	315	120	84

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	305	0	692	265
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1267	-	410	774
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1267	-	388	774
Mov Cap-2 Maneuver	-	-	-	-	388	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	622	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	488	-	-	1267	-
HCM Lane V/C Ratio	0.419	-	-	0.044	-
HCM Control Delay (s)	17.6	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0.1	-

MOVEMENT SUMMARY

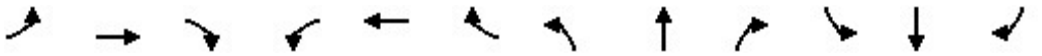
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	155	4.0	187	4.0	0.260	13.0	LOS B	1.6	40.9	0.67	0.79	0.67	31.3
8	T1	5	4.0	6	4.0	0.604	7.3	LOS A	6.2	158.9	0.84	0.81	0.92	31.7
18	R2	527	4.0	635	4.0	0.604	7.5	LOS A	6.2	158.9	0.84	0.81	0.92	32.8
Approach		687	4.0	828	4.0	0.604	8.7	LOS A	6.2	158.9	0.80	0.81	0.87	32.4
East: Britton Pkwy NE														
1	L2	617	5.0	743	5.0	0.544	11.1	LOS B	3.8	99.5	0.52	0.66	0.52	32.1
6	T1	400	5.0	482	5.0	0.544	5.3	LOS A	3.8	99.5	0.51	0.54	0.51	35.7
16	R2	1	5.0	1	5.0	0.544	5.2	LOS A	3.8	99.5	0.51	0.54	0.51	32.9
Approach		1018	5.0	1227	5.0	0.544	8.8	LOS A	3.8	99.5	0.52	0.61	0.52	33.7
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.015	13.6	LOS B	0.1	1.4	0.65	0.71	0.65	34.4
4	T1	5	0.0	6	0.0	0.015	7.8	LOS A	0.1	1.4	0.65	0.71	0.65	31.1
14	R2	1	0.0	1	0.0	0.015	7.7	LOS A	0.1	1.4	0.65	0.71	0.65	32.7
Approach		7	0.0	8	0.0	0.015	8.6	LOS A	0.1	1.4	0.65	0.71	0.65	32.0
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.871	24.1	LOS D	10.6	273.5	0.95	1.25	1.76	29.0
2	T1	352	4.0	424	4.0	0.871	17.9	LOS D	10.6	273.5	0.95	1.25	1.76	31.0
12	R2	140	4.0	169	4.0	0.871	18.0	LOS D	10.6	273.5	0.95	1.25	1.76	27.2
Approach		493	4.0	594	4.0	0.871	17.9	LOS B	10.6	273.5	0.95	1.25	1.76	30.1
All Vehicles		2205	4.4	2657	4.4	0.871	10.8	LOS B	10.6	273.5	0.70	0.82	0.90	32.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



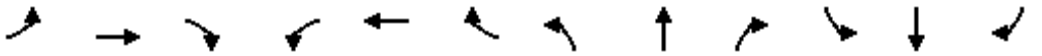
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	1100	410	400	870	137	195	263	275	150	430	188
Future Volume (veh/h)	250	1100	410	400	870	137	195	263	275	150	430	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	255	1122	418	408	888	140	199	268	281	153	439	192
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1240	743	467	1235	195	217	439	588	181	513	222
Arrive On Green	0.08	0.35	0.35	0.14	0.40	0.40	0.12	0.23	0.23	0.10	0.21	0.21
Sat Flow, veh/h	1795	3582	1588	3456	3071	484	1795	1885	1593	1767	2392	1036
Grp Volume(v), veh/h	255	1122	418	408	514	514	199	268	281	153	322	309
Grp Sat Flow(s),veh/h/ln	1795	1791	1588	1728	1777	1778	1795	1885	1593	1767	1763	1666
Q Serve(g_s), s	9.5	35.8	22.9	13.9	29.2	29.2	13.2	15.3	16.2	10.2	21.1	21.4
Cycle Q Clear(g_c), s	9.5	35.8	22.9	13.9	29.2	29.2	13.2	15.3	16.2	10.2	21.1	21.4
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	142	1240	743	467	715	715	217	439	588	181	378	357
V/C Ratio(X)	1.79	0.90	0.56	0.87	0.72	0.72	0.92	0.61	0.48	0.85	0.85	0.86
Avail Cap(c_a), veh/h	142	1240	743	562	715	715	217	463	608	214	433	409
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)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	37.4	23.1	50.9	30.2	30.2	52.2	41.1	29.1	53.0	45.3	45.4
Incr Delay (d2), s/veh	378.1	8.8	2.4	11.0	6.1	6.1	38.4	2.3	0.7	20.4	13.7	15.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	17.0	8.9	6.7	13.5	13.5	8.2	7.4	6.3	5.6	10.6	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	433.4	46.2	25.5	61.9	36.3	36.3	90.6	43.5	29.8	73.4	59.0	61.1
LnGrp LOS	F	D	C	E	D	D	F	D	C	E	E	E
Approach Vol, veh/h		1795			1436			748			784	
Approach Delay, s/veh		96.4			43.6			50.8			62.6	
Approach LOS		F			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	53.8	17.8	33.5	21.7	47.0	20.0	31.2
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	31.2	12.2	18.2	15.9	37.8	15.2	23.4
Green Ext Time (p_c), s	0.0	6.3	0.0	2.3	0.3	0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	67.8
HCM 6th LOS	E

Notes

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



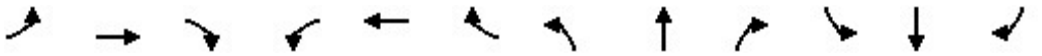
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	335	840	135	130	810	35	165	257	90	100	383	563
Future Volume (veh/h)	335	840	135	130	810	35	165	257	90	100	383	563
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	345	866	139	134	835	36	170	265	93	103	395	580
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	292	1082	174	161	956	41	181	740	253	128	459	406
Arrive On Green	0.16	0.35	0.35	0.09	0.27	0.27	0.10	0.29	0.29	0.07	0.26	0.26
Sat Flow, veh/h	1795	3088	496	1795	3497	151	1767	2571	880	1795	1791	1583
Grp Volume(v), veh/h	345	502	503	134	428	443	170	180	178	103	395	580
Grp Sat Flow(s),veh/h/ln	1795	1791	1793	1795	1791	1857	1767	1763	1688	1795	1791	1583
Q Serve(g_s), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.5	9.8	6.6	24.6	30.0
Cycle Q Clear(g_c), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.5	9.8	6.6	24.6	30.0
Prop In Lane	1.00		0.28	1.00		0.08	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	292	627	628	161	490	508	181	507	486	128	459	406
V/C Ratio(X)	1.18	0.80	0.80	0.83	0.87	0.87	0.94	0.35	0.37	0.80	0.86	1.43
Avail Cap(c_a), veh/h	292	627	628	223	543	563	181	507	486	184	459	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	34.3	34.3	52.4	40.6	40.6	52.1	33.1	33.2	53.5	41.5	43.5
Incr Delay (d2), s/veh	111.9	7.3	7.3	12.6	13.8	13.4	48.5	0.4	0.5	9.9	15.2	206.9
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	17.5	14.0	14.0	4.4	13.5	14.0	7.4	4.1	4.1	3.3	12.7	34.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.9	41.6	41.6	65.0	54.4	54.0	100.7	33.5	33.7	63.4	56.7	250.4
LnGrp LOS	F	D	D	E	D	D	F	C	C	E	E	F
Approach Vol, veh/h		1350			1005			528			1078	
Approach Delay, s/veh		72.1			55.6			55.2			161.6	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	38.0	14.3	39.7	16.0	47.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	28.7	8.6	11.8	10.6	31.6	13.2	32.0
Green Ext Time (p_c), s	0.0	3.3	0.0	2.0	0.1	4.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	90.0
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



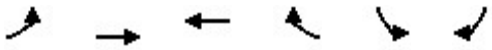
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1692	5	10	1159	35	80	5	43	60	5	35
Future Volume (veh/h)	45	1692	5	10	1159	35	80	5	43	60	5	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1781	0	11	1220	37	84	5	45	63	5	37
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, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	92	2656		18	2598	79	169	234	198	215	15	198
Arrive On Green	0.05	1.00	0.00	0.01	0.74	0.74	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	3483	3582	1598	1781	3521	107	1386	1900	1610	1278	122	1610
Grp Volume(v), veh/h	47	1781	0	11	615	642	84	5	45	68	0	37
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1851	1386	1900	1610	1400	0	1610
Q Serve(g_s), s	1.6	0.0	0.0	0.7	16.7	16.7	7.1	0.3	3.0	5.1	0.0	2.5
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.7	16.7	16.7	12.5	0.3	3.0	5.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	92	2656		18	1311	1366	169	234	198	230	0	198
V/C Ratio(X)	0.51	0.67		0.60	0.47	0.47	0.50	0.02	0.23	0.30	0.00	0.19
Avail Cap(c_a), veh/h	290	2656		82	1311	1366	471	649	550	537	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	0.0	0.0	59.1	6.3	6.3	54.3	46.2	47.4	48.5	0.0	47.2
Incr Delay (d2), s/veh	3.0	1.3	0.0	10.7	0.6	0.5	1.7	0.0	0.4	0.5	0.0	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	0.7	0.5	0.0	0.4	5.7	5.9	2.6	0.1	1.2	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	1.3	0.0	69.8	6.9	6.9	55.9	46.3	47.9	49.0	0.0	47.5
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1828			1268			134			105	
Approach Delay, s/veh		2.7			7.4			52.9			48.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	94.0		18.8	6.7	94.5		18.8				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.6	18.7		14.5	2.7	2.0		7.4				
Green Ext Time (p_c), s	0.0	13.3		0.3	0.0	29.8		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		8.0
HCM 6th LOS		A

Notes

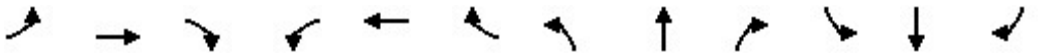
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	1738	1184	30	44	55
Future Volume (veh/h)	55	1738	1184	30	44	55
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	59	1849	1260	32	47	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	887	4470	1394	35	95	84
Arrive On Green	0.43	0.87	0.79	0.79	0.05	0.05
Sat Flow, veh/h	1795	5316	3635	90	1810	1610
Grp Volume(v), veh/h	59	1849	632	660	47	59
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1854	1810	1610
Q Serve(g_s), s	0.0	8.8	31.4	31.5	3.0	4.3
Cycle Q Clear(g_c), s	0.0	8.8	31.4	31.5	3.0	4.3
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	887	4470	700	730	95	84
V/C Ratio(X)	0.07	0.41	0.90	0.90	0.50	0.70
Avail Cap(c_a), veh/h	887	4470	1029	1074	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	13.5	1.6	11.1	11.1	55.3	55.9
Incr Delay (d2), s/veh	0.0	0.3	15.6	15.1	1.5	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.6	7.4	7.6	1.4	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	1.9	26.6	26.2	56.8	59.9
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1908	1292		106	
Approach Delay, s/veh		2.3	26.4		58.5	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	57.0	52.8				109.7	10.3
Change Period (Y+Rc), s	5.5	5.5				5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5				82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	33.5				10.8	6.3
Green Ext Time (p_c), s	0.0	13.7				32.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B



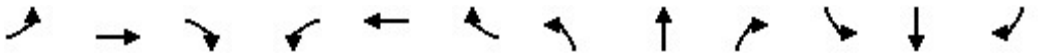
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	670	985	0	0	1174	75	15	0	832	0	0	0
Future Volume (veh/h)	670	985	0	0	1174	75	15	0	832	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	728	1071	0	0	1276	0	16	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3249	0	0	1980		25	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	728	1071	0	0	1276	0	16	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	17.6	0.0	0.0	29.8	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	17.6	0.0	0.0	29.8	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3249	0	0	1980		25	0				
V/C Ratio(X)	1.33	0.33	0.00	0.00	0.64		0.65	0.00				
Avail Cap(c_a), veh/h	546	3249	0	0	1980		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.6	0.0	0.0	18.4	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	151.1	0.0	0.0	0.0	1.6	0.0	24.9	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			
%ile BackOfQ(50%),veh/ln	39.8	7.5	0.0	0.0	12.3	0.0	0.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	198.8	5.7	0.0	0.0	20.0	0.0	83.8	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1799			1276			16				
Approach Delay, s/veh		83.8			20.0			83.8				
Approach LOS		F			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.3		5.7		114.3			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	31.8		3.1		19.6			
Green Ext Time (p_c), s	0.0	7.0		0.0		12.7			

Intersection Summary		
HCM 6th Ctrl Delay		57.5
HCM 6th LOS		E

Notes

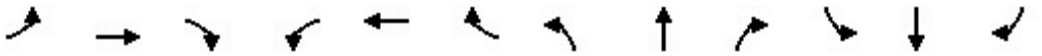
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1600	435	425	784	0	0	0	0	95	5	820
Future Volume (vph)	0	1600	435	425	784	0	0	0	0	95	5	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1791	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1791	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1649	448	438	808	0	0	0	0	98	5	845
RTOR Reduction (vph)	0	0	259	0	0	0	0	0	0	0	0	29
Lane Group Flow (vph)	0	1649	189	438	808	0	0	0	0	0	103	816
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	29.6	38.1						24.9	72.4
Effective Green, g (s)		50.5	50.5	29.6	38.1						24.9	72.4
Actuated g/C Ratio		0.42	0.42	0.25	0.32						0.21	0.60
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	436	1123						371	964
v/s Ratio Prot		c0.46		c0.25	0.23							c0.51
v/s Ratio Perm			0.12								0.06	
v/c Ratio		1.10	0.28	1.00	0.72						0.28	0.85
Uniform Delay, d1		34.8	22.8	45.2	36.2						40.0	19.3
Progression Factor		0.92	1.39	0.63	0.20						1.00	1.00
Incremental Delay, d2		49.8	0.6	14.0	0.4						0.5	7.2
Delay (s)		81.8	32.2	42.3	7.8						40.5	26.5
Level of Service		F	C	D	A						D	C
Approach Delay (s)		71.2			19.9			0.0			28.0	
Approach LOS		E			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	926	295	733	687	195	160	290	926	165	225	65
Future Volume (veh/h)	35	926	295	733	687	195	160	290	926	165	225	65
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		0.97	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	965	0	764	716	0	167	302	965	172	234	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	46	1232		815	1985		195	267	1050	201	374	106
Arrive On Green	0.03	0.34	0.00	0.39	0.93	0.00	0.11	0.14	0.14	0.11	0.14	0.14
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2732	1795	2743	777
Grp Volume(v), veh/h	36	965	0	764	716	0	167	302	965	172	151	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1366	1795	1791	1729
Q Serve(g_s), s	2.4	29.0	0.0	25.5	2.5	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Cycle Q Clear(g_c), s	2.4	29.0	0.0	25.5	2.5	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	46	1232		815	1985		195	267	1050	201	244	236
V/C Ratio(X)	0.78	0.78		0.94	0.36		0.86	1.13	0.92	0.86	0.62	0.64
Avail Cap(c_a), veh/h	90	1232		850	1985		254	267	1050	359	358	346
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.52	0.52	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	35.3	0.0	35.5	1.9	0.0	52.6	51.5	35.8	52.3	48.8	49.0
Incr Delay (d2), s/veh	10.3	5.0	0.0	10.6	0.3	0.0	18.2	95.0	12.5	4.1	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	13.4	0.0	10.5	0.7	0.0	5.9	15.0	15.0	5.3	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	40.3	0.0	46.2	2.1	0.0	70.7	146.5	48.3	56.4	49.8	50.1
LnGrp LOS	E	D		D	A		E	F	D	E	D	D
Approach Vol, veh/h		1001			1480			1434			474	
Approach Delay, s/veh		41.4			24.9			71.6			52.3	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	72.5	17.4	22.0	33.8	46.8	18.0	21.4
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	4.4	4.5	13.3	19.0	27.5	31.0	13.0	11.9
Green Ext Time (p_c), s	0.0	7.0	0.2	0.0	0.8	0.0	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Village Alt 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	83	2.0	0.212	12.9	LOS B	0.8	21.6	0.62	0.81	0.62	35.9
8	T1	5	2.0	5	2.0	0.212	5.9	LOS A	0.8	21.6	0.62	0.81	0.62	35.5
18	R2	80	2.0	83	2.0	0.212	6.2	LOS A	0.8	21.6	0.62	0.81	0.62	34.3
Approach		165	2.0	172	2.0	0.212	9.4	LOS A	0.8	21.6	0.62	0.81	0.62	35.1
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.539	14.1	LOS B	4.2	106.9	0.51	0.48	0.51	38.3
1	L2	100	1.0	104	1.0	0.539	11.4	LOS B	4.2	106.9	0.51	0.48	0.51	37.1
6	T1	1354	1.0	1410	1.0	0.539	4.3	LOS A	4.4	109.7	0.49	0.45	0.49	37.1
16	R2	65	1.0	68	1.0	0.539	4.5	LOS A	4.4	109.7	0.47	0.42	0.47	35.8
Approach		1524	1.0	1588	1.0	0.539	4.8	LOS A	4.4	109.7	0.49	0.45	0.49	37.0
North: Lacey St SE														
7	L2	20	2.0	21	2.0	0.111	13.7	LOS B	0.5	11.8	0.69	0.83	0.69	36.2
4	T1	5	2.0	5	2.0	0.111	6.7	LOS A	0.5	11.8	0.69	0.83	0.69	35.8
14	R2	45	2.0	47	2.0	0.111	7.0	LOS A	0.5	11.8	0.69	0.83	0.69	34.6
Approach		70	2.0	73	2.0	0.111	8.9	LOS A	0.5	11.8	0.69	0.83	0.69	35.1
SouthWest: Lacey Blvd SE														
5bx	L3	40	1.0	42	1.0	0.483	12.2	LOS B	3.1	78.9	0.37	0.45	0.37	38.6
5ax	L1	55	1.0	57	1.0	0.483	9.5	LOS A	3.1	78.9	0.37	0.45	0.37	37.3
12ax	R1	1131	1.0	1178	1.0	0.483	3.6	LOS A	3.2	80.3	0.36	0.42	0.36	37.4
12bx	R3	65	1.0	68	1.0	0.483	4.3	LOS A	3.2	80.3	0.35	0.40	0.35	36.0
Approach		1291	1.0	1345	1.0	0.483	4.2	LOS A	3.2	80.3	0.36	0.42	0.36	37.3
All Vehicles		3050	1.1	3177	1.1	0.539	4.9	LOS A	4.4	109.7	0.45	0.47	0.45	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	235	5	85	265	64	10	35	165	29	20	5
Future Vol, veh/h	5	235	5	85	265	64	10	35	165	29	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	6	267	6	97	301	73	11	40	188	33	23	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

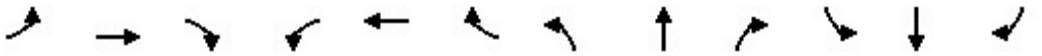
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	12.6	18.6	11	10.5
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	2%	21%	54%
Vol Thru, %	78%	0%	96%	64%	37%
Vol Right, %	0%	100%	2%	15%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	165	245	414	54
LT Vol	10	0	5	85	29
Through Vol	35	0	235	265	20
RT Vol	0	165	5	64	5
Lane Flow Rate	51	188	278	470	61
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.095	0.306	0.426	0.679	0.112
Departure Headway (Hd)	6.703	5.876	5.506	5.194	6.548
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	533	609	651	696	544
Service Time	4.464	3.637	3.561	3.24	4.627
HCM Lane V/C Ratio	0.096	0.309	0.427	0.675	0.112
HCM Control Delay	10.2	11.2	12.6	18.6	10.5
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.3	2.1	5.3	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	164	59	575	205	54	410
Future Volume (veh/h)	164	59	575	205	54	410
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	1885	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	169	61	593	211	56	423
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	0	0
Cap, veh/h	249	221	932	790	103	1239
Arrive On Green	0.14	0.14	0.49	0.49	0.06	0.65
Sat Flow, veh/h	1795	1598	1900	1610	1810	1900
Grp Volume(v), veh/h	169	61	593	211	56	423
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1810	1900
Q Serve(g_s), s	3.8	1.5	9.9	3.3	1.3	4.3
Cycle Q Clear(g_c), s	3.8	1.5	9.9	3.3	1.3	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	249	221	932	790	103	1239
V/C Ratio(X)	0.68	0.28	0.64	0.27	0.55	0.34
Avail Cap(c_a), veh/h	752	670	932	790	211	1239
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	17.6	16.6	8.1	6.4	19.7	3.3
Incr Delay (d2), s/veh	3.2	0.7	3.3	0.8	4.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.5	3.6	1.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	17.2	11.4	7.2	24.2	4.1
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	230		804			479
Approach Delay, s/veh	19.9		10.3			6.4
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	25.6			32.5	10.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	3.3	11.9			6.3	5.8
Green Ext Time (p_c), s	0.0	2.6			2.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

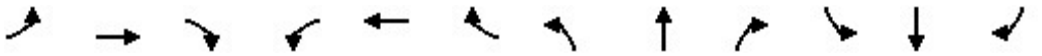


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	659	310	280	563	70	200	460	258	105	305	70
Future Volume (veh/h)	130	659	310	280	563	70	200	460	258	105	305	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	140	709	333	301	605	75	215	495	277	113	328	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	169	792	345	332	1110	491	416	873	362	293	485	109
Arrive On Green	0.09	0.22	0.22	0.19	0.31	0.31	0.24	0.24	0.24	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1558	1767	3526	1559	1767	3711	1538	1795	2971	669
Grp Volume(v), veh/h	140	709	333	301	605	75	215	495	277	113	206	197
Grp Sat Flow(s),veh/h/ln	1795	1791	1558	1767	1763	1559	1767	1856	1538	1795	1885	1754
Q Serve(g_s), s	8.0	20.0	22.0	17.3	14.8	3.6	11.0	12.2	17.5	5.8	10.7	11.0
Cycle Q Clear(g_c), s	8.0	20.0	22.0	17.3	14.8	3.6	11.0	12.2	17.5	5.8	10.7	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	169	792	345	332	1110	491	416	873	362	293	308	286
V/C Ratio(X)	0.83	0.89	0.97	0.91	0.55	0.15	0.52	0.57	0.77	0.39	0.67	0.69
Avail Cap(c_a), veh/h	173	792	345	374	1187	525	612	1285	533	587	616	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	39.3	40.1	41.3	29.5	25.6	34.6	35.1	37.1	38.8	40.9	41.0
Incr Delay (d2), s/veh	26.1	12.6	39.4	22.9	0.3	0.1	0.7	0.4	3.1	0.6	1.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	10.0	12.1	9.6	6.2	1.3	4.8	5.5	6.8	2.6	5.1	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.4	51.9	79.5	64.3	29.8	25.7	35.3	35.5	40.1	39.5	42.8	43.2
LnGrp LOS	E	D	E	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1182			981			987			516	
Approach Delay, s/veh		62.1			40.1			36.8			42.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	37.7		29.5	24.5	28.0		22.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	35.0		36.0	22.0	23.0		34.0				
Max Q Clear Time (g_c+I1), s	10.0	16.8		19.5	19.3	24.0		13.0				
Green Ext Time (p_c), s	0.0	3.5		3.8	0.2	0.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		46.6	
HCM 6th LOS		D	

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



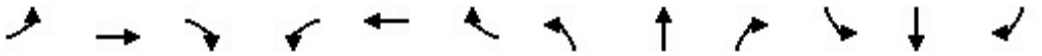
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	813	0	0	1125	331	190	0	540	0	0	0
Future Volume (veh/h)	238	813	0	0	1125	331	190	0	540	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	256	874	0	0	1210	0	204	0	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	290	2675	0	0	1882		253	0				
Arrive On Green	0.16	0.75	0.00	0.00	0.53	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	256	874	0	0	1210	0	204	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	12.5	7.4	0.0	0.0	21.9	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	12.5	7.4	0.0	0.0	21.9	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	290	2675	0	0	1882		253	0				
V/C Ratio(X)	0.88	0.33	0.00	0.00	0.64		0.81	0.00				
Avail Cap(c_a), veh/h	299	2675	0	0	1882		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	36.9	3.8	0.0	0.0	15.1	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	24.1	0.3	0.0	0.0	1.7	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	7.3	2.1	0.0	0.0	8.6	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	4.1	0.0	0.0	16.8	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1130			1210			204				
Approach Delay, s/veh		17.0			16.8			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	19.6	52.7		17.8		72.2			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	14.5	23.9		12.0		9.4			
Green Ext Time (p_c), s	0.0	5.6		0.7		6.1			

Intersection Summary		
HCM 6th Ctrl Delay		18.9
HCM 6th LOS		B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	793	255	0	760	0	0	0	0	253	5	408
Future Volume (veh/h)	0	793	255	0	760	0	0	0	0	253	5	408
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	826	0	0	792	0				264	5	425
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2143		0	2126	0				509	10	461
Arrive On Green	0.00	0.60	0.00	0.00	0.60	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	3770	0	0	3741	0				1750	33	1585
Grp Volume(v), veh/h	0	826	0	0	792	0				269	0	425
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.8	0.0	0.0	10.4	0.0				11.3	0.0	23.4
Cycle Q Clear(g_c), s	0.0	10.8	0.0	0.0	10.4	0.0				11.3	0.0	23.4
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2143		0	2126	0				518	0	461
V/C Ratio(X)	0.00	0.39		0.00	0.37	0.00				0.52	0.00	0.92
Avail Cap(c_a), veh/h	0	2143		0	2126	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.4	0.0	0.0	9.3	0.0				26.7	0.0	30.9
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.6	0.0	21.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.0	0.0	0.0	3.8	0.0				4.8	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.0	0.0	0.0	9.9	0.0				27.3	0.0	52.8
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		826			792						694	
Approach Delay, s/veh		10.0			9.9						42.9	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		58.8				58.8		31.2				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.4				12.8		25.4				
Green Ext Time (p_c), s		5.3				5.6		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		19.8
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	661	139	0	1007	0	48
Future Vol, veh/h	661	139	0	1007	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	696	146	0	1060	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	421
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	581
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	581
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	581	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	804	9	0	787	0	10
Future Vol, veh/h	804	9	0	787	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	855	10	0	837	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	433
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	571
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	571
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	571	-	-	-
HCM Lane V/C Ratio	0.019	-	-	-
HCM Control Delay (s)	11.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	840	20	0	906	0	20
Future Vol, veh/h	840	20	0	906	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	894	21	0	964	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	458
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	550
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	550
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	550	-	-	-
HCM Lane V/C Ratio	0.039	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	109	0	2352	2519	8
Future Vol, veh/h	0	109	0	2352	2519	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	3	3	5	5
Mvmt Flow	0	114	0	2450	2624	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1316	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	127	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	127	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	118.9	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	127	-	-
HCM Lane V/C Ratio	-	0.894	-	-
HCM Control Delay (s)	-	118.9	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	5.7	-	-

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	405	0.0	450	0.0	0.346	10.5	LOS B	2.3	57.0	0.39	0.64	0.39	34.0
8	T1	475	0.0	528	0.0	0.346	4.6	LOS A	2.3	58.6	0.37	0.45	0.37	36.6
18	R2	5	0.0	6	0.0	0.346	4.7	LOS A	2.3	58.6	0.37	0.45	0.37	35.4
Approach		885	0.0	983	0.0	0.346	7.3	LOS A	2.3	58.6	0.38	0.53	0.38	35.4
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.386	15.4	LOS B	1.7	44.2	0.64	0.85	0.71	35.0
1	L2	155	3.0	172	3.0	0.386	13.0	LOS B	1.7	44.2	0.64	0.85	0.71	34.3
6	T1	85	3.0	94	3.0	0.386	7.3	LOS A	1.7	44.2	0.64	0.85	0.71	34.2
16	R2	30	3.0	33	3.0	0.386	7.2	LOS A	1.7	44.2	0.64	0.85	0.71	33.3
Approach		275	3.0	306	3.0	0.386	10.6	LOS B	1.7	44.2	0.64	0.85	0.71	34.2
North: Marvin Rd NE														
7	L2	10	2.0	11	2.0	0.255	14.2	LOS B	1.6	40.0	0.73	0.76	0.73	35.2
4	T1	334	2.0	371	2.0	0.255	8.1	LOS A	1.7	44.4	0.73	0.74	0.73	35.3
14	R2	80	2.0	89	2.0	0.255	7.7	LOS A	1.7	44.4	0.73	0.72	0.73	34.3
Approach		424	2.0	471	2.0	0.255	8.1	LOS A	1.7	44.4	0.73	0.74	0.73	35.1
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.299	14.0	LOS B	1.3	33.2	0.53	0.73	0.53	36.2
5	L2	100	3.0	111	3.0	0.299	11.6	LOS B	1.3	33.2	0.53	0.73	0.53	35.4
2	T1	15	3.0	17	3.0	0.299	5.8	LOS A	1.3	33.2	0.53	0.73	0.53	35.3
12	R2	129	3.0	143	3.0	0.299	5.8	LOS A	1.3	33.2	0.53	0.73	0.53	34.3
Approach		249	3.0	277	3.0	0.299	8.3	LOS A	1.3	33.2	0.53	0.73	0.53	34.8
All Vehicles		1833	1.3	2037	1.3	0.386	8.1	LOS A	2.3	58.6	0.52	0.65	0.53	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	425	2.0	443	2.0	0.717	13.8	LOS B	6.3	160.1	0.77	0.91	0.94	34.1
8	T1	1001	2.0	1043	2.0	0.717	7.3	LOS A	6.5	164.5	0.76	0.78	0.91	35.0
18	R2	45	2.0	47	2.0	0.717	7.2	LOS A	6.5	164.5	0.75	0.74	0.90	34.3
Approach		1471	2.0	1532	2.0	0.717	9.2	LOS A	6.5	164.5	0.76	0.82	0.92	34.7
East: Britton Pkwy NE														
1	L2	557	4.0	580	4.0	0.916	30.0	LOS D	11.5	295.7	0.99	1.41	2.23	27.0
6	T1	336	4.0	350	4.0	0.894	26.0	LOS D	8.5	218.2	0.96	1.30	2.03	28.0
16	R2	45	4.0	47	4.0	0.894	26.1	LOS D	8.5	218.2	0.96	1.30	2.03	27.2
Approach		938	4.0	977	4.0	0.916	28.4	LOS C	11.5	295.7	0.98	1.37	2.15	27.4
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	1.189	119.8	LOS F	39.3	1013.4	1.00	2.55	5.77	13.7
7	L2	65	4.0	68	4.0	1.189	117.2	LOS F	39.3	1013.4	1.00	2.55	5.77	13.6
4	T1	963	4.0	1003	4.0	1.189	109.6	LOS F	51.2	1322.0	1.00	2.72	6.07	13.7
14	R2	190	4.0	198	4.0	1.189	108.2	LOS F	51.2	1322.0	1.00	2.86	6.34	13.6
Approach		1228	4.0	1280	4.0	1.189	109.9	LOS F	51.2	1322.0	1.00	2.73	6.09	13.7
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.330	17.9	LOS B	1.8	46.8	0.83	0.95	0.87	33.2
5	L2	161	5.0	168	5.0	0.330	15.4	LOS B	1.8	46.8	0.83	0.95	0.87	32.4
2	T1	208	5.0	217	5.0	0.279	8.3	LOS A	1.9	49.9	0.90	0.78	0.90	34.8
12	R2	382	5.0	398	5.0	0.476	9.3	LOS A	3.7	96.4	0.92	1.01	1.06	33.9
Approach		761	5.0	793	5.0	0.476	10.4	LOS B	3.7	96.4	0.90	0.93	0.98	33.8
All Vehicles		4398	3.5	4582	3.5	1.189	41.6	LOS D	51.2	1322.0	0.90	1.49	2.64	23.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

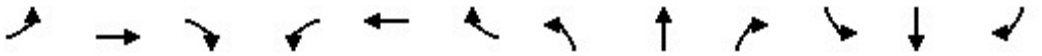
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	280	3.0	308	3.0	0.695	13.0	LOS B	8.5	217.3	0.45	0.52	0.45	27.3
3	L2	113	3.0	124	3.0	0.695	10.5	LOS B	8.5	217.3	0.45	0.52	0.45	33.6
8	T1	1425	3.0	1566	3.0	0.695	4.4	LOS A	8.5	217.3	0.42	0.44	0.42	32.3
18	R2	75	3.0	82	3.0	0.695	4.5	LOS A	8.5	216.7	0.41	0.40	0.41	33.8
Approach		1893	3.0	2080	3.0	0.695	6.1	LOS A	8.5	217.3	0.43	0.46	0.43	31.8
East: Main St NE														
1	L2	105	0.0	115	0.0	0.271	15.5	LOS B	1.3	31.7	0.79	0.92	0.79	30.8
6	T1	1	0.0	1	0.0	0.271	9.5	LOS A	1.3	31.7	0.79	0.92	0.79	32.8
16	R2	30	0.0	33	0.0	0.271	9.5	LOS A	1.3	31.7	0.79	0.92	0.79	30.1
Approach		136	0.0	149	0.0	0.271	14.2	LOS B	1.3	31.7	0.79	0.92	0.79	30.6
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.947	35.9	LOS D	24.4	624.7	1.00	1.50	2.29	22.0
7	L2	25	3.0	27	3.0	0.947	33.4	LOS D	24.4	624.7	1.00	1.50	2.29	25.0
4	T1	1751	3.0	1924	3.0	0.947	25.2	LOS D	27.3	698.1	1.00	1.46	2.22	20.9
14	R2	26	3.0	29	3.0	0.947	23.7	LOS D	27.3	698.1	1.00	1.42	2.17	25.6
Approach		1807	3.0	1986	3.0	0.947	25.3	LOS C	27.3	698.1	1.00	1.46	2.22	21.1
West: Main St NE														
5	L2	26	0.0	29	0.0	0.154	19.4	LOS B	1.0	25.1	0.98	0.99	0.98	30.0
2	T1	1	0.0	1	0.0	0.154	13.4	LOS B	1.0	25.1	0.98	0.99	0.98	31.7
12	R2	258	0.0	284	0.0	0.154	4.4	LOS A	1.0	25.1	0.09	0.48	0.09	35.4
Approach		285	0.0	313	0.0	0.154	5.8	LOS A	1.0	25.1	0.17	0.53	0.17	34.8
All Vehicles		4121	2.7	4529	2.7	0.947	14.7	LOS B	27.3	698.1	0.67	0.92	1.21	26.4

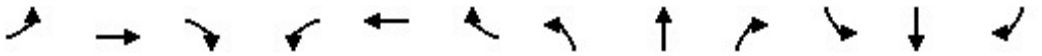
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	580	0	0	788	0	1500	1311	0	1775	675
Future Volume (vph)	0	0	580	0	0	788	0	1500	1311	0	1775	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.97	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3229	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3229	1409		3438	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	604	0	0	821	0	1562	1366	0	1849	703
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	604	0	0	821	0	2027	902	0	1849	703
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1681	1409		1246	1538
v/s Ratio Prot			0.22			0.29		c0.63			c0.54	
v/s Ratio Perm									0.64			0.46
v/c Ratio			0.40			0.76		1.21	0.64		1.48	0.46
Uniform Delay, d1			16.4			31.9		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.61	1.00		1.00	1.00
Incremental Delay, d2			0.2			3.2		95.5	1.1		222.1	1.0
Delay (s)			16.6			35.1		113.1	1.1		260.4	1.0
Level of Service			B			D		F	A		F	A
Approach Delay (s)		16.6			35.1			78.6			188.9	
Approach LOS		B			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	108.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

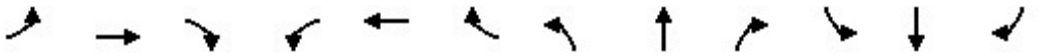
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	155	0	0	904	0	1907	275	0	1847	508
Future Volume (vph)	0	0	155	0	0	904	0	1907	275	0	1847	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	157	0	0	913	0	1926	278	0	1866	513
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	157	0	0	913	0	1926	278	0	1866	513
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.10			0.34		c0.38			c0.53	
v/s Ratio Perm									0.18			0.33
v/c Ratio			0.26			0.63		1.02	0.18		1.02	0.33
Uniform Delay, d1			25.0			19.5		37.8	0.0		28.8	0.0
Progression Factor			1.00			1.00		0.79	1.00		0.58	1.00
Incremental Delay, d2			0.2			0.9		19.7	0.1		13.2	0.1
Delay (s)			25.3			20.4		49.6	0.1		29.9	0.1
Level of Service			C			C		D	A		C	A
Approach Delay (s)		25.3			20.4			43.4			23.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



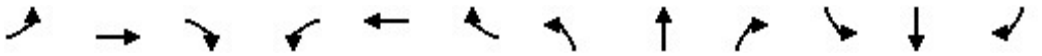
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	527	220	160	75	65	325	65	1295	65	254	1238	380
Future Volume (veh/h)	527	220	160	75	65	325	65	1295	65	254	1238	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	549	229	167	78	68	339	68	1349	68	265	1290	396
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	618	228	166	75	160	361	157	1390	70	254	1639	712
Arrive On Green	0.18	0.22	0.22	0.04	0.09	0.09	0.09	0.40	0.40	0.14	0.46	0.46
Sat Flow, veh/h	3483	1012	738	1795	1885	1586	1781	3438	173	1795	3582	1557
Grp Volume(v), veh/h	549	0	396	78	68	339	68	696	721	265	1290	396
Grp Sat Flow(s),veh/h/ln	1742	0	1750	1795	1885	1586	1781	1777	1834	1795	1791	1557
Q Serve(g_s), s	18.5	0.0	27.0	5.0	4.1	10.2	4.3	46.0	46.3	17.0	36.6	11.0
Cycle Q Clear(g_c), s	18.5	0.0	27.0	5.0	4.1	10.2	4.3	46.0	46.3	17.0	36.6	11.0
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	618	0	394	75	160	361	157	718	741	254	1639	712
V/C Ratio(X)	0.89	0.00	1.01	1.04	0.42	0.94	0.43	0.97	0.97	1.04	0.79	0.56
Avail Cap(c_a), veh/h	653	0	394	75	160	361	157	718	741	254	1746	759
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	1.00	1.00	0.32	0.32	0.32	0.18	0.18	0.18
Uniform Delay (d), s/veh	48.2	0.0	46.5	57.5	52.1	45.6	51.9	35.0	35.1	51.5	27.6	5.8
Incr Delay (d2), s/veh	14.8	0.0	46.8	116.3	3.8	32.6	1.3	13.0	13.3	35.6	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	16.8	4.7	2.1	13.1	2.0	22.0	22.9	10.1	15.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	0.0	93.3	173.8	55.9	78.2	53.1	48.0	48.4	87.1	28.3	6.4
LnGrp LOS	E	A	F	F	E	E	D	D	D	F	C	A
Approach Vol, veh/h		945			485			1485			1951	
Approach Delay, s/veh		75.7			90.5			48.4			31.9	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	60.9	26.8	15.7	23.0	54.5	10.0	32.5
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	22.5	* 9.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	6.3	38.6	20.5	12.2	19.0	48.3	7.0	29.0
Green Ext Time (p_c), s	0.0	16.3	0.8	0.0	0.0	0.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D

Notes

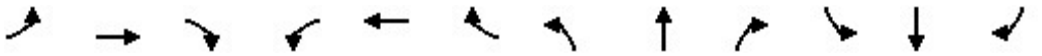
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	60	135	150	60	139	180	1065	170	164	1178	95
Future Volume (veh/h)	150	60	135	150	60	139	180	1065	170	164	1178	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	61	138	153	61	142	184	1087	173	167	1202	97
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	166	73	166	170	73	169	211	1252	199	362	1654	133
Arrive On Green	0.09	0.14	0.14	0.09	0.15	0.15	0.12	0.41	0.41	0.07	0.16	0.16
Sat Flow, veh/h	1810	513	1161	1795	499	1161	1767	3047	484	1795	3357	270
Grp Volume(v), veh/h	153	0	199	153	0	203	184	628	632	167	640	659
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1795	0	1659	1767	1763	1768	1795	1791	1836
Q Serve(g_s), s	10.1	0.0	13.9	10.1	0.0	14.3	12.3	39.1	39.4	10.7	40.7	40.9
Cycle Q Clear(g_c), s	10.1	0.0	13.9	10.1	0.0	14.3	12.3	39.1	39.4	10.7	40.7	40.9
Prop In Lane	1.00		0.69	1.00		0.70	1.00		0.27	1.00		0.15
Lane Grp Cap(c), veh/h	166	0	240	170	0	242	211	724	726	362	883	905
V/C Ratio(X)	0.92	0.00	0.83	0.90	0.00	0.84	0.87	0.87	0.87	0.46	0.73	0.73
Avail Cap(c_a), veh/h	166	0	335	170	0	332	250	724	726	362	883	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61
Uniform Delay (d), s/veh	54.1	0.0	50.0	53.8	0.0	49.9	51.9	32.3	32.4	49.7	42.5	42.6
Incr Delay (d2), s/veh	47.5	0.0	10.4	41.7	0.0	11.6	22.9	11.0	11.3	0.4	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	6.5	6.5	0.0	6.7	6.8	18.5	18.7	5.2	20.0	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	0.0	60.4	95.5	0.0	61.4	74.8	43.3	43.7	50.2	44.5	44.5
LnGrp LOS	F	A	E	F	A	E	E	D	D	D	D	D
Approach Vol, veh/h		352			356			1444			1466	
Approach Delay, s/veh		78.3			76.1			47.5			45.1	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	64.1	15.0	21.5	29.2	54.3	15.3	21.2
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	50.0	11.0	24.0	18.0	49.0	11.0	24.0
Max Q Clear Time (g_c+I1), s	14.3	42.9	12.1	16.3	12.7	41.4	12.1	15.9
Green Ext Time (p_c), s	0.1	4.9	0.0	0.6	0.1	5.1	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	550	405	380	545	334	255	698	230	294	1089	350
Future Volume (veh/h)	403	550	405	380	545	334	255	698	230	294	1089	350
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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	407	556	0	384	551	0	258	705	232	297	1100	354
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	468	648		460	657		302	811	267	374	1245	554
Arrive On Green	0.13	0.18	0.00	0.13	0.18	0.00	0.17	0.31	0.31	0.21	0.34	0.34
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2646	871	1810	3610	1607
Grp Volume(v), veh/h	407	556	0	384	551	0	258	477	460	297	1100	354
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1726	1810	1805	1607
Q Serve(g_s), s	13.7	18.1	0.0	12.8	17.7	0.0	16.8	30.2	30.2	18.7	34.5	14.8
Cycle Q Clear(g_c), s	13.7	18.1	0.0	12.8	17.7	0.0	16.8	30.2	30.2	18.7	34.5	14.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	468	648		460	657		302	549	529	374	1245	554
V/C Ratio(X)	0.87	0.86		0.83	0.84		0.85	0.87	0.87	0.79	0.88	0.64
Avail Cap(c_a), veh/h	581	731		614	767		302	642	619	374	1324	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	47.6	0.0	50.9	47.4	0.0	48.5	39.3	39.3	45.2	37.0	14.7
Incr Delay (d2), s/veh	9.9	9.4	0.0	5.7	7.5	0.0	19.8	16.9	17.4	10.4	9.3	5.5
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	6.6	8.8	0.0	5.9	8.5	0.0	9.1	15.7	15.3	9.5	16.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	57.0	0.0	56.6	54.9	0.0	68.3	56.3	56.8	55.6	46.4	20.3
LnGrp LOS	E	E		E	D		E	E	E	E	D	C
Approach Vol, veh/h		963			935			1195			1751	
Approach Delay, s/veh		58.6			55.6			59.0			42.7	
Approach LOS		E			E			E			D	

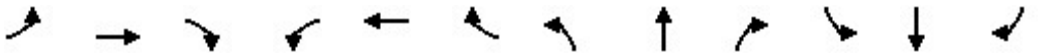
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.2	46.4	21.1	27.3	29.8	41.8	21.2	27.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.5	* 5.5
Max Green Setting (Gmax), s	10.0	44.0	20.0	25.5	11.0	43.0	21.0	* 25
Max Q Clear Time (g_c+I1), s	18.8	36.5	15.7	19.7	20.7	32.2	14.8	20.1
Green Ext Time (p_c), s	0.0	4.9	0.4	1.9	0.0	4.6	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	215	25	145	245	225	30	688	30	305	1189	225
Future Volume (veh/h)	165	215	25	145	245	225	30	688	30	305	1189	225
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	176	229	27	154	261	239	32	732	32	324	1265	239
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	210	421	50	184	220	201	63	892	39	362	1270	238
Arrive On Green	0.12	0.26	0.26	0.10	0.24	0.24	0.04	0.26	0.26	0.20	0.42	0.42
Sat Flow, veh/h	1781	1642	194	1810	913	836	1795	3495	153	1795	3009	563
Grp Volume(v), veh/h	176	0	256	154	0	500	32	375	389	324	748	756
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1810	0	1748	1795	1791	1857	1795	1791	1781
Q Serve(g_s), s	9.8	0.0	12.2	8.5	0.0	24.4	1.8	20.0	20.0	17.8	42.0	42.8
Cycle Q Clear(g_c), s	9.8	0.0	12.2	8.5	0.0	24.4	1.8	20.0	20.0	17.8	42.0	42.8
Prop In Lane	1.00		0.11	1.00		0.48	1.00		0.08	1.00		0.32
Lane Grp Cap(c), veh/h	210	0	471	184	0	421	63	457	474	362	756	752
V/C Ratio(X)	0.84	0.00	0.54	0.84	0.00	1.19	0.51	0.82	0.82	0.89	0.99	1.01
Avail Cap(c_a), veh/h	358	0	471	186	0	421	184	638	661	645	756	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	43.8	0.0	32.6	44.7	0.0	38.5	48.0	35.6	35.6	39.4	29.1	29.3
Incr Delay (d2), s/veh	6.6	0.0	1.3	26.1	0.0	106.2	4.6	5.7	5.5	6.1	30.0	34.3
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	4.7	0.0	5.5	5.1	0.0	22.7	0.9	9.3	9.6	8.4	23.5	24.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.0	33.8	70.8	0.0	144.7	52.7	41.2	41.1	45.5	59.1	63.6
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	E	F
Approach Vol, veh/h		432			654			796			1828	
Approach Delay, s/veh		40.6			127.3			41.6			58.6	
Approach LOS		D			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	47.7	16.5	29.0	25.1	30.8	14.9	30.6
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.8	44.8	11.8	26.4	19.8	22.0	10.5	14.2
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	3.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	65.0
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	130	1.0	144	1.0	0.513	21.1	LOS C	4.5	114.5	0.96	1.07	1.20	30.7
8	T1	444	1.0	493	1.0	0.513	13.8	LOS B	5.2	130.3	0.99	1.03	1.19	32.3
18	R2	35	1.0	39	1.0	0.513	13.2	LOS B	5.2	130.3	1.00	1.01	1.18	32.0
Approach		609	1.0	677	1.0	0.513	15.3	LOS B	5.2	130.3	0.98	1.04	1.19	31.9
East: Pacific Ave SE														
1	L2	35	1.0	39	1.0	0.389	11.9	LOS B	2.0	50.8	0.66	0.66	0.68	35.3
6	T1	260	1.0	289	1.0	0.389	6.4	LOS A	2.0	50.8	0.66	0.66	0.68	35.2
16	R2	324	1.0	360	1.0	0.364	5.9	LOS A	1.9	48.1	0.65	0.67	0.65	34.9
Approach		619	1.0	688	1.0	0.389	6.4	LOS A	2.0	50.8	0.65	0.67	0.66	35.1
North: Marvin Rd SE														
7u	U	5	1.0	6	1.0	0.674	17.9	LOS B	7.4	187.1	0.85	0.94	1.05	33.5
7	L2	415	1.0	461	1.0	0.674	15.5	LOS B	7.4	187.1	0.85	0.94	1.05	32.7
4	T1	825	1.0	917	1.0	0.674	8.9	LOS A	7.8	195.3	0.83	0.85	1.00	34.4
14	R2	85	1.0	94	1.0	0.674	8.7	LOS A	7.8	195.3	0.83	0.83	0.99	33.8
Approach		1330	1.0	1478	1.0	0.674	11.0	LOS B	7.8	195.3	0.84	0.88	1.02	33.8
West: Pacific Ave SE														
5	L2	55	1.0	61	1.0	0.738	17.0	LOS B	5.9	148.7	0.93	1.08	1.30	33.5
2	T1	400	1.0	444	1.0	0.738	11.5	LOS B	5.9	148.7	0.93	1.08	1.30	33.5
12	R2	270	1.0	300	1.0	0.597	11.0	LOS B	3.6	90.3	0.86	1.00	1.09	32.9
Approach		725	1.0	806	1.0	0.738	11.7	LOS B	5.9	148.7	0.90	1.05	1.22	33.3
All Vehicles		3283	1.0	3648	1.0	0.738	11.1	LOS B	7.8	195.3	0.84	0.91	1.03	33.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	35	2.0	38	2.0	0.275	12.3	LOS B	1.7	42.8	0.20	0.50	0.20	37.0
3	L2	85	2.0	93	2.0	0.275	9.9	LOS A	1.7	42.8	0.20	0.50	0.20	36.1
8	T1	510	2.0	560	2.0	0.275	4.3	LOS A	1.7	43.3	0.20	0.45	0.20	36.7
18	R2	124	2.0	136	2.0	0.275	4.4	LOS A	1.7	43.3	0.19	0.41	0.19	35.9
Approach		754	2.0	829	2.0	0.275	5.3	LOS A	1.7	43.3	0.20	0.45	0.20	36.5
East: 31st Ave NE														
1	L2	109	3.0	120	3.0	0.160	11.6	LOS B	0.6	14.3	0.47	0.77	0.47	34.3
6	T1	15	3.0	16	3.0	0.160	6.0	LOS A	0.6	14.3	0.47	0.77	0.47	34.2
16	R2	10	3.0	11	3.0	0.160	5.9	LOS A	0.6	14.3	0.47	0.77	0.47	33.3
Approach		134	3.0	147	3.0	0.160	10.5	LOS B	0.6	14.3	0.47	0.77	0.47	34.2
North: Willamette Dr NE														
7	L2	5	1.0	5	1.0	0.133	10.8	LOS B	0.7	17.3	0.41	0.51	0.41	36.3
4	T1	300	1.0	330	1.0	0.133	5.1	LOS A	0.7	17.8	0.40	0.49	0.40	36.4
14	R2	10	1.0	11	1.0	0.133	5.1	LOS A	0.7	17.8	0.39	0.48	0.39	35.2
Approach		315	1.0	346	1.0	0.133	5.2	LOS A	0.7	17.8	0.40	0.49	0.40	36.3
West: 31st Ave NE														
5	L2	20	2.0	22	2.0	0.127	11.0	LOS B	0.5	11.5	0.41	0.63	0.41	36.3
2	T1	20	2.0	22	2.0	0.127	5.5	LOS A	0.5	11.5	0.41	0.63	0.41	36.2
12	R2	75	2.0	82	2.0	0.127	5.4	LOS A	0.5	11.5	0.41	0.63	0.41	35.2
Approach		115	2.0	126	2.0	0.127	6.4	LOS A	0.5	11.5	0.41	0.63	0.41	35.5
All Vehicles		1318	1.9	1448	1.9	0.275	5.9	LOS A	1.7	43.3	0.29	0.51	0.29	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	35	13.0	38	13.0	0.747	14.2	LOS B	6.6	182.9	0.72	0.86	0.89	35.1
8	T1	260	13.0	280	13.0	0.747	8.2	LOS A	6.6	182.9	0.72	0.86	0.89	35.2
18	R2	355	13.0	382	13.0	0.747	8.2	LOS A	6.6	182.9	0.72	0.86	0.89	34.1
Approach		650	13.0	699	13.0	0.747	8.5	LOS A	6.6	182.9	0.72	0.86	0.89	34.6
East: Britton Pkwy NE														
1	L2	60	4.0	65	4.0	0.321	12.3	LOS B	2.1	53.7	0.65	0.66	0.65	35.3
6	T1	578	4.0	622	4.0	0.321	6.1	LOS A	2.2	57.8	0.64	0.60	0.64	35.5
16	R2	10	4.0	11	4.0	0.321	6.0	LOS A	2.2	57.8	0.64	0.57	0.64	34.5
Approach		648	4.0	697	4.0	0.321	6.7	LOS A	2.2	57.8	0.64	0.61	0.64	35.5
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.697	17.4	LOS B	4.9	132.9	0.77	0.96	1.02	35.7
7	L2	15	10.0	16	10.0	0.697	15.0	LOS B	4.9	132.9	0.77	0.96	1.02	34.9
4	T1	155	10.0	167	10.0	0.697	9.1	LOS A	4.9	132.9	0.77	0.96	1.02	34.9
14	R2	335	10.0	360	10.0	0.697	9.0	LOS A	4.9	132.9	0.77	0.96	1.02	33.9
Approach		510	10.0	548	10.0	0.697	9.3	LOS A	4.9	132.9	0.77	0.96	1.02	34.2
West: Britton Pkwy NE														
5u	U	5	7.0	5	7.0	0.138	13.6	LOS B	0.8	20.0	0.45	0.61	0.45	35.8
5	L2	75	7.0	81	7.0	0.138	11.1	LOS B	0.8	20.0	0.45	0.61	0.45	34.9
2	T1	214	7.0	230	7.0	0.138	5.0	LOS A	0.8	21.0	0.44	0.51	0.44	36.0
12	R2	15	7.0	16	7.0	0.138	5.1	LOS A	0.8	21.0	0.44	0.48	0.44	35.1
Approach		309	7.0	332	7.0	0.138	6.6	LOS A	0.8	21.0	0.45	0.54	0.45	35.7
All Vehicles		2117	8.6	2276	8.6	0.747	7.9	LOS A	6.6	182.9	0.67	0.76	0.78	34.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	15	568	58	10	147	694	35	46	0	81	35	0	25
Future Vol, veh/h	15	568	58	10	147	694	35	46	0	81	35	0	25
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	16	604	62	11	156	738	37	49	0	86	37	0	27

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	776	0	0	666	666	0	0	1371	1777	334	1427	1790	390
Stage 1	-	-	-	-	-	-	-	667	667	-	1092	1092	-
Stage 2	-	-	-	-	-	-	-	704	1110	-	335	698	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	823	-	-	539	913	-	-	105	82	662	97	82	614
Stage 1	-	-	-	-	-	-	-	414	455	-	232	293	-
Stage 2	-	-	-	-	-	-	-	394	283	-	658	445	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	822	-	-	862	862	-	-	84	65	661	71	65	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	84	65	-	71	65	-
Stage 1	-	-	-	-	-	-	-	406	446	-	227	236	-
Stage 2	-	-	-	-	-	-	-	304	228	-	561	437	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.8	60.4	73.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	190	822	-	-	862	-	-	112
HCM Lane V/C Ratio	0.711	0.019	-	-	0.194	-	-	0.57
HCM Control Delay (s)	60.4	9.5	-	-	10.2	-	-	73.1
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.5	0.1	-	-	0.7	-	-	2.7

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	618	25	39	726	5	0	0	23	5	0	25
Future Vol, veh/h	10	618	25	39	726	5	0	0	23	5	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	11	657	27	41	772	5	0	0	24	5	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	777	0	0	684	0	0	1161	1552	342	1208	1563	389
Stage 1	-	-	-	-	-	-	693	693	-	857	857	-
Stage 2	-	-	-	-	-	-	468	859	-	351	706	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	822	-	-	898	-	-	150	112	654	141	113	615
Stage 1	-	-	-	-	-	-	400	443	-	323	377	-
Stage 2	-	-	-	-	-	-	545	371	-	644	442	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	822	-	-	898	-	-	137	106	654	130	106	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	137	106	-	130	106	-
Stage 1	-	-	-	-	-	-	395	437	-	319	360	-
Stage 2	-	-	-	-	-	-	498	354	-	612	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	10.7	15.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	654	822	-	-	898	-	-	379
HCM Lane V/C Ratio	0.037	0.013	-	-	0.046	-	-	0.084
HCM Control Delay (s)	10.7	9.4	-	-	9.2	-	-	15.4
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.3

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	236	2.0	262	2.0	0.241	11.2	LOS B	0.9	23.1	0.46	0.73	0.46	34.5
8	T1	28	2.0	31	2.0	0.241	4.8	LOS A	0.9	23.1	0.46	0.73	0.46	34.3
18	R2	125	2.0	139	2.0	0.108	4.5	LOS A	0.3	8.6	0.36	0.53	0.36	36.2
Approach		389	2.0	432	2.0	0.241	8.6	LOS A	0.9	23.1	0.43	0.67	0.43	35.0
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.353	15.0	LOS B	2.2	57.2	0.62	0.65	0.62	36.7
1	L2	87	3.0	97	3.0	0.353	12.4	LOS B	2.2	57.2	0.62	0.65	0.62	35.6
6	T1	479	3.0	532	3.0	0.353	5.8	LOS A	2.4	61.4	0.61	0.61	0.61	35.9
16	R2	175	3.0	194	3.0	0.353	5.8	LOS A	2.4	61.4	0.60	0.58	0.60	35.1
Approach		746	3.0	829	3.0	0.353	6.6	LOS A	2.4	61.4	0.61	0.61	0.61	35.7
North: Gateway Blvd NE														
7	L2	85	2.0	94	2.0	0.255	12.6	LOS B	1.1	28.8	0.62	0.79	0.62	35.5
4	T1	25	2.0	28	2.0	0.255	6.2	LOS A	1.1	28.8	0.62	0.79	0.62	35.3
14	R2	80	2.0	89	2.0	0.255	6.3	LOS A	1.1	28.8	0.62	0.79	0.62	34.2
Approach		190	2.0	211	2.0	0.255	9.1	LOS A	1.1	28.8	0.62	0.79	0.62	34.9
West: Britton Pkwy NE														
5u	U	5	5.0	6	5.0	0.267	13.7	LOS B	1.6	40.5	0.43	0.57	0.43	36.9
5	L2	120	5.0	133	5.0	0.267	11.1	LOS B	1.6	40.5	0.43	0.57	0.43	35.8
2	T1	438	5.0	487	5.0	0.267	4.6	LOS A	1.6	42.0	0.42	0.50	0.42	36.5
12	R2	75	5.0	83	5.0	0.267	4.8	LOS A	1.6	42.0	0.41	0.45	0.41	35.6
Approach		638	5.0	709	5.0	0.267	5.9	LOS A	1.6	42.0	0.42	0.51	0.42	36.3
All Vehicles		1963	3.4	2181	3.4	0.353	7.0	LOS A	2.4	61.4	0.51	0.61	0.51	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	585	50	30	785	25	15	0	61	10	0	35
Future Vol, veh/h	50	585	50	30	785	25	15	0	61	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	616	53	32	826	26	16	0	64	11	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	852	0	0	669	0	0	1226	1665	335	1317	1678	426
Stage 1	-	-	-	-	-	-	749	749	-	903	903	-
Stage 2	-	-	-	-	-	-	477	916	-	414	775	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	789	-	-	917	-	-	135	96	661	117	96	582
Stage 1	-	-	-	-	-	-	370	417	-	303	359	-
Stage 2	-	-	-	-	-	-	538	349	-	592	411	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	789	-	-	917	-	-	117	86	661	98	86	582
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	86	-	98	86	-
Stage 1	-	-	-	-	-	-	345	389	-	283	346	-
Stage 2	-	-	-	-	-	-	486	337	-	499	383	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	16.8	19.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	117	661	789	-	-	917	-	-	98	582
HCM Lane V/C Ratio	0.135	0.097	0.067	-	-	0.034	-	-	0.107	0.063
HCM Control Delay (s)	40.5	11	9.9	-	-	9.1	-	-	46.1	11.6
HCM Lane LOS	E	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.5	0.3	0.2	-	-	0.1	-	-	0.3	0.2

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	10	5	5	9	5	48	64	121	9	5	5
Future Vol, veh/h	5	10	5	5	9	5	48	64	121	9	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	11	5	5	10	5	52	70	132	10	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	16	0	0	52	49	14	148	49	13
Stage 1	-	-	-	-	-	-	24	24	-	23	23	-
Stage 2	-	-	-	-	-	-	28	25	-	125	26	-
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	1603	-	-	1602	-	-	947	843	1066	820	843	1067
Stage 1	-	-	-	-	-	-	994	875	-	995	876	-
Stage 2	-	-	-	-	-	-	989	874	-	879	874	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1603	-	-	1602	-	-	933	838	1066	670	838	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	933	838	-	670	838	-
Stage 1	-	-	-	-	-	-	991	872	-	992	873	-
Stage 2	-	-	-	-	-	-	975	871	-	707	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.9	10.1	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	965	1603	-	-	1602	-	-	789
HCM Lane V/C Ratio	0.262	0.003	-	-	0.003	-	-	0.026
HCM Control Delay (s)	10.1	7.3	0	-	7.3	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	200	60	50	280	89	75
Future Vol, veh/h	200	60	50	280	89	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	225	67	56	315	100	84

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	292	0	686	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1281	-	413	780
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1281	-	391	780
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	507	-	-	1281	-
HCM Lane V/C Ratio	0.363	-	-	0.044	-
HCM Control Delay (s)	16.1	-	-	7.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.1	-

MOVEMENT SUMMARY

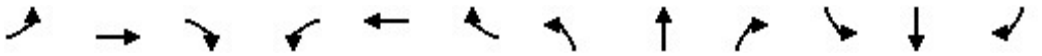
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	155	4.0	187	4.0	0.237	12.6	LOS B	1.4	36.8	0.64	0.76	0.64	31.4
8	T1	5	4.0	6	4.0	0.473	6.0	LOS A	3.8	97.3	0.73	0.71	0.73	32.2
18	R2	425	4.0	512	4.0	0.473	6.1	LOS A	3.8	97.3	0.73	0.71	0.73	33.2
Approach		585	4.0	705	4.0	0.473	7.8	LOS A	3.8	97.3	0.71	0.72	0.71	32.7
East: Britton Pkwy NE														
1	L2	493	5.0	594	5.0	0.454	11.0	LOS B	2.8	73.4	0.46	0.65	0.46	32.2
6	T1	357	5.0	430	5.0	0.454	5.1	LOS A	2.8	73.4	0.46	0.52	0.46	36.0
16	R2	1	5.0	1	5.0	0.454	5.1	LOS A	2.8	73.4	0.46	0.52	0.46	33.2
Approach		851	5.0	1025	5.0	0.454	8.5	LOS A	2.8	73.4	0.46	0.60	0.46	34.0
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.013	12.9	LOS B	0.0	1.2	0.60	0.67	0.60	34.7
4	T1	5	0.0	6	0.0	0.013	7.2	LOS A	0.0	1.2	0.60	0.67	0.60	31.5
14	R2	1	0.0	1	0.0	0.013	7.1	LOS A	0.0	1.2	0.60	0.67	0.60	33.0
Approach		7	0.0	8	0.0	0.013	8.0	LOS A	0.0	1.2	0.60	0.67	0.60	32.4
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.760	18.1	LOS B	7.2	186.4	0.85	1.05	1.23	32.2
2	T1	335	4.0	404	4.0	0.760	11.8	LOS B	7.2	186.4	0.85	1.05	1.23	33.8
12	R2	140	4.0	169	4.0	0.760	12.0	LOS B	7.2	186.4	0.85	1.05	1.23	30.3
Approach		476	4.0	573	4.0	0.760	11.9	LOS B	7.2	186.4	0.85	1.05	1.23	33.0
All Vehicles		1919	4.4	2312	4.4	0.760	9.1	LOS A	7.2	186.4	0.63	0.75	0.73	33.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



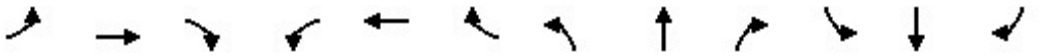
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	1100	410	400	870	125	195	235	275	139	361	148
Future Volume (veh/h)	191	1100	410	400	870	125	195	235	275	139	361	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	195	1122	418	408	888	128	199	240	281	142	368	151
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1340	788	467	1340	193	217	398	552	170	456	184
Arrive On Green	0.08	0.37	0.37	0.14	0.43	0.43	0.12	0.21	0.21	0.10	0.19	0.19
Sat Flow, veh/h	1795	3582	1589	3456	3113	449	1795	1885	1593	1767	2448	989
Grp Volume(v), veh/h	195	1122	418	408	507	509	199	240	281	142	263	256
Grp Sat Flow(s),veh/h/ln	1795	1791	1589	1728	1777	1785	1795	1885	1593	1767	1763	1674
Q Serve(g_s), s	9.5	34.3	21.6	13.9	27.3	27.3	13.2	13.8	16.8	9.5	17.2	17.6
Cycle Q Clear(g_c), s	9.5	34.3	21.6	13.9	27.3	27.3	13.2	13.8	16.8	9.5	17.2	17.6
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	142	1340	788	467	765	768	217	398	552	170	329	312
V/C Ratio(X)	1.37	0.84	0.53	0.87	0.66	0.66	0.92	0.60	0.51	0.84	0.80	0.82
Avail Cap(c_a), veh/h	142	1340	788	562	765	768	217	463	608	214	433	411
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)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	34.2	20.8	50.9	27.2	27.2	52.2	42.8	31.1	53.3	46.7	46.9
Incr Delay (d2), s/veh	198.5	5.1	2.0	11.0	4.5	4.5	38.4	1.9	0.8	16.9	7.8	9.5
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	12.1	15.6	8.3	6.7	12.4	12.4	8.2	6.6	6.6	5.0	8.2	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	253.7	39.3	22.8	61.9	31.7	31.7	90.6	44.7	32.0	70.2	54.5	56.4
LnGrp LOS	F	D	C	E	C	C	F	D	C	E	D	E
Approach Vol, veh/h		1735			1424			720			661	
Approach Delay, s/veh		59.4			40.4			52.4			58.6	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	57.1	17.0	30.8	21.7	50.4	20.0	27.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	29.3	11.5	18.8	15.9	36.3	15.2	19.6
Green Ext Time (p_c), s	0.0	6.8	0.1	2.1	0.3	0.0	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Notes

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



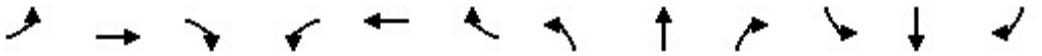
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	840	135	130	810	35	165	250	90	100	369	512
Future Volume (veh/h)	305	840	135	130	810	35	165	250	90	100	369	512
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	314	866	139	134	835	36	170	258	93	103	380	528
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	292	1081	174	161	956	41	181	734	258	128	483	406
Arrive On Green	0.16	0.35	0.35	0.09	0.27	0.27	0.10	0.29	0.29	0.07	0.26	0.26
Sat Flow, veh/h	1795	3086	495	1795	3497	151	1767	2552	896	1795	1885	1583
Grp Volume(v), veh/h	314	502	503	134	428	443	170	176	175	103	380	528
Grp Sat Flow(s),veh/h/ln	1795	1791	1791	1795	1791	1857	1767	1763	1685	1795	1885	1583
Q Serve(g_s), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.2	9.7	6.6	22.0	30.0
Cycle Q Clear(g_c), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.2	9.7	6.6	22.0	30.0
Prop In Lane	1.00		0.28	1.00		0.08	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	292	627	627	161	490	508	181	507	485	128	483	406
V/C Ratio(X)	1.08	0.80	0.80	0.83	0.87	0.87	0.94	0.35	0.36	0.80	0.79	1.30
Avail Cap(c_a), veh/h	292	627	627	223	543	563	181	507	485	184	483	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	34.3	34.3	52.4	40.6	40.6	52.1	33.0	33.1	53.5	40.5	43.5
Incr Delay (d2), s/veh	74.7	7.3	7.3	12.6	13.8	13.4	48.5	0.4	0.5	9.9	8.4	152.5
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	14.5	14.0	14.0	4.4	13.5	14.0	7.4	4.0	4.0	3.3	11.2	28.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	123.7	41.7	41.7	65.0	54.4	54.0	100.7	33.4	33.6	63.4	48.9	196.0
LnGrp LOS	F	D	D	E	D	D	F	C	C	E	D	F
Approach Vol, veh/h		1319			1005			521			1011	
Approach Delay, s/veh		61.2			55.6			55.4			127.2	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	38.0	14.3	39.7	16.0	47.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	28.7	8.6	11.7	10.6	31.6	13.2	32.0
Green Ext Time (p_c), s	0.0	3.3	0.0	1.9	0.1	4.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	76.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



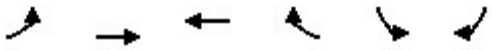
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1636	5	5	1128	35	80	5	40	60	5	35
Future Volume (veh/h)	45	1636	5	5	1128	35	80	5	40	60	5	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1722	0	5	1187	37	84	5	42	63	5	37
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, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	92	2675		9	2596	81	169	234	198	216	15	198
Arrive On Green	0.05	1.00	0.00	0.01	0.74	0.74	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	3483	3582	1598	1781	3518	110	1386	1900	1610	1281	122	1610
Grp Volume(v), veh/h	47	1722	0	5	599	625	84	5	42	68	0	37
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1851	1386	1900	1610	1403	0	1610
Q Serve(g_s), s	1.6	0.0	0.0	0.3	16.0	16.0	7.1	0.3	2.8	5.1	0.0	2.5
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.3	16.0	16.0	12.5	0.3	2.8	5.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	92	2675		9	1311	1366	169	234	198	231	0	198
V/C Ratio(X)	0.51	0.64		0.55	0.46	0.46	0.50	0.02	0.21	0.29	0.00	0.19
Avail Cap(c_a), veh/h	290	2675		82	1311	1366	472	649	550	538	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.48	0.48	0.48	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	0.0	0.0	59.6	6.2	6.2	54.3	46.3	47.4	48.5	0.0	47.2
Incr Delay (d2), s/veh	3.0	1.1	0.0	17.0	0.6	0.5	1.7	0.0	0.4	0.5	0.0	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	0.7	0.4	0.0	0.2	5.5	5.7	2.6	0.1	1.2	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	1.1	0.0	76.6	6.8	6.7	56.0	46.3	47.8	49.0	0.0	47.6
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1769			1229			131			105	
Approach Delay, s/veh		2.7			7.0			53.0			48.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	94.1		18.8	6.1	95.1		18.8				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.6	18.0		14.5	2.3	2.0		7.4				
Green Ext Time (p_c), s	0.0	12.8		0.3	0.0	28.1		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		7.8
HCM 6th LOS		A

Notes

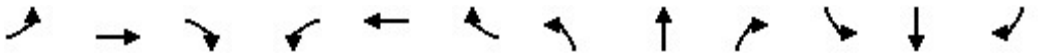
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	1686	1153	30	40	55
Future Volume (veh/h)	55	1686	1153	30	40	55
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	59	1794	1227	32	43	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	901	4472	1365	36	94	84
Arrive On Green	0.44	0.87	0.77	0.77	0.05	0.05
Sat Flow, veh/h	1795	5316	3632	92	1810	1610
Grp Volume(v), veh/h	59	1794	616	643	43	59
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1854	1810	1610
Q Serve(g_s), s	0.0	8.4	31.0	31.0	2.8	4.3
Cycle Q Clear(g_c), s	0.0	8.4	31.0	31.0	2.8	4.3
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	901	4472	686	715	94	84
V/C Ratio(X)	0.07	0.40	0.90	0.90	0.46	0.70
Avail Cap(c_a), veh/h	901	4472	1029	1074	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.89	0.89	1.00	1.00
Uniform Delay (d), s/veh	13.1	1.6	11.9	12.0	55.2	56.0
Incr Delay (d2), s/veh	0.0	0.3	15.4	15.0	1.3	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.5	7.6	7.8	1.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.2	1.9	27.4	27.0	56.5	60.0
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1853	1259		102	
Approach Delay, s/veh		2.2	27.2		58.5	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	58.0	51.8				109.8	10.2
Change Period (Y+Rc), s	5.5	5.5				5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5				82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	33.0				10.4	6.3
Green Ext Time (p_c), s	0.0	13.3				30.4	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B



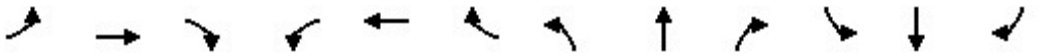
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	678	965	0	0	1143	75	15	0	801	0	0	0
Future Volume (veh/h)	678	965	0	0	1143	75	15	0	801	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	737	1049	0	0	1242	0	16	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3249	0	0	1980		25	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	737	1049	0	0	1242	0	16	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	17.2	0.0	0.0	28.6	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	17.2	0.0	0.0	28.6	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3249	0	0	1980		25	0				
V/C Ratio(X)	1.35	0.32	0.00	0.00	0.63		0.65	0.00				
Avail Cap(c_a), veh/h	546	3249	0	0	1980		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.6	0.0	0.0	18.1	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	158.4	0.0	0.0	0.0	1.5	0.0	24.9	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			
%ile BackOfQ(50%),veh/ln	40.9	7.3	0.0	0.0	11.8	0.0	0.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	206.2	5.6	0.0	0.0	19.6	0.0	83.8	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1786			1242			16				
Approach Delay, s/veh		88.4			19.6			83.8				
Approach LOS		F			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.3		5.7		114.3			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	30.6		3.1		19.2			
Green Ext Time (p_c), s	0.0	7.4		0.0		12.3			

Intersection Summary		
HCM 6th Ctrl Delay	60.3	
HCM 6th LOS	E	

Notes

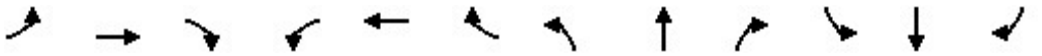
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1588	435	425	753	0	0	0	0	95	5	831
Future Volume (vph)	0	1588	435	425	753	0	0	0	0	95	5	831
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1791	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1791	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1637	448	438	776	0	0	0	0	98	5	857
RTOR Reduction (vph)	0	0	259	0	0	0	0	0	0	0	0	28
Lane Group Flow (vph)	0	1637	189	438	776	0	0	0	0	0	103	829
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	28.5	36.1						26.0	74.4
Effective Green, g (s)		50.5	50.5	28.5	36.1						26.0	74.4
Actuated g/C Ratio		0.42	0.42	0.24	0.30						0.22	0.62
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	420	1064						388	991
v/s Ratio Prot		c0.46		c0.25	0.22							c0.52
v/s Ratio Perm			0.12								0.06	
v/c Ratio		1.09	0.28	1.04	0.73						0.27	0.84
Uniform Delay, d1		34.8	22.8	45.8	37.6						39.1	18.0
Progression Factor		0.92	1.39	0.62	0.23						1.00	1.00
Incremental Delay, d2		46.7	0.6	34.7	1.2						0.4	6.5
Delay (s)		78.6	32.4	62.9	9.8						39.5	24.5
Level of Service		E	C	E	A						D	C
Approach Delay (s)		68.7			28.9			0.0			26.1	
Approach LOS		E			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	47.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	919	295	725	674	195	160	290	923	165	225	65
Future Volume (veh/h)	35	919	295	725	674	195	160	290	923	165	225	65
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		0.97	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	957	0	755	702	0	167	302	961	172	234	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	46	1239		808	1985		195	267	1045	201	374	106
Arrive On Green	0.03	0.35	0.00	0.39	0.93	0.00	0.11	0.14	0.14	0.11	0.14	0.14
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2732	1795	2743	777
Grp Volume(v), veh/h	36	957	0	755	702	0	167	302	961	172	151	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1366	1795	1791	1729
Q Serve(g_s), s	2.4	28.6	0.0	25.2	2.4	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Cycle Q Clear(g_c), s	2.4	28.6	0.0	25.2	2.4	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	46	1239		808	1985		195	267	1045	201	244	236
V/C Ratio(X)	0.78	0.77		0.93	0.35		0.86	1.13	0.92	0.86	0.62	0.64
Avail Cap(c_a), veh/h	90	1239		850	1985		254	267	1045	359	358	346
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.52	0.52	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	35.0	0.0	35.7	1.9	0.0	52.6	51.5	35.9	52.3	48.8	49.0
Incr Delay (d2), s/veh	10.3	4.7	0.0	10.2	0.3	0.0	18.2	95.0	12.7	4.1	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	13.2	0.0	10.3	0.7	0.0	5.9	15.0	15.0	5.3	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	39.7	0.0	45.9	2.1	0.0	70.7	146.5	48.6	56.4	49.8	50.1
LnGrp LOS	E	D		D	A		E	F	D	E	D	D
Approach Vol, veh/h		993			1457			1430			474	
Approach Delay, s/veh		40.8			24.8			71.8			52.3	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	72.5	17.4	22.0	33.6	47.0	18.0	21.4
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	4.4	4.4	13.3	19.0	27.2	30.6	13.0	11.9
Green Ext Time (p_c), s	0.0	6.8	0.2	0.0	0.9	0.0	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Village Alt 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	83	2.0	0.210	12.8	LOS B	0.8	21.2	0.62	0.80	0.62	35.9
8	T1	5	2.0	5	2.0	0.210	5.8	LOS A	0.8	21.2	0.62	0.80	0.62	35.5
18	R2	80	2.0	83	2.0	0.210	6.1	LOS A	0.8	21.2	0.62	0.80	0.62	34.3
Approach		165	2.0	172	2.0	0.210	9.4	LOS A	0.8	21.2	0.62	0.80	0.62	35.1
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.521	14.1	LOS B	4.0	100.7	0.50	0.48	0.50	38.3
1	L2	100	1.0	104	1.0	0.521	11.3	LOS B	4.0	100.7	0.50	0.48	0.50	37.2
6	T1	1302	1.0	1356	1.0	0.521	4.2	LOS A	4.1	103.5	0.48	0.44	0.48	37.1
16	R2	65	1.0	68	1.0	0.521	4.5	LOS A	4.1	103.5	0.46	0.41	0.46	35.9
Approach		1472	1.0	1533	1.0	0.521	4.8	LOS A	4.1	103.5	0.48	0.44	0.48	37.0
North: Lacey St SE														
7	L2	20	2.0	21	2.0	0.108	13.5	LOS B	0.4	11.4	0.68	0.83	0.68	36.3
4	T1	5	2.0	5	2.0	0.108	6.6	LOS A	0.4	11.4	0.68	0.83	0.68	35.9
14	R2	45	2.0	47	2.0	0.108	6.8	LOS A	0.4	11.4	0.68	0.83	0.68	34.6
Approach		70	2.0	73	2.0	0.108	8.7	LOS A	0.4	11.4	0.68	0.83	0.68	35.2
SouthWest: Lacey Blvd SE														
5bx	L3	40	1.0	42	1.0	0.473	12.2	LOS B	3.0	76.0	0.36	0.45	0.36	38.6
5ax	L1	55	1.0	57	1.0	0.473	9.5	LOS A	3.0	76.0	0.36	0.45	0.36	37.3
12ax	R1	1104	1.0	1150	1.0	0.473	3.6	LOS A	3.1	77.3	0.36	0.42	0.36	37.4
12bx	R3	65	1.0	68	1.0	0.473	4.3	LOS A	3.1	77.3	0.35	0.40	0.35	36.0
Approach		1264	1.0	1317	1.0	0.473	4.2	LOS A	3.1	77.3	0.36	0.42	0.36	37.4
All Vehicles		2971	1.1	3095	1.1	0.521	4.9	LOS A	4.1	103.5	0.44	0.46	0.44	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	235	5	85	260	60	10	35	165	25	20	5
Future Vol, veh/h	5	235	5	85	260	60	10	35	165	25	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	6	267	6	97	295	68	11	40	188	28	23	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

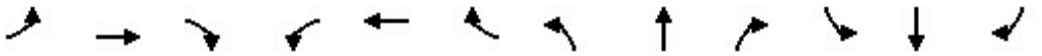
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	12.5	17.8	10.9	10.3
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	2%	21%	50%
Vol Thru, %	78%	0%	96%	64%	40%
Vol Right, %	0%	100%	2%	15%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	165	245	405	50
LT Vol	10	0	5	85	25
Through Vol	35	0	235	260	20
RT Vol	0	165	5	60	5
Lane Flow Rate	51	188	278	460	57
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.095	0.304	0.423	0.661	0.102
Departure Headway (Hd)	6.659	5.832	5.465	5.174	6.494
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	537	615	657	695	549
Service Time	4.414	3.587	3.515	3.218	4.571
HCM Lane V/C Ratio	0.095	0.306	0.423	0.662	0.104
HCM Control Delay	10.1	11.1	12.5	17.8	10.3
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.3	2.1	5	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	149	55	575	194	50	410
Future Volume (veh/h)	149	55	575	194	50	410
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	1885	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	154	57	593	200	52	423
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	0	0
Cap, veh/h	230	205	949	805	98	1253
Arrive On Green	0.13	0.13	0.50	0.50	0.05	0.66
Sat Flow, veh/h	1795	1598	1900	1610	1810	1900
Grp Volume(v), veh/h	154	57	593	200	52	423
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1810	1900
Q Serve(g_s), s	3.5	1.4	9.6	3.0	1.2	4.1
Cycle Q Clear(g_c), s	3.5	1.4	9.6	3.0	1.2	4.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	230	205	949	805	98	1253
V/C Ratio(X)	0.67	0.28	0.62	0.25	0.53	0.34
Avail Cap(c_a), veh/h	761	678	949	805	213	1253
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	17.6	16.7	7.7	6.1	19.6	3.2
Incr Delay (d2), s/veh	3.3	0.7	3.1	0.7	4.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.5	3.4	0.9	0.6	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.0	17.5	10.8	6.8	24.0	3.9
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	211		793			475
Approach Delay, s/veh	20.0		9.8			6.1
Approach LOS	C		A			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	25.7				32.5	9.9
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5				28.0	18.0
Max Q Clear Time (g_c+I1), s	3.2	11.6				6.1	5.5
Green Ext Time (p_c), s	0.0	2.6				2.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	655	310	280	549	70	200	460	255	105	305	70
Future Volume (veh/h)	130	655	310	280	549	70	200	460	255	105	305	70
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		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	140	704	333	301	590	75	215	495	274	113	328	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	169	795	346	332	1112	492	413	868	360	293	486	109
Arrive On Green	0.09	0.22	0.22	0.19	0.32	0.32	0.23	0.23	0.23	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1558	1767	3526	1559	1767	3711	1538	1795	2971	669
Grp Volume(v), veh/h	140	704	333	301	590	75	215	495	274	113	206	197
Grp Sat Flow(s),veh/h/ln	1795	1791	1558	1767	1763	1559	1767	1856	1538	1795	1885	1754
Q Serve(g_s), s	7.9	19.7	21.9	17.3	14.3	3.6	11.0	12.2	17.2	5.8	10.7	11.0
Cycle Q Clear(g_c), s	7.9	19.7	21.9	17.3	14.3	3.6	11.0	12.2	17.2	5.8	10.7	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	169	795	346	332	1112	492	413	868	360	293	308	287
V/C Ratio(X)	0.83	0.89	0.96	0.91	0.53	0.15	0.52	0.57	0.76	0.39	0.67	0.69
Avail Cap(c_a), veh/h	173	795	346	375	1190	526	614	1289	534	589	618	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	39.1	39.9	41.2	29.2	25.5	34.6	35.1	37.0	38.7	40.7	40.9
Incr Delay (d2), s/veh	26.0	11.6	38.6	22.8	0.3	0.1	0.8	0.4	2.8	0.6	1.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	9.8	12.0	9.5	6.0	1.3	4.8	5.5	6.7	2.6	5.1	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	50.7	78.5	64.0	29.5	25.6	35.4	35.5	39.8	39.3	42.6	43.0
LnGrp LOS	E	D	E	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1177			966			984			516	
Approach Delay, s/veh		61.1			39.9			36.7			42.1	
Approach LOS		E			D			D			D	

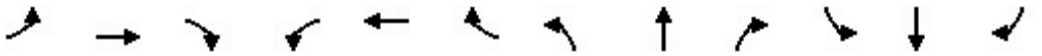
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	37.7		29.3	24.5	28.0		21.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	35.0		36.0	22.0	23.0		34.0				
Max Q Clear Time (g_c+I1), s	9.9	16.3		19.2	19.3	23.9		13.0				
Green Ext Time (p_c), s	0.0	3.4		3.8	0.2	0.0		2.1				

Intersection Summary		
HCM 6th Ctrl Delay	46.2	
HCM 6th LOS	D	

Notes

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

User approved volume balancing among the lanes for turning movement.



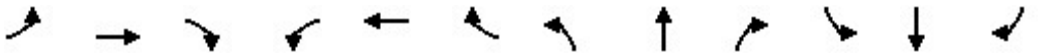
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	815	0	0	1125	324	190	0	540	0	0	0
Future Volume (veh/h)	239	815	0	0	1125	324	190	0	540	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	257	876	0	0	1210	0	204	0	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	291	2675	0	0	1880		253	0				
Arrive On Green	0.16	0.75	0.00	0.00	0.53	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	257	876	0	0	1210	0	204	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	12.6	7.4	0.0	0.0	21.9	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	12.6	7.4	0.0	0.0	21.9	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	291	2675	0	0	1880		253	0				
V/C Ratio(X)	0.88	0.33	0.00	0.00	0.64		0.81	0.00				
Avail Cap(c_a), veh/h	299	2675	0	0	1880		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	36.9	3.8	0.0	0.0	15.1	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	24.3	0.3	0.0	0.0	1.7	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	7.4	2.1	0.0	0.0	8.6	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	4.1	0.0	0.0	16.9	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1133			1210			204				
Approach Delay, s/veh		17.1			16.9			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	19.6	52.6		17.8		72.2			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	14.6	23.9		12.0		9.4			
Green Ext Time (p_c), s	0.0	5.6		0.7		6.1			

Intersection Summary		
HCM 6th Ctrl Delay		19.0
HCM 6th LOS		B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	794	255	0	760	0	0	0	0	255	5	405
Future Volume (veh/h)	0	794	255	0	760	0	0	0	0	255	5	405
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	827	0	0	792	0				266	5	422
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2148		0	2131	0				506	10	458
Arrive On Green	0.00	0.60	0.00	0.00	0.60	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	3770	0	0	3741	0				1750	33	1585
Grp Volume(v), veh/h	0	827	0	0	792	0				271	0	422
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.8	0.0	0.0	10.3	0.0				11.5	0.0	23.2
Cycle Q Clear(g_c), s	0.0	10.8	0.0	0.0	10.3	0.0				11.5	0.0	23.2
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2148		0	2131	0				516	0	458
V/C Ratio(X)	0.00	0.39		0.00	0.37	0.00				0.53	0.00	0.92
Avail Cap(c_a), veh/h	0	2148		0	2131	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.4	0.0	0.0	9.3	0.0				26.8	0.0	31.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.6	0.0	21.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.0	0.0	0.0	3.8	0.0				4.8	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.9	0.0	0.0	9.8	0.0				27.4	0.0	52.5
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		827			792						693	
Approach Delay, s/veh		9.9			9.8						42.7	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		59.0				59.0		31.0				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.3				12.8		25.2				
Green Ext Time (p_c), s		5.3				5.6		0.8				

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

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	586	70	0	840	0	42
Future Vol, veh/h	586	70	0	840	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	617	74	0	884	0	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	346
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	650
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	650
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	650	-	-	-
HCM Lane V/C Ratio	0.068	-	-	-
HCM Control Delay (s)	10.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	641	0	0	765	0	0
Future Vol, veh/h	641	0	0	765	0	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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	682	0	0	814	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	341
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	655
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	655
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	680	9	0	886	0	11
Future Vol, veh/h	680	9	0	886	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	723	10	0	943	0	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	367
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	630
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	630
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	630	-	-	-
HCM Lane V/C Ratio	0.019	-	-	-
HCM Control Delay (s)	10.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	0	2318	2355	9
Future Vol, veh/h	0	101	0	2318	2355	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	3	3	5	5
Mvmt Flow	0	105	0	2415	2453	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1231	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	145	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	145	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	145	-	-
HCM Lane V/C Ratio	-	0.726	-	-
HCM Control Delay (s)	-	77.3	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	4.3	-	-

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	230	0.0	230	0.0	0.248	10.5	LOS B	1.5	36.5	0.37	0.61	0.37	34.9
8	T1	465	0.0	465	0.0	0.248	4.6	LOS A	1.5	37.6	0.36	0.48	0.36	36.3
18	R2	5	0.0	5	0.0	0.248	4.7	LOS A	1.5	37.6	0.35	0.44	0.35	35.5
Approach		700	0.0	700	0.0	0.248	6.5	LOS A	1.5	37.6	0.36	0.52	0.36	35.8
East: Hawks Prairie Rd NE														
1u	U	5	3.0	5	3.0	0.306	14.4	LOS B	1.2	31.2	0.55	0.77	0.55	35.6
1	L2	140	3.0	140	3.0	0.306	12.0	LOS B	1.2	31.2	0.55	0.77	0.55	34.8
6	T1	85	3.0	85	3.0	0.306	6.3	LOS A	1.2	31.2	0.55	0.77	0.55	34.7
16	R2	40	3.0	40	3.0	0.306	6.2	LOS A	1.2	31.2	0.55	0.77	0.55	33.8
Approach		270	3.0	270	3.0	0.306	9.4	LOS A	1.2	31.2	0.55	0.77	0.55	34.7
North: Marvin Rd NE														
7	L2	20	2.0	20	2.0	0.205	12.0	LOS B	1.2	29.7	0.58	0.63	0.58	35.7
4	T1	334	2.0	334	2.0	0.205	6.1	LOS A	1.2	31.6	0.57	0.61	0.57	35.9
14	R2	110	2.0	110	2.0	0.205	5.9	LOS A	1.2	31.6	0.56	0.59	0.56	34.9
Approach		464	2.0	464	2.0	0.205	6.3	LOS A	1.2	31.6	0.57	0.61	0.57	35.6
West: Hawks Prairie Rd NE														
5u	U	5	3.0	5	3.0	0.272	13.8	LOS B	1.1	29.0	0.48	0.71	0.48	36.2
5	L2	115	3.0	115	3.0	0.272	11.4	LOS B	1.1	29.0	0.48	0.71	0.48	35.4
2	T1	20	3.0	20	3.0	0.272	5.6	LOS A	1.1	29.0	0.48	0.71	0.48	35.3
12	R2	123	3.0	123	3.0	0.272	5.6	LOS A	1.1	29.0	0.48	0.71	0.48	34.3
Approach		263	3.0	263	3.0	0.272	8.3	LOS A	1.1	29.0	0.48	0.71	0.48	34.9
All Vehicles		1697	1.5	1697	1.5	0.306	7.2	LOS A	1.5	37.6	0.47	0.61	0.47	35.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	435	2.0	435	2.0	0.665	13.6	LOS B	5.1	130.3	0.74	0.91	0.90	34.0
8	T1	883	2.0	883	2.0	0.665	7.1	LOS A	5.3	134.6	0.73	0.76	0.87	35.2
18	R2	62	2.0	62	2.0	0.665	7.0	LOS A	5.3	134.6	0.73	0.71	0.86	34.4
Approach		1380	2.0	1380	2.0	0.665	9.1	LOS A	5.3	134.6	0.73	0.80	0.88	34.8
East: Britton Pkwy NE														
1	L2	459	4.0	459	4.0	0.723	17.5	LOS B	5.8	149.5	0.91	1.10	1.31	31.8
6	T1	397	4.0	397	4.0	0.723	13.5	LOS B	5.8	149.5	0.89	1.07	1.32	32.7
16	R2	35	4.0	35	4.0	0.723	13.9	LOS B	5.0	129.7	0.89	1.06	1.32	31.9
Approach		891	4.0	891	4.0	0.723	15.6	LOS B	5.8	149.5	0.90	1.09	1.31	32.2
North: Marvin Rd NE														
7u	U	10	4.0	10	4.0	0.874	33.6	LOS D	9.7	251.1	0.98	1.33	2.01	28.7
7	L2	70	4.0	70	4.0	0.874	31.1	LOS D	9.7	251.1	0.98	1.33	2.01	28.1
4	T1	821	4.0	821	4.0	0.874	23.4	LOS D	11.6	298.5	0.99	1.35	2.02	28.8
14	R2	149	4.0	149	4.0	0.874	22.0	LOS D	11.6	298.5	1.00	1.36	2.03	28.6
Approach		1050	4.0	1050	4.0	0.874	23.8	LOS C	11.6	298.5	0.99	1.35	2.02	28.7
West: Britton Pkwy NE														
5u	U	15	5.0	15	5.0	0.303	16.5	LOS B	1.6	41.8	0.80	0.88	0.80	34.5
5	L2	115	5.0	115	5.0	0.303	13.9	LOS B	1.6	41.8	0.80	0.88	0.80	33.7
2	T1	319	5.0	319	5.0	0.303	7.4	LOS A	2.0	52.8	0.85	0.71	0.85	34.7
12	R2	461	5.0	461	5.0	0.491	8.0	LOS A	3.7	96.7	0.88	0.96	1.00	34.5
Approach		910	5.0	910	5.0	0.491	8.7	LOS A	3.7	96.7	0.86	0.86	0.92	34.4
All Vehicles		4231	3.6	4231	3.6	0.874	14.0	LOS B	11.6	298.5	0.86	1.01	1.26	32.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

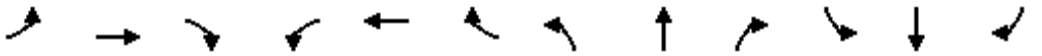
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	335	3.0	335	3.0	0.638	12.8	LOS B	7.0	180.5	0.32	0.55	0.32	27.0
3	L2	242	3.0	242	3.0	0.638	10.2	LOS B	7.0	180.5	0.32	0.55	0.32	33.3
8	T1	1355	3.0	1355	3.0	0.638	4.2	LOS A	7.0	180.5	0.30	0.41	0.30	33.0
18	R2	15	3.0	15	3.0	0.638	4.3	LOS A	7.0	179.9	0.29	0.37	0.29	34.3
Approach		1947	3.0	1947	3.0	0.638	6.4	LOS A	7.0	180.5	0.31	0.45	0.31	32.0
East: Main St NE														
1	L2	10	0.0	10	0.0	0.052	14.8	LOS B	0.2	5.5	0.72	0.84	0.72	32.7
6	T1	1	0.0	1	0.0	0.052	8.8	LOS A	0.2	5.5	0.72	0.84	0.72	34.4
16	R2	20	0.0	20	0.0	0.052	8.8	LOS A	0.2	5.5	0.72	0.84	0.72	31.8
Approach		31	0.0	31	0.0	0.052	10.7	LOS B	0.2	5.5	0.72	0.84	0.72	32.1
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.821	25.5	LOS C	13.2	336.7	1.00	1.22	1.64	27.2
7	L2	15	3.0	15	3.0	0.821	22.9	LOS C	13.2	336.7	1.00	1.22	1.64	29.5
4	T1	1619	3.0	1619	3.0	0.821	15.5	LOS B	14.5	371.0	0.99	1.17	1.58	25.9
14	R2	37	3.0	37	3.0	0.821	14.5	LOS B	14.5	371.0	0.98	1.13	1.54	29.6
Approach		1676	3.0	1676	3.0	0.821	15.5	LOS B	14.5	371.0	0.99	1.17	1.58	26.1
West: Main St NE														
5	L2	20	0.0	20	0.0	0.142	15.6	LOS B	0.9	21.4	0.90	0.95	0.90	32.9
2	T1	1	0.0	1	0.0	0.142	9.6	LOS A	0.9	21.4	0.90	0.95	0.90	34.2
12	R2	288	0.0	288	0.0	0.142	4.6	LOS A	0.9	21.4	0.16	0.52	0.16	35.3
Approach		309	0.0	309	0.0	0.142	5.3	LOS A	0.9	21.4	0.21	0.55	0.21	35.1
All Vehicles		3963	2.7	3963	2.7	0.821	10.2	LOS B	14.5	371.0	0.59	0.77	0.84	29.6

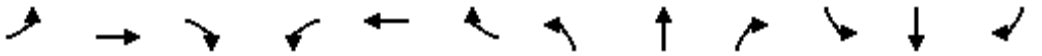
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	375	0	0	712	0	1395	1392	0	1893	435
Future Volume (vph)	0	0	375	0	0	712	0	1395	1392	0	1893	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frt			0.85			0.85		0.96	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3250	1441		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3250	1441		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	375	0	0	712	0	1395	1392	0	1893	435
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	375	0	0	712	0	1924	863	0	1893	435
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1692	1441		1282	1583
v/s Ratio Prot			0.13			0.26		c0.59			c0.53	
v/s Ratio Perm									0.60			0.27
v/c Ratio			0.25			0.66		1.14	0.60		1.48	0.27
Uniform Delay, d1			14.8			30.2		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.60	1.00		1.00	1.00
Incremental Delay, d2			0.1			1.5		64.9	0.7		218.7	0.4
Delay (s)			14.9			31.7		82.1	0.7		257.0	0.4
Level of Service			B			C		F	A		F	A
Approach Delay (s)		14.9			31.7			56.9			209.0	
Approach LOS		B			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	108.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

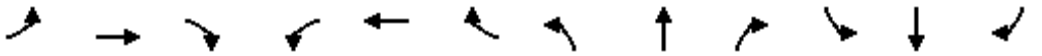
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	260	0	0	769	0	2018	275	0	1727	541
Future Volume (vph)	0	0	260	0	0	769	0	2018	275	0	1727	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	260	0	0	769	0	2018	275	0	1727	541
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	260	0	0	769	0	2018	275	0	1727	541
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			624			1498		1885	1583		1843	1583
v/s Ratio Prot			0.16			0.28		c0.40			c0.49	
v/s Ratio Perm									0.17			0.34
v/c Ratio			0.42			0.51		1.07	0.17		0.94	0.34
Uniform Delay, d1			26.8			17.7		37.8	0.0		26.9	0.0
Progression Factor			1.00			1.00		0.85	1.00		0.64	1.00
Incremental Delay, d2			0.5			0.3		37.3	0.1		1.3	0.1
Delay (s)			27.3			18.0		69.4	0.1		18.6	0.1
Level of Service			C			B		E	A		B	A
Approach Delay (s)		27.3			18.0			61.1			14.2	
Approach LOS		C			B			E			B	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	576	175	140	80	70	329	90	1358	65	292	1223	392
Future Volume (veh/h)	576	175	140	80	70	329	90	1358	65	292	1223	392
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		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	576	175	140	80	70	329	90	1358	65	292	1223	392
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	647	212	170	75	134	339	104	1414	68	254	1768	769
Arrive On Green	0.19	0.22	0.22	0.04	0.07	0.07	0.06	0.41	0.41	0.14	0.49	0.49
Sat Flow, veh/h	3483	968	775	1795	1885	1584	1781	3448	165	1795	3582	1557
Grp Volume(v), veh/h	576	0	315	80	70	329	90	698	725	292	1223	392
Grp Sat Flow(s),veh/h/ln	1742	0	1743	1795	1885	1584	1781	1777	1836	1795	1791	1557
Q Serve(g_s), s	19.4	0.0	20.7	5.0	4.3	8.5	6.0	45.8	46.1	17.0	31.5	20.4
Cycle Q Clear(g_c), s	19.4	0.0	20.7	5.0	4.3	8.5	6.0	45.8	46.1	17.0	31.5	20.4
Prop In Lane	1.00		0.44	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	647	0	382	75	134	339	104	729	753	254	1768	769
V/C Ratio(X)	0.89	0.00	0.83	1.07	0.52	0.97	0.87	0.96	0.96	1.15	0.69	0.51
Avail Cap(c_a), veh/h	682	0	392	75	134	339	104	729	753	254	1768	769
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	1.00	1.00	0.29	0.29	0.29	0.38	0.38	0.38
Uniform Delay (d), s/veh	47.7	0.0	44.7	57.5	53.8	46.9	56.0	34.4	34.5	51.5	23.4	20.6
Incr Delay (d2), s/veh	14.6	0.0	14.8	124.3	7.0	41.6	20.7	10.5	10.8	83.3	0.9	0.9
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	9.7	0.0	10.5	4.9	2.3	13.6	3.3	21.4	22.3	13.5	13.2	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	0.0	59.5	181.8	60.8	88.5	76.7	44.9	45.3	134.8	24.2	21.5
LnGrp LOS	E	A	E	F	E	F	E	D	D	F	C	C
Approach Vol, veh/h		891			479			1513			1907	
Approach Delay, s/veh		61.3			100.0			47.0			40.6	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	65.2	27.8	14.0	23.0	55.2	10.0	31.8
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	23.5	* 8.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	8.0	33.5	21.4	10.5	19.0	48.1	7.0	22.7
Green Ext Time (p_c), s	0.0	19.1	0.9	0.0	0.0	0.3	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	55	150	165	55	150	180	1158	175	178	1170	85
Future Volume (veh/h)	135	55	150	165	55	150	180	1158	175	178	1170	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	135	55	150	165	55	150	180	1158	175	178	1170	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	162	66	179	192	73	198	225	1250	188	340	1588	115
Arrive On Green	0.09	0.15	0.15	0.11	0.16	0.16	0.13	0.41	0.41	0.06	0.15	0.15
Sat Flow, veh/h	1810	446	1217	1795	443	1209	1767	3072	463	1795	3386	246
Grp Volume(v), veh/h	135	0	205	165	0	205	180	663	670	178	618	637
Grp Sat Flow(s),veh/h/ln	1810	0	1663	1795	0	1652	1767	1763	1772	1795	1791	1841
Q Serve(g_s), s	8.8	0.0	14.4	10.8	0.0	14.2	11.9	42.9	43.3	11.5	39.5	39.6
Cycle Q Clear(g_c), s	8.8	0.0	14.4	10.8	0.0	14.2	11.9	42.9	43.3	11.5	39.5	39.6
Prop In Lane	1.00		0.73	1.00		0.73	1.00		0.26	1.00		0.13
Lane Grp Cap(c), veh/h	162	0	245	192	0	271	225	717	721	340	840	863
V/C Ratio(X)	0.83	0.00	0.84	0.86	0.00	0.76	0.80	0.92	0.93	0.52	0.74	0.74
Avail Cap(c_a), veh/h	196	0	333	195	0	330	225	734	738	340	840	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.64	0.64	0.64
Uniform Delay (d), s/veh	53.8	0.0	49.8	52.7	0.0	47.9	50.9	33.8	34.0	51.0	43.6	43.7
Incr Delay (d2), s/veh	20.8	0.0	11.7	29.6	0.0	7.0	17.7	17.3	18.2	0.7	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	6.8	6.5	0.0	6.4	6.4	21.4	21.8	5.6	19.5	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	0.0	61.5	82.3	0.0	54.9	68.6	51.2	52.1	51.7	45.9	45.9
LnGrp LOS	E	A	E	F	A	D	E	D	D	D	D	D
Approach Vol, veh/h		340			370			1513			1433	
Approach Delay, s/veh		66.7			67.1			53.7			46.6	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.3	61.3	14.7	23.7	27.7	53.8	16.8	21.6
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	15.3	50.0	13.0	24.0	15.0	50.0	13.0	24.0
Max Q Clear Time (g_c+I1), s	13.8	41.6	10.8	16.2	13.5	45.3	12.8	16.4
Green Ext Time (p_c), s	0.0	5.5	0.1	0.6	0.1	3.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	610	465	475	645	333	305	776	250	318	1070	274
Future Volume (veh/h)	404	610	465	475	645	333	305	776	250	318	1070	274
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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	404	610	0	475	645	0	305	776	250	318	1070	274
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	502	696		529	725		331	799	257	333	1083	482
Arrive On Green	0.14	0.19	0.00	0.15	0.20	0.00	0.18	0.30	0.30	0.18	0.30	0.30
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2662	858	1810	3610	1607
Grp Volume(v), veh/h	404	610	0	475	645	0	305	522	504	318	1070	274
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1729	1810	1805	1607
Q Serve(g_s), s	13.5	19.8	0.0	15.9	20.9	0.0	20.0	34.6	34.6	20.9	35.4	17.3
Cycle Q Clear(g_c), s	13.5	19.8	0.0	15.9	20.9	0.0	20.0	34.6	34.6	20.9	35.4	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	502	696		529	725		331	537	519	333	1083	482
V/C Ratio(X)	0.80	0.88		0.90	0.89		0.92	0.97	0.97	0.95	0.99	0.57
Avail Cap(c_a), veh/h	551	761		556	767		331	537	519	333	1083	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	46.9	0.0	50.0	46.7	0.0	48.1	41.5	41.5	48.5	41.8	35.4
Incr Delay (d2), s/veh	6.9	10.8	0.0	16.2	12.3	0.0	29.9	32.4	33.1	36.9	24.6	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	9.8	0.0	8.1	10.5	0.0	11.7	19.9	19.3	12.8	19.2	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	57.8	0.0	66.2	58.9	0.0	78.0	73.9	74.6	85.4	66.4	40.2
LnGrp LOS	E	E		E	E		E	E	E	F	E	D
Approach Vol, veh/h		1014			1120			1331			1662	
Approach Delay, s/veh		57.3			62.0			75.1			65.7	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.1	41.0	22.3	29.6	27.1	41.0	23.1	28.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	19.6	36.0	19.0	25.5	19.0	36.0	19.0	25.5
Max Q Clear Time (g_c+I1), s	22.0	37.4	15.5	22.9	22.9	36.6	17.9	21.8
Green Ext Time (p_c), s	0.0	0.0	0.3	1.2	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	65.7
HCM 6th LOS	E

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	220	30	160	275	208	25	766	30	304	1274	229
Future Volume (veh/h)	150	220	30	160	275	208	25	766	30	304	1274	229
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	150	220	30	160	275	208	25	766	30	304	1274	229
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	184	396	54	191	250	189	54	935	37	344	1297	231
Arrive On Green	0.10	0.25	0.25	0.11	0.25	0.25	0.03	0.27	0.27	0.19	0.43	0.43
Sat Flow, veh/h	1781	1611	220	1810	1003	759	1795	3513	138	1795	3036	541
Grp Volume(v), veh/h	150	0	250	160	0	483	25	390	406	304	747	756
Grp Sat Flow(s),veh/h/ln	1781	0	1831	1810	0	1762	1795	1791	1860	1795	1791	1786
Q Serve(g_s), s	8.1	0.0	11.7	8.5	0.0	24.4	1.3	20.1	20.1	16.2	40.2	41.3
Cycle Q Clear(g_c), s	8.1	0.0	11.7	8.5	0.0	24.4	1.3	20.1	20.1	16.2	40.2	41.3
Prop In Lane	1.00		0.12	1.00		0.43	1.00		0.07	1.00		0.30
Lane Grp Cap(c), veh/h	184	0	450	191	0	438	54	477	495	344	765	763
V/C Ratio(X)	0.82	0.00	0.56	0.84	0.00	1.10	0.46	0.82	0.82	0.88	0.98	0.99
Avail Cap(c_a), veh/h	370	0	455	192	0	438	190	659	684	666	765	763
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	43.1	0.0	32.3	43.0	0.0	36.8	46.8	33.8	33.8	38.6	27.6	27.9
Incr Delay (d2), s/veh	6.5	0.0	1.5	25.7	0.0	73.5	4.5	5.5	5.3	5.8	26.5	30.3
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	3.9	0.0	5.3	5.1	0.0	19.2	0.7	9.3	9.6	7.6	21.9	23.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	33.7	68.7	0.0	110.4	51.2	39.3	39.1	44.4	54.1	58.2
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	D	E
Approach Vol, veh/h		400			643			821			1807	
Approach Delay, s/veh		39.7			100.0			39.6			54.2	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	46.8	14.7	29.0	23.4	31.0	15.0	28.7
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.3	43.3	10.1	26.4	18.2	22.1	10.5	13.7
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	4.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	57.4
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	80	1.0	80	1.0	0.391	16.7	LOS B	2.8	70.8	0.88	0.92	0.91	33.1
8	T1	469	1.0	469	1.0	0.391	10.2	LOS B	3.1	79.0	0.89	0.87	0.90	34.1
18	R2	35	1.0	35	1.0	0.391	9.7	LOS A	3.1	79.0	0.90	0.85	0.90	33.5
Approach		584	1.0	584	1.0	0.391	11.1	LOS B	3.1	79.0	0.89	0.88	0.90	33.9
East: Pacific Ave SE														
1	L2	30	1.0	30	1.0	0.300	11.6	LOS B	1.4	35.5	0.59	0.61	0.59	35.6
6	T1	235	1.0	235	1.0	0.300	6.0	LOS A	1.4	35.5	0.59	0.61	0.59	35.5
16	R2	339	1.0	339	1.0	0.323	5.8	LOS A	1.6	40.8	0.59	0.66	0.59	35.1
Approach		604	1.0	604	1.0	0.323	6.1	LOS A	1.6	40.8	0.59	0.64	0.59	35.3
North: Marvin Rd SE														
7u	U	10	1.0	10	1.0	0.581	14.9	LOS B	5.0	126.1	0.71	0.77	0.75	34.7
7	L2	455	1.0	455	1.0	0.581	12.5	LOS B	5.0	126.1	0.71	0.77	0.75	33.9
4	T1	829	1.0	829	1.0	0.581	6.3	LOS A	5.0	126.1	0.68	0.64	0.70	35.1
14	R2	110	1.0	110	1.0	0.581	6.2	LOS A	5.0	125.2	0.68	0.60	0.69	34.3
Approach		1404	1.0	1404	1.0	0.581	8.4	LOS A	5.0	126.1	0.69	0.68	0.71	34.6
West: Pacific Ave SE														
5	L2	65	1.0	65	1.0	0.553	13.9	LOS B	3.5	89.2	0.82	0.89	1.00	34.6
2	T1	365	1.0	365	1.0	0.553	8.4	LOS A	3.5	89.2	0.82	0.89	1.00	34.5
12	R2	170	1.0	170	1.0	0.310	8.3	LOS A	1.4	35.6	0.74	0.87	0.77	34.4
Approach		600	1.0	600	1.0	0.553	9.0	LOS A	3.5	89.2	0.80	0.88	0.93	34.5
All Vehicles		3192	1.0	3192	1.0	0.581	8.5	LOS A	5.0	126.1	0.73	0.75	0.77	34.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	30	2.0	30	2.0	0.224	12.3	LOS B	1.3	32.7	0.18	0.49	0.18	37.1
3	L2	70	2.0	70	2.0	0.224	9.8	LOS A	1.3	32.7	0.18	0.49	0.18	36.2
8	T1	459	2.0	459	2.0	0.224	4.3	LOS A	1.3	33.0	0.18	0.45	0.18	36.7
18	R2	118	2.0	118	2.0	0.224	4.4	LOS A	1.3	33.0	0.17	0.41	0.17	36.0
Approach		677	2.0	677	2.0	0.224	5.2	LOS A	1.3	33.0	0.18	0.45	0.18	36.6
East: 31st Ave NE														
1	L2	91	3.0	91	3.0	0.119	11.2	LOS B	0.4	10.3	0.42	0.73	0.42	34.5
6	T1	10	3.0	10	3.0	0.119	5.6	LOS A	0.4	10.3	0.42	0.73	0.42	34.4
16	R2	15	3.0	15	3.0	0.119	5.5	LOS A	0.4	10.3	0.42	0.73	0.42	33.5
Approach		116	3.0	116	3.0	0.119	10.0	LOS A	0.4	10.3	0.42	0.73	0.42	34.3
North: Willamette Dr NE														
7	L2	1	1.0	1	1.0	0.102	10.4	LOS B	0.5	12.7	0.35	0.46	0.35	36.6
4	T1	268	1.0	268	1.0	0.102	4.8	LOS A	0.5	13.0	0.34	0.45	0.34	36.6
14	R2	10	1.0	10	1.0	0.102	4.8	LOS A	0.5	13.0	0.33	0.45	0.33	35.5
Approach		279	1.0	279	1.0	0.102	4.9	LOS A	0.5	13.0	0.34	0.45	0.34	36.6
West: 31st Ave NE														
5	L2	20	2.0	20	2.0	0.119	10.8	LOS B	0.4	10.5	0.36	0.59	0.36	36.4
2	T1	25	2.0	25	2.0	0.119	5.2	LOS A	0.4	10.5	0.36	0.59	0.36	36.3
12	R2	80	2.0	80	2.0	0.119	5.1	LOS A	0.4	10.5	0.36	0.59	0.36	35.3
Approach		125	2.0	125	2.0	0.119	6.0	LOS A	0.4	10.5	0.36	0.59	0.36	35.7
All Vehicles		1197	1.9	1197	1.9	0.224	5.7	LOS A	1.3	33.0	0.26	0.49	0.26	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	25	13.0	25	13.0	0.490	12.0	LOS B	2.5	68.5	0.52	0.67	0.55	36.1
8	T1	170	13.0	170	13.0	0.490	6.1	LOS A	2.5	68.5	0.52	0.67	0.55	36.1
18	R2	260	13.0	260	13.0	0.490	6.1	LOS A	2.5	68.5	0.52	0.67	0.55	35.0
Approach		455	13.0	455	13.0	0.490	6.4	LOS A	2.5	68.5	0.52	0.67	0.55	35.4
East: Britton Pkwy NE														
1	L2	45	4.0	45	4.0	0.219	11.4	LOS B	1.2	32.1	0.50	0.57	0.50	35.8
6	T1	480	4.0	480	4.0	0.219	5.3	LOS A	1.3	33.6	0.49	0.53	0.49	36.1
16	R2	10	4.0	10	4.0	0.219	5.3	LOS A	1.3	33.6	0.48	0.50	0.48	35.0
Approach		535	4.0	535	4.0	0.219	5.8	LOS A	1.3	33.6	0.49	0.53	0.49	36.1
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.473	15.0	LOS B	2.4	63.7	0.59	0.75	0.65	36.9
7	L2	15	10.0	15	10.0	0.473	12.5	LOS B	2.4	63.7	0.59	0.75	0.65	36.0
4	T1	135	10.0	135	10.0	0.473	6.6	LOS A	2.4	63.7	0.59	0.75	0.65	36.0
14	R2	258	10.0	258	10.0	0.473	6.6	LOS A	2.4	63.7	0.59	0.75	0.65	34.9
Approach		413	10.0	413	10.0	0.473	6.9	LOS A	2.4	63.7	0.59	0.75	0.65	35.3
West: Britton Pkwy NE														
5u	U	15	7.0	15	7.0	0.140	13.3	LOS B	0.8	19.9	0.40	0.60	0.40	35.8
5	L2	84	7.0	84	7.0	0.140	10.8	LOS B	0.8	19.9	0.40	0.60	0.40	34.9
2	T1	243	7.0	243	7.0	0.140	4.8	LOS A	0.8	20.6	0.38	0.49	0.38	36.2
12	R2	15	7.0	15	7.0	0.140	4.9	LOS A	0.8	20.6	0.38	0.45	0.38	35.3
Approach		357	7.0	357	7.0	0.140	6.6	LOS A	0.8	20.6	0.39	0.52	0.39	35.8
All Vehicles		1760	8.3	1760	8.3	0.490	6.4	LOS A	2.5	68.5	0.50	0.62	0.52	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	20	850	19	10	76	885	25	32	0	20	30	5	20
Future Vol, veh/h	20	850	19	10	76	885	25	32	0	20	30	5	20
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	20	850	19	10	76	885	25	32	0	20	30	5	20

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	911	0	0	869	869	0	0	1518	1983	436	1537	1980	457
Stage 1	-	-	-	-	-	-	-	900	900	-	1071	1071	-
Stage 2	-	-	-	-	-	-	-	618	1083	-	466	909	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	731	-	-	400	765	-	-	82	61	568	81	62	556
Stage 1	-	-	-	-	-	-	-	300	355	-	239	300	-
Stage 2	-	-	-	-	-	-	-	443	292	-	551	357	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	730	-	-	687	687	-	-	65	52	567	69	53	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	65	52	-	69	53	-
Stage 1	-	-	-	-	-	-	-	292	345	-	232	262	-
Stage 2	-	-	-	-	-	-	-	366	255	-	517	347	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	76	82.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	99	730	-	-	687	-	-	97
HCM Lane V/C Ratio	0.525	0.027	-	-	0.125	-	-	0.567
HCM Control Delay (s)	76	10.1	-	-	11	-	-	82.4
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.4	-	-	2.6

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	5	839	45	70	862	5	0	0	49	5	0	15
Future Vol, veh/h	5	839	45	70	862	5	0	0	49	5	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	5	839	45	70	862	5	0	0	49	5	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	867	0	0	884	0	0	1443	1879	442	1435	1899	434
Stage 1	-	-	-	-	-	-	872	872	-	1005	1005	-
Stage 2	-	-	-	-	-	-	571	1007	-	430	894	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	760	-	-	755	-	-	93	71	563	96	70	576
Stage 1	-	-	-	-	-	-	312	366	-	263	322	-
Stage 2	-	-	-	-	-	-	473	317	-	579	362	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	760	-	-	755	-	-	84	64	563	81	63	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	64	-	81	63	-
Stage 1	-	-	-	-	-	-	310	363	-	261	292	-
Stage 2	-	-	-	-	-	-	418	288	-	525	359	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	12	22.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	563	760	-	-	755	-	-	228
HCM Lane V/C Ratio	0.087	0.007	-	-	0.093	-	-	0.088
HCM Control Delay (s)	12	9.8	-	-	10.3	-	-	22.3
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.3	-	-	0.3

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	510	2.0	510	2.0	0.511	12.2	LOS B	2.9	72.7	0.65	0.84	0.74	34.0
8	T1	54	2.0	54	2.0	0.511	5.9	LOS A	2.9	72.7	0.65	0.84	0.74	33.8
18	R2	252	2.0	252	2.0	0.206	4.7	LOS A	0.8	19.7	0.44	0.55	0.44	36.0
Approach		816	2.0	816	2.0	0.511	9.5	LOS A	2.9	72.7	0.59	0.75	0.64	34.6
East: Britton Pkwy NE														
1u	U	5	3.0	5	3.0	0.529	21.0	LOS C	4.7	120.9	0.91	1.02	1.12	33.3
1	L2	195	3.0	195	3.0	0.529	18.4	LOS B	4.7	120.9	0.91	1.02	1.12	32.5
6	T1	442	3.0	442	3.0	0.529	10.7	LOS B	5.3	135.3	0.92	0.96	1.09	33.8
16	R2	230	3.0	230	3.0	0.529	10.2	LOS B	5.3	135.3	0.93	0.93	1.08	33.6
Approach		872	3.0	872	3.0	0.529	12.4	LOS B	5.3	135.3	0.92	0.97	1.09	33.4
North: Gateway Blvd NE														
7	L2	95	2.0	95	2.0	0.384	14.6	LOS B	2.1	54.0	0.77	0.91	0.84	34.8
4	T1	41	2.0	41	2.0	0.384	8.2	LOS A	2.1	54.0	0.77	0.91	0.84	34.6
14	R2	120	2.0	120	2.0	0.384	8.3	LOS A	2.1	54.0	0.77	0.91	0.84	33.5
Approach		256	2.0	256	2.0	0.384	10.6	LOS B	2.1	54.0	0.77	0.91	0.84	34.2
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.374	14.5	LOS B	2.5	64.8	0.60	0.67	0.60	35.9
5	L2	230	5.0	230	5.0	0.374	11.9	LOS B	2.5	64.8	0.60	0.67	0.60	34.9
2	T1	537	5.0	537	5.0	0.374	5.2	LOS A	2.7	69.0	0.58	0.57	0.58	35.9
12	R2	122	5.0	122	5.0	0.374	5.4	LOS A	2.7	69.0	0.57	0.52	0.57	35.1
Approach		899	5.0	899	5.0	0.374	7.1	LOS A	2.7	69.0	0.58	0.59	0.58	35.5
All Vehicles		2843	3.3	2843	3.3	0.529	9.7	LOS A	5.3	135.3	0.71	0.78	0.78	34.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	856	93	25	1097	25	15	0	129	10	0	35
Future Vol, veh/h	50	856	93	25	1097	25	15	0	129	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	856	93	25	1097	25	15	0	129	10	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1122	0	0	949	0	0	1602	2175	475	1688	2209	561
Stage 1	-	-	-	-	-	-	1003	1003	-	1160	1160	-
Stage 2	-	-	-	-	-	-	599	1172	-	528	1049	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	624	-	-	719	-	-	71	46	536	61	44	471
Stage 1	-	-	-	-	-	-	259	318	-	208	268	-
Stage 2	-	-	-	-	-	-	455	264	-	502	303	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	624	-	-	719	-	-	60	41	536	42	39	471
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	41	-	42	39	-
Stage 1	-	-	-	-	-	-	238	293	-	191	259	-
Stage 2	-	-	-	-	-	-	407	255	-	351	279	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	21.1	36.1
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	60	536	624	-	-	719	-	-	42	471
HCM Lane V/C Ratio	0.25	0.241	0.08	-	-	0.035	-	-	0.238	0.074
HCM Control Delay (s)	83.9	13.8	11.3	-	-	10.2	-	-	115.7	13.3
HCM Lane LOS	F	B	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.9	0.9	0.3	-	-	0.1	-	-	0.8	0.2

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	18	9	10	20	10	86	114	190	20	10	10
Future Vol, veh/h	9	18	9	10	20	10	86	114	190	20	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	18	9	10	20	10	86	114	190	20	10	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	27	0	0	96	91	23	238	90	25
Stage 1	-	-	-	-	-	-	41	41	-	45	45	-
Stage 2	-	-	-	-	-	-	55	50	-	193	45	-
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	1583	-	-	1587	-	-	887	799	1054	716	800	1051
Stage 1	-	-	-	-	-	-	974	861	-	969	857	-
Stage 2	-	-	-	-	-	-	957	853	-	809	857	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1587	-	-	862	789	1054	517	790	1051
Mov Cap-2 Maneuver	-	-	-	-	-	-	862	789	-	517	790	-
Stage 1	-	-	-	-	-	-	968	856	-	963	852	-
Stage 2	-	-	-	-	-	-	931	848	-	571	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.8	11.8	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	919	1583	-	-	1587	-	-	657
HCM Lane V/C Ratio	0.424	0.006	-	-	0.006	-	-	0.061
HCM Control Delay (s)	11.8	7.3	0	-	7.3	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	10

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	224	92	100	240	192	120
Future Vol, veh/h	224	92	100	240	192	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	224	92	100	240	192	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	316	0	710	270
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1256	-	400	769
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1256	-	363	769
Mov Cap-2 Maneuver	-	-	-	-	363	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	589	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	28.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	455	-	-	1256	-
HCM Lane V/C Ratio	0.686	-	-	0.08	-
HCM Control Delay (s)	28.5	-	-	8.1	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	5.1	-	-	0.3	-

MOVEMENT SUMMARY

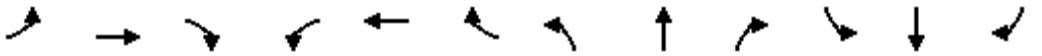
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	205	4.0	205	4.0	0.213	11.8	LOS B	1.3	33.0	0.57	0.71	0.57	31.6
8	T1	5	4.0	5	4.0	0.458	5.4	LOS A	3.7	95.0	0.65	0.64	0.65	32.6
18	R2	597	4.0	597	4.0	0.458	5.5	LOS A	3.7	95.0	0.65	0.64	0.65	33.4
Approach		807	4.0	807	4.0	0.458	7.1	LOS A	3.7	95.0	0.63	0.66	0.63	32.9
East: Britton Pkwy NE														
1	L2	687	5.0	687	5.0	0.440	10.9	LOS B	2.7	70.5	0.45	0.65	0.45	32.4
6	T1	380	5.0	380	5.0	0.440	5.0	LOS A	2.7	70.5	0.44	0.55	0.44	35.7
16	R2	1	5.0	1	5.0	0.440	5.0	LOS A	2.7	70.5	0.44	0.55	0.44	32.9
Approach		1068	5.0	1068	5.0	0.440	8.8	LOS A	2.7	70.5	0.45	0.61	0.45	33.7
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.010	12.5	LOS B	0.0	0.9	0.60	0.65	0.60	34.7
4	T1	5	0.0	5	0.0	0.010	6.7	LOS A	0.0	0.9	0.60	0.65	0.60	31.6
14	R2	1	0.0	1	0.0	0.010	6.6	LOS A	0.0	0.9	0.60	0.65	0.60	33.1
Approach		7	0.0	7	0.0	0.010	7.5	LOS A	0.0	0.9	0.60	0.65	0.60	32.5
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.619	14.9	LOS B	4.4	114.1	0.75	0.92	0.95	34.3
2	T1	347	4.0	347	4.0	0.619	8.7	LOS A	4.4	114.1	0.75	0.92	0.95	35.5
12	R2	170	4.0	170	4.0	0.619	8.8	LOS A	4.4	114.1	0.75	0.92	0.95	32.3
Approach		518	4.0	518	4.0	0.619	8.7	LOS A	4.4	114.1	0.75	0.92	0.95	34.6
All Vehicles		2400	4.4	2400	4.4	0.619	8.2	LOS A	4.4	114.1	0.58	0.69	0.62	33.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	1135	375	470	860	147	210	308	275	185	515	203
Future Volume (veh/h)	350	1135	375	470	860	147	210	308	275	185	515	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	350	1135	375	470	860	147	210	308	275	185	515	203
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1117	688	525	1165	199	217	440	614	211	574	225
Arrive On Green	0.08	0.31	0.31	0.15	0.38	0.38	0.12	0.23	0.23	0.12	0.23	0.23
Sat Flow, veh/h	1795	3582	1587	3456	3030	518	1795	1885	1594	1767	2471	970
Grp Volume(v), veh/h	350	1135	375	470	504	503	210	308	275	185	367	351
Grp Sat Flow(s),veh/h/ln	1795	1791	1587	1728	1777	1772	1795	1885	1594	1767	1763	1678
Q Serve(g_s), s	9.5	37.4	21.1	16.0	29.3	29.3	14.0	18.0	15.4	12.4	24.2	24.4
Cycle Q Clear(g_c), s	9.5	37.4	21.1	16.0	29.3	29.3	14.0	18.0	15.4	12.4	24.2	24.4
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	142	1117	688	525	683	681	217	440	614	211	409	390
V/C Ratio(X)	2.46	1.02	0.55	0.90	0.74	0.74	0.97	0.70	0.45	0.88	0.90	0.90
Avail Cap(c_a), veh/h	142	1117	688	562	683	681	217	463	634	214	433	413
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)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	41.3	25.3	50.0	31.7	31.7	52.5	42.1	27.4	51.9	44.7	44.7
Incr Delay (d2), s/veh	674.1	27.7	2.4	15.5	7.0	7.0	51.6	4.6	0.6	29.5	20.1	21.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.9	20.6	8.3	8.0	13.7	13.7	9.4	8.9	6.0	7.2	12.8	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	729.4	69.0	27.7	65.5	38.8	38.8	104.1	46.7	28.0	81.4	64.7	66.5
LnGrp LOS	F	F	C	E	D	D	F	D	C	F	E	E
Approach Vol, veh/h		1860			1477			793			903	
Approach Delay, s/veh		185.0			47.3			55.4			68.9	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.6	19.9	33.5	23.7	42.9	20.0	33.4
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	31.3	14.4	20.0	18.0	39.4	16.0	26.4
Green Ext Time (p_c), s	0.0	6.2	0.0	2.3	0.2	0.0	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	103.3
HCM 6th LOS	F

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	940	215	140	925	50	160	262	100	105	373	678
Future Volume (veh/h)	390	940	215	140	925	50	160	262	100	105	373	678
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	390	940	215	140	925	50	160	262	100	105	373	678
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	285	1039	237	167	999	54	177	700	260	130	449	397
Arrive On Green	0.16	0.36	0.36	0.09	0.29	0.29	0.10	0.28	0.28	0.07	0.25	0.25
Sat Flow, veh/h	1795	2893	661	1795	3454	187	1767	2509	932	1795	1791	1582
Grp Volume(v), veh/h	390	581	574	140	480	495	160	182	180	105	373	678
Grp Sat Flow(s),veh/h/ln	1795	1791	1762	1795	1791	1850	1767	1763	1678	1795	1791	1582
Q Serve(g_s), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	9.9	10.4	6.9	23.6	30.0
Cycle Q Clear(g_c), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	9.9	10.4	6.9	23.6	30.0
Prop In Lane	1.00		0.37	1.00		0.10	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	285	644	633	167	518	535	177	492	468	130	449	397
V/C Ratio(X)	1.37	0.90	0.91	0.84	0.93	0.93	0.90	0.37	0.38	0.81	0.83	1.71
Avail Cap(c_a), veh/h	285	644	633	218	532	549	177	492	468	180	449	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	36.3	36.4	53.4	41.3	41.3	53.2	34.7	34.8	54.7	42.4	44.8
Incr Delay (d2), s/veh	186.2	16.2	16.7	15.8	22.2	21.7	40.2	0.5	0.5	12.0	12.4	329.3
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	23.3	18.7	18.6	4.9	16.8	17.2	6.7	4.3	4.3	3.5	11.9	48.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	236.5	52.5	53.1	69.2	63.4	62.9	93.4	35.1	35.4	66.6	54.8	374.1
LnGrp LOS	F	D	D	E	E	E	F	D	D	E	D	F
Approach Vol, veh/h		1545			1115			522			1156	
Approach Delay, s/veh		99.2			63.9			53.1			243.1	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	40.6	14.7	39.3	16.6	49.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	33.1	8.9	12.4	11.2	39.0	12.7	32.0
Green Ext Time (p_c), s	0.0	1.5	0.0	2.0	0.1	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	122.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

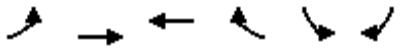
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1817	5	10	1294	30	70	5	38	55	5	30
Future Volume (veh/h)	40	1817	5	10	1294	30	70	5	38	55	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	1817	0	10	1294	30	70	5	38	55	5	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	2711		17	2678	62	154	203	172	194	15	172
Arrive On Green	0.05	1.00	0.00	0.01	0.75	0.75	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3582	1598	1781	3550	82	1373	1870	1585	1252	140	1585
Grp Volume(v), veh/h	40	1817	0	10	647	677	70	5	38	60	0	30
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1856	1373	1870	1585	1392	0	1585
Q Serve(g_s), s	1.3	0.0	0.0	0.7	16.9	16.9	6.0	0.3	2.6	4.6	0.0	2.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.7	16.9	16.9	10.8	0.3	2.6	4.8	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	85	2711		17	1340	1399	154	203	172	209	0	172
V/C Ratio(X)	0.47	0.67		0.59	0.48	0.48	0.45	0.02	0.22	0.29	0.00	0.17
Avail Cap(c_a), veh/h	290	2711		82	1340	1399	474	639	542	534	0	542
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.3	0.0	0.0	59.2	5.7	5.7	54.9	47.8	48.8	49.8	0.0	48.6
Incr Delay (d2), s/veh	2.7	1.2	0.0	11.1	0.6	0.6	1.5	0.0	0.5	0.6	0.0	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	0.6	0.5	0.0	0.4	5.6	5.9	2.1	0.1	1.1	1.7	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	1.2	0.0	70.3	6.3	6.3	56.4	47.8	49.3	50.4	0.0	48.9
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1857			1334			113			90	
Approach Delay, s/veh		2.5			6.8			53.6			49.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	96.0		17.0	6.6	96.3		17.0
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0
Max Q Clear Time (g_c+I1), s	3.3	18.9		12.8	2.7	2.0		6.8
Green Ext Time (p_c), s	0.0	14.4		0.2	0.0	30.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Notes

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1858	1314	25	39	50
Future Volume (veh/h)	50	1858	1314	25	39	50
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	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	1858	1314	25	39	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	878	4502	1443	27	82	73
Arrive On Green	0.42	0.87	0.81	0.81	0.05	0.05
Sat Flow, veh/h	1795	5316	3661	68	1781	1585
Grp Volume(v), veh/h	50	1858	654	685	39	50
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1858	1781	1585
Q Serve(g_s), s	0.0	8.5	32.0	32.1	2.6	3.7
Cycle Q Clear(g_c), s	0.0	8.5	32.0	32.1	2.6	3.7
Prop In Lane	1.00			0.04	1.00	1.00
Lane Grp Cap(c), veh/h	878	4502	719	752	82	73
V/C Ratio(X)	0.06	0.41	0.91	0.91	0.47	0.68
Avail Cap(c_a), veh/h	878	4502	1029	1076	416	370
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.87	0.87	1.00	1.00
Uniform Delay (d), s/veh	13.2	1.5	9.9	9.9	55.8	56.4
Incr Delay (d2), s/veh	0.0	0.3	15.9	15.4	1.6	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	7.2	7.4	1.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.2	1.8	25.7	25.3	57.4	60.5
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1908	1339		89	
Approach Delay, s/veh		2.1	25.5		59.1	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	16.4	54.0			110.5	9.5
Change Period (Y+Rc), s	5.5	5.5			5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5			82.5	28.0
Max Q Clear Time (g_c+I1), s	12.0	34.1			10.5	5.7
Green Ext Time (p_c), s	0.0	14.4			32.4	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

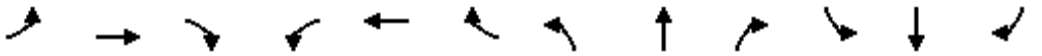
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	655	1065	0	0	1299	70	15	0	862	0	0	0
Future Volume (veh/h)	655	1065	0	0	1299	70	15	0	862	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	655	1065	0	0	1299	0	15	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3251	0	0	1982		24	0				
Arrive On Green	0.10	0.30	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	655	1065	0	0	1299	0	15	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	27.7	0.0	0.0	30.6	0.0	1.0	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	27.7	0.0	0.0	30.6	0.0	1.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3251	0	0	1982		24	0				
V/C Ratio(X)	1.20	0.33	0.00	0.00	0.66		0.64	0.00				
Avail Cap(c_a), veh/h	546	3251	0	0	1982		389	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	54.0	13.6	0.0	0.0	18.5	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	91.5	0.0	0.0	0.0	1.7	0.0	25.1	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			
%ile BackOfQ(50%),veh/ln	31.5	13.3	0.0	0.0	12.6	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.5	13.6	0.0	0.0	20.2	0.0	84.0	0.0	0.0			
LnGrp LOS	F	B	A	A	C		F	A				
Approach Vol, veh/h		1720			1299			15				
Approach Delay, s/veh		63.8			20.2			84.0				
Approach LOS		E			C			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.4		5.6		114.4			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	32.6		3.0		29.7			
Green Ext Time (p_c), s	0.0	6.7		0.0		12.4			

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1665	355	445	889	0	0	0	0	85	5	675
Future Volume (vph)	0	1665	355	445	889	0	0	0	0	85	5	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1792	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1792	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1665	355	445	889	0	0	0	0	85	5	675
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	0	34
Lane Group Flow (vph)	0	1665	149	445	889	0	0	0	0	0	90	641
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	38.1	47.1						16.4	63.4
Effective Green, g (s)		50.5	50.5	38.1	47.1						16.4	63.4
Actuated g/C Ratio		0.42	0.42	0.32	0.39						0.14	0.53
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	561	1389						244	844
v/s Ratio Prot		c0.47		c0.25	0.25							c0.40
v/s Ratio Perm			0.09								0.05	
v/c Ratio		1.11	0.22	0.79	0.64						0.37	0.76
Uniform Delay, d1		34.8	22.2	37.4	29.6						47.1	22.3
Progression Factor		0.76	0.81	0.41	0.14						1.00	1.00
Incremental Delay, d2		54.7	0.5	0.7	0.2						1.1	4.2
Delay (s)		81.3	18.4	15.9	4.4						48.2	26.5
Level of Service		F	B	B	A						D	C
Approach Delay (s)		70.2			8.3			0.0			29.0	
Approach LOS		E			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	961	365	623	767	185	260	360	876	175	315	110
Future Volume (veh/h)	75	961	365	623	767	185	260	360	876	175	315	110
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		0.98	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	961	0	623	767	0	260	360	876	175	315	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	90	1184		698	1729		254	353	1084	204	394	135
Arrive On Green	0.05	0.33	0.00	0.34	0.81	0.00	0.14	0.19	0.19	0.11	0.15	0.15
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2752	1795	2607	892
Grp Volume(v), veh/h	75	961	0	623	767	0	260	360	876	175	214	211
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1376	1795	1791	1708
Q Serve(g_s), s	5.0	29.5	0.0	20.5	7.6	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Cycle Q Clear(g_c), s	5.0	29.5	0.0	20.5	7.6	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	90	1184		698	1729		254	353	1084	204	270	258
V/C Ratio(X)	0.84	0.81		0.89	0.44		1.02	1.02	0.81	0.86	0.79	0.82
Avail Cap(c_a), veh/h	90	1184		850	1729		254	353	1084	359	358	342
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.66	0.66	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	36.8	0.0	38.5	6.5	0.0	51.5	48.8	32.8	52.2	49.1	49.3
Incr Delay (d2), s/veh	44.4	6.1	0.0	7.4	0.5	0.0	62.3	52.7	4.5	4.1	6.2	8.4
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	3.4	13.8	0.0	8.4	2.3	0.0	12.0	15.7	11.9	5.4	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.9	42.9	0.0	45.9	7.0	0.0	113.8	101.5	37.3	56.3	55.4	57.7
LnGrp LOS	F	D		D	A		F	F	D	E	E	E
Approach Vol, veh/h		1036			1390			1496			600	
Approach Delay, s/veh		47.1			24.5			66.0			56.5	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	63.9	17.6	27.5	29.7	45.2	22.0	23.1
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	7.0	9.6	13.5	24.5	22.5	31.5	19.0	16.3
Green Ext Time (p_c), s	0.0	7.5	0.2	0.0	1.7	0.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Village Alternative 1)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	80	2.0	0.221	13.5	LOS B	0.9	23.9	0.69	0.86	0.69	35.6
8	T1	5	2.0	5	2.0	0.221	6.6	LOS A	0.9	23.9	0.69	0.86	0.69	35.2
18	R2	75	2.0	75	2.0	0.221	6.8	LOS A	0.9	23.9	0.69	0.86	0.69	34.0
Approach		160	2.0	160	2.0	0.221	10.2	LOS B	0.9	23.9	0.69	0.86	0.69	34.8
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.616	14.5	LOS B	5.3	132.6	0.60	0.51	0.60	38.0
1	L2	90	1.0	90	1.0	0.616	11.8	LOS B	5.3	132.6	0.60	0.51	0.60	36.9
6	T1	1609	1.0	1609	1.0	0.616	4.6	LOS A	5.4	136.3	0.57	0.47	0.57	36.8
16	R2	75	1.0	75	1.0	0.616	4.8	LOS A	5.4	136.3	0.55	0.45	0.55	35.5
Approach		1779	1.0	1779	1.0	0.616	5.0	LOS A	5.4	136.3	0.57	0.47	0.57	36.7
North: Lacey St SE														
7	L2	30	2.0	30	2.0	0.199	14.5	LOS B	0.9	23.0	0.76	0.87	0.76	35.9
4	T1	5	2.0	5	2.0	0.199	7.6	LOS A	0.9	23.0	0.76	0.87	0.76	35.5
14	R2	80	2.0	80	2.0	0.199	7.8	LOS A	0.9	23.0	0.76	0.87	0.76	34.2
Approach		115	2.0	115	2.0	0.199	9.5	LOS A	0.9	23.0	0.76	0.87	0.76	34.7
SouthWest: Lacey Blvd SE														
5bx	L3	60	1.0	60	1.0	0.575	12.3	LOS B	4.3	108.7	0.42	0.46	0.42	38.4
5ax	L1	75	1.0	75	1.0	0.575	9.6	LOS A	4.3	108.7	0.42	0.46	0.42	37.0
12ax	R1	1411	1.0	1411	1.0	0.575	3.7	LOS A	4.4	110.3	0.41	0.43	0.41	37.2
12bx	R3	60	1.0	60	1.0	0.575	4.4	LOS A	4.4	110.3	0.40	0.41	0.40	35.9
Approach		1606	1.0	1606	1.0	0.575	4.3	LOS A	4.4	110.3	0.41	0.43	0.41	37.2
All Vehicles		3660	1.1	3660	1.1	0.616	5.1	LOS A	5.4	136.3	0.51	0.49	0.51	36.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	295	5	85	310	69	10	40	165	39	20	5
Future Vol, veh/h	5	295	5	85	310	69	10	40	165	39	20	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	2	2	2
Mvmt Flow	5	295	5	85	310	69	10	40	165	39	20	5
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

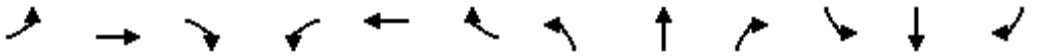
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	13.1	18	10.7	10.6
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	0%	2%	18%	61%
Vol Thru, %	80%	0%	97%	67%	31%
Vol Right, %	0%	100%	2%	15%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	165	305	464	64
LT Vol	10	0	5	85	39
Through Vol	40	0	295	310	20
RT Vol	0	165	5	69	5
Lane Flow Rate	50	165	305	464	64
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.094	0.271	0.461	0.667	0.117
Departure Headway (Hd)	6.735	5.919	5.439	5.176	6.6
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	531	604	662	696	540
Service Time	4.495	3.679	3.488	3.219	4.676
HCM Lane V/C Ratio	0.094	0.273	0.461	0.667	0.119
HCM Control Delay	10.2	10.9	13.1	18	10.6
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.1	2.4	5.1	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	244	99	540	185	84	355
Future Volume (veh/h)	244	99	540	185	84	355
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	1885	1885	1900	1900	1870	1870
Adj Flow Rate, veh/h	244	99	540	185	84	355
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	0	0	2	2
Cap, veh/h	335	298	845	716	128	1151
Arrive On Green	0.19	0.19	0.44	0.44	0.07	0.62
Sat Flow, veh/h	1795	1598	1900	1610	1781	1870
Grp Volume(v), veh/h	244	99	540	185	84	355
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1781	1870
Q Serve(g_s), s	5.8	2.4	10.0	3.3	2.1	4.1
Cycle Q Clear(g_c), s	5.8	2.4	10.0	3.3	2.1	4.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	335	298	845	716	128	1151
V/C Ratio(X)	0.73	0.33	0.64	0.26	0.66	0.31
Avail Cap(c_a), veh/h	711	632	845	716	196	1151
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	17.4	16.0	9.8	7.9	20.6	4.1
Incr Delay (d2), s/veh	3.0	0.6	3.7	0.9	5.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.8	4.0	1.0	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.5	16.7	13.5	8.8	26.1	4.8
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	343		725			439
Approach Delay, s/veh	19.4		12.3			8.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.8	24.7				32.5	13.0
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	5.8	18.5				28.0	18.0
Max Q Clear Time (g_c+I1), s	4.1	12.0				6.1	7.8
Green Ext Time (p_c), s	0.0	2.3				2.1	0.8

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	789	345	355	728	80	225	485	268	105	305	110
Future Volume (vph)	175	789	345	355	728	80	225	485	268	105	305	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1564	1752	3505	1534	1595	3350	1537	1626	3274	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	3574	1564	1752	3505	1534	1595	3350	1537	1626	3274	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	789	345	355	728	80	225	485	268	105	305	110
RTOR Reduction (vph)	0	0	239	0	0	54	0	0	211	0	24	0
Lane Group Flow (vph)	175	789	106	355	728	26	202	508	57	94	402	0
Confl. Peds. (#/hr)	9		8	8		9	3		7	7		3
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.8	32.1	32.1	22.3	38.6	38.6	25.9	25.9	25.9	20.5	20.5	
Effective Green, g (s)	15.8	32.1	32.1	22.3	38.6	38.6	25.9	25.9	25.9	20.5	20.5	
Actuated g/C Ratio	0.13	0.27	0.27	0.18	0.32	0.32	0.21	0.21	0.21	0.17	0.17	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	233	949	415	323	1119	490	341	718	329	275	555	
v/s Ratio Prot	0.10	c0.22		c0.20	0.21		0.13	c0.15		0.06	c0.12	
v/s Ratio Perm			0.07			0.02			0.04			
v/c Ratio	0.75	0.83	0.25	1.10	0.65	0.05	0.59	0.71	0.17	0.34	0.72	
Uniform Delay, d1	50.6	41.8	34.9	49.2	35.3	28.4	42.7	43.9	38.7	44.2	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.2	6.2	0.2	79.3	1.2	0.0	2.3	3.0	0.2	0.5	4.4	
Delay (s)	62.8	48.0	35.2	128.6	36.5	28.5	45.0	46.9	38.9	44.7	51.8	
Level of Service	E	D	D	F	D	C	D	D	D	D	D	
Approach Delay (s)		46.6			64.1			44.3			50.6	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	858	0	0	1090	326	205	0	555	0	0	0
Future Volume (veh/h)	238	858	0	0	1090	326	205	0	555	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	238	858	0	0	1090	0	205	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	273	2673	0	0	1913		254	0				
Arrive On Green	0.15	0.75	0.00	0.00	0.54	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	238	858	0	0	1090	0	205	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	11.7	7.2	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	11.7	7.2	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	273	2673	0	0	1913		254	0				
V/C Ratio(X)	0.87	0.32	0.00	0.00	0.57		0.81	0.00				
Avail Cap(c_a), veh/h	299	2673	0	0	1913		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.3	3.8	0.0	0.0	13.8	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	21.3	0.3	0.0	0.0	1.2	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	6.6	2.1	0.0	0.0	7.1	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	4.1	0.0	0.0	15.1	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1096			1090			205				
Approach Delay, s/veh		16.0			15.1			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.7	53.5		17.8		72.2						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0						
Max Q Clear Time (g_c+I1), s	13.7	20.4		12.0		9.2						
Green Ext Time (p_c), s	0.1	5.9		0.7		6.0						

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

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	843	305	0	850	0	0	0	0	253	5	383
Future Volume (veh/h)	0	843	305	0	850	0	0	0	0	253	5	383
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	843	0	0	850	0				253	5	383
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2222		0	2205	0				469	9	425
Arrive On Green	0.00	0.62	0.00	0.00	0.62	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	3770	0	0	3741	0				1748	35	1585
Grp Volume(v), veh/h	0	843	0	0	850	0				258	0	383
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.5	0.0	0.0	10.7	0.0				11.1	0.0	21.0
Cycle Q Clear(g_c), s	0.0	10.5	0.0	0.0	10.7	0.0				11.1	0.0	21.0
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2222		0	2205	0				479	0	425
V/C Ratio(X)	0.00	0.38		0.00	0.39	0.00				0.54	0.00	0.90
Avail Cap(c_a), veh/h	0	2222		0	2205	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	0.0	0.0	8.5	0.0				28.2	0.0	31.8
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.7	0.0	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	0.0	0.0	3.8	0.0				4.7	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.0	0.0	0.0	9.0	0.0				28.9	0.0	49.0
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		843			850						641	
Approach Delay, s/veh		9.0			9.0						40.9	
Approach LOS		A			A						D	

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	60.8	60.8	29.2
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	52.0	52.0	28.0
Max Q Clear Time (g_c+I1), s	12.7	12.5	23.0
Green Ext Time (p_c), s	5.8	5.8	1.2

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

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	856	139	0	1147	0	48
Future Vol, veh/h	856	139	0	1147	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	856	139	0	1147	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	498
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	518
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	518
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	518	-	-	-
HCM Lane V/C Ratio	0.093	-	-	-
HCM Control Delay (s)	12.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	884	9	0	937	0	10
Future Vol, veh/h	884	9	0	937	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	884	9	0	937	0	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	447
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	559
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	559
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	559	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-
HCM Control Delay (s)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	890	20	0	996	0	20
Future Vol, veh/h	890	20	0	996	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	890	20	0	996	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	455
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	552
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	552
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	552	-	-	-
HCM Lane V/C Ratio	0.036	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	109	0	2107	2214	8
Future Vol, veh/h	0	109	0	2107	2214	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	109	0	2107	2214	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1111	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	175	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	175	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	54.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	175	-	-
HCM Lane V/C Ratio	-	0.623	-	-
HCM Control Delay (s)	-	54.6	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	3.5	-	-

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	230	0.0	256	0.0	0.274	10.6	LOS B	1.7	41.5	0.40	0.62	0.40	34.8
8	T1	450	0.0	500	0.0	0.274	4.7	LOS A	1.7	42.9	0.39	0.48	0.39	36.2
18	R2	5	0.0	6	0.0	0.274	4.8	LOS A	1.7	42.9	0.38	0.45	0.38	35.4
Approach		685	0.0	761	0.0	0.274	6.7	LOS A	1.7	42.9	0.39	0.53	0.39	35.7
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.354	14.8	LOS B	1.5	38.3	0.59	0.80	0.62	35.4
1	L2	140	3.0	156	3.0	0.354	12.4	LOS B	1.5	38.3	0.59	0.80	0.62	34.7
6	T1	85	3.0	94	3.0	0.354	6.6	LOS A	1.5	38.3	0.59	0.80	0.62	34.6
16	R2	40	3.0	44	3.0	0.354	6.6	LOS A	1.5	38.3	0.59	0.80	0.62	33.7
Approach		270	3.0	300	3.0	0.354	9.7	LOS A	1.5	38.3	0.59	0.80	0.62	34.5
North: Marvin Rd NE														
7	L2	20	2.0	22	2.0	0.233	12.4	LOS B	1.4	34.8	0.62	0.66	0.62	35.5
4	T1	324	2.0	360	2.0	0.233	6.5	LOS A	1.5	37.4	0.61	0.64	0.61	35.7
14	R2	110	2.0	122	2.0	0.233	6.3	LOS A	1.5	37.4	0.60	0.62	0.60	34.8
Approach		454	2.0	504	2.0	0.233	6.7	LOS A	1.5	37.4	0.61	0.64	0.61	35.5
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.312	14.0	LOS B	1.3	34.6	0.52	0.73	0.52	36.1
5	L2	115	3.0	128	3.0	0.312	11.6	LOS B	1.3	34.6	0.52	0.73	0.52	35.3
2	T1	20	3.0	22	3.0	0.312	5.8	LOS A	1.3	34.6	0.52	0.73	0.52	35.2
12	R2	124	3.0	138	3.0	0.312	5.8	LOS A	1.3	34.6	0.52	0.73	0.52	34.2
Approach		264	3.0	293	3.0	0.312	8.5	LOS A	1.3	34.6	0.52	0.73	0.52	34.8
All Vehicles		1673	1.5	1859	1.5	0.354	7.5	LOS A	1.7	42.9	0.50	0.63	0.51	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	435	2.0	453	2.0	0.691	13.8	LOS B	5.6	143.3	0.76	0.93	0.93	34.0
8	T1	886	2.0	923	2.0	0.691	7.3	LOS A	5.8	147.8	0.75	0.78	0.90	35.1
18	R2	65	2.0	68	2.0	0.691	7.2	LOS A	5.8	147.8	0.74	0.74	0.89	34.3
Approach		1386	2.0	1444	2.0	0.691	9.3	LOS A	5.8	147.8	0.75	0.83	0.91	34.7
East: Britton Pkwy NE														
1	L2	462	4.0	481	4.0	0.772	19.2	LOS B	6.7	172.6	0.94	1.15	1.45	31.1
6	T1	376	4.0	392	4.0	0.772	15.6	LOS B	6.7	172.6	0.91	1.12	1.45	31.8
16	R2	35	4.0	36	4.0	0.772	16.1	LOS B	5.7	147.6	0.91	1.11	1.45	31.0
Approach		873	4.0	909	4.0	0.772	17.6	LOS B	6.7	172.6	0.93	1.13	1.45	31.4
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	0.943	43.6	LOS D	13.2	340.0	1.00	1.50	2.54	25.5
7	L2	70	4.0	73	4.0	0.943	41.0	LOS D	13.2	340.0	1.00	1.50	2.54	25.0
4	T1	818	4.0	852	4.0	0.943	33.0	LOS D	16.1	414.6	1.00	1.53	2.57	25.7
14	R2	150	4.0	156	4.0	0.943	31.3	LOS D	16.1	414.6	1.00	1.56	2.59	25.6
Approach		1048	4.0	1092	4.0	0.943	33.4	LOS C	16.1	414.6	1.00	1.53	2.57	25.6
West: Britton Pkwy NE														
5u	U	15	5.0	16	5.0	0.304	16.8	LOS B	1.6	42.3	0.81	0.90	0.81	34.2
5	L2	116	5.0	121	5.0	0.304	14.2	LOS B	1.6	42.3	0.81	0.90	0.81	33.4
2	T1	283	5.0	295	5.0	0.304	7.7	LOS A	2.1	54.0	0.87	0.74	0.87	34.6
12	R2	327	5.0	341	5.0	0.377	7.3	LOS A	2.6	66.7	0.86	0.84	0.88	34.5
Approach		741	5.0	772	5.0	0.377	8.7	LOS A	2.6	66.7	0.86	0.81	0.87	34.4
All Vehicles		4048	3.5	4217	3.5	0.943	17.2	LOS B	16.1	414.6	0.87	1.07	1.45	31.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

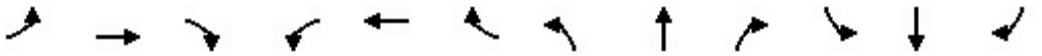
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	335	3.0	368	3.0	0.684	12.9	LOS B	8.3	212.2	0.40	0.54	0.40	26.9
3	L2	178	3.0	196	3.0	0.684	10.4	LOS B	8.3	212.2	0.40	0.54	0.40	33.2
8	T1	1355	3.0	1489	3.0	0.684	4.3	LOS A	8.3	212.2	0.37	0.42	0.37	32.6
18	R2	15	3.0	16	3.0	0.684	4.4	LOS A	8.3	211.3	0.36	0.38	0.36	34.0
Approach		1883	3.0	2069	3.0	0.684	6.4	LOS A	8.3	212.2	0.38	0.46	0.38	31.6
East: Main St NE														
1	L2	10	0.0	11	0.0	0.064	15.6	LOS B	0.3	7.1	0.76	0.87	0.76	32.1
6	T1	1	0.0	1	0.0	0.064	9.6	LOS A	0.3	7.1	0.76	0.87	0.76	34.0
16	R2	20	0.0	22	0.0	0.064	9.6	LOS A	0.3	7.1	0.76	0.87	0.76	31.3
Approach		31	0.0	34	0.0	0.064	11.6	LOS B	0.3	7.1	0.76	0.87	0.76	31.7
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.829	25.6	LOS C	13.6	347.0	1.00	1.22	1.64	27.1
7	L2	15	3.0	16	3.0	0.829	23.0	LOS C	13.6	347.0	1.00	1.22	1.64	29.4
4	T1	1486	3.0	1633	3.0	0.829	15.6	LOS B	14.9	382.3	1.00	1.18	1.59	25.9
14	R2	26	3.0	29	3.0	0.829	14.6	LOS B	14.9	382.3	1.00	1.14	1.55	29.6
Approach		1532	3.0	1684	3.0	0.829	15.6	LOS B	14.9	382.3	1.00	1.18	1.59	26.0
West: Main St NE														
5	L2	26	0.0	29	0.0	0.146	16.1	LOS B	0.9	22.0	0.91	0.95	0.91	32.2
2	T1	1	0.0	1	0.0	0.146	10.0	LOS B	0.9	22.0	0.91	0.95	0.91	33.6
12	R2	258	0.0	284	0.0	0.146	4.4	LOS A	0.9	22.0	0.13	0.50	0.13	35.4
Approach		285	0.0	313	0.0	0.146	5.5	LOS A	0.9	22.0	0.20	0.55	0.20	35.0
All Vehicles		3731	2.7	4100	2.7	0.829	10.2	LOS B	14.9	382.3	0.62	0.76	0.87	29.5

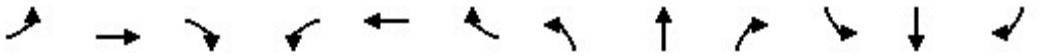
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	375	0	0	648	0	1395	1246	0	1720	435
Future Volume (vph)	0	0	375	0	0	648	0	1395	1246	0	1720	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frt			0.85			0.85		0.96	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3269	1441		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3269	1441		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	375	0	0	648	0	1395	1246	0	1720	435
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	375	0	0	648	0	1831	810	0	1720	435
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1702	1441		1282	1583
v/s Ratio Prot			0.13			0.23		c0.56			c0.49	
v/s Ratio Perm									0.56			0.27
v/c Ratio			0.25			0.60		1.08	0.56		1.34	0.27
Uniform Delay, d1			14.8			29.3		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.63	1.00		1.00	1.00
Incremental Delay, d2			0.1			0.9		39.9	0.7		159.1	0.4
Delay (s)			14.9			30.3		57.8	0.7		197.3	0.4
Level of Service			B			C		E	A		F	A
Approach Delay (s)		14.9			30.3			40.3			157.6	
Approach LOS		B			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	81.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

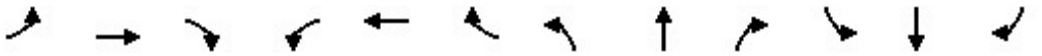
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	260	0	0	699	0	1942	275	0	1642	453
Future Volume (vph)	0	0	260	0	0	699	0	1942	275	0	1642	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	260	0	0	699	0	1942	275	0	1642	453
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	260	0	0	699	0	1942	275	0	1642	453
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			624			1498		1885	1583		1843	1583
v/s Ratio Prot			0.16			0.25		c0.38			c0.46	
v/s Ratio Perm									0.17			0.29
v/c Ratio			0.42			0.47		1.03	0.17		0.89	0.29
Uniform Delay, d1			26.8			17.1		37.8	0.0		25.7	0.0
Progression Factor			1.00			1.00		0.85	1.00		0.58	1.00
Incremental Delay, d2			0.5			0.2		23.1	0.1		0.7	0.0
Delay (s)			27.3			17.4		55.3	0.1		15.6	0.0
Level of Service			C			B		E	A		B	A
Approach Delay (s)		27.3			17.4			48.5			12.3	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



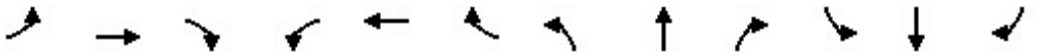
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	175	140	80	70	320	90	1310	65	284	1158	380
Future Volume (veh/h)	557	175	140	80	70	320	90	1310	65	284	1158	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	557	175	140	80	70	320	90	1310	65	284	1158	380
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	633	208	167	75	134	339	104	1425	71	254	1781	775
Arrive On Green	0.18	0.22	0.22	0.04	0.07	0.07	0.06	0.41	0.41	0.14	0.50	0.50
Sat Flow, veh/h	3483	968	775	1795	1885	1584	1781	3441	170	1795	3582	1557
Grp Volume(v), veh/h	557	0	315	80	70	320	90	675	700	284	1158	380
Grp Sat Flow(s),veh/h/ln	1742	0	1743	1795	1885	1584	1781	1777	1835	1795	1791	1557
Q Serve(g_s), s	18.7	0.0	20.8	5.0	4.3	8.5	6.0	43.1	43.3	17.0	28.8	19.5
Cycle Q Clear(g_c), s	18.7	0.0	20.8	5.0	4.3	8.5	6.0	43.1	43.3	17.0	28.8	19.5
Prop In Lane	1.00		0.44	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	633	0	375	75	134	339	104	736	760	254	1781	775
V/C Ratio(X)	0.88	0.00	0.84	1.07	0.52	0.95	0.87	0.92	0.92	1.12	0.65	0.49
Avail Cap(c_a), veh/h	682	0	392	75	134	339	104	736	760	254	1781	775
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	1.00	1.00	0.36	0.36	0.36	0.45	0.45	0.45
Uniform Delay (d), s/veh	47.8	0.0	45.1	57.5	53.8	46.6	56.0	33.2	33.3	51.5	22.4	20.1
Incr Delay (d2), s/veh	13.4	0.0	16.2	124.3	7.0	35.4	24.5	8.1	8.1	74.1	0.8	1.0
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	9.3	0.0	10.6	4.9	2.3	12.7	3.4	19.8	20.5	12.8	12.1	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.2	0.0	61.3	181.8	60.8	82.0	80.6	41.3	41.4	125.6	23.2	21.1
LnGrp LOS	E	A	E	F	E	F	F	D	D	F	C	C
Approach Vol, veh/h		872			470			1465			1822	
Approach Delay, s/veh		61.2			95.9			43.8			38.7	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	65.7	27.3	14.0	23.0	55.7	10.0	31.3
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	23.5	* 8.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	8.0	30.8	20.7	10.5	19.0	45.3	7.0	22.8
Green Ext Time (p_c), s	0.0	19.8	1.1	0.0	0.0	2.8	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Notes

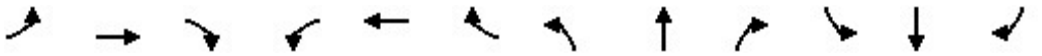
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	55	150	165	55	144	180	1115	175	169	1113	85
Future Volume (veh/h)	135	55	150	165	55	144	180	1115	175	169	1113	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	135	55	150	165	55	144	180	1115	175	169	1113	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	198	66	179	192	66	172	224	1223	191	351	1583	121
Arrive On Green	0.11	0.15	0.15	0.11	0.14	0.14	0.13	0.40	0.40	0.06	0.15	0.15
Sat Flow, veh/h	1810	446	1217	1795	457	1196	1767	3054	478	1795	3372	257
Grp Volume(v), veh/h	135	0	205	165	0	199	180	642	648	169	591	607
Grp Sat Flow(s),veh/h/ln	1810	0	1663	1795	0	1652	1767	1763	1769	1795	1791	1839
Q Serve(g_s), s	8.6	0.0	14.4	10.8	0.0	14.1	11.9	41.2	41.6	10.9	37.5	37.6
Cycle Q Clear(g_c), s	8.6	0.0	14.4	10.8	0.0	14.1	11.9	41.2	41.6	10.9	37.5	37.6
Prop In Lane	1.00		0.73	1.00		0.72	1.00		0.27	1.00		0.14
Lane Grp Cap(c), veh/h	198	0	245	192	0	238	224	706	709	351	841	863
V/C Ratio(X)	0.68	0.00	0.84	0.86	0.00	0.83	0.80	0.91	0.91	0.48	0.70	0.70
Avail Cap(c_a), veh/h	198	0	333	195	0	330	224	734	737	351	841	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.68	0.68	0.68
Uniform Delay (d), s/veh	51.4	0.0	49.8	52.7	0.0	50.0	50.9	33.9	34.0	50.2	42.8	42.8
Incr Delay (d2), s/veh	8.6	0.0	11.7	29.6	0.0	11.0	18.3	15.2	15.7	0.5	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	6.8	6.5	0.0	6.5	6.4	20.3	20.6	5.3	18.5	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	0.0	61.5	82.3	0.0	61.0	69.2	49.1	49.7	50.8	44.6	44.6
LnGrp LOS	E	A	E	F	A	E	E	D	D	D	D	D
Approach Vol, veh/h		340			364			1470			1367	
Approach Delay, s/veh		60.9			70.6			51.8			45.4	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	61.3	17.1	21.3	28.5	53.1	16.8	21.6
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	15.0	50.0	13.0	24.0	15.0	50.0	13.0	24.0
Max Q Clear Time (g_c+I1), s	13.9	39.6	10.6	16.1	12.9	43.6	12.8	16.4
Green Ext Time (p_c), s	0.0	6.2	0.1	0.6	0.1	4.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	52.1
HCM 6th LOS	D



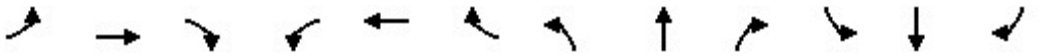
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	398	610	465	475	645	324	305	753	250	309	1034	265
Future Volume (veh/h)	398	610	465	475	645	324	305	753	250	309	1034	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	398	610	0	475	645	0	305	753	250	309	1034	265
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	502	696		529	725		332	789	262	335	1081	481
Arrive On Green	0.14	0.19	0.00	0.15	0.20	0.00	0.18	0.30	0.30	0.19	0.30	0.30
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2640	876	1810	3610	1607
Grp Volume(v), veh/h	398	610	0	475	645	0	305	511	492	309	1034	265
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1725	1810	1805	1607
Q Serve(g_s), s	13.2	19.8	0.0	15.9	20.9	0.0	20.0	33.6	33.6	20.1	33.7	16.6
Cycle Q Clear(g_c), s	13.2	19.8	0.0	15.9	20.9	0.0	20.0	33.6	33.6	20.1	33.7	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	502	696		529	725		332	535	516	335	1081	481
V/C Ratio(X)	0.79	0.88		0.90	0.89		0.92	0.95	0.95	0.92	0.96	0.55
Avail Cap(c_a), veh/h	551	761		556	767		332	537	518	335	1083	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	46.9	0.0	50.0	46.7	0.0	48.0	41.3	41.3	48.0	41.3	35.3
Incr Delay (d2), s/veh	6.2	10.8	0.0	16.2	12.3	0.0	29.3	29.1	29.9	29.4	18.7	4.5
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	6.1	9.8	0.0	8.1	10.5	0.0	11.6	19.0	18.4	11.8	17.6	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.9	57.8	0.0	66.2	58.9	0.0	77.4	70.4	71.1	77.4	60.0	39.7
LnGrp LOS	E	E		E	E		E	E	E	E	E	D
Approach Vol, veh/h		1008			1120			1308			1608	
Approach Delay, s/veh		57.0			62.0			72.3			60.0	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.2	40.9	22.3	29.6	27.2	40.9	23.1	28.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	19.0	36.0	19.0	25.5	19.0	36.0	19.0	25.5
Max Q Clear Time (g_c+I1), s	22.0	35.7	15.2	22.9	22.1	35.6	17.9	21.8
Green Ext Time (p_c), s	0.0	0.2	0.3	1.2	0.0	0.3	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	63.0
HCM 6th LOS	E

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	220	30	160	275	205	25	748	30	300	1244	230
Future Volume (veh/h)	150	220	30	160	275	205	25	748	30	300	1244	230
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	150	220	30	160	275	205	25	748	30	300	1244	230
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	184	401	55	192	254	190	54	921	37	340	1273	233
Arrive On Green	0.10	0.25	0.25	0.11	0.25	0.25	0.03	0.26	0.26	0.19	0.42	0.42
Sat Flow, veh/h	1781	1611	220	1810	1010	753	1795	3509	141	1795	3020	554
Grp Volume(v), veh/h	150	0	250	160	0	480	25	382	396	300	733	741
Grp Sat Flow(s),veh/h/ln	1781	0	1831	1810	0	1763	1795	1791	1859	1795	1791	1783
Q Serve(g_s), s	8.0	0.0	11.5	8.4	0.0	24.4	1.3	19.4	19.4	15.8	38.9	39.8
Cycle Q Clear(g_c), s	8.0	0.0	11.5	8.4	0.0	24.4	1.3	19.4	19.4	15.8	38.9	39.8
Prop In Lane	1.00		0.12	1.00		0.43	1.00		0.08	1.00		0.31
Lane Grp Cap(c), veh/h	184	0	456	192	0	444	54	470	488	340	755	752
V/C Ratio(X)	0.82	0.00	0.55	0.83	0.00	1.08	0.46	0.81	0.81	0.88	0.97	0.99
Avail Cap(c_a), veh/h	375	0	461	194	0	444	193	667	693	674	755	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	42.5	0.0	31.6	42.5	0.0	36.2	46.2	33.5	33.5	38.2	27.4	27.7
Incr Delay (d2), s/veh	6.4	0.0	1.3	25.0	0.0	66.2	4.4	4.9	4.7	5.7	25.7	29.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.2	5.1	0.0	18.4	0.7	8.9	9.2	7.4	21.1	22.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	33.0	67.5	0.0	102.4	50.6	38.4	38.2	43.9	53.2	56.8
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	D	E
Approach Vol, veh/h		400			640			803			1774	
Approach Delay, s/veh		39.0			93.7			38.7			53.1	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	45.7	14.6	29.0	23.0	30.3	14.9	28.7
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.3	41.8	10.0	26.4	17.8	21.4	10.4	13.5
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	4.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	55.5
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	80	1.0	89	1.0	0.478	20.3	LOS C	4.0	101.2	0.95	1.04	1.14	31.4
8	T1	459	1.0	510	1.0	0.478	13.2	LOS B	4.5	114.0	0.97	1.00	1.12	32.6
18	R2	35	1.0	39	1.0	0.478	12.4	LOS B	4.5	114.0	0.98	0.97	1.11	32.3
Approach		574	1.0	638	1.0	0.478	14.2	LOS B	4.5	114.0	0.97	1.00	1.12	32.4
East: Pacific Ave SE														
1	L2	30	1.0	33	1.0	0.348	11.8	LOS B	1.7	43.1	0.64	0.63	0.64	35.4
6	T1	235	1.0	261	1.0	0.348	6.2	LOS A	1.7	43.1	0.64	0.63	0.64	35.3
16	R2	329	1.0	366	1.0	0.363	5.9	LOS A	1.9	47.9	0.64	0.67	0.64	35.0
Approach		594	1.0	660	1.0	0.363	6.3	LOS A	1.9	47.9	0.64	0.65	0.64	35.1
North: Marvin Rd SE														
7u	U	10	1.0	11	1.0	0.653	16.3	LOS B	6.8	170.3	0.79	0.85	0.91	34.1
7	L2	440	1.0	489	1.0	0.653	13.9	LOS B	6.8	170.3	0.79	0.85	0.91	33.3
4	T1	815	1.0	906	1.0	0.653	7.5	LOS A	6.9	173.2	0.77	0.76	0.86	34.8
14	R2	110	1.0	122	1.0	0.653	7.4	LOS A	6.9	173.2	0.76	0.74	0.84	34.1
Approach		1375	1.0	1528	1.0	0.653	9.6	LOS A	6.9	173.2	0.78	0.79	0.87	34.2
West: Pacific Ave SE														
5	L2	65	1.0	72	1.0	0.678	15.8	LOS B	5.0	125.8	0.90	1.04	1.19	34.1
2	T1	365	1.0	406	1.0	0.678	10.2	LOS B	5.0	125.8	0.90	1.04	1.19	34.0
12	R2	170	1.0	189	1.0	0.380	9.1	LOS A	1.9	47.5	0.79	0.92	0.87	33.9
Approach		600	1.0	667	1.0	0.678	10.5	LOS B	5.0	125.8	0.87	1.01	1.10	34.0
All Vehicles		3143	1.0	3492	1.0	0.678	10.0	LOS A	6.9	173.2	0.80	0.84	0.92	34.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	30	2.0	33	2.0	0.243	12.3	LOS B	1.4	36.5	0.20	0.50	0.20	37.0
3	L2	70	2.0	77	2.0	0.243	9.9	LOS A	1.4	36.5	0.20	0.50	0.20	36.1
8	T1	455	2.0	500	2.0	0.243	4.3	LOS A	1.5	36.9	0.19	0.45	0.19	36.7
18	R2	109	2.0	120	2.0	0.243	4.4	LOS A	1.5	36.9	0.19	0.41	0.19	35.9
Approach		664	2.0	730	2.0	0.243	5.3	LOS A	1.5	36.9	0.19	0.45	0.19	36.5
East: 31st Ave NE														
1	L2	84	3.0	92	3.0	0.127	11.3	LOS B	0.4	11.0	0.44	0.74	0.44	34.5
6	T1	10	3.0	11	3.0	0.127	5.8	LOS A	0.4	11.0	0.44	0.74	0.44	34.4
16	R2	15	3.0	16	3.0	0.127	5.7	LOS A	0.4	11.0	0.44	0.74	0.44	33.5
Approach		109	3.0	120	3.0	0.127	10.0	LOS B	0.4	11.0	0.44	0.74	0.44	34.3
North: Willamette Dr NE														
7	L2	1	1.0	1	1.0	0.112	10.5	LOS B	0.6	14.1	0.36	0.47	0.36	36.5
4	T1	265	1.0	291	1.0	0.112	4.9	LOS A	0.6	14.5	0.35	0.46	0.35	36.6
14	R2	10	1.0	11	1.0	0.112	4.9	LOS A	0.6	14.5	0.34	0.45	0.34	35.4
Approach		276	1.0	303	1.0	0.112	4.9	LOS A	0.6	14.5	0.35	0.46	0.35	36.5
West: 31st Ave NE														
5	L2	20	2.0	22	2.0	0.133	10.8	LOS B	0.5	11.9	0.38	0.60	0.38	36.4
2	T1	25	2.0	27	2.0	0.133	5.3	LOS A	0.5	11.9	0.38	0.60	0.38	36.3
12	R2	80	2.0	88	2.0	0.133	5.2	LOS A	0.5	11.9	0.38	0.60	0.38	35.3
Approach		125	2.0	137	2.0	0.133	6.1	LOS A	0.5	11.9	0.38	0.60	0.38	35.7
All Vehicles		1174	1.9	1290	1.9	0.243	5.7	LOS A	1.5	36.9	0.27	0.50	0.27	36.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	25	13.0	27	13.0	0.526	12.2	LOS B	2.9	79.2	0.55	0.69	0.59	36.0
8	T1	170	13.0	183	13.0	0.526	6.3	LOS A	2.9	79.2	0.55	0.69	0.59	36.0
18	R2	260	13.0	280	13.0	0.526	6.3	LOS A	2.9	79.2	0.55	0.69	0.59	34.9
Approach		455	13.0	489	13.0	0.526	6.6	LOS A	2.9	79.2	0.55	0.69	0.59	35.4
East: Britton Pkwy NE														
1	L2	45	4.0	48	4.0	0.230	11.5	LOS B	1.3	34.1	0.52	0.59	0.52	35.7
6	T1	458	4.0	492	4.0	0.230	5.4	LOS A	1.4	35.8	0.51	0.54	0.51	36.0
16	R2	10	4.0	11	4.0	0.230	5.4	LOS A	1.4	35.8	0.50	0.51	0.50	35.0
Approach		513	4.0	552	4.0	0.230	6.0	LOS A	1.4	35.8	0.51	0.54	0.51	36.0
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.511	15.3	LOS B	2.7	73.0	0.61	0.78	0.70	36.8
7	L2	15	10.0	16	10.0	0.511	12.8	LOS B	2.7	73.0	0.61	0.78	0.70	35.9
4	T1	135	10.0	145	10.0	0.511	6.9	LOS A	2.7	73.0	0.61	0.78	0.70	35.9
14	R2	255	10.0	274	10.0	0.511	6.9	LOS A	2.7	73.0	0.61	0.78	0.70	34.8
Approach		410	10.0	441	10.0	0.511	7.2	LOS A	2.7	73.0	0.61	0.78	0.70	35.2
West: Britton Pkwy NE														
5u	U	15	7.0	16	7.0	0.141	13.4	LOS B	0.8	20.1	0.41	0.61	0.41	35.7
5	L2	80	7.0	86	7.0	0.141	10.9	LOS B	0.8	20.1	0.41	0.61	0.41	34.8
2	T1	219	7.0	235	7.0	0.141	4.8	LOS A	0.8	20.9	0.40	0.50	0.40	36.1
12	R2	15	7.0	16	7.0	0.141	4.9	LOS A	0.8	20.9	0.39	0.46	0.39	35.3
Approach		329	7.0	354	7.0	0.141	6.7	LOS A	0.8	20.9	0.40	0.53	0.40	35.7
All Vehicles		1707	8.4	1835	8.4	0.526	6.6	LOS A	2.9	79.2	0.52	0.64	0.56	35.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	20	658	38	10	87	854	25	41	0	41	30	5	20
Future Vol, veh/h	20	658	38	10	87	854	25	41	0	41	30	5	20
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	20	658	38	10	87	854	25	41	0	41	30	5	20

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	880	0	0	696	696	0	0	1342	1791	349	1432	1798	442
Stage 1	-	-	-	-	-	-	-	717	717	-	1062	1062	-
Stage 2	-	-	-	-	-	-	-	625	1074	-	370	736	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	751	-	-	516	889	-	-	110	80	647	96	81	569
Stage 1	-	-	-	-	-	-	-	387	432	-	242	303	-
Stage 2	-	-	-	-	-	-	-	439	294	-	628	428	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	750	-	-	818	818	-	-	89	68	646	80	69	568
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	89	68	-	80	69	-
Stage 1	-	-	-	-	-	-	-	377	420	-	235	267	-
Stage 2	-	-	-	-	-	-	-	366	259	-	572	416	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	51.2	63
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	156	750	-	-	818	-	-	114
HCM Lane V/C Ratio	0.526	0.027	-	-	0.119	-	-	0.482
HCM Control Delay (s)	51.2	9.9	-	-	10	-	-	63
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.6	0.1	-	-	0.4	-	-	2.2

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	693	25	39	871	5	0	0	23	5	0	15
Future Vol, veh/h	5	693	25	39	871	5	0	0	23	5	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	5	693	25	39	871	5	0	0	23	5	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	876	0	0	718	0	0	1230	1670	359	1309	1680	438
Stage 1	-	-	-	-	-	-	716	716	-	952	952	-
Stage 2	-	-	-	-	-	-	514	954	-	357	728	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	754	-	-	872	-	-	134	95	638	119	96	572
Stage 1	-	-	-	-	-	-	387	432	-	283	341	-
Stage 2	-	-	-	-	-	-	511	335	-	639	432	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	754	-	-	872	-	-	125	90	638	110	91	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	90	-	110	91	-
Stage 1	-	-	-	-	-	-	384	429	-	281	326	-
Stage 2	-	-	-	-	-	-	475	320	-	612	429	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	10.9	18.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	638	754	-	-	872	-	-	279
HCM Lane V/C Ratio	0.036	0.007	-	-	0.045	-	-	0.072
HCM Control Delay (s)	10.9	9.8	-	-	9.3	-	-	18.9
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	236	2.0	262	2.0	0.264	11.5	LOS B	1.1	28.0	0.56	0.76	0.56	34.3
8	T1	28	2.0	31	2.0	0.264	5.2	LOS A	1.1	28.0	0.56	0.76	0.56	34.1
18	R2	120	2.0	133	2.0	0.109	4.7	LOS A	0.4	9.7	0.42	0.55	0.42	36.1
Approach		384	2.0	427	2.0	0.264	9.0	LOS A	1.1	28.0	0.51	0.70	0.51	34.8
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.458	16.5	LOS B	3.3	83.9	0.74	0.78	0.77	36.1
1	L2	97	3.0	108	3.0	0.458	13.9	LOS B	3.3	83.9	0.74	0.78	0.77	35.1
6	T1	549	3.0	610	3.0	0.458	7.1	LOS A	3.5	88.5	0.74	0.73	0.75	35.5
16	R2	230	3.0	256	3.0	0.458	6.8	LOS A	3.5	88.5	0.73	0.68	0.73	34.7
Approach		881	3.0	979	3.0	0.458	7.8	LOS A	3.5	88.5	0.74	0.72	0.75	35.2
North: Gateway Blvd NE														
7	L2	95	2.0	106	2.0	0.352	13.2	LOS B	1.7	44.4	0.70	0.85	0.72	35.4
4	T1	25	2.0	28	2.0	0.352	6.8	LOS A	1.7	44.4	0.70	0.85	0.72	35.2
14	R2	120	2.0	133	2.0	0.352	6.9	LOS A	1.7	44.4	0.70	0.85	0.72	34.1
Approach		240	2.0	267	2.0	0.352	9.4	LOS A	1.7	44.4	0.70	0.85	0.72	34.7
West: Britton Pkwy NE														
5u	U	10	5.0	11	5.0	0.349	14.0	LOS B	2.2	57.4	0.49	0.63	0.49	36.1
5	L2	230	5.0	256	5.0	0.349	11.4	LOS B	2.2	57.4	0.49	0.63	0.49	35.0
2	T1	503	5.0	559	5.0	0.349	4.8	LOS A	2.3	59.9	0.47	0.51	0.47	36.3
12	R2	75	5.0	83	5.0	0.349	4.9	LOS A	2.3	59.9	0.47	0.47	0.47	35.4
Approach		818	5.0	909	5.0	0.349	6.7	LOS A	2.3	59.9	0.48	0.54	0.48	35.8
All Vehicles		2323	3.4	2581	3.4	0.458	7.8	LOS A	3.5	88.5	0.60	0.67	0.61	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	780	50	25	930	25	15	0	61	10	0	35
Future Vol, veh/h	50	780	50	25	930	25	15	0	61	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	780	50	25	930	25	15	0	61	10	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	955	0	0	830	0	0	1420	1910	415	1483	1923	478
Stage 1	-	-	-	-	-	-	905	905	-	993	993	-
Stage 2	-	-	-	-	-	-	515	1005	-	490	930	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	722	-	-	798	-	-	97	67	586	87	66	534
Stage 1	-	-	-	-	-	-	298	353	-	263	322	-
Stage 2	-	-	-	-	-	-	511	317	-	529	344	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	722	-	-	798	-	-	84	60	586	72	60	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	60	-	72	60	-
Stage 1	-	-	-	-	-	-	277	329	-	245	312	-
Stage 2	-	-	-	-	-	-	463	307	-	441	320	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	20.8	23.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	84	586	722	-	-	798	-	-	72	534
HCM Lane V/C Ratio	0.179	0.104	0.069	-	-	0.031	-	-	0.139	0.066
HCM Control Delay (s)	57	11.9	10.4	-	-	9.7	-	-	62.9	12.2
HCM Lane LOS	F	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.6	0.3	0.2	-	-	0.1	-	-	0.5	0.2

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	5	10	5	5	9	5	48	64	106	9	5	5
Future Vol, veh/h	5	10	5	5	9	5	48	64	106	9	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	10	5	5	9	5	48	64	106	9	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	15	0	0	50	47	13	130	47	12
Stage 1	-	-	-	-	-	-	23	23	-	22	22	-
Stage 2	-	-	-	-	-	-	27	24	-	108	25	-
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	1604	-	-	1603	-	-	950	845	1067	843	845	1069
Stage 1	-	-	-	-	-	-	995	876	-	996	877	-
Stage 2	-	-	-	-	-	-	990	875	-	897	874	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1604	-	-	1603	-	-	937	840	1067	711	840	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	937	840	-	711	840	-
Stage 1	-	-	-	-	-	-	992	873	-	993	874	-
Stage 2	-	-	-	-	-	-	977	872	-	746	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.9	9.8	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	961	1604	-	-	1603	-	-	816
HCM Lane V/C Ratio	0.227	0.003	-	-	0.003	-	-	0.023
HCM Control Delay (s)	9.8	7.3	0	-	7.3	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	225	80	100	240	174	120
Future Vol, veh/h	225	80	100	240	174	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	225	80	100	240	174	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	305	0	705	265
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1267	-	403	774
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1267	-	366	774
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	590	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	25
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	466	-	-	1267	-
HCM Lane V/C Ratio	0.631	-	-	0.079	-
HCM Control Delay (s)	25	-	-	8.1	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.3	-	-	0.3	-

MOVEMENT SUMMARY

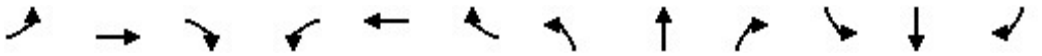
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	205	4.0	247	4.0	0.264	12.1	LOS B	1.7	43.7	0.63	0.74	0.63	31.4
8	T1	5	4.0	6	4.0	0.481	5.7	LOS A	4.0	103.8	0.72	0.68	0.72	32.3
18	R2	495	4.0	596	4.0	0.481	5.8	LOS A	4.0	103.8	0.72	0.68	0.72	33.2
Approach		705	4.0	849	4.0	0.481	7.7	LOS A	4.0	103.8	0.69	0.70	0.69	32.6
East: Britton Pkwy NE														
1	L2	563	5.0	678	5.0	0.462	11.2	LOS B	2.9	76.5	0.51	0.67	0.51	32.2
6	T1	337	5.0	406	5.0	0.462	5.2	LOS A	2.9	76.5	0.50	0.56	0.50	35.6
16	R2	1	5.0	1	5.0	0.462	5.2	LOS A	2.9	76.5	0.50	0.56	0.50	32.8
Approach		901	5.0	1086	5.0	0.462	8.9	LOS A	2.9	76.5	0.51	0.63	0.51	33.6
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.012	12.8	LOS B	0.0	1.2	0.63	0.67	0.63	34.6
4	T1	5	0.0	6	0.0	0.012	7.0	LOS A	0.0	1.2	0.63	0.67	0.63	31.4
14	R2	1	0.0	1	0.0	0.012	6.9	LOS A	0.0	1.2	0.63	0.67	0.63	32.9
Approach		7	0.0	8	0.0	0.012	7.8	LOS A	0.0	1.2	0.63	0.67	0.63	32.3
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.727	16.5	LOS B	6.4	165.3	0.83	1.01	1.15	33.2
2	T1	330	4.0	398	4.0	0.727	10.3	LOS B	6.4	165.3	0.83	1.01	1.15	34.6
12	R2	170	4.0	205	4.0	0.727	10.4	LOS B	6.4	165.3	0.83	1.01	1.15	31.3
Approach		501	4.0	604	4.0	0.727	10.3	LOS B	6.4	165.3	0.83	1.01	1.15	33.7
All Vehicles		2114	4.4	2547	4.4	0.727	8.8	LOS A	6.4	165.3	0.65	0.74	0.72	33.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



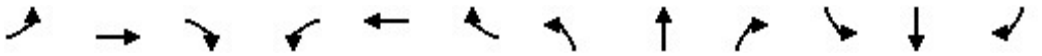
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	291	1135	375	470	860	135	210	280	275	174	446	163
Future Volume (veh/h)	291	1135	375	470	860	135	210	280	275	174	446	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	291	1135	375	470	860	135	210	280	275	174	446	163
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1202	726	525	1255	197	217	406	586	201	528	191
Arrive On Green	0.08	0.34	0.34	0.15	0.41	0.41	0.12	0.22	0.22	0.11	0.21	0.21
Sat Flow, veh/h	1795	3582	1588	3456	3073	482	1795	1885	1593	1767	2533	917
Grp Volume(v), veh/h	291	1135	375	470	497	498	210	280	275	174	309	300
Grp Sat Flow(s),veh/h/ln	1795	1791	1588	1728	1777	1779	1795	1885	1593	1767	1763	1687
Q Serve(g_s), s	9.5	37.0	20.2	16.0	27.6	27.6	14.0	16.4	15.8	11.6	20.2	20.5
Cycle Q Clear(g_c), s	9.5	37.0	20.2	16.0	27.6	27.6	14.0	16.4	15.8	11.6	20.2	20.5
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	142	1202	726	525	726	726	217	406	586	201	367	351
V/C Ratio(X)	2.05	0.94	0.52	0.90	0.69	0.69	0.97	0.69	0.47	0.87	0.84	0.85
Avail Cap(c_a), veh/h	142	1202	726	562	726	726	217	463	634	214	433	415
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)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	38.8	23.2	50.0	29.2	29.2	52.5	43.4	29.0	52.3	45.6	45.7
Incr Delay (d2), s/veh	490.1	13.1	2.1	15.5	5.2	5.2	51.6	3.9	0.7	26.6	12.3	13.9
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	23.6	18.2	7.9	8.0	12.7	12.7	9.4	8.1	6.2	6.6	10.1	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	545.4	51.9	25.3	65.5	34.4	34.4	104.1	47.3	29.7	78.8	57.9	59.6
LnGrp LOS	F	D	C	E	C	C	F	D	C	E	E	E
Approach Vol, veh/h		1801			1465			765			783	
Approach Delay, s/veh		126.1			44.4			56.6			63.2	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	54.5	19.1	31.4	23.7	45.8	20.0	30.5
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	29.6	13.6	18.4	18.0	39.0	16.0	22.5
Green Ext Time (p_c), s	0.0	6.6	0.0	2.4	0.2	0.0	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	79.9
HCM 6th LOS	E

Notes

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



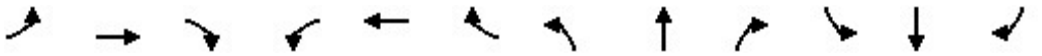
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	940	215	140	925	50	160	255	100	105	359	627
Future Volume (veh/h)	360	940	215	140	925	50	160	255	100	105	359	627
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	360	940	215	140	925	50	160	255	100	105	359	627
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	285	1039	237	167	999	54	177	694	265	130	473	397
Arrive On Green	0.16	0.36	0.36	0.09	0.29	0.29	0.10	0.28	0.28	0.07	0.25	0.25
Sat Flow, veh/h	1795	2891	660	1795	3454	187	1767	2489	949	1795	1885	1582
Grp Volume(v), veh/h	360	582	573	140	480	495	160	178	177	105	359	627
Grp Sat Flow(s),veh/h/ln	1795	1791	1760	1795	1791	1850	1767	1763	1675	1795	1885	1582
Q Serve(g_s), s	19.0	36.9	37.0	9.2	31.1	31.1	10.7	9.7	10.2	6.9	21.1	30.0
Cycle Q Clear(g_c), s	19.0	36.9	37.0	9.2	31.1	31.1	10.7	9.7	10.2	6.9	21.1	30.0
Prop In Lane	1.00		0.38	1.00		0.10	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	285	644	632	167	518	535	177	492	467	130	473	397
V/C Ratio(X)	1.26	0.90	0.91	0.84	0.93	0.93	0.90	0.36	0.38	0.81	0.76	1.58
Avail Cap(c_a), veh/h	285	644	632	218	532	549	177	492	467	180	473	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	36.4	36.4	53.4	41.3	41.3	53.2	34.6	34.8	54.7	41.5	44.8
Incr Delay (d2), s/veh	143.0	16.3	16.8	15.8	22.2	21.7	40.2	0.5	0.5	12.0	7.0	272.7
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	19.8	18.8	18.6	4.9	16.8	17.2	6.7	4.2	4.2	3.5	10.7	41.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	193.3	52.6	53.2	69.2	63.4	62.9	93.4	35.1	35.3	66.6	48.5	317.5
LnGrp LOS	F	D	D	E	E	E	F	D	D	E	D	F
Approach Vol, veh/h		1515			1115			515			1091	
Approach Delay, s/veh		86.3			63.9			53.3			204.8	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	40.6	14.7	39.3	16.6	49.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	33.1	8.9	12.2	11.2	39.0	12.7	32.0
Green Ext Time (p_c), s	0.0	1.5	0.0	1.9	0.1	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	106.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



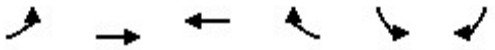
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1761	5	5	1263	30	70	5	35	55	5	30
Future Volume (veh/h)	40	1761	5	5	1263	30	70	5	35	55	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	1761	0	5	1263	30	70	5	35	55	5	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	2727		9	2676	64	154	203	172	194	15	172
Arrive On Green	0.05	1.00	0.00	0.01	0.75	0.75	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3582	1598	1781	3548	84	1373	1870	1585	1255	140	1585
Grp Volume(v), veh/h	40	1761	0	5	632	661	70	5	35	60	0	30
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1855	1373	1870	1585	1395	0	1585
Q Serve(g_s), s	1.3	0.0	0.0	0.3	16.3	16.3	6.0	0.3	2.4	4.6	0.0	2.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.3	16.3	16.3	10.8	0.3	2.4	4.8	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	85	2727		9	1340	1399	154	203	172	209	0	172
V/C Ratio(X)	0.47	0.65		0.55	0.47	0.47	0.45	0.02	0.20	0.29	0.00	0.17
Avail Cap(c_a), veh/h	290	2727		82	1340	1399	474	639	542	535	0	542
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.49	0.49	0.49	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.3	0.0	0.0	59.6	5.6	5.6	54.9	47.8	48.8	49.8	0.0	48.6
Incr Delay (d2), s/veh	2.7	1.1	0.0	17.4	0.6	0.6	1.6	0.0	0.4	0.6	0.0	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	0.6	0.4	0.0	0.2	5.4	5.7	2.1	0.1	1.0	1.7	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	1.1	0.0	76.9	6.2	6.2	56.4	47.8	49.2	50.4	0.0	49.0
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1801			1298			110			90	
Approach Delay, s/veh		2.4			6.5			53.7			49.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	96.0		17.0	6.1	96.9		17.0				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.3	18.3		12.8	2.3	2.0		6.8				
Green Ext Time (p_c), s	0.0	13.9		0.2	0.0	29.2		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	7.0	
HCM 6th LOS	A	

Notes

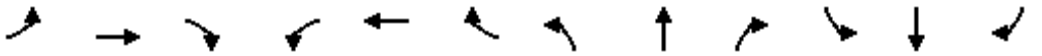
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1806	1283	25	35	50
Future Volume (veh/h)	50	1806	1283	25	35	50
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	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	1806	1283	25	35	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	2	2	2	2
Cap, veh/h	892	4504	1416	28	81	73
Arrive On Green	0.43	0.88	0.79	0.79	0.05	0.05
Sat Flow, veh/h	1795	5316	3659	69	1781	1585
Grp Volume(v), veh/h	50	1806	639	669	35	50
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1858	1781	1585
Q Serve(g_s), s	0.0	8.1	31.6	31.7	2.3	3.7
Cycle Q Clear(g_c), s	0.0	8.1	31.6	31.7	2.3	3.7
Prop In Lane	1.00			0.04	1.00	1.00
Lane Grp Cap(c), veh/h	892	4504	706	738	81	73
V/C Ratio(X)	0.06	0.40	0.91	0.91	0.43	0.69
Avail Cap(c_a), veh/h	892	4504	1029	1076	416	370
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	12.9	1.4	10.7	10.7	55.7	56.4
Incr Delay (d2), s/veh	0.0	0.3	15.7	15.2	1.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.3	7.4	7.6	1.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.9	1.7	26.4	25.9	57.1	60.7
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1856	1308		85	
Approach Delay, s/veh		2.0	26.1		59.2	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	57.3	53.2			110.5	9.5
Change Period (Y+Rc), s	5.5	5.5			5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5			82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	33.7			10.1	5.7
Green Ext Time (p_c), s	0.0	14.0			30.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B



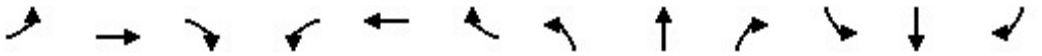
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	663	1045	0	0	1268	70	15	0	831	0	0	0
Future Volume (veh/h)	663	1045	0	0	1268	70	15	0	831	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	663	1045	0	0	1268	0	15	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3251	0	0	1982		24	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	663	1045	0	0	1268	0	15	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	17.1	0.0	0.0	29.4	0.0	1.0	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	17.1	0.0	0.0	29.4	0.0	1.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3251	0	0	1982		24	0				
V/C Ratio(X)	1.21	0.32	0.00	0.00	0.64		0.64	0.00				
Avail Cap(c_a), veh/h	546	3251	0	0	1982		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.5	0.0	0.0	18.2	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	98.0	0.0	0.0	0.0	1.6	0.0	25.1	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			
%ile BackOfQ(50%),veh/ln	31.7	7.2	0.0	0.0	12.1	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.8	5.5	0.0	0.0	19.8	0.0	84.0	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1708			1268			15				
Approach Delay, s/veh		60.0			19.8			84.0				
Approach LOS		E			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.4		5.6		114.4			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	31.4		3.0		19.1			
Green Ext Time (p_c), s	0.0	7.1		0.0		12.2			

Intersection Summary		
HCM 6th Ctrl Delay	43.1	
HCM 6th LOS	D	

Notes

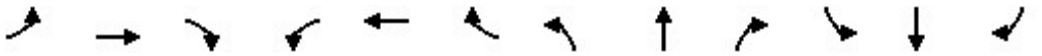
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1653	355	445	858	0	0	0	0	85	5	686
Future Volume (vph)	0	1653	355	445	858	0	0	0	0	85	5	686
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1792	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1792	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1653	355	445	858	0	0	0	0	85	5	686
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	0	34
Lane Group Flow (vph)	0	1653	149	445	858	0	0	0	0	0	90	652
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	38.3	46.6						16.2	63.9
Effective Green, g (s)		50.5	50.5	38.3	46.6						16.2	63.9
Actuated g/C Ratio		0.42	0.42	0.32	0.39						0.13	0.53
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	564	1374						241	851
v/s Ratio Prot		c0.46		c0.25	0.24							c0.41
v/s Ratio Perm			0.09								0.05	
v/c Ratio		1.10	0.22	0.79	0.62						0.37	0.77
Uniform Delay, d1		34.8	22.2	37.2	29.6						47.3	22.1
Progression Factor		0.88	1.50	0.63	0.26						1.00	1.00
Incremental Delay, d2		51.6	0.5	2.0	0.6						1.1	4.4
Delay (s)		82.1	33.8	25.5	8.2						48.4	26.6
Level of Service		F	C	C	A						D	C
Approach Delay (s)		73.6			14.1			0.0			29.1	
Approach LOS		E			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	954	365	615	754	185	260	360	873	175	315	110
Future Volume (veh/h)	75	954	365	615	754	185	260	360	873	175	315	110
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		0.98	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	954	0	615	754	0	260	360	873	175	315	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	90	1191		691	1729		254	353	1078	204	394	135
Arrive On Green	0.05	0.33	0.00	0.33	0.81	0.00	0.14	0.19	0.19	0.11	0.15	0.15
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2752	1795	2607	892
Grp Volume(v), veh/h	75	954	0	615	754	0	260	360	873	175	214	211
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1376	1795	1791	1708
Q Serve(g_s), s	5.0	29.1	0.0	20.2	7.4	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Cycle Q Clear(g_c), s	5.0	29.1	0.0	20.2	7.4	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	90	1191		691	1729		254	353	1078	204	270	258
V/C Ratio(X)	0.84	0.80		0.89	0.44		1.02	1.02	0.81	0.86	0.79	0.82
Avail Cap(c_a), veh/h	90	1191		850	1729		254	353	1078	359	358	342
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.66	0.66	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	36.4	0.0	38.7	6.5	0.0	51.5	48.8	33.0	52.2	49.1	49.3
Incr Delay (d2), s/veh	44.4	5.7	0.0	7.2	0.5	0.0	62.3	52.7	4.6	4.1	6.2	8.4
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	3.4	13.5	0.0	8.3	2.3	0.0	12.0	15.7	11.9	5.4	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.9	42.1	0.0	45.9	7.0	0.0	113.8	101.5	37.6	56.3	55.4	57.7
LnGrp LOS	F	D		D	A		F	F	D	E	E	E
Approach Vol, veh/h		1029			1369			1493			600	
Approach Delay, s/veh		46.4			24.5			66.2			56.5	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	63.9	17.6	27.5	29.5	45.4	22.0	23.1
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	7.0	9.4	13.5	24.5	22.2	31.1	19.0	16.3
Green Ext Time (p_c), s	0.0	7.4	0.2	0.0	1.7	0.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Village Alternative 2)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	83	2.0	0.236	13.6	LOS B	1.0	26.0	0.70	0.87	0.70	35.5
8	T1	5	2.0	5	2.0	0.236	6.7	LOS A	1.0	26.0	0.70	0.87	0.70	35.1
18	R2	75	2.0	78	2.0	0.236	7.0	LOS A	1.0	26.0	0.70	0.87	0.70	33.9
Approach		160	2.0	167	2.0	0.236	10.3	LOS B	1.0	26.0	0.70	0.87	0.70	34.7
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.627	14.6	LOS B	5.4	136.5	0.62	0.52	0.62	37.9
1	L2	90	1.0	94	1.0	0.627	11.9	LOS B	5.4	136.5	0.62	0.52	0.62	36.8
6	T1	1557	1.0	1622	1.0	0.627	4.7	LOS A	5.6	140.5	0.59	0.48	0.59	36.7
16	R2	75	1.0	78	1.0	0.627	4.9	LOS A	5.6	140.5	0.57	0.45	0.57	35.5
Approach		1727	1.0	1799	1.0	0.627	5.1	LOS A	5.6	140.5	0.59	0.48	0.59	36.7
North: Lacey St SE														
7	L2	30	2.0	31	2.0	0.212	14.6	LOS B	1.0	24.8	0.77	0.88	0.77	35.8
4	T1	5	2.0	5	2.0	0.212	7.7	LOS A	1.0	24.8	0.77	0.88	0.77	35.4
14	R2	80	2.0	83	2.0	0.212	7.9	LOS A	1.0	24.8	0.77	0.88	0.77	34.2
Approach		115	2.0	120	2.0	0.212	9.7	LOS A	1.0	24.8	0.77	0.88	0.77	34.6
SouthWest: Lacey Blvd SE														
5bx	L3	60	1.0	63	1.0	0.591	12.4	LOS B	4.6	114.9	0.44	0.47	0.44	38.3
5ax	L1	75	1.0	78	1.0	0.591	9.6	LOS A	4.6	114.9	0.44	0.47	0.44	37.0
12ax	R1	1384	1.0	1442	1.0	0.591	3.8	LOS A	4.6	116.6	0.43	0.44	0.43	37.1
12bx	R3	60	1.0	62	1.0	0.591	4.4	LOS A	4.6	116.6	0.42	0.41	0.42	35.8
Approach		1579	1.0	1645	1.0	0.591	4.4	LOS A	4.6	116.6	0.43	0.44	0.43	37.1
All Vehicles		3581	1.1	3730	1.1	0.627	5.2	LOS A	5.6	140.5	0.53	0.49	0.53	36.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	295	5	85	305	65	10	40	165	35	20	5
Future Vol, veh/h	5	295	5	85	305	65	10	40	165	35	20	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	2	2	2
Mvmt Flow	5	295	5	85	305	65	10	40	165	35	20	5
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

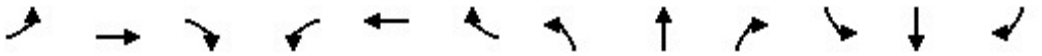
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	13	17.4	10.6	10.4
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	0%	2%	19%	58%
Vol Thru, %	80%	0%	97%	67%	33%
Vol Right, %	0%	100%	2%	14%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	165	305	455	60
LT Vol	10	0	5	85	35
Through Vol	40	0	295	305	20
RT Vol	0	165	5	65	5
Lane Flow Rate	50	165	305	455	60
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.093	0.27	0.458	0.652	0.109
Departure Headway (Hd)	6.696	5.881	5.4	5.156	6.556
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	534	609	665	701	544
Service Time	4.453	3.637	3.45	3.2	4.63
HCM Lane V/C Ratio	0.094	0.271	0.459	0.649	0.11
HCM Control Delay	10.1	10.8	13	17.4	10.4
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.1	2.4	4.8	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	229	95	540	174	80	355
Future Volume (veh/h)	229	95	540	174	80	355
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	1885	1885	1900	1900	1870	1870
Adj Flow Rate, veh/h	229	95	540	174	80	355
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	0	0	2	2
Cap, veh/h	319	284	859	728	125	1164
Arrive On Green	0.18	0.18	0.45	0.45	0.07	0.62
Sat Flow, veh/h	1795	1598	1900	1610	1781	1870
Grp Volume(v), veh/h	229	95	540	174	80	355
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1781	1870
Q Serve(g_s), s	5.4	2.3	9.8	3.0	2.0	4.0
Cycle Q Clear(g_c), s	5.4	2.3	9.8	3.0	2.0	4.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	319	284	859	728	125	1164
V/C Ratio(X)	0.72	0.33	0.63	0.24	0.64	0.31
Avail Cap(c_a), veh/h	718	639	859	728	198	1164
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	17.4	16.2	9.4	7.6	20.4	4.0
Incr Delay (d2), s/veh	3.0	0.7	3.5	0.8	5.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.8	3.8	0.9	0.9	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.4	16.9	12.9	8.4	25.7	4.6
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	324		714			435
Approach Delay, s/veh	19.4		11.8			8.5
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	24.8			32.5	12.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	4.0	11.8			6.0	7.4
Green Ext Time (p_c), s	0.0	2.3			2.1	0.7

Intersection Summary		
HCM 6th Ctrl Delay		12.5
HCM 6th LOS		B

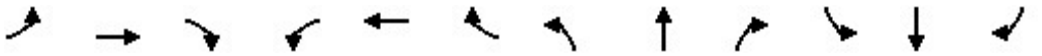


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	785	345	355	714	80	225	485	265	105	305	110
Future Volume (veh/h)	175	785	345	355	714	80	225	485	265	105	305	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	175	785	345	355	714	80	225	485	265	105	305	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	204	925	403	332	1172	518	390	818	339	292	432	152
Arrive On Green	0.11	0.26	0.26	0.19	0.33	0.33	0.22	0.22	0.22	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1561	1767	3526	1560	1767	3711	1537	1795	2653	935
Grp Volume(v), veh/h	175	785	345	355	714	80	225	485	265	105	215	200
Grp Sat Flow(s),veh/h/ln	1795	1791	1561	1767	1763	1560	1767	1856	1537	1795	1885	1702
Q Serve(g_s), s	11.2	24.4	24.7	22.0	19.9	4.2	13.3	13.7	19.0	6.1	12.6	13.1
Cycle Q Clear(g_c), s	11.2	24.4	24.7	22.0	19.9	4.2	13.3	13.7	19.0	6.1	12.6	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	204	925	403	332	1172	518	390	818	339	292	307	277
V/C Ratio(X)	0.86	0.85	0.86	1.07	0.61	0.15	0.58	0.59	0.78	0.36	0.70	0.72
Avail Cap(c_a), veh/h	276	1009	439	332	1172	518	543	1140	472	521	547	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	41.3	41.4	47.6	32.8	27.5	40.8	41.0	43.0	43.6	46.3	46.5
Incr Delay (d2), s/veh	16.4	6.3	13.9	69.3	0.8	0.1	1.0	0.5	4.8	0.6	2.2	2.7
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	6.0	11.5	11.0	16.0	8.6	1.6	5.9	6.3	7.6	2.8	6.1	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	47.5	55.3	116.9	33.6	27.6	41.8	41.5	47.8	44.2	48.5	49.2
LnGrp LOS	E	D	E	F	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1305			1149			975			520	
Approach Delay, s/veh		52.3			58.9			43.3			47.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.3	44.0		30.8	27.0	35.3		24.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	18.0	37.0		36.0	22.0	33.0		34.0				
Max Q Clear Time (g_c+I1), s	13.2	21.9		21.0	24.0	26.7		15.1				
Green Ext Time (p_c), s	0.1	3.9		3.6	0.0	3.0		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		51.4	
HCM 6th LOS		D	

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



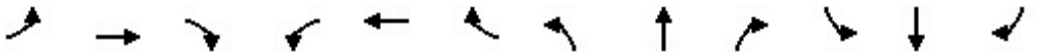
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	860	0	0	1090	319	205	0	555	0	0	0
Future Volume (veh/h)	239	860	0	0	1090	319	205	0	555	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	239	860	0	0	1090	0	205	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	274	2673	0	0	1911		254	0				
Arrive On Green	0.15	0.75	0.00	0.00	0.54	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	239	860	0	0	1090	0	205	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	11.7	7.2	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	11.7	7.2	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	274	2673	0	0	1911		254	0				
V/C Ratio(X)	0.87	0.32	0.00	0.00	0.57		0.81	0.00				
Avail Cap(c_a), veh/h	299	2673	0	0	1911		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.3	3.8	0.0	0.0	13.9	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	21.5	0.3	0.0	0.0	1.2	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	6.7	2.1	0.0	0.0	7.1	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	4.1	0.0	0.0	15.1	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1099			1090			205				
Approach Delay, s/veh		16.0			15.1			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	18.7	53.4		17.8		72.2			
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0			
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0			
Max Q Clear Time (g_c+I1), s	13.7	20.4		12.0		9.2			
Green Ext Time (p_c), s	0.1	5.9		0.7		6.0			

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

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	844	305	0	850	0	0	0	0	255	5	380
Future Volume (veh/h)	0	844	305	0	850	0	0	0	0	255	5	380
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	844	0	0	850	0				255	5	380
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2228		0	2211	0				467	9	423
Arrive On Green	0.00	0.62	0.00	0.00	0.62	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	3770	0	0	3741	0				1749	34	1585
Grp Volume(v), veh/h	0	844	0	0	850	0				260	0	380
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.5	0.0	0.0	10.7	0.0				11.3	0.0	20.8
Cycle Q Clear(g_c), s	0.0	10.5	0.0	0.0	10.7	0.0				11.3	0.0	20.8
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2228		0	2211	0				476	0	423
V/C Ratio(X)	0.00	0.38		0.00	0.38	0.00				0.55	0.00	0.90
Avail Cap(c_a), veh/h	0	2228		0	2211	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.4	0.0	0.0	8.4	0.0				28.3	0.0	31.8
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.7	0.0	16.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	0.0	0.0	3.8	0.0				4.8	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	0.0	0.0	9.0	0.0				29.0	0.0	48.7
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		844			850						640	
Approach Delay, s/veh		8.9			9.0						40.7	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		61.0				61.0		29.0				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.7				12.5		22.8				
Green Ext Time (p_c), s		5.8				5.8		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	781	70	0	980	0	42
Future Vol, veh/h	781	70	0	980	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	781	70	0	980	0	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	426
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	577
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	577
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	577	-	-	-
HCM Lane V/C Ratio	0.073	-	-	-
HCM Control Delay (s)	11.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	721	0	0	915	0	0
Future Vol, veh/h	721	0	0	915	0	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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	721	0	0	915	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	361
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	636
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	636
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	730	9	0	976	0	11
Future Vol, veh/h	730	9	0	976	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	730	9	0	976	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	370
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	627
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	627
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	627	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-
HCM Control Delay (s)	10.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	0	2073	2050	9
Future Vol, veh/h	0	101	0	2073	2050	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	101	0	2073	2050	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1030	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	198	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	198	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	198	-	-
HCM Lane V/C Ratio	-	0.51	-	-
HCM Control Delay (s)	-	40.7	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	2.6	-	-

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	410	0.0	456	0.0	0.359	10.5	LOS B	2.4	60.3	0.40	0.63	0.40	34.1
8	T1	504	0.0	560	0.0	0.359	4.6	LOS A	2.5	61.9	0.38	0.45	0.38	36.5
18	R2	5	0.0	6	0.0	0.359	4.7	LOS A	2.5	61.9	0.38	0.45	0.38	35.4
Approach		919	0.0	1021	0.0	0.359	7.2	LOS A	2.5	61.9	0.39	0.53	0.39	35.4
East: Hawks Prairie Rd NE														
1u	U	5	3.0	6	3.0	0.392	15.5	LOS B	1.8	45.4	0.65	0.86	0.72	35.0
1	L2	155	3.0	172	3.0	0.392	13.1	LOS B	1.8	45.4	0.65	0.86	0.72	34.2
6	T1	85	3.0	94	3.0	0.392	7.4	LOS A	1.8	45.4	0.65	0.86	0.72	34.1
16	R2	30	3.0	33	3.0	0.392	7.3	LOS A	1.8	45.4	0.65	0.86	0.72	33.2
Approach		275	3.0	306	3.0	0.392	10.8	LOS B	1.8	45.4	0.65	0.86	0.72	34.1
North: Marvin Rd NE														
7	L2	10	2.0	11	2.0	0.271	14.3	LOS B	1.7	42.9	0.74	0.77	0.74	35.2
4	T1	358	2.0	398	2.0	0.271	8.1	LOS A	1.9	47.7	0.74	0.75	0.74	35.3
14	R2	80	2.0	89	2.0	0.271	7.8	LOS A	1.9	47.7	0.74	0.73	0.74	34.2
Approach		448	2.0	498	2.0	0.271	8.2	LOS A	1.9	47.7	0.74	0.75	0.74	35.1
West: Hawks Prairie Rd NE														
5u	U	5	3.0	6	3.0	0.308	14.0	LOS B	1.3	34.6	0.54	0.74	0.54	36.2
5	L2	100	3.0	111	3.0	0.308	11.6	LOS B	1.3	34.6	0.54	0.74	0.54	35.4
2	T1	15	3.0	17	3.0	0.308	5.9	LOS A	1.3	34.6	0.54	0.74	0.54	35.3
12	R2	133	3.0	148	3.0	0.308	5.8	LOS A	1.3	34.6	0.54	0.74	0.54	34.3
Approach		253	3.0	281	3.0	0.308	8.3	LOS A	1.3	34.6	0.54	0.74	0.54	34.8
All Vehicles		1895	1.3	2106	1.3	0.392	8.1	LOS A	2.5	61.9	0.53	0.66	0.54	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	425	2.0	443	2.0	0.745	14.6	LOS B	6.7	169.4	0.81	0.99	1.05	33.7
8	T1	988	2.0	1029	2.0	0.745	8.0	LOS A	6.9	175.9	0.80	0.86	1.01	34.8
18	R2	42	2.0	44	2.0	0.745	7.8	LOS A	6.9	175.9	0.80	0.81	1.00	34.1
Approach		1455	2.0	1516	2.0	0.745	9.9	LOS A	6.9	175.9	0.80	0.89	1.02	34.5
East: Britton Pkwy NE														
1	L2	569	4.0	593	4.0	0.988	42.7	LOS E	17.1	440.7	1.00	1.67	3.02	23.6
6	T1	376	4.0	392	4.0	0.988	41.7	LOS E	17.1	440.7	1.00	1.58	2.89	23.4
16	R2	45	4.0	47	4.0	0.988	42.0	LOS E	13.4	345.6	1.00	1.58	2.89	22.9
Approach		990	4.0	1031	4.0	0.988	42.3	LOS D	17.1	440.7	1.00	1.63	2.97	23.5
North: Marvin Rd NE														
7u	U	10	4.0	11	4.0	1.271	154.4	LOS F	48.5	1250.4	1.00	2.85	6.73	11.4
7	L2	65	4.0	68	4.0	1.271	151.8	LOS F	48.5	1250.4	1.00	2.85	6.73	11.3
4	T1	981	4.0	1022	4.0	1.271	144.3	LOS F	64.2	1655.6	1.00	3.07	7.14	11.3
14	R2	193	4.0	201	4.0	1.271	143.0	LOS F	64.2	1655.6	1.00	3.25	7.49	11.3
Approach		1249	4.0	1301	4.0	1.271	144.6	LOS F	64.2	1655.6	1.00	3.08	7.17	11.3
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.370	18.1	LOS B	2.1	54.3	0.84	0.97	0.91	33.1
5	L2	189	5.0	197	5.0	0.370	15.6	LOS B	2.1	54.3	0.84	0.97	0.91	32.3
2	T1	262	5.0	273	5.0	0.342	8.3	LOS A	2.4	61.7	0.91	0.77	0.91	34.8
12	R2	513	5.0	534	5.0	0.626	11.4	LOS B	5.8	150.9	0.96	1.10	1.28	32.8
Approach		974	5.0	1015	5.0	0.626	11.4	LOS B	5.8	150.9	0.92	0.98	1.11	33.2
All Vehicles		4668	3.6	4863	3.6	1.271	53.1	LOS D	64.2	1655.6	0.92	1.66	3.10	20.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

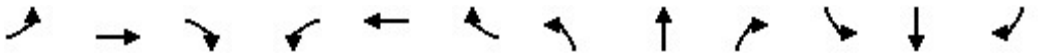
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	280	3.0	308	3.0	0.729	13.0	LOS B	10.0	255.0	0.44	0.52	0.44	27.0
3	L2	239	3.0	263	3.0	0.729	10.4	LOS B	10.0	255.0	0.44	0.52	0.44	33.3
8	T1	1415	3.0	1555	3.0	0.729	4.3	LOS A	10.1	257.6	0.40	0.42	0.40	32.4
18	R2	75	3.0	82	3.0	0.729	4.5	LOS A	10.1	257.6	0.39	0.38	0.39	33.8
Approach		2009	3.0	2208	3.0	0.729	6.3	LOS A	10.1	257.6	0.41	0.45	0.41	31.9
East: Main St NE														
1	L2	105	0.0	115	0.0	0.289	16.6	LOS B	1.4	35.0	0.81	0.94	0.83	30.2
6	T1	1	0.0	1	0.0	0.289	10.5	LOS B	1.4	35.0	0.81	0.94	0.83	32.4
16	R2	30	0.0	33	0.0	0.289	10.5	LOS B	1.4	35.0	0.81	0.94	0.83	29.6
Approach		136	0.0	149	0.0	0.289	15.2	LOS B	1.4	35.0	0.81	0.94	0.83	30.1
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	1.278	151.0	LOS F	86.8	2221.3	1.00	3.55	7.56	7.0
7	L2	25	3.0	27	3.0	1.278	148.5	LOS F	86.8	2221.3	1.00	3.55	7.56	9.3
4	T1	1891	3.0	2078	3.0	1.278	141.8	LOS F	99.2	2540.0	1.00	3.67	7.71	6.3
14	R2	47	3.0	52	3.0	1.278	141.3	LOS F	99.2	2540.0	1.00	3.77	7.84	9.3
Approach		1968	3.0	2163	3.0	1.278	141.9	LOS F	99.2	2540.0	1.00	3.67	7.71	6.4
West: Main St NE														
5	L2	20	0.0	22	0.0	0.199	17.1	LOS B	1.2	30.6	0.94	0.97	0.94	32.1
2	T1	1	0.0	1	0.0	0.199	11.0	LOS B	1.2	30.6	0.94	0.97	0.94	33.5
12	R2	359	0.0	395	0.0	0.199	4.7	LOS A	1.2	30.6	0.15	0.52	0.15	35.2
Approach		380	0.0	418	0.0	0.199	5.4	LOS A	1.2	30.6	0.19	0.54	0.19	35.0
All Vehicles		4493	2.7	4937	2.7	1.278	65.9	LOS E	99.2	2540.0	0.66	1.88	3.60	12.2

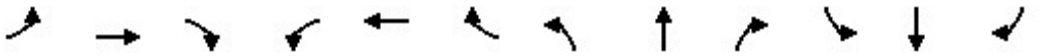
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	580	0	0	869	0	1490	1566	0	2044	685
Future Volume (vph)	0	0	580	0	0	869	0	1490	1566	0	2044	685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		0.99	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.96	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3192	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3192	1409		3438	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	604	0	0	905	0	1552	1631	0	2129	714
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	604	0	0	905	0	2204	979	0	2129	714
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1662	1409		1246	1538
v/s Ratio Prot			0.22			0.32		c0.69			c0.62	
v/s Ratio Perm									0.69			0.46
v/c Ratio			0.40			0.84		1.33	0.69		1.71	0.46
Uniform Delay, d1			16.4			33.3		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.62	1.00		1.00	1.00
Incremental Delay, d2			0.2			5.8		148.3	1.0		322.3	1.0
Delay (s)			16.6			39.2		166.1	1.0		360.6	1.0
Level of Service			B			D		F	A		F	A
Approach Delay (s)		16.6			39.2			115.3			270.3	
Approach LOS		B			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	156.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	155	0	0	1009	0	2047	275	0	1991	628
Future Volume (vph)	0	0	155	0	0	1009	0	2047	275	0	1991	628
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	157	0	0	1019	0	2068	278	0	2011	634
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	157	0	0	1019	0	2068	278	0	2011	634
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.10			0.38		c0.41			c0.57	
v/s Ratio Perm									0.18			0.41
v/c Ratio			0.26			0.71		1.10	0.18		1.10	0.41
Uniform Delay, d1			25.0			20.7		37.8	0.0		28.8	0.0
Progression Factor			1.00			1.00		0.79	1.00		0.64	1.00
Incremental Delay, d2			0.2			1.6		47.1	0.1		46.8	0.1
Delay (s)			25.3			22.3		77.0	0.1		65.2	0.1
Level of Service			C			C		E	A		E	A
Approach Delay (s)		25.3			22.3			67.9			49.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	51.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

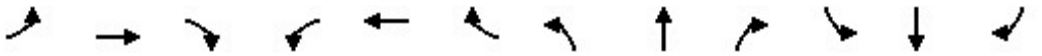
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	220	160	75	65	338	65	1388	65	266	1354	396
Future Volume (veh/h)	559	220	160	75	65	338	65	1388	65	266	1354	396
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	582	229	167	78	68	352	68	1446	68	277	1410	412
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	640	228	166	75	149	352	148	1428	67	254	1691	735
Arrive On Green	0.18	0.23	0.23	0.04	0.08	0.08	0.08	0.41	0.41	0.14	0.47	0.47
Sat Flow, veh/h	3483	1012	738	1795	1885	1586	1781	3451	162	1795	3582	1557
Grp Volume(v), veh/h	582	0	396	78	68	352	68	742	772	277	1410	412
Grp Sat Flow(s),veh/h/ln	1742	0	1750	1795	1885	1586	1781	1777	1836	1795	1791	1557
Q Serve(g_s), s	19.7	0.0	27.0	5.0	4.1	9.5	4.4	49.6	49.6	17.0	41.1	11.1
Cycle Q Clear(g_c), s	19.7	0.0	27.0	5.0	4.1	9.5	4.4	49.6	49.6	17.0	41.1	11.1
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	640	0	394	75	149	352	148	735	760	254	1691	735
V/C Ratio(X)	0.91	0.00	1.00	1.04	0.46	1.00	0.46	1.01	1.02	1.09	0.83	0.56
Avail Cap(c_a), veh/h	653	0	394	75	149	352	148	735	760	254	1746	759
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	1.00	1.00	0.19	0.19	0.19	0.09	0.09	0.09
Uniform Delay (d), s/veh	48.0	0.0	46.5	57.5	52.8	46.8	52.4	35.2	35.2	51.5	27.6	5.4
Incr Delay (d2), s/veh	17.5	0.0	46.4	116.3	4.6	48.1	0.9	17.0	18.3	46.7	0.5	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	10.1	0.0	16.8	4.7	2.2	15.1	2.0	24.3	25.4	10.9	17.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.5	0.0	92.9	173.8	57.4	94.9	53.3	52.1	53.5	98.2	28.0	5.7
LnGrp LOS	E	A	F	F	E	F	D	F	F	F	C	A
Approach Vol, veh/h		978			498			1582			2099	
Approach Delay, s/veh		76.6			102.1			52.8			32.9	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	62.7	27.5	15.0	23.0	55.7	10.0	32.5
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	22.5	* 9.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	6.4	43.1	21.7	11.5	19.0	51.6	7.0	29.0
Green Ext Time (p_c), s	0.0	13.5	0.4	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.0
HCM 6th LOS	D

Notes

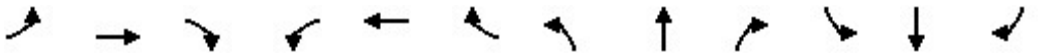
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	60	135	150	60	149	180	1154	170	172	1281	95
Future Volume (veh/h)	150	60	135	150	60	149	180	1154	170	172	1281	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	61	138	153	61	152	184	1178	173	176	1307	97
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	166	73	166	180	72	179	211	1290	189	339	1647	122
Arrive On Green	0.09	0.14	0.14	0.10	0.15	0.15	0.12	0.42	0.42	0.06	0.16	0.16
Sat Flow, veh/h	1810	513	1161	1795	474	1182	1767	3085	451	1795	3380	250
Grp Volume(v), veh/h	153	0	199	153	0	213	184	671	680	176	691	713
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1795	0	1656	1767	1763	1774	1795	1791	1840
Q Serve(g_s), s	10.1	0.0	13.9	10.1	0.0	15.0	12.3	42.9	43.4	11.4	44.5	44.8
Cycle Q Clear(g_c), s	10.1	0.0	13.9	10.1	0.0	15.0	12.3	42.9	43.4	11.4	44.5	44.8
Prop In Lane	1.00		0.69	1.00		0.71	1.00		0.25	1.00		0.14
Lane Grp Cap(c), veh/h	166	0	240	180	0	251	211	737	742	339	873	896
V/C Ratio(X)	0.92	0.00	0.83	0.85	0.00	0.85	0.87	0.91	0.92	0.52	0.79	0.80
Avail Cap(c_a), veh/h	166	0	335	180	0	331	250	737	742	339	873	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	54.1	0.0	50.0	53.1	0.0	49.6	51.9	32.8	32.9	51.0	44.5	44.6
Incr Delay (d2), s/veh	47.5	0.0	10.4	29.7	0.0	13.5	22.9	15.5	16.3	0.6	2.7	2.7
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	6.8	0.0	6.5	6.0	0.0	7.2	6.8	21.1	21.6	5.6	22.1	22.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	0.0	60.4	82.8	0.0	63.0	74.8	48.3	49.2	51.6	47.2	47.3
LnGrp LOS	F	A	E	F	A	E	E	D	D	D	D	D
Approach Vol, veh/h		352			366			1535			1580	
Approach Delay, s/veh		78.3			71.3			51.9			47.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	63.5	15.0	22.2	27.6	55.2	16.0	21.2
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	50.0	11.0	24.0	18.0	49.0	11.0	24.0
Max Q Clear Time (g_c+I1), s	14.3	46.8	12.1	17.0	13.4	45.4	12.1	15.9
Green Ext Time (p_c), s	0.1	2.6	0.0	0.6	0.1	2.8	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	419	550	405	380	545	352	255	749	230	307	1157	367
Future Volume (veh/h)	419	550	405	380	545	352	255	749	230	307	1157	367
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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	423	556	0	384	551	0	258	757	232	310	1169	371
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	483	648		475	657		275	859	263	344	1283	571
Arrive On Green	0.14	0.18	0.00	0.14	0.18	0.00	0.15	0.32	0.32	0.19	0.36	0.36
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2698	827	1810	3610	1607
Grp Volume(v), veh/h	423	556	0	384	551	0	258	502	487	310	1169	371
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1734	1810	1805	1607
Q Serve(g_s), s	14.3	18.1	0.0	12.7	17.7	0.0	17.1	31.9	31.9	20.1	37.0	15.2
Cycle Q Clear(g_c), s	14.3	18.1	0.0	12.7	17.7	0.0	17.1	31.9	31.9	20.1	37.0	15.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	483	648		475	657		275	570	552	344	1283	571
V/C Ratio(X)	0.88	0.86		0.81	0.84		0.94	0.88	0.88	0.90	0.91	0.65
Avail Cap(c_a), veh/h	581	731		614	767		275	642	622	344	1324	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	47.6	0.0	50.4	47.4	0.0	50.3	38.8	38.8	47.5	36.9	13.9
Incr Delay (d2), s/veh	11.0	9.4	0.0	4.7	7.5	0.0	37.6	17.6	18.1	24.8	11.2	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	8.8	0.0	5.9	8.5	0.0	10.5	16.6	16.2	11.4	18.1	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	57.0	0.0	55.0	54.9	0.0	87.8	56.4	56.8	72.3	48.1	19.6
LnGrp LOS	E	E		E	D		F	E	E	E	D	B
Approach Vol, veh/h		979			935			1247			1850	
Approach Delay, s/veh		59.0			54.9			63.1			46.4	
Approach LOS		E			D			E			D	

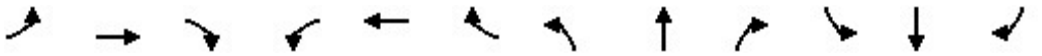
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.4	47.7	21.6	27.3	27.8	43.2	21.8	27.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.5	* 5.5
Max Green Setting (Gmax), s	10.0	44.0	20.0	25.5	11.0	43.0	21.0	* 25
Max Q Clear Time (g_c+I1), s	19.1	39.0	16.3	19.7	22.1	33.9	14.7	20.1
Green Ext Time (p_c), s	0.0	3.6	0.4	1.9	0.0	4.3	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	54.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	215	25	145	245	228	30	726	30	314	1247	224
Future Volume (veh/h)	165	215	25	145	245	228	30	726	30	314	1247	224
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	176	229	27	154	261	243	32	772	32	334	1327	238
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	209	412	49	180	211	197	62	924	38	371	1324	235
Arrive On Green	0.12	0.25	0.25	0.10	0.23	0.23	0.03	0.26	0.26	0.21	0.44	0.44
Sat Flow, veh/h	1781	1642	194	1810	905	842	1795	3504	145	1795	3038	539
Grp Volume(v), veh/h	176	0	256	154	0	504	32	395	409	334	776	789
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1810	0	1747	1795	1791	1858	1795	1791	1786
Q Serve(g_s), s	10.1	0.0	12.7	8.8	0.0	24.4	1.8	21.7	21.8	19.0	45.1	45.6
Cycle Q Clear(g_c), s	10.1	0.0	12.7	8.8	0.0	24.4	1.8	21.7	21.8	19.0	45.1	45.6
Prop In Lane	1.00		0.11	1.00		0.48	1.00		0.08	1.00		0.30
Lane Grp Cap(c), veh/h	209	0	461	180	0	408	62	472	490	371	780	778
V/C Ratio(X)	0.84	0.00	0.56	0.86	0.00	1.24	0.51	0.84	0.84	0.90	0.99	1.01
Avail Cap(c_a), veh/h	348	0	461	180	0	408	179	618	642	625	780	778
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	45.2	0.0	34.1	46.3	0.0	40.1	49.6	36.3	36.3	40.4	29.4	29.5
Incr Delay (d2), s/veh	7.2	0.0	1.5	30.5	0.0	125.7	4.8	7.3	7.1	8.1	30.7	35.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	5.8	5.4	0.0	24.5	0.9	10.3	10.7	9.1	25.1	26.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	35.5	76.9	0.0	165.8	54.4	43.7	43.4	48.5	60.0	65.3
LnGrp LOS	D	A	D	E	A	F	D	D	D	D	E	F
Approach Vol, veh/h		432			658			836			1899	
Approach Delay, s/veh		42.4			145.0			44.0			60.2	
Approach LOS		D			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	50.5	16.9	29.0	26.2	32.5	15.0	30.9
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.8	47.6	12.1	26.4	21.0	23.8	10.8	14.7
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.7	3.8	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	69.2
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	130	1.0	144	1.0	0.550	23.1	LOS C	5.1	129.7	0.98	1.11	1.30	29.9
8	T1	463	1.0	514	1.0	0.550	15.7	LOS B	5.9	149.8	1.00	1.07	1.28	31.4
18	R2	35	1.0	39	1.0	0.550	15.0	LOS B	5.9	149.8	1.00	1.05	1.27	31.2
Approach		628	1.0	698	1.0	0.550	17.2	LOS B	5.9	149.8	0.99	1.08	1.28	31.1
East: Pacific Ave SE														
1	L2	35	1.0	39	1.0	0.400	12.1	LOS B	2.1	52.9	0.68	0.67	0.71	35.3
6	T1	260	1.0	289	1.0	0.400	6.5	LOS A	2.1	52.9	0.68	0.67	0.71	35.2
16	R2	348	1.0	387	1.0	0.397	6.1	LOS A	2.2	54.5	0.67	0.70	0.68	34.9
Approach		643	1.0	714	1.0	0.400	6.6	LOS A	2.2	54.5	0.67	0.69	0.69	35.0
North: Marvin Rd SE														
7u	U	5	1.0	6	1.0	0.704	18.5	LOS B	8.3	209.0	0.88	0.96	1.12	33.1
7	L2	444	1.0	493	1.0	0.704	16.1	LOS B	8.3	209.0	0.88	0.96	1.12	32.4
4	T1	848	1.0	942	1.0	0.704	9.4	LOS A	8.7	219.0	0.86	0.88	1.06	34.3
14	R2	90	1.0	100	1.0	0.704	9.2	LOS A	8.7	219.0	0.85	0.86	1.04	33.7
Approach		1387	1.0	1541	1.0	0.704	11.6	LOS B	8.7	219.0	0.86	0.91	1.08	33.6
West: Pacific Ave SE														
5	L2	55	1.0	61	1.0	0.773	18.4	LOS B	6.5	163.1	0.95	1.12	1.39	32.9
2	T1	400	1.0	444	1.0	0.773	12.8	LOS B	6.5	163.1	0.95	1.12	1.39	32.8
12	R2	270	1.0	300	1.0	0.629	11.9	LOS B	3.9	97.6	0.88	1.02	1.14	32.5
Approach		725	1.0	806	1.0	0.773	12.9	LOS B	6.5	163.1	0.92	1.08	1.29	32.7
All Vehicles		3383	1.0	3759	1.0	0.773	12.0	LOS B	8.7	219.0	0.86	0.93	1.09	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	35	2.0	38	2.0	0.283	12.3	LOS B	1.8	44.6	0.20	0.50	0.20	37.0
3	L2	85	2.0	93	2.0	0.283	9.9	LOS A	1.8	44.6	0.20	0.50	0.20	36.1
8	T1	519	2.0	570	2.0	0.283	4.3	LOS A	1.8	45.1	0.20	0.45	0.20	36.7
18	R2	137	2.0	151	2.0	0.283	4.4	LOS A	1.8	45.1	0.19	0.42	0.19	35.9
Approach		776	2.0	853	2.0	0.283	5.3	LOS A	1.8	45.1	0.20	0.45	0.20	36.5
East: 31st Ave NE														
1	L2	121	3.0	133	3.0	0.175	11.6	LOS B	0.6	15.9	0.48	0.78	0.48	34.2
6	T1	15	3.0	16	3.0	0.175	6.1	LOS A	0.6	15.9	0.48	0.78	0.48	34.2
16	R2	10	3.0	11	3.0	0.175	6.0	LOS A	0.6	15.9	0.48	0.78	0.48	33.3
Approach		146	3.0	160	3.0	0.175	10.7	LOS B	0.6	15.9	0.48	0.78	0.48	34.1
North: Willamette Dr NE														
7	L2	5	1.0	5	1.0	0.138	10.8	LOS B	0.7	18.1	0.43	0.51	0.43	36.2
4	T1	308	1.0	338	1.0	0.138	5.2	LOS A	0.7	18.7	0.42	0.50	0.42	36.3
14	R2	10	1.0	11	1.0	0.138	5.1	LOS A	0.7	18.7	0.41	0.49	0.41	35.2
Approach		323	1.0	355	1.0	0.138	5.3	LOS A	0.7	18.7	0.42	0.50	0.42	36.3
West: 31st Ave NE														
5	L2	20	2.0	22	2.0	0.128	11.1	LOS B	0.5	11.7	0.42	0.63	0.42	36.2
2	T1	20	2.0	22	2.0	0.128	5.5	LOS A	0.5	11.7	0.42	0.63	0.42	36.2
12	R2	75	2.0	82	2.0	0.128	5.4	LOS A	0.5	11.7	0.42	0.63	0.42	35.2
Approach		115	2.0	126	2.0	0.128	6.4	LOS A	0.5	11.7	0.42	0.63	0.42	35.5
All Vehicles		1360	1.9	1495	1.9	0.283	6.0	LOS A	1.8	45.1	0.30	0.52	0.30	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	35	13.0	38	13.0	0.770	14.9	LOS B	7.0	193.2	0.76	0.93	0.98	34.9
8	T1	260	13.0	280	13.0	0.770	8.9	LOS A	7.0	193.2	0.76	0.93	0.98	34.9
18	R2	355	13.0	382	13.0	0.770	8.9	LOS A	7.0	193.2	0.76	0.93	0.98	33.9
Approach		650	13.0	699	13.0	0.770	9.2	LOS A	7.0	193.2	0.76	0.93	0.98	34.3
East: Britton Pkwy NE														
1	L2	60	4.0	65	4.0	0.345	12.4	LOS B	2.3	58.7	0.67	0.66	0.67	35.2
6	T1	619	4.0	666	4.0	0.345	6.2	LOS A	2.5	63.3	0.66	0.61	0.66	35.5
16	R2	10	4.0	11	4.0	0.345	6.1	LOS A	2.5	63.3	0.65	0.57	0.65	34.4
Approach		689	4.0	741	4.0	0.345	6.7	LOS A	2.5	63.3	0.66	0.61	0.66	35.4
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.730	18.0	LOS B	5.4	145.1	0.80	0.99	1.10	35.4
7	L2	15	10.0	16	10.0	0.730	15.6	LOS B	5.4	145.1	0.80	0.99	1.10	34.6
4	T1	155	10.0	167	10.0	0.730	9.7	LOS A	5.4	145.1	0.80	0.99	1.10	34.6
14	R2	343	10.0	369	10.0	0.730	9.7	LOS A	5.4	145.1	0.80	0.99	1.10	33.5
Approach		518	10.0	557	10.0	0.730	9.9	LOS A	5.4	145.1	0.80	0.99	1.10	33.9
West: Britton Pkwy NE														
5u	U	5	7.0	5	7.0	0.160	13.6	LOS B	0.9	23.7	0.46	0.61	0.46	36.0
5	L2	79	7.0	85	7.0	0.160	11.1	LOS B	0.9	23.7	0.46	0.61	0.46	35.0
2	T1	258	7.0	277	7.0	0.160	5.0	LOS A	0.9	24.8	0.45	0.52	0.45	36.0
12	R2	15	7.0	16	7.0	0.160	5.1	LOS A	0.9	24.8	0.45	0.48	0.45	35.1
Approach		357	7.0	384	7.0	0.160	6.5	LOS A	0.9	24.8	0.45	0.54	0.45	35.7
All Vehicles		2214	8.5	2381	8.5	0.770	8.2	LOS A	7.0	193.2	0.69	0.78	0.82	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	15	795	38	10	125	759	35	36	0	69	35	0	25
Future Vol, veh/h	15	795	38	10	125	759	35	36	0	69	35	0	25
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	16	846	40	11	133	807	37	38	0	73	37	0	27

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	845	0	0	886	886	0	0	1591	2031	444	1571	2033	424
Stage 1	-	-	-	-	-	-	-	898	898	-	1115	1115	-
Stage 2	-	-	-	-	-	-	-	693	1133	-	456	918	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	775	-	-	390	754	-	-	72	57	561	76	58	584
Stage 1	-	-	-	-	-	-	-	301	356	-	225	286	-
Stage 2	-	-	-	-	-	-	-	400	276	-	559	353	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	774	-	-	692	692	-	-	57	44	560	54	45	583
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	57	44	-	54	45	-
Stage 1	-	-	-	-	-	-	-	295	349	-	220	226	-
Stage 2	-	-	-	-	-	-	-	302	218	-	475	346	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.7	93.1	117.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	139	774	-	-	692	-	-	87
HCM Lane V/C Ratio	0.804	0.021	-	-	0.208	-	-	0.734
HCM Control Delay (s)	93.1	9.7	-	-	11.6	-	-	117.8
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	5	0.1	-	-	0.8	-	-	3.7

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	798	45	69	746	5	0	0	49	5	0	25
Future Vol, veh/h	10	798	45	69	746	5	0	0	49	5	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	11	849	48	73	794	5	0	0	52	5	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	799	0	0	897	0	0	1438	1840	449	1390	1862	400
Stage 1	-	-	-	-	-	-	895	895	-	943	943	-
Stage 2	-	-	-	-	-	-	543	945	-	447	919	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	807	-	-	746	-	-	94	75	557	104	74	605
Stage 1	-	-	-	-	-	-	302	357	-	286	344	-
Stage 2	-	-	-	-	-	-	492	339	-	566	353	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	807	-	-	746	-	-	82	67	557	86	66	605
Mov Cap-2 Maneuver	-	-	-	-	-	-	82	67	-	86	66	-
Stage 1	-	-	-	-	-	-	298	352	-	282	310	-
Stage 2	-	-	-	-	-	-	424	306	-	506	348	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	12.1	18.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	557	807	-	-	746	-	-	302
HCM Lane V/C Ratio	0.094	0.013	-	-	0.098	-	-	0.106
HCM Control Delay (s)	12.1	9.5	-	-	10.4	-	-	18.3
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.3	-	-	0.4

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	551	2.0	612	2.0	0.588	12.5	LOS B	3.7	94.7	0.67	0.87	0.78	34.0
8	T1	54	2.0	60	2.0	0.588	6.1	LOS A	3.7	94.7	0.67	0.87	0.78	33.8
18	R2	295	2.0	328	2.0	0.266	4.7	LOS A	1.0	26.3	0.45	0.55	0.45	36.0
Approach		900	2.0	1000	2.0	0.588	9.5	LOS A	3.7	94.7	0.60	0.77	0.67	34.6
East: Britton Pkwy NE														
1u	U	5	3.0	6	3.0	0.535	21.1	LOS C	4.9	124.7	0.93	1.03	1.14	32.9
1	L2	205	3.0	228	3.0	0.535	18.5	LOS B	4.9	124.7	0.93	1.03	1.14	32.1
6	T1	381	3.0	423	3.0	0.535	10.7	LOS B	5.5	140.6	0.95	0.97	1.12	33.9
16	R2	175	3.0	194	3.0	0.535	10.4	LOS B	5.5	140.6	0.96	0.94	1.11	33.5
Approach		766	3.0	851	3.0	0.535	12.8	LOS B	5.5	140.6	0.95	0.98	1.12	33.3
North: Gateway Blvd NE														
7	L2	85	2.0	94	2.0	0.367	15.2	LOS B	2.0	51.6	0.79	0.92	0.85	34.4
4	T1	41	2.0	46	2.0	0.367	8.8	LOS A	2.0	51.6	0.79	0.92	0.85	34.2
14	R2	80	2.0	89	2.0	0.367	8.9	LOS A	2.0	51.6	0.79	0.92	0.85	33.2
Approach		206	2.0	229	2.0	0.367	11.5	LOS B	2.0	51.6	0.79	0.92	0.85	33.9
West: Britton Pkwy NE														
5u	U	5	5.0	6	5.0	0.374	14.7	LOS B	2.5	65.3	0.63	0.64	0.63	36.4
5	L2	120	5.0	133	5.0	0.374	12.1	LOS B	2.5	65.3	0.63	0.64	0.63	35.4
2	T1	468	5.0	520	5.0	0.374	5.5	LOS A	2.7	70.1	0.62	0.60	0.62	35.9
12	R2	190	5.0	211	5.0	0.374	5.5	LOS A	2.7	70.1	0.61	0.56	0.61	35.0
Approach		783	5.0	870	5.0	0.374	6.6	LOS A	2.7	70.1	0.62	0.60	0.62	35.6
All Vehicles		2655	3.2	2950	3.2	0.588	9.8	LOS A	5.5	140.6	0.72	0.79	0.80	34.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	720	92	30	1002	25	15	0	127	10	0	35
Future Vol, veh/h	50	720	92	30	1002	25	15	0	127	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	758	97	32	1055	26	16	0	134	11	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1081	0	0	855	0	0	1505	2058	428	1617	2093	541
Stage 1	-	-	-	-	-	-	913	913	-	1132	1132	-
Stage 2	-	-	-	-	-	-	592	1145	-	485	961	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	647	-	-	781	-	-	84	54	575	70	53	491
Stage 1	-	-	-	-	-	-	294	350	-	220	281	-
Stage 2	-	-	-	-	-	-	460	272	-	537	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	647	-	-	781	-	-	71	48	575	49	47	491
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	48	-	49	47	-
Stage 1	-	-	-	-	-	-	270	321	-	202	269	-
Stage 2	-	-	-	-	-	-	408	261	-	378	309	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	19.1	31.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	71	575	647	-	-	781	-	-	49	491
HCM Lane V/C Ratio	0.222	0.232	0.081	-	-	0.04	-	-	0.215	0.075
HCM Control Delay (s)	69.6	13.1	11.1	-	-	9.8	-	-	97.5	12.9
HCM Lane LOS	F	B	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.8	0.9	0.3	-	-	0.1	-	-	0.7	0.2

Intersection	
Int Delay, s/veh	10.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	18	9	10	19	10	85	112	202	19	10	10
Future Vol, veh/h	9	18	9	10	19	10	85	112	202	19	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	20	10	11	21	11	92	122	220	21	11	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	32	0	0	30	0	0	105	99	25	265	99	27
Stage 1	-	-	-	-	-	-	45	45	-	49	49	-
Stage 2	-	-	-	-	-	-	60	54	-	216	50	-
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	1580	-	-	1583	-	-	875	791	1051	688	791	1048
Stage 1	-	-	-	-	-	-	969	857	-	964	854	-
Stage 2	-	-	-	-	-	-	951	850	-	786	853	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1583	-	-	848	781	1051	475	781	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	848	781	-	475	781	-
Stage 1	-	-	-	-	-	-	963	852	-	958	848	-
Stage 2	-	-	-	-	-	-	923	844	-	530	848	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.9	12.4	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	915	1580	-	-	1583	-	-	626
HCM Lane V/C Ratio	0.474	0.006	-	-	0.007	-	-	0.068
HCM Control Delay (s)	12.4	7.3	0	-	7.3	0	-	11.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.6	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	199	77	50	280	117	75
Future Vol, veh/h	199	77	50	280	117	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	224	87	56	315	131	84

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	311	0	695	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1261	-	408	771
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1261	-	386	771
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	622	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	-	-	1261	-
HCM Lane V/C Ratio	0.449	-	-	0.045	-
HCM Control Delay (s)	18.5	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.3	-	-	0.1	-

MOVEMENT SUMMARY

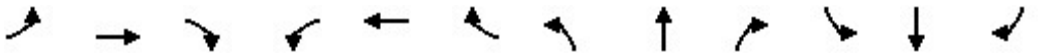
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	155	4.0	187	4.0	0.274	13.3	LOS B	1.7	43.5	0.70	0.81	0.70	31.2
8	T1	5	4.0	6	4.0	0.673	8.5	LOS A	8.0	205.4	0.91	0.89	1.06	30.7
18	R2	574	4.0	692	4.0	0.673	8.7	LOS A	8.0	205.4	0.91	0.89	1.06	32.2
Approach		734	4.0	884	4.0	0.673	9.7	LOS A	8.0	205.4	0.86	0.87	0.99	31.9
East: Britton Pkwy NE														
1	L2	643	5.0	775	5.0	0.569	11.2	LOS B	4.2	108.2	0.54	0.66	0.54	32.0
6	T1	419	5.0	505	5.0	0.569	5.3	LOS A	4.2	108.2	0.53	0.55	0.53	35.6
16	R2	1	5.0	1	5.0	0.569	5.3	LOS A	4.2	108.2	0.53	0.55	0.53	32.8
Approach		1063	5.0	1281	5.0	0.569	8.8	LOS A	4.2	108.2	0.54	0.62	0.54	33.6
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.016	13.8	LOS B	0.1	1.5	0.66	0.72	0.66	34.3
4	T1	5	0.0	6	0.0	0.016	8.0	LOS A	0.1	1.5	0.66	0.72	0.66	31.0
14	R2	1	0.0	1	0.0	0.016	7.9	LOS A	0.1	1.5	0.66	0.72	0.66	32.7
Approach		7	0.0	8	0.0	0.016	8.8	LOS A	0.1	1.5	0.66	0.72	0.66	31.9
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.923	29.1	LOS D	13.5	348.0	0.99	1.40	2.15	26.7
2	T1	368	4.0	443	4.0	0.923	22.9	LOS D	13.5	348.0	0.99	1.40	2.15	29.0
12	R2	140	4.0	169	4.0	0.923	23.0	LOS D	13.5	348.0	0.99	1.40	2.15	25.0
Approach		509	4.0	613	4.0	0.923	23.0	LOS C	13.5	348.0	0.99	1.40	2.15	28.1
All Vehicles		2313	4.4	2787	4.4	0.923	12.2	LOS B	13.5	348.0	0.74	0.87	1.03	31.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	1100	410	400	870	137	195	291	275	154	453	187
Future Volume (veh/h)	263	1100	410	400	870	137	195	291	275	154	453	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	268	1122	418	408	888	140	199	297	281	157	462	191
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1223	735	467	1221	192	217	444	591	184	534	219
Arrive On Green	0.08	0.34	0.34	0.14	0.40	0.40	0.12	0.24	0.24	0.10	0.22	0.22
Sat Flow, veh/h	1795	3582	1588	3456	3071	484	1795	1885	1594	1767	2436	999
Grp Volume(v), veh/h	268	1122	418	408	514	514	199	297	281	157	333	320
Grp Sat Flow(s),veh/h/ln	1795	1791	1588	1728	1777	1778	1795	1885	1594	1767	1763	1672
Q Serve(g_s), s	9.5	36.0	23.1	13.9	29.4	29.4	13.2	17.2	16.2	10.5	21.9	22.1
Cycle Q Clear(g_c), s	9.5	36.0	23.1	13.9	29.4	29.4	13.2	17.2	16.2	10.5	21.9	22.1
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		0.60
Lane Grp Cap(c), veh/h	142	1223	735	467	706	707	217	444	591	184	386	366
V/C Ratio(X)	1.89	0.92	0.57	0.87	0.73	0.73	0.92	0.67	0.48	0.85	0.86	0.87
Avail Cap(c_a), veh/h	142	1223	735	562	706	707	217	463	608	214	433	411
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)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	37.9	23.5	50.9	30.6	30.6	52.2	41.6	28.8	52.8	45.1	45.2
Incr Delay (d2), s/veh	418.3	9.9	2.5	11.0	6.5	6.5	38.4	3.7	0.7	21.7	15.1	16.9
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	20.8	17.3	9.0	6.7	13.7	13.7	8.2	8.4	6.3	5.8	11.1	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	473.5	47.8	26.0	61.9	37.1	37.1	90.6	45.3	29.5	74.5	60.2	62.1
LnGrp LOS	F	D	C	E	D	D	F	D	C	E	E	E
Approach Vol, veh/h		1808			1436			777			810	
Approach Delay, s/veh		105.9			44.1			51.2			63.7	
Approach LOS		F			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	53.2	18.0	33.8	21.7	46.5	20.0	31.8
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	31.4	12.5	19.2	15.9	38.0	15.2	24.1
Green Ext Time (p_c), s	0.0	6.3	0.0	2.4	0.3	0.0	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

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

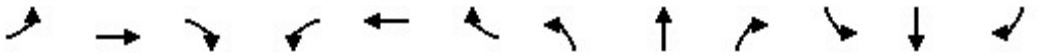
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	840	135	130	810	35	165	262	90	100	387	576
Future Volume (veh/h)	354	840	135	130	810	35	165	262	90	100	387	576
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	365	866	139	134	835	36	170	270	93	103	399	594
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	292	1082	174	161	956	41	181	743	250	128	459	406
Arrive On Green	0.16	0.35	0.35	0.09	0.27	0.27	0.10	0.29	0.29	0.07	0.26	0.26
Sat Flow, veh/h	1795	3088	496	1795	3497	151	1767	2584	869	1795	1791	1583
Grp Volume(v), veh/h	365	502	503	134	428	443	170	182	181	103	399	594
Grp Sat Flow(s),veh/h/ln	1795	1791	1793	1795	1791	1857	1767	1763	1691	1795	1791	1583
Q Serve(g_s), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.6	10.0	6.6	24.9	30.0
Cycle Q Clear(g_c), s	19.0	29.6	29.6	8.6	26.7	26.7	11.2	9.6	10.0	6.6	24.9	30.0
Prop In Lane	1.00		0.28	1.00		0.08	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	292	627	628	161	490	508	181	507	486	128	459	406
V/C Ratio(X)	1.25	0.80	0.80	0.83	0.87	0.87	0.94	0.36	0.37	0.80	0.87	1.46
Avail Cap(c_a), veh/h	292	627	628	223	543	563	181	507	486	184	459	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	34.3	34.3	52.4	40.6	40.6	52.1	33.1	33.2	53.5	41.6	43.5
Incr Delay (d2), s/veh	138.5	7.3	7.3	12.6	13.8	13.4	48.5	0.4	0.5	9.9	16.2	221.9
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	19.7	14.0	14.0	4.4	13.5	14.0	7.4	4.2	4.2	3.3	13.0	36.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.5	41.6	41.6	65.0	54.4	54.0	100.7	33.5	33.7	63.4	57.8	265.4
LnGrp LOS	F	D	D	E	D	D	F	C	C	E	E	F
Approach Vol, veh/h		1370			1005			533			1096	
Approach Delay, s/veh		80.5			55.6			55.0			170.8	
Approach LOS		F			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	38.0	14.3	39.7	16.0	47.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	28.7	8.6	12.0	10.6	31.6	13.2	32.0
Green Ext Time (p_c), s	0.0	3.3	0.0	2.0	0.1	4.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	95.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



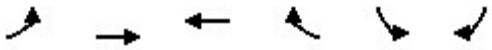
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1705	5	10	1163	35	80	5	43	60	5	35
Future Volume (veh/h)	45	1705	5	10	1163	35	80	5	43	60	5	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1795	0	11	1224	37	84	5	45	63	5	37
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, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	92	2656		18	2598	79	169	234	198	215	15	198
Arrive On Green	0.05	1.00	0.00	0.01	0.74	0.74	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	3483	3582	1598	1781	3522	106	1386	1900	1610	1278	122	1610
Grp Volume(v), veh/h	47	1795	0	11	617	644	84	5	45	68	0	37
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1851	1386	1900	1610	1400	0	1610
Q Serve(g_s), s	1.6	0.0	0.0	0.7	16.7	16.8	7.1	0.3	3.0	5.1	0.0	2.5
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.7	16.7	16.8	12.5	0.3	3.0	5.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	92	2656		18	1311	1366	169	234	198	230	0	198
V/C Ratio(X)	0.51	0.68		0.60	0.47	0.47	0.50	0.02	0.23	0.30	0.00	0.19
Avail Cap(c_a), veh/h	290	2656		82	1311	1366	471	649	550	537	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	0.0	0.0	59.1	6.3	6.3	54.3	46.2	47.4	48.5	0.0	47.2
Incr Delay (d2), s/veh	3.0	1.3	0.0	10.7	0.6	0.6	1.7	0.0	0.4	0.5	0.0	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	0.7	0.5	0.0	0.4	5.7	6.0	2.6	0.1	1.2	1.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	1.3	0.0	69.8	6.9	6.9	55.9	46.3	47.9	49.0	0.0	47.5
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1842			1272			134			105	
Approach Delay, s/veh		2.8			7.4			52.9			48.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	94.0		18.8	6.7	94.5		18.8				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.6	18.8		14.5	2.7	2.0		7.4				
Green Ext Time (p_c), s	0.0	13.3		0.3	0.0	30.2		0.4				

Intersection Summary		
HCM 6th Ctrl Delay	8.0	
HCM 6th LOS	A	

Notes

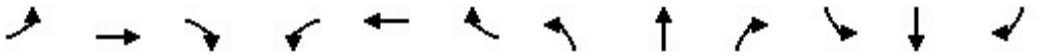
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	1746	1183	30	44	55
Future Volume (veh/h)	55	1746	1183	30	44	55
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	59	1857	1259	32	47	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	887	4470	1394	35	95	84
Arrive On Green	0.43	0.87	0.79	0.79	0.05	0.05
Sat Flow, veh/h	1795	5316	3635	90	1810	1610
Grp Volume(v), veh/h	59	1857	631	660	47	59
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1854	1810	1610
Q Serve(g_s), s	0.0	8.9	31.4	31.5	3.0	4.3
Cycle Q Clear(g_c), s	0.0	8.9	31.4	31.5	3.0	4.3
Prop In Lane	1.00			0.05	1.00	1.00
Lane Grp Cap(c), veh/h	887	4470	699	730	95	84
V/C Ratio(X)	0.07	0.42	0.90	0.90	0.50	0.70
Avail Cap(c_a), veh/h	887	4470	1029	1074	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	13.4	1.6	11.1	11.1	55.3	55.9
Incr Delay (d2), s/veh	0.0	0.3	15.6	15.1	1.5	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.6	7.4	7.7	1.4	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	1.9	26.6	26.2	56.8	59.9
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1916	1291		106	
Approach Delay, s/veh		2.3	26.4		58.5	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	57.0	52.7				109.7	10.3
Change Period (Y+Rc), s	5.5	5.5				5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5				82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	33.5				10.9	6.3
Green Ext Time (p_c), s	0.0	13.7				32.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B



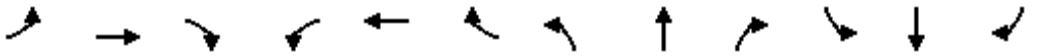
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	669	995	0	0	1173	75	15	0	831	0	0	0
Future Volume (veh/h)	669	995	0	0	1173	75	15	0	831	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	727	1082	0	0	1275	0	16	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3249	0	0	1980		25	0				
Arrive On Green	0.20	0.61	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	727	1082	0	0	1275	0	16	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	17.8	0.0	0.0	29.7	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	17.8	0.0	0.0	29.7	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3249	0	0	1980		25	0				
V/C Ratio(X)	1.33	0.33	0.00	0.00	0.64		0.65	0.00				
Avail Cap(c_a), veh/h	546	3249	0	0	1980		389	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	47.8	5.7	0.0	0.0	18.4	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	150.2	0.0	0.0	0.0	1.6	0.0	24.9	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			
%ile BackOfQ(50%),veh/ln	39.7	7.6	0.0	0.0	12.3	0.0	0.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	198.0	5.7	0.0	0.0	20.0	0.0	83.8	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		1809			1275			16				
Approach Delay, s/veh		83.0			20.0			83.8				
Approach LOS		F			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.3		5.7		114.3			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	31.7		3.1		19.8			
Green Ext Time (p_c), s	0.0	7.0		0.0		12.9			

Intersection Summary		
HCM 6th Ctrl Delay	57.1	
HCM 6th LOS	E	

Notes

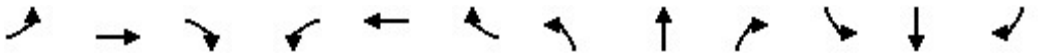
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1614	435	425	783	0	0	0	0	95	5	834
Future Volume (vph)	0	1614	435	425	783	0	0	0	0	95	5	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1791	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1791	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1664	448	438	807	0	0	0	0	98	5	860
RTOR Reduction (vph)	0	0	259	0	0	0	0	0	0	0	0	28
Lane Group Flow (vph)	0	1664	189	438	807	0	0	0	0	0	103	832
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	28.3	37.0						26.2	73.5
Effective Green, g (s)		50.5	50.5	28.3	37.0						26.2	73.5
Actuated g/C Ratio		0.42	0.42	0.24	0.31						0.22	0.61
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	417	1091						391	979
v/s Ratio Prot		c0.47		c0.25	0.23							c0.52
v/s Ratio Perm			0.12								0.06	
v/c Ratio		1.11	0.28	1.05	0.74						0.26	0.85
Uniform Delay, d1		34.8	22.8	45.9	37.2						38.9	18.8
Progression Factor		0.92	1.38	0.62	0.20						1.00	1.00
Incremental Delay, d2		53.8	0.6	29.0	0.4						0.4	7.3
Delay (s)		85.8	31.9	57.7	7.9						39.3	26.1
Level of Service		F	C	E	A						D	C
Approach Delay (s)		74.4			25.4			0.0			27.5	
Approach LOS		E			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	931	295	746	691	195	160	290	931	165	225	65
Future Volume (veh/h)	35	931	295	746	691	195	160	290	931	165	225	65
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		0.97	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	970	0	777	720	0	167	302	970	172	234	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	46	1223		824	1985		195	267	1058	201	374	106
Arrive On Green	0.03	0.34	0.00	0.40	0.93	0.00	0.11	0.14	0.14	0.11	0.14	0.14
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2732	1795	2743	777
Grp Volume(v), veh/h	36	970	0	777	720	0	167	302	970	172	151	151
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1366	1795	1791	1729
Q Serve(g_s), s	2.4	29.4	0.0	26.0	2.5	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Cycle Q Clear(g_c), s	2.4	29.4	0.0	26.0	2.5	0.0	11.0	17.0	17.0	11.3	9.5	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	46	1223		824	1985		195	267	1058	201	244	236
V/C Ratio(X)	0.78	0.79		0.94	0.36		0.86	1.13	0.92	0.86	0.62	0.64
Avail Cap(c_a), veh/h	90	1223		850	1985		254	267	1058	359	358	346
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.50	0.50	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	35.7	0.0	35.3	1.9	0.0	52.6	51.5	35.5	52.3	48.8	49.0
Incr Delay (d2), s/veh	10.3	5.3	0.0	11.0	0.3	0.0	18.2	95.0	12.2	4.1	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	13.6	0.0	10.7	0.7	0.0	5.9	15.0	15.0	5.3	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	41.0	0.0	46.3	2.1	0.0	70.7	146.5	47.7	56.4	49.8	50.1
LnGrp LOS	E	D		D	A		E	F	D	E	D	D
Approach Vol, veh/h		1006			1497			1439			474	
Approach Delay, s/veh		42.0			25.0			71.1			52.3	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	72.5	17.4	22.0	34.1	46.5	18.0	21.4
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	4.4	4.5	13.3	19.0	28.0	31.4	13.0	11.9
Green Ext Time (p_c), s	0.0	7.0	0.2	0.0	0.6	0.0	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	83	2.0	0.214	12.9	LOS B	0.9	21.8	0.63	0.81	0.63	35.9
8	T1	5	2.0	5	2.0	0.214	5.9	LOS A	0.9	21.8	0.63	0.81	0.63	35.5
18	R2	80	2.0	83	2.0	0.214	6.2	LOS A	0.9	21.8	0.63	0.81	0.63	34.3
Approach		165	2.0	172	2.0	0.214	9.5	LOS A	0.9	21.8	0.63	0.81	0.63	35.1
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.542	14.1	LOS B	4.3	107.9	0.51	0.48	0.51	38.3
1	L2	100	1.0	104	1.0	0.542	11.4	LOS B	4.3	107.9	0.51	0.48	0.51	37.1
6	T1	1362	1.0	1419	1.0	0.542	4.3	LOS A	4.4	110.8	0.49	0.45	0.49	37.1
16	R2	65	1.0	68	1.0	0.542	4.6	LOS A	4.4	110.8	0.47	0.42	0.47	35.8
Approach		1532	1.0	1596	1.0	0.542	4.8	LOS A	4.4	110.8	0.49	0.45	0.49	37.0
North: Lacey St SE														
7	L2	20	2.0	21	2.0	0.111	13.7	LOS B	0.5	11.9	0.69	0.84	0.69	36.2
4	T1	5	2.0	5	2.0	0.111	6.8	LOS A	0.5	11.9	0.69	0.84	0.69	35.8
14	R2	45	2.0	47	2.0	0.111	7.0	LOS A	0.5	11.9	0.69	0.84	0.69	34.6
Approach		70	2.0	73	2.0	0.111	8.9	LOS A	0.5	11.9	0.69	0.84	0.69	35.1
SouthWest: Lacey Blvd SE														
5bx	L3	40	1.0	42	1.0	0.490	12.2	LOS B	3.2	80.9	0.37	0.45	0.37	38.6
5ax	L1	55	1.0	57	1.0	0.490	9.5	LOS A	3.2	80.9	0.37	0.45	0.37	37.3
12ax	R1	1150	1.0	1198	1.0	0.490	3.6	LOS A	3.3	82.3	0.37	0.42	0.37	37.4
12bx	R3	65	1.0	68	1.0	0.490	4.3	LOS A	3.3	82.3	0.36	0.40	0.36	36.0
Approach		1310	1.0	1365	1.0	0.490	4.2	LOS A	3.3	82.3	0.37	0.42	0.37	37.3
All Vehicles		3077	1.1	3205	1.1	0.542	4.9	LOS A	4.4	110.8	0.45	0.47	0.45	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	240	5	85	265	69	10	35	165	34	20	5
Future Vol, veh/h	5	240	5	85	265	69	10	35	165	34	20	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	6	273	6	97	301	78	11	40	188	39	23	6
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

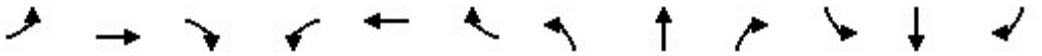
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	12.9	19.2	11.1	10.6
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	2%	20%	58%
Vol Thru, %	78%	0%	96%	63%	34%
Vol Right, %	0%	100%	2%	16%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	165	250	419	59
LT Vol	10	0	5	85	34
Through Vol	35	0	240	265	20
RT Vol	0	165	5	69	5
Lane Flow Rate	51	188	284	476	67
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.096	0.309	0.438	0.691	0.123
Departure Headway (Hd)	6.757	5.93	5.548	5.226	6.609
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	529	604	648	690	539
Service Time	4.52	3.692	3.607	3.276	4.693
HCM Lane V/C Ratio	0.096	0.311	0.438	0.69	0.124
HCM Control Delay	10.2	11.3	12.9	19.2	10.6
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.3	2.2	5.5	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	168	64	575	210	54	410
Future Volume (veh/h)	168	64	575	210	54	410
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	1885	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	173	66	593	216	56	423
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	0	0
Cap, veh/h	255	227	928	786	103	1234
Arrive On Green	0.14	0.14	0.49	0.49	0.06	0.65
Sat Flow, veh/h	1795	1598	1900	1610	1810	1900
Grp Volume(v), veh/h	173	66	593	216	56	423
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1810	1900
Q Serve(g_s), s	3.9	1.6	10.0	3.4	1.3	4.3
Cycle Q Clear(g_c), s	3.9	1.6	10.0	3.4	1.3	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	255	227	928	786	103	1234
V/C Ratio(X)	0.68	0.29	0.64	0.27	0.55	0.34
Avail Cap(c_a), veh/h	750	667	928	786	210	1234
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	17.6	16.6	8.2	6.5	19.8	3.4
Incr Delay (d2), s/veh	3.2	0.7	3.4	0.9	4.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.6	3.7	1.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.7	17.3	11.6	7.4	24.3	4.2
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	239		809			479
Approach Delay, s/veh	19.8		10.4			6.5
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	25.6			32.5	10.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	3.3	12.0			6.3	5.9
Green Ext Time (p_c), s	0.0	2.6			2.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

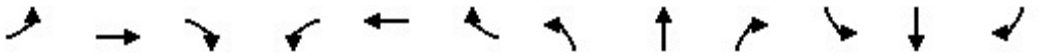


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	664	310	280	562	70	200	460	263	105	305	70
Future Volume (veh/h)	130	664	310	280	562	70	200	460	263	105	305	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	140	714	333	301	604	75	215	495	283	113	328	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	169	788	343	332	1105	489	421	884	366	293	484	109
Arrive On Green	0.09	0.22	0.22	0.19	0.31	0.31	0.24	0.24	0.24	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1558	1767	3526	1559	1767	3711	1539	1795	2971	669
Grp Volume(v), veh/h	140	714	333	301	604	75	215	495	283	113	206	197
Grp Sat Flow(s),veh/h/ln	1795	1791	1558	1767	1763	1559	1767	1856	1539	1795	1885	1754
Q Serve(g_s), s	8.0	20.3	22.2	17.4	14.8	3.6	11.0	12.3	18.0	5.9	10.8	11.1
Cycle Q Clear(g_c), s	8.0	20.3	22.2	17.4	14.8	3.6	11.0	12.3	18.0	5.9	10.8	11.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	169	788	343	332	1105	489	421	884	366	293	307	286
V/C Ratio(X)	0.83	0.91	0.97	0.91	0.55	0.15	0.51	0.56	0.77	0.39	0.67	0.69
Avail Cap(c_a), veh/h	172	788	343	372	1180	522	608	1277	530	584	613	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	39.7	40.5	41.6	29.7	25.9	34.6	35.0	37.2	39.1	41.1	41.3
Incr Delay (d2), s/veh	26.5	14.0	41.0	23.3	0.4	0.1	0.7	0.4	3.5	0.6	1.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	10.3	12.3	9.7	6.3	1.4	4.8	5.5	7.0	2.6	5.1	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	53.8	81.4	64.9	30.1	26.0	35.3	35.4	40.7	39.7	43.0	43.4
LnGrp LOS	E	D	F	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1187			980			993			516	
Approach Delay, s/veh		63.8			40.5			36.9			42.5	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	37.8		29.9	24.6	28.0		22.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	35.0		36.0	22.0	23.0		34.0				
Max Q Clear Time (g_c+I1), s	10.0	16.8		20.0	19.4	24.2		13.1				
Green Ext Time (p_c), s	0.0	3.5		3.7	0.2	0.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		47.3	
HCM 6th LOS		D	

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



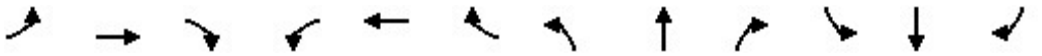
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	818	0	0	1125	336	190	0	540	0	0	0
Future Volume (veh/h)	243	818	0	0	1125	336	190	0	540	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	261	880	0	0	1210	0	204	0	0			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	295	2675	0	0	1872		253	0				
Arrive On Green	0.16	0.75	0.00	0.00	0.53	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	261	880	0	0	1210	0	204	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	12.8	7.4	0.0	0.0	22.0	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	12.8	7.4	0.0	0.0	22.0	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	295	2675	0	0	1872		253	0				
V/C Ratio(X)	0.88	0.33	0.00	0.00	0.65		0.81	0.00				
Avail Cap(c_a), veh/h	299	2675	0	0	1872		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	36.8	3.8	0.0	0.0	15.3	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	24.9	0.3	0.0	0.0	1.7	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	7.5	2.1	0.0	0.0	8.7	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	4.2	0.0	0.0	17.0	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1141			1210			204				
Approach Delay, s/veh		17.3			17.0			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.8	52.4		17.8		72.2						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0						
Max Q Clear Time (g_c+I1), s	14.8	24.0		12.0		9.4						
Green Ext Time (p_c), s	0.0	5.6		0.7		6.2						

Intersection Summary			
HCM 6th Ctrl Delay		19.1	
HCM 6th LOS		B	

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	798	255	0	760	0	0	0	0	258	5	413
Future Volume (veh/h)	0	798	255	0	760	0	0	0	0	258	5	413
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	831	0	0	792	0				269	5	430
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2133		0	2117	0				513	10	465
Arrive On Green	0.00	0.60	0.00	0.00	0.60	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	3770	0	0	3741	0				1750	33	1585
Grp Volume(v), veh/h	0	831	0	0	792	0				274	0	430
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	11.0	0.0	0.0	10.4	0.0				11.6	0.0	23.7
Cycle Q Clear(g_c), s	0.0	11.0	0.0	0.0	10.4	0.0				11.6	0.0	23.7
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2133		0	2117	0				523	0	465
V/C Ratio(X)	0.00	0.39		0.00	0.37	0.00				0.52	0.00	0.93
Avail Cap(c_a), veh/h	0	2133		0	2117	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	0.0	0.0	9.5	0.0				26.6	0.0	30.8
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.6	0.0	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	0.0	0.0	3.8	0.0				4.9	0.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.1	0.0	0.0	10.0	0.0				27.2	0.0	53.4
LnGrp LOS	A	B		A	A	A				C	A	D
Approach Vol, veh/h		831			792						704	
Approach Delay, s/veh		10.1			10.0						43.2	
Approach LOS		B			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		58.6				58.6		31.4				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.4				13.0		25.7				
Green Ext Time (p_c), s		5.3				5.7		0.7				

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

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	722	140	0	1052	0	51
Future Vol, veh/h	722	140	0	1052	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	760	147	0	1107	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	454
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	553
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	553	-	-	-
HCM Lane V/C Ratio	0.097	-	-	-
HCM Control Delay (s)	12.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	838	9	0	815	0	10
Future Vol, veh/h	838	9	0	815	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	891	10	0	867	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	451
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	556
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	556
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	556	-	-	-
HCM Lane V/C Ratio	0.019	-	-	-
HCM Control Delay (s)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	880	19	0	924	0	19
Future Vol, veh/h	880	19	0	924	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	936	20	0	983	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	478
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	534
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	534
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	534	-	-	-
HCM Lane V/C Ratio	0.038	-	-	-
HCM Control Delay (s)	12	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	107	0	2359	2622	8
Future Vol, veh/h	0	107	0	2359	2622	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	3	3	5	5
Mvmt Flow	0	111	0	2457	2731	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1370	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	117	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	117	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	140.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	117	-	-
HCM Lane V/C Ratio	-	0.953	-	-
HCM Control Delay (s)	-	140.5	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	6.1	-	-

MOVEMENT SUMMARY

Site: 1 [Marvin Rd NE/Hawks Prairie Rd NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	230	0.0	230	0.0	0.251	10.5	LOS B	1.5	37.2	0.37	0.61	0.37	34.9
8	T1	474	0.0	474	0.0	0.251	4.6	LOS A	1.5	38.2	0.36	0.48	0.36	36.3
18	R2	5	0.0	5	0.0	0.251	4.7	LOS A	1.5	38.2	0.35	0.44	0.35	35.5
Approach		709	0.0	709	0.0	0.251	6.5	LOS A	1.5	38.2	0.36	0.52	0.36	35.9
East: Hawks Prairie Rd NE														
1u	U	5	3.0	5	3.0	0.308	14.4	LOS B	1.2	31.4	0.56	0.77	0.56	35.6
1	L2	140	3.0	140	3.0	0.308	12.0	LOS B	1.2	31.4	0.56	0.77	0.56	34.8
6	T1	85	3.0	85	3.0	0.308	6.3	LOS A	1.2	31.4	0.56	0.77	0.56	34.7
16	R2	40	3.0	40	3.0	0.308	6.2	LOS A	1.2	31.4	0.56	0.77	0.56	33.8
Approach		270	3.0	270	3.0	0.308	9.4	LOS A	1.2	31.4	0.56	0.77	0.56	34.6
North: Marvin Rd NE														
7	L2	20	2.0	20	2.0	0.212	12.1	LOS B	1.2	30.7	0.58	0.63	0.58	35.7
4	T1	348	2.0	348	2.0	0.212	6.1	LOS A	1.3	32.7	0.57	0.61	0.57	35.8
14	R2	110	2.0	110	2.0	0.212	6.0	LOS A	1.3	32.7	0.56	0.59	0.56	34.9
Approach		478	2.0	478	2.0	0.212	6.3	LOS A	1.3	32.7	0.57	0.61	0.57	35.6
West: Hawks Prairie Rd NE														
5u	U	5	3.0	5	3.0	0.274	13.8	LOS B	1.1	29.3	0.49	0.72	0.49	36.2
5	L2	115	3.0	115	3.0	0.274	11.4	LOS B	1.1	29.3	0.49	0.72	0.49	35.4
2	T1	20	3.0	20	3.0	0.274	5.7	LOS A	1.1	29.3	0.49	0.72	0.49	35.3
12	R2	123	3.0	123	3.0	0.274	5.6	LOS A	1.1	29.3	0.49	0.72	0.49	34.3
Approach		263	3.0	263	3.0	0.274	8.3	LOS A	1.1	29.3	0.49	0.72	0.49	34.9
All Vehicles		1720	1.5	1720	1.5	0.308	7.2	LOS A	1.5	38.2	0.47	0.61	0.47	35.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Marvin Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3	L2	435	2.0	435	2.0	0.681	13.9	LOS B	5.3	135.8	0.77	0.94	0.95	33.9
8	T1	883	2.0	883	2.0	0.681	7.3	LOS A	5.5	140.9	0.75	0.79	0.91	35.1
18	R2	62	2.0	62	2.0	0.681	7.2	LOS A	5.5	140.9	0.75	0.74	0.90	34.3
Approach		1380	2.0	1380	2.0	0.681	9.4	LOS A	5.5	140.9	0.76	0.84	0.92	34.6
East: Britton Pkwy NE														
1	L2	464	4.0	464	4.0	0.754	18.4	LOS B	6.4	164.2	0.93	1.13	1.39	31.5
6	T1	411	4.0	411	4.0	0.754	14.6	LOS B	6.4	164.2	0.91	1.10	1.39	32.2
16	R2	35	4.0	35	4.0	0.754	15.1	LOS B	5.5	141.5	0.90	1.09	1.39	31.4
Approach		910	4.0	910	4.0	0.754	16.6	LOS B	6.4	164.2	0.92	1.11	1.39	31.8
North: Marvin Rd NE														
7u	U	10	4.0	10	4.0	0.909	37.8	LOS D	11.2	288.4	0.99	1.40	2.24	27.3
7	L2	70	4.0	70	4.0	0.909	35.2	LOS D	11.2	288.4	0.99	1.40	2.24	26.7
4	T1	826	4.0	826	4.0	0.909	27.4	LOS D	13.4	346.9	1.00	1.43	2.26	27.4
14	R2	163	4.0	163	4.0	0.909	25.8	LOS D	13.4	346.9	1.00	1.44	2.27	27.3
Approach		1069	4.0	1069	4.0	0.909	27.8	LOS C	13.4	346.9	1.00	1.43	2.26	27.3
West: Britton Pkwy NE														
5u	U	15	5.0	15	5.0	0.332	16.8	LOS B	1.8	47.1	0.81	0.91	0.83	34.3
5	L2	134	5.0	134	5.0	0.332	14.2	LOS B	1.8	47.1	0.81	0.91	0.83	33.5
2	T1	337	5.0	337	5.0	0.332	7.5	LOS A	2.3	58.7	0.87	0.73	0.87	34.7
12	R2	458	5.0	458	5.0	0.494	8.1	LOS A	3.8	98.0	0.89	0.97	1.01	34.5
Approach		944	5.0	944	5.0	0.494	8.9	LOS A	3.8	98.0	0.87	0.87	0.93	34.4
All Vehicles		4303	3.6	4303	3.6	0.909	15.4	LOS B	13.4	346.9	0.87	1.05	1.36	31.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

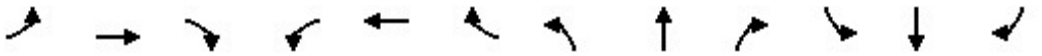
Site: 3 [Marvin Rd NE/Main St NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd NE														
3u	U	335	3.0	335	3.0	0.643	12.8	LOS B	7.2	184.3	0.32	0.55	0.32	26.9
3	L2	259	3.0	259	3.0	0.643	10.3	LOS B	7.2	184.3	0.32	0.55	0.32	33.2
8	T1	1355	3.0	1355	3.0	0.643	4.2	LOS A	7.2	184.3	0.30	0.41	0.30	33.0
18	R2	15	3.0	15	3.0	0.643	4.3	LOS A	7.2	183.6	0.30	0.37	0.30	34.3
Approach		1964	3.0	1964	3.0	0.643	6.4	LOS A	7.2	184.3	0.31	0.45	0.31	32.0
East: Main St NE														
1	L2	10	0.0	10	0.0	0.052	14.9	LOS B	0.2	5.6	0.72	0.84	0.72	32.6
6	T1	1	0.0	1	0.0	0.052	8.9	LOS A	0.2	5.6	0.72	0.84	0.72	34.3
16	R2	20	0.0	20	0.0	0.052	8.9	LOS A	0.2	5.6	0.72	0.84	0.72	31.7
Approach		31	0.0	31	0.0	0.052	10.8	LOS B	0.2	5.6	0.72	0.84	0.72	32.1
North: Marvin Rd NE														
7u	U	5	3.0	5	3.0	0.919	31.3	LOS D	18.3	469.6	1.00	1.43	2.07	24.0
7	L2	15	3.0	15	3.0	0.919	28.8	LOS D	18.3	469.6	1.00	1.43	2.07	26.8
4	T1	1616	3.0	1616	3.0	0.919	21.9	LOS D	19.7	504.8	1.00	1.41	2.05	22.4
14	R2	47	3.0	47	3.0	0.919	21.3	LOS D	19.7	504.8	1.00	1.39	2.03	26.5
Approach		1683	3.0	1683	3.0	0.919	21.9	LOS C	19.7	504.8	1.00	1.41	2.05	22.6
West: Main St NE														
5	L2	20	0.0	20	0.0	0.177	16.2	LOS B	1.1	27.5	0.92	0.96	0.92	32.7
2	T1	1	0.0	1	0.0	0.177	10.2	LOS B	1.1	27.5	0.92	0.96	0.92	34.0
12	R2	359	0.0	359	0.0	0.177	4.7	LOS A	1.1	27.5	0.16	0.52	0.16	35.2
Approach		380	0.0	380	0.0	0.177	5.3	LOS A	1.1	27.5	0.20	0.55	0.20	35.1
All Vehicles		4058	2.7	4058	2.7	0.919	12.8	LOS B	19.7	504.8	0.59	0.86	1.02	27.8

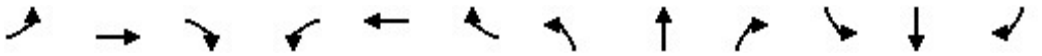
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	375	0	0	729	0	1395	1486	0	1984	435
Future Volume (vph)	0	0	375	0	0	729	0	1395	1486	0	1984	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		7.5	4.0
Lane Util. Factor			0.88			0.88		0.91	0.91		0.95	1.00
Frpb, ped/bikes			1.00			1.00		0.99	0.99		1.00	1.00
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		0.96	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2787			2787		3191	1409		3438	1538
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2787			2787		3191	1409		3438	1538
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	375	0	0	729	0	1395	1486	0	1984	435
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	375	0	0	729	0	1989	892	0	1984	435
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	5%	5%	5%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			64.5			46.5		62.5	120.0		43.5	120.0
Effective Green, g (s)			64.5			46.5		62.5	120.0		43.5	120.0
Actuated g/C Ratio			0.54			0.39		0.52	1.00		0.36	1.00
Clearance Time (s)			4.5			4.5		6.5			7.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			1498			1079		1661	1409		1246	1538
v/s Ratio Prot			0.13			0.26		c0.62			c0.58	
v/s Ratio Perm									0.63			0.28
v/c Ratio			0.25			0.68		1.20	0.63		1.59	0.28
Uniform Delay, d1			14.8			30.5		28.8	0.0		38.2	0.0
Progression Factor			1.00			1.00		0.60	1.00		1.00	1.00
Incremental Delay, d2			0.1			1.7		90.9	0.7		270.4	0.5
Delay (s)			14.9			32.2		108.2	0.7		308.6	0.5
Level of Service			B			C		F	A		F	A
Approach Delay (s)		14.9			32.2			74.9			253.2	
Approach LOS		B			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	133.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

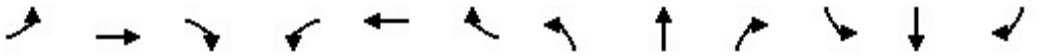
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	260	0	0	804	0	2082	275	0	1791	573
Future Volume (vph)	0	0	260	0	0	804	0	2082	275	0	1791	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		6.5	4.0		6.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1550			2682		5085	1583		3505	1535
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1550			2682		5085	1583		3505	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	260	0	0	804	0	2082	275	0	1791	573
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	260	0	0	804	0	2082	275	0	1791	573
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type			Prot			Prot		NA	Free		NA	Free
Protected Phases			8			6		4			2	
Permitted Phases									Free			Free
Actuated Green, G (s)			46.5			64.5		44.5	120.0		62.5	120.0
Effective Green, g (s)			46.5			64.5		44.5	120.0		62.5	120.0
Actuated g/C Ratio			0.39			0.54		0.37	1.00		0.52	1.00
Clearance Time (s)			4.5			4.5		6.5			6.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			600			1441		1885	1583		1825	1535
v/s Ratio Prot			0.17			0.30		c0.41			c0.51	
v/s Ratio Perm									0.17			0.37
v/c Ratio			0.43			0.56		1.10	0.17		0.98	0.37
Uniform Delay, d1			27.1			18.3		37.8	0.0		28.2	0.0
Progression Factor			1.00			1.00		0.85	1.00		0.68	1.00
Incremental Delay, d2			0.5			0.5		50.8	0.1		3.3	0.1
Delay (s)			27.6			18.8		82.9	0.1		22.5	0.1
Level of Service			C			B		F	A		C	A
Approach Delay (s)		27.6			18.8			73.2			17.1	
Approach LOS		C			B			E			B	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



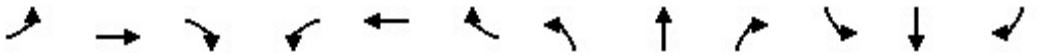
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	589	175	140	80	70	333	90	1403	65	296	1274	401
Future Volume (veh/h)	589	175	140	80	70	333	90	1403	65	296	1274	401
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	589	175	140	80	70	333	90	1403	65	296	1274	401
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	655	214	172	75	134	339	104	1408	65	254	1759	765
Arrive On Green	0.19	0.22	0.22	0.04	0.07	0.07	0.06	0.41	0.41	0.14	0.49	0.49
Sat Flow, veh/h	3483	968	775	1795	1885	1584	1781	3454	160	1795	3582	1557
Grp Volume(v), veh/h	589	0	315	80	70	333	90	720	748	296	1274	401
Grp Sat Flow(s),veh/h/ln	1742	0	1743	1795	1885	1584	1781	1777	1837	1795	1791	1557
Q Serve(g_s), s	19.8	0.0	20.6	5.0	4.3	8.5	6.0	48.4	48.8	17.0	33.7	21.2
Cycle Q Clear(g_c), s	19.8	0.0	20.6	5.0	4.3	8.5	6.0	48.4	48.8	17.0	33.7	21.2
Prop In Lane	1.00		0.44	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	655	0	386	75	134	339	104	724	749	254	1759	765
V/C Ratio(X)	0.90	0.00	0.82	1.07	0.52	0.98	0.87	0.99	1.00	1.16	0.72	0.52
Avail Cap(c_a), veh/h	682	0	392	75	134	339	104	724	749	254	1759	765
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	1.00	1.00	0.23	0.23	0.23	0.29	0.29	0.29
Uniform Delay (d), s/veh	47.6	0.0	44.4	57.5	53.8	47.1	56.0	35.4	35.5	51.5	24.1	20.9
Incr Delay (d2), s/veh	15.6	0.0	14.0	124.3	7.0	44.5	17.2	14.7	15.4	86.2	0.8	0.7
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	10.0	0.0	10.4	4.9	2.3	14.0	3.2	23.4	24.5	13.7	14.1	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	0.0	58.3	181.8	60.8	91.6	73.2	50.1	50.9	137.7	24.9	21.7
LnGrp LOS	E	A	E	F	E	F	E	D	D	F	C	C
Approach Vol, veh/h		904			483			1558			1971	
Approach Delay, s/veh		61.5			102.1			51.8			41.2	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	64.9	28.1	14.0	23.0	54.9	10.0	32.1
Change Period (Y+Rc), s	6.0	6.0	5.5	* 5.5	6.0	6.0	5.0	5.5
Max Green Setting (Gmax), s	7.0	58.5	23.5	* 8.5	17.0	48.5	5.0	27.0
Max Q Clear Time (g_c+I1), s	8.0	35.7	21.8	10.5	19.0	50.8	7.0	22.6
Green Ext Time (p_c), s	0.0	18.2	0.7	0.0	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



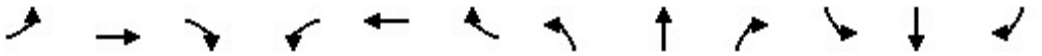
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	55	150	165	55	154	180	1199	175	182	1216	85
Future Volume (veh/h)	135	55	150	165	55	154	180	1199	175	182	1216	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1900	1900	1900	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	135	55	150	165	55	154	180	1199	175	182	1216	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	3	3	3	1	1	1
Cap, veh/h	162	66	179	192	71	200	225	1271	185	331	1593	111
Arrive On Green	0.09	0.15	0.15	0.11	0.16	0.16	0.13	0.41	0.41	0.06	0.15	0.15
Sat Flow, veh/h	1810	446	1217	1795	434	1216	1767	3088	449	1795	3396	237
Grp Volume(v), veh/h	135	0	205	165	0	209	180	682	692	182	640	661
Grp Sat Flow(s),veh/h/ln	1810	0	1663	1795	0	1650	1767	1763	1774	1795	1791	1842
Q Serve(g_s), s	8.8	0.0	14.4	10.8	0.0	14.5	11.9	44.6	45.1	11.8	41.1	41.2
Cycle Q Clear(g_c), s	8.8	0.0	14.4	10.8	0.0	14.5	11.9	44.6	45.1	11.8	41.1	41.2
Prop In Lane	1.00		0.73	1.00		0.74	1.00		0.25	1.00		0.13
Lane Grp Cap(c), veh/h	162	0	245	192	0	271	225	726	730	331	840	864
V/C Ratio(X)	0.83	0.00	0.84	0.86	0.00	0.77	0.80	0.94	0.95	0.55	0.76	0.76
Avail Cap(c_a), veh/h	196	0	333	195	0	330	225	734	739	331	840	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60
Uniform Delay (d), s/veh	53.8	0.0	49.8	52.7	0.0	48.0	50.9	33.9	34.0	51.5	44.3	44.4
Incr Delay (d2), s/veh	20.8	0.0	11.7	29.6	0.0	8.0	17.8	20.0	21.1	1.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	6.8	6.5	0.0	6.6	6.4	22.6	23.2	5.8	20.4	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	0.0	61.5	82.3	0.0	56.0	68.7	53.9	55.2	52.4	46.9	46.9
LnGrp LOS	E	A	E	F	A	E	E	D	E	D	D	D
Approach Vol, veh/h		340			374			1554			1483	
Approach Delay, s/veh		66.7			67.6			56.2			47.6	
Approach LOS		E			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.3	61.3	14.7	23.7	27.2	54.4	16.8	21.6
Change Period (Y+Rc), s	5.0	5.0	4.0	4.0	5.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	15.0	50.0	13.0	24.0	15.0	50.0	13.0	24.0
Max Q Clear Time (g_c+I1), s	13.9	43.2	10.8	16.5	13.8	47.1	12.8	16.4
Green Ext Time (p_c), s	0.0	4.7	0.1	0.6	0.0	2.3	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

Notes

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



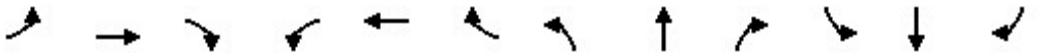
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	414	610	465	475	645	342	305	804	250	327	1107	282
Future Volume (veh/h)	414	610	465	475	645	342	305	804	250	327	1107	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		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	1885	1885	1885	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	414	610	0	475	645	0	305	804	250	327	1107	282
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	0	0
Cap, veh/h	502	696		529	725		331	806	251	333	1083	482
Arrive On Green	0.14	0.19	0.00	0.15	0.20	0.00	0.18	0.30	0.30	0.18	0.30	0.30
Sat Flow, veh/h	3483	3582	1598	3510	3610	1610	1795	2688	836	1810	3610	1607
Grp Volume(v), veh/h	414	610	0	475	645	0	305	536	518	327	1107	282
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1755	1805	1610	1795	1791	1733	1810	1805	1607
Q Serve(g_s), s	13.9	19.8	0.0	15.9	20.9	0.0	20.0	35.8	35.9	21.6	36.0	17.9
Cycle Q Clear(g_c), s	13.9	19.8	0.0	15.9	20.9	0.0	20.0	35.8	35.9	21.6	36.0	17.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	502	696		529	725		331	537	520	333	1083	482
V/C Ratio(X)	0.82	0.88		0.90	0.89		0.92	1.00	1.00	0.98	1.02	0.58
Avail Cap(c_a), veh/h	551	761		556	767		331	537	520	333	1083	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	46.9	0.0	50.0	46.7	0.0	48.1	41.9	42.0	48.7	42.0	35.7
Incr Delay (d2), s/veh	8.2	10.8	0.0	16.2	12.3	0.0	29.9	38.0	38.8	44.0	33.1	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	9.8	0.0	8.1	10.5	0.0	11.7	21.3	20.7	13.8	20.8	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	57.8	0.0	66.2	58.9	0.0	78.0	80.0	80.8	92.7	75.1	40.8
LnGrp LOS	E	E		E	E		E	E	F	F	F	D
Approach Vol, veh/h		1024			1120			1359			1716	
Approach Delay, s/veh		57.9			62.0			79.8			72.8	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.1	41.0	22.3	29.6	27.1	41.0	23.1	28.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.5
Max Green Setting (Gmax), s	19.0	36.0	19.0	25.5	19.0	36.0	19.0	25.5
Max Q Clear Time (g_c+I1), s	22.0	38.0	15.9	22.9	23.6	37.9	17.9	21.8
Green Ext Time (p_c), s	0.0	0.0	0.3	1.2	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	69.4
HCM 6th LOS	E

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	220	30	160	275	213	25	786	30	309	1302	229
Future Volume (veh/h)	150	220	30	160	275	213	25	786	30	309	1302	229
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	1870	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	150	220	30	160	275	213	25	786	30	309	1302	229
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	0	0	0	1	1	1	1	1	1
Cap, veh/h	183	392	53	189	243	188	54	951	36	348	1324	230
Arrive On Green	0.10	0.24	0.24	0.10	0.25	0.25	0.03	0.27	0.27	0.19	0.43	0.43
Sat Flow, veh/h	1781	1611	220	1810	992	768	1795	3517	134	1795	3048	531
Grp Volume(v), veh/h	150	0	250	160	0	488	25	400	416	309	760	771
Grp Sat Flow(s),veh/h/ln	1781	0	1831	1810	0	1761	1795	1791	1860	1795	1791	1787
Q Serve(g_s), s	8.2	0.0	11.9	8.7	0.0	24.4	1.4	20.9	20.9	16.7	41.5	42.8
Cycle Q Clear(g_c), s	8.2	0.0	11.9	8.7	0.0	24.4	1.4	20.9	20.9	16.7	41.5	42.8
Prop In Lane	1.00		0.12	1.00		0.44	1.00		0.07	1.00		0.30
Lane Grp Cap(c), veh/h	183	0	446	189	0	431	54	484	503	348	778	776
V/C Ratio(X)	0.82	0.00	0.56	0.85	0.00	1.13	0.46	0.83	0.83	0.89	0.98	0.99
Avail Cap(c_a), veh/h	365	0	448	189	0	431	187	649	674	656	778	776
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	43.8	0.0	33.0	43.8	0.0	37.6	47.5	34.1	34.1	39.1	27.7	28.0
Incr Delay (d2), s/veh	6.6	0.0	1.6	27.8	0.0	84.3	4.5	6.3	6.1	5.9	26.5	30.7
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	3.9	0.0	5.4	5.3	0.0	20.4	0.7	9.8	10.1	7.8	22.6	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.0	34.6	71.6	0.0	121.9	52.0	40.4	40.2	45.0	54.2	58.7
LnGrp LOS	D	A	C	E	A	F	D	D	D	D	D	E
Approach Vol, veh/h		400			648			841			1840	
Approach Delay, s/veh		40.5			109.5			40.6			54.5	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	48.1	14.8	29.0	23.9	31.8	15.0	28.8
Change Period (Y+Rc), s	4.6	4.9	4.6	4.6	4.6	4.9	4.6	4.6
Max Green Setting (Gmax), s	10.4	36.1	20.4	24.4	36.4	36.1	10.4	24.4
Max Q Clear Time (g_c+I1), s	3.4	44.8	10.2	26.4	18.7	22.9	10.7	13.9
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.6	4.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	59.4
HCM 6th LOS	E

Notes

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

MOVEMENT SUMMARY

Site: 10 [Marvin Rd SE/Pacific Ave SE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Marvin Rd SE														
3	L2	80	1.0	80	1.0	0.403	17.2	LOS B	3.0	74.6	0.89	0.94	0.94	32.9
8	T1	478	1.0	478	1.0	0.403	10.5	LOS B	3.3	82.1	0.90	0.89	0.92	33.9
18	R2	35	1.0	35	1.0	0.403	9.9	LOS A	3.3	82.1	0.91	0.86	0.91	33.5
Approach		593	1.0	593	1.0	0.403	11.4	LOS B	3.3	82.1	0.90	0.89	0.92	33.8
East: Pacific Ave SE														
1	L2	30	1.0	30	1.0	0.303	11.6	LOS B	1.4	36.0	0.60	0.61	0.60	35.5
6	T1	235	1.0	235	1.0	0.303	6.0	LOS A	1.4	36.0	0.60	0.61	0.60	35.5
16	R2	348	1.0	348	1.0	0.334	5.8	LOS A	1.7	42.6	0.60	0.66	0.60	35.1
Approach		613	1.0	613	1.0	0.334	6.2	LOS A	1.7	42.6	0.60	0.64	0.60	35.2
North: Marvin Rd SE														
7u	U	10	1.0	10	1.0	0.592	15.0	LOS B	5.3	132.4	0.72	0.78	0.76	34.6
7	L2	469	1.0	469	1.0	0.592	12.6	LOS B	5.3	132.4	0.72	0.78	0.76	33.8
4	T1	843	1.0	843	1.0	0.592	6.4	LOS A	5.3	132.4	0.69	0.65	0.72	35.1
14	R2	110	1.0	110	1.0	0.592	6.3	LOS A	5.2	131.7	0.69	0.62	0.70	34.3
Approach		1432	1.0	1432	1.0	0.592	8.5	LOS A	5.3	132.4	0.70	0.69	0.73	34.6
West: Pacific Ave SE														
5	L2	65	1.0	65	1.0	0.562	14.1	LOS B	3.6	91.7	0.83	0.90	1.02	34.6
2	T1	365	1.0	365	1.0	0.562	8.6	LOS A	3.6	91.7	0.83	0.90	1.02	34.5
12	R2	170	1.0	170	1.0	0.315	8.4	LOS A	1.5	36.6	0.75	0.88	0.78	34.3
Approach		600	1.0	600	1.0	0.562	9.1	LOS A	3.6	91.7	0.81	0.90	0.95	34.5
All Vehicles		3238	1.0	3238	1.0	0.592	8.7	LOS A	5.3	132.4	0.74	0.76	0.78	34.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 11 [Willamette Dr NE/31st Ave NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Willamette Dr NE														
3u	U	30	2.0	30	2.0	0.227	12.3	LOS B	1.3	33.5	0.18	0.49	0.18	37.1
3	L2	70	2.0	70	2.0	0.227	9.9	LOS A	1.3	33.5	0.18	0.49	0.18	36.2
8	T1	464	2.0	464	2.0	0.227	4.3	LOS A	1.3	33.9	0.18	0.45	0.18	36.7
18	R2	122	2.0	122	2.0	0.227	4.4	LOS A	1.3	33.9	0.17	0.41	0.17	36.0
Approach		686	2.0	686	2.0	0.227	5.2	LOS A	1.3	33.9	0.18	0.45	0.18	36.6
East: 31st Ave NE														
1	L2	96	3.0	96	3.0	0.126	11.2	LOS B	0.4	10.9	0.42	0.73	0.42	34.4
6	T1	10	3.0	10	3.0	0.126	5.7	LOS A	0.4	10.9	0.42	0.73	0.42	34.4
16	R2	15	3.0	15	3.0	0.126	5.6	LOS A	0.4	10.9	0.42	0.73	0.42	33.5
Approach		121	3.0	121	3.0	0.126	10.1	LOS B	0.4	10.9	0.42	0.73	0.42	34.3
North: Willamette Dr NE														
7	L2	1	1.0	1	1.0	0.104	10.5	LOS B	0.5	13.1	0.35	0.46	0.35	36.6
4	T1	273	1.0	273	1.0	0.104	4.9	LOS A	0.5	13.4	0.34	0.46	0.34	36.6
14	R2	10	1.0	10	1.0	0.104	4.8	LOS A	0.5	13.4	0.33	0.45	0.33	35.4
Approach		284	1.0	284	1.0	0.104	4.9	LOS A	0.5	13.4	0.34	0.46	0.34	36.6
West: 31st Ave NE														
5	L2	20	2.0	20	2.0	0.120	10.8	LOS B	0.4	10.6	0.37	0.59	0.37	36.4
2	T1	25	2.0	25	2.0	0.120	5.2	LOS A	0.4	10.6	0.37	0.59	0.37	36.3
12	R2	80	2.0	80	2.0	0.120	5.1	LOS A	0.4	10.6	0.37	0.59	0.37	35.3
Approach		125	2.0	125	2.0	0.120	6.1	LOS A	0.4	10.6	0.37	0.59	0.37	35.7
All Vehicles		1216	1.9	1216	1.9	0.227	5.7	LOS A	1.3	33.9	0.26	0.49	0.26	36.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Hogum Bay Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hogum Bay Rd NE														
3	L2	25	13.0	25	13.0	0.494	12.1	LOS B	2.5	69.7	0.53	0.68	0.57	36.0
8	T1	170	13.0	170	13.0	0.494	6.2	LOS A	2.5	69.7	0.53	0.68	0.57	36.1
18	R2	260	13.0	260	13.0	0.494	6.2	LOS A	2.5	69.7	0.53	0.68	0.57	34.9
Approach		455	13.0	455	13.0	0.494	6.5	LOS A	2.5	69.7	0.53	0.68	0.57	35.4
East: Britton Pkwy NE														
1	L2	45	4.0	45	4.0	0.226	11.4	LOS B	1.3	33.2	0.51	0.58	0.51	35.8
6	T1	494	4.0	494	4.0	0.226	5.4	LOS A	1.4	34.8	0.49	0.53	0.49	36.1
16	R2	10	4.0	10	4.0	0.226	5.3	LOS A	1.4	34.8	0.48	0.50	0.48	35.0
Approach		549	4.0	549	4.0	0.226	5.9	LOS A	1.4	34.8	0.49	0.53	0.49	36.0
North: Hogum Bay Rd NE														
7u	U	5	10.0	5	10.0	0.482	15.1	LOS B	2.4	65.9	0.60	0.76	0.67	36.9
7	L2	15	10.0	15	10.0	0.482	12.6	LOS B	2.4	65.9	0.60	0.76	0.67	36.0
4	T1	135	10.0	135	10.0	0.482	6.7	LOS A	2.4	65.9	0.60	0.76	0.67	36.0
14	R2	263	10.0	263	10.0	0.482	6.7	LOS A	2.4	65.9	0.60	0.76	0.67	34.9
Approach		418	10.0	418	10.0	0.482	7.0	LOS A	2.4	65.9	0.60	0.76	0.67	35.3
West: Britton Pkwy NE														
5u	U	15	7.0	15	7.0	0.148	13.3	LOS B	0.8	21.1	0.40	0.60	0.40	35.8
5	L2	89	7.0	89	7.0	0.148	10.8	LOS B	0.8	21.1	0.40	0.60	0.40	34.9
2	T1	256	7.0	256	7.0	0.148	4.8	LOS A	0.8	21.8	0.39	0.49	0.39	36.2
12	R2	15	7.0	15	7.0	0.148	4.9	LOS A	0.8	21.8	0.38	0.45	0.38	35.3
Approach		375	7.0	375	7.0	0.148	6.6	LOS A	0.8	21.8	0.39	0.52	0.39	35.8
All Vehicles		1797	8.3	1797	8.3	0.494	6.4	LOS A	2.5	69.7	0.51	0.62	0.53	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	20	885	18	10	75	914	25	31	0	19	30	5	20
Future Vol, veh/h	20	885	18	10	75	914	25	31	0	19	30	5	20
Conflicting Peds, #/hr	1	0	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	3	2	2	2	0	0	0
Mvmt Flow	20	885	18	10	75	914	25	31	0	19	30	5	20

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	940	0	0	903	903	0	0	1565	2044	453	1582	2041	472
Stage 1	-	-	-	-	-	-	-	934	934	-	1098	1098	-
Stage 2	-	-	-	-	-	-	-	631	1110	-	484	943	-
Critical Hdwy	4.18	-	-	6.46	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.53	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	713	-	-	380	742	-	-	75	56	554	75	57	544
Stage 1	-	-	-	-	-	-	-	286	343	-	230	291	-
Stage 2	-	-	-	-	-	-	-	436	283	-	538	344	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	712	-	-	662	662	-	-	59	47	553	64	48	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	59	47	-	64	48	-
Stage 1	-	-	-	-	-	-	-	278	333	-	223	253	-
Stage 2	-	-	-	-	-	-	-	358	246	-	504	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	88.1	94.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	89	712	-	-	662	-	-	90
HCM Lane V/C Ratio	0.562	0.028	-	-	0.128	-	-	0.611
HCM Control Delay (s)	88.1	10.2	-	-	11.2	-	-	94.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.4	-	-	2.9

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	5	868	45	69	896	5	0	0	49	5	0	15
Future Vol, veh/h	5	868	45	69	896	5	0	0	49	5	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	3	3	3	2	2	2	0	0	0
Mvmt Flow	5	868	45	69	896	5	0	0	49	5	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	901	0	0	913	0	0	1487	1940	457	1481	1960	451
Stage 1	-	-	-	-	-	-	901	901	-	1037	1037	-
Stage 2	-	-	-	-	-	-	586	1039	-	444	923	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	738	-	-	736	-	-	86	65	551	89	64	561
Stage 1	-	-	-	-	-	-	299	355	-	251	311	-
Stage 2	-	-	-	-	-	-	463	306	-	568	351	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	738	-	-	736	-	-	77	59	551	75	58	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	77	59	-	75	58	-
Stage 1	-	-	-	-	-	-	297	353	-	249	282	-
Stage 2	-	-	-	-	-	-	408	277	-	514	349	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	12.2	23.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	551	738	-	-	736	-	-	214
HCM Lane V/C Ratio	0.089	0.007	-	-	0.094	-	-	0.093
HCM Control Delay (s)	12.2	9.9	-	-	10.4	-	-	23.5
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.3	-	-	0.3

MOVEMENT SUMMARY

Site: 15 [Gateway Blvd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Gateway Blvd NE														
3	L2	560	2.0	560	2.0	0.539	12.2	LOS B	3.2	80.5	0.64	0.84	0.73	34.0
8	T1	54	2.0	54	2.0	0.539	5.9	LOS A	3.2	80.5	0.64	0.84	0.73	33.8
18	R2	290	2.0	290	2.0	0.227	4.6	LOS A	0.8	20.8	0.40	0.53	0.40	36.1
Approach		904	2.0	904	2.0	0.539	9.4	LOS A	3.2	80.5	0.57	0.74	0.62	34.6
East: Britton Pkwy NE														
1u	U	5	3.0	5	3.0	0.581	23.3	LOS C	5.7	145.5	0.95	1.09	1.26	32.1
1	L2	220	3.0	220	3.0	0.581	20.7	LOS C	5.7	145.5	0.95	1.09	1.26	31.3
6	T1	451	3.0	451	3.0	0.581	12.8	LOS B	6.5	167.1	0.97	1.04	1.24	32.9
16	R2	230	3.0	230	3.0	0.581	12.2	LOS B	6.5	167.1	0.98	1.01	1.23	32.6
Approach		906	3.0	906	3.0	0.581	14.6	LOS B	6.5	167.1	0.97	1.05	1.24	32.4
North: Gateway Blvd NE														
7	L2	95	2.0	95	2.0	0.409	15.3	LOS B	2.4	60.2	0.80	0.94	0.90	34.5
4	T1	41	2.0	41	2.0	0.409	9.0	LOS A	2.4	60.2	0.80	0.94	0.90	34.2
14	R2	120	2.0	120	2.0	0.409	9.1	LOS A	2.4	60.2	0.80	0.94	0.90	33.2
Approach		256	2.0	256	2.0	0.409	11.4	LOS B	2.4	60.2	0.80	0.94	0.90	33.8
West: Britton Pkwy NE														
5u	U	10	5.0	10	5.0	0.371	14.7	LOS B	2.5	64.7	0.62	0.68	0.62	35.8
5	L2	230	5.0	230	5.0	0.371	12.1	LOS B	2.5	64.7	0.62	0.68	0.62	34.8
2	T1	438	5.0	438	5.0	0.371	5.4	LOS A	2.7	69.3	0.60	0.60	0.60	35.8
12	R2	192	5.0	192	5.0	0.371	5.5	LOS A	2.7	69.3	0.60	0.55	0.60	35.0
Approach		870	5.0	870	5.0	0.371	7.3	LOS A	2.7	69.3	0.61	0.61	0.61	35.4
All Vehicles		2936	3.2	2936	3.2	0.581	10.5	LOS B	6.5	167.1	0.72	0.81	0.83	34.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	50	920	92	25	1142	25	15	0	127	10	0	35
Future Vol, veh/h	50	920	92	25	1142	25	15	0	127	10	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	50	920	92	25	1142	25	15	0	127	10	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1167	0	0	1012	0	0	1687	2283	506	1765	2317	584
Stage 1	-	-	-	-	-	-	1066	1066	-	1205	1205	-
Stage 2	-	-	-	-	-	-	621	1217	-	560	1112	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	600	-	-	681	-	-	61	39	512	54	38	460
Stage 1	-	-	-	-	-	-	237	297	-	198	259	-
Stage 2	-	-	-	-	-	-	442	252	-	485	287	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	600	-	-	681	-	-	51	34	512	37	34	460
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	34	-	37	34	-
Stage 1	-	-	-	-	-	-	217	272	-	182	249	-
Stage 2	-	-	-	-	-	-	393	243	-	334	263	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	23.6	40.5
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	51	512	600	-	-	681	-	-	37	460
HCM Lane V/C Ratio	0.294	0.248	0.083	-	-	0.037	-	-	0.27	0.076
HCM Control Delay (s)	102.7	14.3	11.5	-	-	10.5	-	-	135.1	13.5
HCM Lane LOS	F	B	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	1	1	0.3	-	-	0.1	-	-	0.9	0.2

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	18	9	10	19	10	85	112	187	19	10	10
Future Vol, veh/h	9	18	9	10	19	10	85	112	187	19	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	18	9	10	19	10	85	112	187	19	10	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	29	0	0	27	0	0	95	90	23	234	89	24
Stage 1	-	-	-	-	-	-	41	41	-	44	44	-
Stage 2	-	-	-	-	-	-	54	49	-	190	45	-
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	1584	-	-	1587	-	-	888	800	1054	721	801	1052
Stage 1	-	-	-	-	-	-	974	861	-	970	858	-
Stage 2	-	-	-	-	-	-	958	854	-	812	857	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1584	-	-	1587	-	-	863	790	1054	524	791	1052
Mov Cap-2 Maneuver	-	-	-	-	-	-	863	790	-	524	791	-
Stage 1	-	-	-	-	-	-	968	856	-	964	853	-
Stage 2	-	-	-	-	-	-	932	849	-	577	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.9	11.7	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	919	1584	-	-	1587	-	-	668
HCM Lane V/C Ratio	0.418	0.006	-	-	0.006	-	-	0.058
HCM Control Delay (s)	11.7	7.3	0	-	7.3	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	10.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	224	97	100	240	202	120
Future Vol, veh/h	224	97	100	240	202	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	0	0	2	2
Mvmt Flow	224	97	100	240	202	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	321	0	713	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.1	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.2	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1250	-	398	766
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1250	-	361	766
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	589	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	30.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	1250	-
HCM Lane V/C Ratio	0.716	-	-	0.08	-
HCM Control Delay (s)	30.7	-	-	8.1	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	5.6	-	-	0.3	-

MOVEMENT SUMMARY

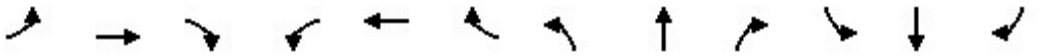
Site: 20 [Carpenter Rd NE/Britton Pkwy NE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carpenter Rd NE														
3	L2	205	4.0	205	4.0	0.219	11.9	LOS B	1.3	34.4	0.59	0.72	0.59	31.6
8	T1	5	4.0	5	4.0	0.502	5.5	LOS A	4.2	109.3	0.70	0.67	0.70	32.4
18	R2	644	4.0	644	4.0	0.502	5.7	LOS A	4.2	109.3	0.70	0.67	0.70	33.3
Approach		854	4.0	854	4.0	0.502	7.2	LOS A	4.2	109.3	0.67	0.68	0.67	32.8
East: Britton Pkwy NE														
1	L2	713	5.0	713	5.0	0.461	11.0	LOS B	2.9	76.1	0.47	0.65	0.47	32.3
6	T1	404	5.0	404	5.0	0.461	5.0	LOS A	2.9	76.1	0.46	0.55	0.46	35.6
16	R2	1	5.0	1	5.0	0.461	5.0	LOS A	2.9	76.1	0.46	0.55	0.46	32.9
Approach		1118	5.0	1118	5.0	0.461	8.8	LOS A	2.9	76.1	0.46	0.61	0.46	33.7
North: Carpenter Rd NE														
7	L2	1	0.0	1	0.0	0.010	12.7	LOS B	0.0	1.0	0.62	0.65	0.62	34.7
4	T1	5	0.0	5	0.0	0.010	6.9	LOS A	0.0	1.0	0.62	0.65	0.62	31.5
14	R2	1	0.0	1	0.0	0.010	6.8	LOS A	0.0	1.0	0.62	0.65	0.62	33.0
Approach		7	0.0	7	0.0	0.010	7.7	LOS A	0.0	1.0	0.62	0.65	0.62	32.4
West: Britton Pkwy NE														
5	L2	1	4.0	1	4.0	0.674	15.8	LOS B	5.3	136.6	0.79	0.97	1.06	33.7
2	T1	363	4.0	363	4.0	0.674	9.6	LOS A	5.3	136.6	0.79	0.97	1.06	35.0
12	R2	190	4.0	190	4.0	0.674	9.7	LOS A	5.3	136.6	0.79	0.97	1.06	31.7
Approach		554	4.0	554	4.0	0.674	9.6	LOS A	5.3	136.6	0.79	0.97	1.06	34.1
All Vehicles		2533	4.4	2533	4.4	0.674	8.4	LOS A	5.3	136.6	0.61	0.71	0.66	33.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	1135	375	470	860	147	210	336	275	189	538	207
Future Volume (veh/h)	363	1135	375	470	860	147	210	336	275	189	538	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1856	1856	1856
Adj Flow Rate, veh/h	363	1135	375	470	860	147	210	336	275	189	538	207
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	3	3	3
Cap, veh/h	142	1100	680	525	1150	197	217	447	620	214	590	226
Arrive On Green	0.08	0.31	0.31	0.15	0.38	0.38	0.12	0.24	0.24	0.12	0.24	0.24
Sat Flow, veh/h	1795	3582	1587	3456	3030	518	1795	1885	1594	1767	2489	954
Grp Volume(v), veh/h	363	1135	375	470	504	503	210	336	275	189	380	365
Grp Sat Flow(s),veh/h/ln	1795	1791	1587	1728	1777	1771	1795	1885	1594	1767	1763	1681
Q Serve(g_s), s	9.5	36.8	21.2	16.0	29.5	29.5	14.0	19.9	15.3	12.6	25.2	25.4
Cycle Q Clear(g_c), s	9.5	36.8	21.2	16.0	29.5	29.5	14.0	19.9	15.3	12.6	25.2	25.4
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	142	1100	680	525	675	673	217	447	620	214	418	398
V/C Ratio(X)	2.55	1.03	0.55	0.90	0.75	0.75	0.97	0.75	0.44	0.89	0.91	0.92
Avail Cap(c_a), veh/h	142	1100	680	562	675	673	217	463	634	214	433	413
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)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	41.6	25.7	50.0	32.2	32.2	52.5	42.5	27.1	51.9	44.5	44.6
Incr Delay (d2), s/veh	714.7	32.3	2.4	15.5	7.4	7.4	51.6	6.8	0.6	31.7	22.7	24.3
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	32.5	21.0	8.4	8.0	13.9	13.9	9.4	10.1	5.9	7.5	13.6	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	770.0	73.9	28.2	65.5	39.7	39.7	104.1	49.3	27.7	83.7	67.2	68.9
LnGrp LOS	F	F	C	E	D	D	F	D	C	F	E	E
Approach Vol, veh/h		1873			1477			821			934	
Approach Delay, s/veh		199.7			47.9			56.1			71.2	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.1	20.0	33.9	23.7	42.3	20.0	33.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	9.5	44.5	14.5	29.5	19.5	34.5	14.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	31.5	14.6	21.9	18.0	38.8	16.0	27.4
Green Ext Time (p_c), s	0.0	6.1	0.0	2.2	0.2	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	109.1
HCM 6th LOS	F

Notes

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

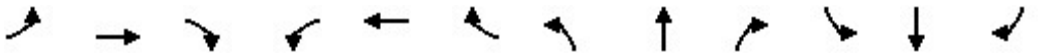
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	409	940	215	140	925	50	160	267	100	105	377	686
Future Volume (veh/h)	409	940	215	140	925	50	160	267	100	105	377	686
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	409	940	215	140	925	50	160	267	100	105	377	686
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	1	1	1	3	3	3	1	1	1
Cap, veh/h	285	1039	237	167	999	54	177	703	257	130	449	397
Arrive On Green	0.16	0.36	0.36	0.09	0.29	0.29	0.10	0.28	0.28	0.07	0.25	0.25
Sat Flow, veh/h	1795	2893	661	1795	3454	187	1767	2523	921	1795	1791	1582
Grp Volume(v), veh/h	409	581	574	140	480	495	160	184	183	105	377	686
Grp Sat Flow(s),veh/h/ln	1795	1791	1762	1795	1791	1850	1767	1763	1680	1795	1791	1582
Q Serve(g_s), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	10.1	10.5	6.9	23.9	30.0
Cycle Q Clear(g_c), s	19.0	36.8	37.0	9.2	31.1	31.1	10.7	10.1	10.5	6.9	23.9	30.0
Prop In Lane	1.00		0.37	1.00		0.10	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	285	644	633	167	518	535	177	492	469	130	449	397
V/C Ratio(X)	1.43	0.90	0.91	0.84	0.93	0.93	0.90	0.38	0.39	0.81	0.84	1.73
Avail Cap(c_a), veh/h	285	644	633	218	532	549	177	492	469	180	449	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	36.3	36.4	53.4	41.3	41.3	53.2	34.7	34.9	54.7	42.5	44.8
Incr Delay (d2), s/veh	214.3	16.2	16.7	15.8	22.2	21.7	40.2	0.5	0.5	12.0	13.2	338.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.5	18.7	18.6	4.9	16.8	17.2	6.7	4.4	4.4	3.5	12.2	49.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	264.6	52.5	53.1	69.2	63.4	62.9	93.4	35.2	35.4	66.6	55.7	383.0
LnGrp LOS	F	D	D	E	E	E	F	D	D	E	E	F
Approach Vol, veh/h		1564			1115			527			1168	
Approach Delay, s/veh		108.2			63.9			53.0			248.9	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	40.6	14.7	39.3	16.6	49.0	18.0	36.0
Change Period (Y+Rc), s	6.0	* 6	6.0	6.0	5.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	* 36	12.0	30.0	14.5	40.0	12.0	30.0
Max Q Clear Time (g_c+I1), s	21.0	33.1	8.9	12.5	11.2	39.0	12.7	32.0
Green Ext Time (p_c), s	0.0	1.5	0.0	2.0	0.1	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	127.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



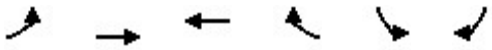
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1825	5	10	1293	30	70	5	38	55	5	30
Future Volume (veh/h)	40	1825	5	10	1293	30	70	5	38	55	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1885	1885	1885	1870	1870	1870	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	40	1825	0	10	1293	30	70	5	38	55	5	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	0	0	0
Cap, veh/h	85	2716		17	2683	62	154	204	173	194	15	173
Arrive On Green	0.05	1.00	0.00	0.01	0.76	0.76	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	3483	3582	1598	1781	3550	82	1395	1900	1610	1272	142	1610
Grp Volume(v), veh/h	40	1825	0	10	647	676	70	5	38	60	0	30
Grp Sat Flow(s),veh/h/ln	1742	1791	1598	1781	1777	1856	1395	1900	1610	1414	0	1610
Q Serve(g_s), s	1.3	0.0	0.0	0.7	16.8	16.8	5.9	0.3	2.6	4.5	0.0	2.0
Cycle Q Clear(g_c), s	1.3	0.0	0.0	0.7	16.8	16.8	10.7	0.3	2.6	4.8	0.0	2.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	85	2716		17	1343	1402	154	204	173	209	0	173
V/C Ratio(X)	0.47	0.67		0.59	0.48	0.48	0.45	0.02	0.22	0.29	0.00	0.17
Avail Cap(c_a), veh/h	290	2716		82	1343	1402	481	649	550	541	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.3	0.0	0.0	59.2	5.6	5.6	54.9	47.9	49.0	50.0	0.0	48.7
Incr Delay (d2), s/veh	2.7	1.2	0.0	11.1	0.6	0.6	1.5	0.0	0.5	0.6	0.0	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	0.6	0.5	0.0	0.4	5.6	5.8	2.1	0.1	1.1	1.7	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	1.2	0.0	70.3	6.2	6.2	56.4	48.0	49.4	50.5	0.0	49.1
LnGrp LOS	E	A		E	A	A	E	D	D	D	A	D
Approach Vol, veh/h		1865			1333			113			90	
Approach Delay, s/veh		2.5			6.7			53.7			50.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	96.2		16.9	6.6	96.5		16.9				
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	5.5		4.0				
Max Green Setting (Gmax), s	10.0	55.5		41.0	5.5	58.5		41.0				
Max Q Clear Time (g_c+I1), s	3.3	18.8		12.7	2.7	2.0		6.8				
Green Ext Time (p_c), s	0.0	14.4		0.2	0.0	31.0		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	7.1	
HCM 6th LOS	A	

Notes

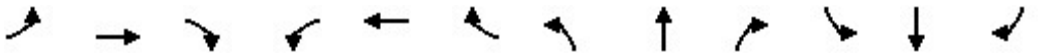
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1866	1313	25	39	50
Future Volume (veh/h)	50	1866	1313	25	39	50
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	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	50	1866	1313	25	39	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	879	4504	1442	27	83	74
Arrive On Green	0.43	0.88	0.81	0.81	0.05	0.05
Sat Flow, veh/h	1795	5316	3661	68	1810	1610
Grp Volume(v), veh/h	50	1866	654	684	39	50
Grp Sat Flow(s),veh/h/ln	1795	1716	1777	1858	1810	1610
Q Serve(g_s), s	0.0	8.5	32.0	32.1	2.5	3.7
Cycle Q Clear(g_c), s	0.0	8.5	32.0	32.1	2.5	3.7
Prop In Lane	1.00			0.04	1.00	1.00
Lane Grp Cap(c), veh/h	879	4504	718	751	83	74
V/C Ratio(X)	0.06	0.41	0.91	0.91	0.47	0.68
Avail Cap(c_a), veh/h	879	4504	1029	1076	422	376
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	13.1	1.5	9.9	9.9	55.8	56.4
Incr Delay (d2), s/veh	0.0	0.3	16.0	15.5	1.6	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	7.2	7.5	1.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	1.7	25.9	25.5	57.4	60.5
LnGrp LOS	B	A	C	C	E	E
Approach Vol, veh/h		1916	1338		89	
Approach Delay, s/veh		2.0	25.7		59.1	
Approach LOS		A	C		E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	56.5	54.0			110.5	9.5
Change Period (Y+Rc), s	5.5	5.5			5.5	4.0
Max Green Setting (Gmax), s	7.5	69.5			82.5	28.0
Max Q Clear Time (g_c+I1), s	2.0	34.1			10.5	5.7
Green Ext Time (p_c), s	0.0	14.4			32.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B



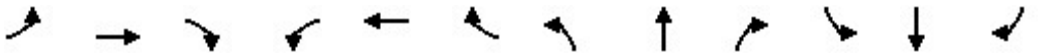
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	654	1075	0	0	1298	70	15	0	861	0	0	0
Future Volume (veh/h)	654	1075	0	0	1298	70	15	0	861	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	654	1075	0	0	1298	0	15	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	1	1	1			
Cap, veh/h	546	3251	0	0	1982		24	0				
Arrive On Green	0.10	0.30	0.00	0.00	0.56	0.00	0.01	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1795	0	1598			
Grp Volume(v), veh/h	654	1075	0	0	1298	0	15	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1795	0	1598			
Q Serve(g_s), s	36.5	28.0	0.0	0.0	30.5	0.0	1.0	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	28.0	0.0	0.0	30.5	0.0	1.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	546	3251	0	0	1982		24	0				
V/C Ratio(X)	1.20	0.33	0.00	0.00	0.65		0.64	0.00				
Avail Cap(c_a), veh/h	546	3251	0	0	1982		389	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	54.0	13.7	0.0	0.0	18.5	0.0	58.9	0.0	0.0			
Incr Delay (d2), s/veh	90.7	0.0	0.0	0.0	1.7	0.0	25.1	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			
%ile BackOfQ(50%),veh/ln	31.4	13.4	0.0	0.0	12.6	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.6	13.7	0.0	0.0	20.2	0.0	84.0	0.0	0.0			
LnGrp LOS	F	B	A	A	C		F	A				
Approach Vol, veh/h		1729			1298			15				
Approach Delay, s/veh		63.2			20.2			84.0				
Approach LOS		E			C			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	42.0	72.4		5.6		114.4			
Change Period (Y+Rc), s	5.5	5.5		4.0		5.5			
Max Green Setting (Gmax), s	36.5	42.5		26.0		84.5			
Max Q Clear Time (g_c+I1), s	38.5	32.5		3.0		30.0			
Green Ext Time (p_c), s	0.0	6.7		0.0		12.5			

Intersection Summary		
HCM 6th Ctrl Delay	45.0	
HCM 6th LOS	D	

Notes

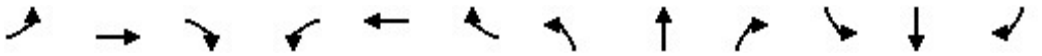
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1674	355	445	888	0	0	0	0	85	5	694
Future Volume (vph)	0	1674	355	445	888	0	0	0	0	85	5	694
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5	5.5	5.5						4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
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)		3574	1599	1770	3539						1792	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1599	1770	3539						1792	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1674	355	445	888	0	0	0	0	85	5	694
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	0	34
Lane Group Flow (vph)	0	1674	149	445	888	0	0	0	0	0	90	660
Confl. Peds. (#/hr)									2	2		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type		NA	Perm	Prot	NA					Perm	NA	custom
Protected Phases		6		5	2						8	1 8
Permitted Phases			6							8		
Actuated Green, G (s)		50.5	50.5	37.7	47.0						16.8	63.5
Effective Green, g (s)		50.5	50.5	37.7	47.0						16.8	63.5
Actuated g/C Ratio		0.42	0.42	0.31	0.39						0.14	0.53
Clearance Time (s)		5.5	5.5	5.5	5.5						4.0	
Vehicle Extension (s)		3.4	3.4	3.4	3.4						3.4	
Lane Grp Cap (vph)		1504	672	556	1386						250	846
v/s Ratio Prot		c0.47		c0.25	0.25							c0.41
v/s Ratio Perm			0.09								0.05	
v/c Ratio		1.11	0.22	0.80	0.64						0.36	0.78
Uniform Delay, d1		34.8	22.2	37.7	29.6						46.7	22.6
Progression Factor		0.77	0.80	0.41	0.14						1.00	1.00
Incremental Delay, d2		57.1	0.5	0.8	0.2						1.0	4.9
Delay (s)		83.8	18.3	16.4	4.5						47.7	27.5
Level of Service		F	B	B	A						D	C
Approach Delay (s)		72.3			8.4			0.0			29.8	
Approach LOS		E			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	966	365	636	771	185	260	360	881	175	315	110
Future Volume (veh/h)	75	966	365	636	771	185	260	360	881	175	315	110
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		0.98	1.00		0.98
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	1885	1885	1885	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	75	966	0	636	771	0	260	360	881	175	315	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	90	1172		710	1729		254	353	1093	204	394	135
Arrive On Green	0.05	0.33	0.00	0.34	0.81	0.00	0.14	0.19	0.19	0.11	0.15	0.15
Sat Flow, veh/h	1795	3582	1598	3456	3554	1585	1795	1885	2752	1795	2607	892
Grp Volume(v), veh/h	75	966	0	636	771	0	260	360	881	175	214	211
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1728	1777	1585	1795	1885	1376	1795	1791	1708
Q Serve(g_s), s	5.0	29.8	0.0	21.0	7.7	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Cycle Q Clear(g_c), s	5.0	29.8	0.0	21.0	7.7	0.0	17.0	22.5	22.5	11.5	13.9	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	90	1172		710	1729		254	353	1093	204	270	258
V/C Ratio(X)	0.84	0.82		0.90	0.45		1.02	1.02	0.81	0.86	0.79	0.82
Avail Cap(c_a), veh/h	90	1172		850	1729		254	353	1093	359	358	342
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.64	0.64	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	37.2	0.0	38.2	6.5	0.0	51.5	48.8	32.5	52.2	49.1	49.3
Incr Delay (d2), s/veh	44.4	6.7	0.0	7.5	0.5	0.0	62.3	52.7	4.4	4.1	6.2	8.4
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	3.4	14.0	0.0	8.6	2.3	0.0	12.0	15.7	11.9	5.4	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.9	43.9	0.0	45.8	7.0	0.0	113.8	101.5	36.9	56.3	55.4	57.7
LnGrp LOS	F	D		D	A		F	F	D	E	E	E
Approach Vol, veh/h		1041			1407			1501			600	
Approach Delay, s/veh		48.0			24.5			65.7			56.5	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	63.9	17.6	27.5	30.1	44.7	22.0	23.1
Change Period (Y+Rc), s	5.0	5.5	4.0	5.0	5.5	* 5.5	5.0	* 5
Max Green Setting (Gmax), s	6.0	53.5	24.0	17.0	29.5	* 30	17.0	* 24
Max Q Clear Time (g_c+I1), s	7.0	9.7	13.5	24.5	23.0	31.8	19.0	16.3
Green Ext Time (p_c), s	0.0	7.6	0.2	0.0	1.7	0.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

MOVEMENT SUMMARY

Site: 28 [Pacific Avenue SE/Lacey Boulevard SE (Site Folder: Future With-Project Combined Development)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Hoomand Dr SE														
3	L2	80	2.0	80	2.0	0.223	13.6	LOS B	1.0	24.2	0.69	0.86	0.69	35.5
8	T1	5	2.0	5	2.0	0.223	6.6	LOS A	1.0	24.2	0.69	0.86	0.69	35.1
18	R2	75	2.0	75	2.0	0.223	6.9	LOS A	1.0	24.2	0.69	0.86	0.69	34.0
Approach		160	2.0	160	2.0	0.223	10.2	LOS B	1.0	24.2	0.69	0.86	0.69	34.8
East: Pacific Ave SE														
1u	U	5	1.0	5	1.0	0.621	14.5	LOS B	5.3	134.5	0.60	0.51	0.60	38.0
1	L2	90	1.0	90	1.0	0.621	11.8	LOS B	5.3	134.5	0.60	0.51	0.60	36.9
6	T1	1622	1.0	1622	1.0	0.621	4.6	LOS A	5.5	138.2	0.57	0.47	0.57	36.8
16	R2	75	1.0	75	1.0	0.621	4.9	LOS A	5.5	138.2	0.55	0.45	0.55	35.5
Approach		1792	1.0	1792	1.0	0.621	5.0	LOS A	5.5	138.2	0.57	0.48	0.57	36.7
North: Lacey St SE														
7	L2	30	2.0	30	2.0	0.200	14.6	LOS B	0.9	23.2	0.76	0.87	0.76	35.8
4	T1	5	2.0	5	2.0	0.200	7.7	LOS A	0.9	23.2	0.76	0.87	0.76	35.5
14	R2	80	2.0	80	2.0	0.200	7.9	LOS A	0.9	23.2	0.76	0.87	0.76	34.2
Approach		115	2.0	115	2.0	0.200	9.6	LOS A	0.9	23.2	0.76	0.87	0.76	34.7
SouthWest: Lacey Blvd SE														
5bx	L3	60	1.0	60	1.0	0.582	12.3	LOS B	4.4	111.3	0.42	0.46	0.42	38.4
5ax	L1	75	1.0	75	1.0	0.582	9.6	LOS A	4.4	111.3	0.42	0.46	0.42	37.0
12ax	R1	1430	1.0	1430	1.0	0.582	3.7	LOS A	4.5	113.0	0.41	0.43	0.41	37.2
12bx	R3	60	1.0	60	1.0	0.582	4.4	LOS A	4.5	113.0	0.40	0.41	0.40	35.8
Approach		1625	1.0	1625	1.0	0.582	4.3	LOS A	4.5	113.0	0.41	0.43	0.41	37.2
All Vehicles		3692	1.1	3692	1.1	0.621	5.1	LOS A	5.5	138.2	0.51	0.49	0.51	36.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	295	5	85	310	74	10	40	165	39	20	5
Future Vol, veh/h	5	295	5	85	310	74	10	40	165	39	20	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	0	0	0
Mvmt Flow	5	295	5	85	310	74	10	40	165	39	20	5
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

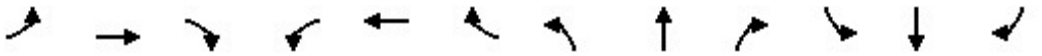
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	13.1	18.3	10.7	10.5
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	0%	2%	18%	61%
Vol Thru, %	80%	0%	97%	66%	31%
Vol Right, %	0%	100%	2%	16%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	165	305	469	64
LT Vol	10	0	5	85	39
Through Vol	40	0	295	310	20
RT Vol	0	165	5	74	5
Lane Flow Rate	50	165	305	469	64
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.094	0.272	0.461	0.674	0.117
Departure Headway (Hd)	6.748	5.931	5.445	5.171	6.578
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	530	604	659	699	541
Service Time	4.507	3.691	3.498	3.215	4.657
HCM Lane V/C Ratio	0.094	0.273	0.463	0.671	0.118
HCM Control Delay	10.2	10.9	13.1	18.3	10.5
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	0.3	1.1	2.4	5.2	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	248	104	540	190	84	355
Future Volume (veh/h)	248	104	540	190	84	355
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	1885	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	248	104	540	190	84	355
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	0	0	0	0
Cap, veh/h	340	302	842	714	130	1166
Arrive On Green	0.19	0.19	0.44	0.44	0.07	0.61
Sat Flow, veh/h	1795	1598	1900	1610	1810	1900
Grp Volume(v), veh/h	248	104	540	190	84	355
Grp Sat Flow(s),veh/h/ln	1795	1598	1900	1610	1810	1900
Q Serve(g_s), s	5.9	2.6	10.1	3.4	2.1	4.1
Cycle Q Clear(g_c), s	5.9	2.6	10.1	3.4	2.1	4.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	340	302	842	714	130	1166
V/C Ratio(X)	0.73	0.34	0.64	0.27	0.65	0.30
Avail Cap(c_a), veh/h	708	630	842	714	198	1166
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	17.4	16.0	9.9	8.0	20.6	4.2
Incr Delay (d2), s/veh	3.0	0.7	3.7	0.9	5.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.9	4.0	1.1	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.4	16.7	13.6	8.9	25.9	4.9
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	352		730			439
Approach Delay, s/veh	19.3		12.4			8.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.8	24.7			32.5	13.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	4.1	12.1			6.1	7.9
Green Ext Time (p_c), s	0.0	2.3			2.1	0.8

Intersection Summary			
HCM 6th Ctrl Delay		13.0	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	789	345	355	727	80	225	485	273	105	305	110
Future Volume (veh/h)	175	789	345	355	727	80	225	485	273	105	305	110
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		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	175	789	345	355	727	80	225	485	273	105	305	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	1	1	1
Cap, veh/h	204	922	402	329	1164	515	396	832	345	292	431	152
Arrive On Green	0.11	0.26	0.26	0.19	0.33	0.33	0.22	0.22	0.22	0.16	0.16	0.16
Sat Flow, veh/h	1795	3582	1561	1767	3526	1560	1767	3711	1538	1795	2653	935
Grp Volume(v), veh/h	175	789	345	355	727	80	225	485	273	105	215	200
Grp Sat Flow(s),veh/h/ln	1795	1791	1561	1767	1763	1560	1767	1856	1538	1795	1885	1702
Q Serve(g_s), s	11.3	24.8	24.9	22.0	20.5	4.3	13.4	13.8	19.8	6.1	12.7	13.2
Cycle Q Clear(g_c), s	11.3	24.8	24.9	22.0	20.5	4.3	13.4	13.8	19.8	6.1	12.7	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	204	922	402	329	1164	515	396	832	345	292	306	277
V/C Ratio(X)	0.86	0.86	0.86	1.08	0.62	0.16	0.57	0.58	0.79	0.36	0.70	0.72
Avail Cap(c_a), veh/h	274	1001	436	329	1164	515	539	1132	469	517	543	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	41.7	41.8	48.0	33.3	27.9	40.7	40.9	43.2	44.0	46.7	46.9
Incr Delay (d2), s/veh	16.7	6.8	14.4	71.9	0.9	0.1	1.0	0.5	5.6	0.6	2.2	2.7
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	6.0	11.7	11.1	16.2	8.9	1.6	5.9	6.3	8.0	2.8	6.1	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	48.5	56.2	119.9	34.3	28.0	41.6	41.3	48.8	44.5	48.9	49.6
LnGrp LOS	E	D	E	F	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1309			1162			983			520	
Approach Delay, s/veh		53.1			60.0			43.5			48.3	
Approach LOS		D			E			D			D	

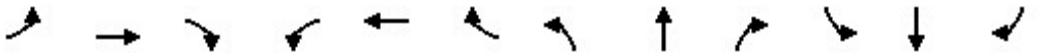
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.4	44.0		31.5	27.0	35.4		24.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	18.0	37.0		36.0	22.0	33.0		34.0				
Max Q Clear Time (g_c+I1), s	13.3	22.5		21.8	24.0	26.9		15.2				
Green Ext Time (p_c), s	0.1	3.9		3.5	0.0	2.9		2.2				

Intersection Summary												
HCM 6th Ctrl Delay			52.1									
HCM 6th LOS			D									

Notes

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

User approved volume balancing among the lanes for turning movement.



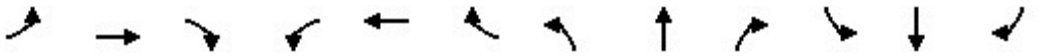
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	863	0	0	1090	331	205	0	555	0	0	0
Future Volume (veh/h)	238	863	0	0	1090	331	205	0	555	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	238	863	0	0	1090	0	205	0	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	1	1	0	0	2	2	2	2	2			
Cap, veh/h	273	2673	0	0	1913		254	0				
Arrive On Green	0.15	0.75	0.00	0.00	0.54	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	1795	3676	0	0	3647	1585	1781	0	1585			
Grp Volume(v), veh/h	238	863	0	0	1090	0	205	0	0			
Grp Sat Flow(s),veh/h/ln	1795	1791	0	0	1777	1585	1781	0	1585			
Q Serve(g_s), s	11.7	7.3	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Cycle Q Clear(g_c), s	11.7	7.3	0.0	0.0	18.4	0.0	10.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	273	2673	0	0	1913		254	0				
V/C Ratio(X)	0.87	0.32	0.00	0.00	0.57		0.81	0.00				
Avail Cap(c_a), veh/h	299	2673	0	0	1913		495	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.3	3.8	0.0	0.0	13.8	0.0	37.4	0.0	0.0			
Incr Delay (d2), s/veh	21.3	0.3	0.0	0.0	1.2	0.0	4.5	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			
%ile BackOfQ(50%),veh/ln	6.6	2.1	0.0	0.0	7.1	0.0	4.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	4.1	0.0	0.0	15.1	0.0	41.9	0.0	0.0			
LnGrp LOS	E	A	A	A	B		D	A				
Approach Vol, veh/h		1101			1090			205				
Approach Delay, s/veh		15.9			15.1			41.9				
Approach LOS		B			B			D				

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.7	53.5		17.8		72.2						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	15.0	35.0		25.0		55.0						
Max Q Clear Time (g_c+I1), s	13.7	20.4		12.0		9.3						
Green Ext Time (p_c), s	0.1	5.9		0.7		6.0						

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

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	843	305	0	850	0	0	0	0	258	5	388
Future Volume (veh/h)	0	843	305	0	850	0	0	0	0	258	5	388
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1885	1885	0	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	843	0	0	850	0				258	5	388
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	1	1	0	2	0				2	2	2
Cap, veh/h	0	2212		0	2195	0				474	9	430
Arrive On Green	0.00	0.62	0.00	0.00	0.62	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	3770	0	0	3741	0				1749	34	1585
Grp Volume(v), veh/h	0	843	0	0	850	0				263	0	388
Grp Sat Flow(s),veh/h/ln	0	1791	0	0	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	10.6	0.0	0.0	10.8	0.0				11.3	0.0	21.3
Cycle Q Clear(g_c), s	0.0	10.6	0.0	0.0	10.8	0.0				11.3	0.0	21.3
Prop In Lane	0.00		0.00	0.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	2212		0	2195	0				484	0	430
V/C Ratio(X)	0.00	0.38		0.00	0.39	0.00				0.54	0.00	0.90
Avail Cap(c_a), veh/h	0	2212		0	2195	0				555	0	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.6	0.0	0.0	8.6	0.0				28.0	0.0	31.6
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.5	0.0				0.7	0.0	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	0.0	0.0	3.9	0.0				4.8	0.0	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.1	0.0	0.0	9.2	0.0				28.7	0.0	49.4
LnGrp LOS	A	A		A	A	A				C	A	D
Approach Vol, veh/h		843			850						651	
Approach Delay, s/veh		9.1			9.2						41.0	
Approach LOS		A			A						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		60.6				60.6		29.4				
Change Period (Y+Rc), s		5.0				5.0		5.0				
Max Green Setting (Gmax), s		52.0				52.0		28.0				
Max Q Clear Time (g_c+I1), s		12.8				12.6		23.3				
Green Ext Time (p_c), s		5.8				5.8		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		18.0
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	917	140	0	1192	0	51
Future Vol, veh/h	917	140	0	1192	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	917	140	0	1192	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	529
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	494
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	494
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	494	-	-	-
HCM Lane V/C Ratio	0.103	-	-	-
HCM Control Delay (s)	13.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	913	9	0	980	0	10
Future Vol, veh/h	913	9	0	980	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	913	9	0	980	0	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	461
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	547
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	547
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	547	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-
HCM Control Delay (s)	11.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	925	19	0	1029	0	19
Future Vol, veh/h	925	19	0	1029	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	3	3	2	2
Mvmt Flow	925	19	0	1029	0	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	472
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	538
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	538
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	538	-	-	-
HCM Lane V/C Ratio	0.035	-	-	-
HCM Control Delay (s)	11.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	132	0	2124	2287	8
Future Vol, veh/h	0	132	0	2124	2287	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	3	3	5	5
Mvmt Flow	0	132	0	2124	2287	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1148	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	165	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	165	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	81.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	165	-	-
HCM Lane V/C Ratio	-	0.8	-	-
HCM Control Delay (s)	-	81.2	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	5.3	-	-

Mitigation

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	50	671	93	30	967	25	0	0	144	0	0	45
Future Vol, veh/h	50	671	93	30	967	25	0	0	144	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	706	98	32	1018	26	0	0	152	0	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1044	0	0	804	0	0	1434	1969	402	1554	2005	522
Stage 1	-	-	-	-	-	-	861	861	-	1095	1095	-
Stage 2	-	-	-	-	-	-	573	1108	-	459	910	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	668	-	-	816	-	-	94	62	598	78	60	505
Stage 1	-	-	-	-	-	-	317	371	-	231	292	-
Stage 2	-	-	-	-	-	-	472	284	-	557	356	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	668	-	-	816	-	-	78	55	598	53	53	505
Mov Cap-2 Maneuver	-	-	-	-	-	-	78	55	-	53	53	-
Stage 1	-	-	-	-	-	-	292	342	-	213	281	-
Stage 2	-	-	-	-	-	-	411	273	-	383	328	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	13.1	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	598	668	-	-	816	-	-	-	505
HCM Lane V/C Ratio	-	0.253	0.079	-	-	0.039	-	-	-	0.094
HCM Control Delay (s)	0	13.1	10.8	-	-	9.6	-	-	0	12.9
HCM Lane LOS	A	B	B	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	1	0.3	-	-	0.1	-	-	-	0.3

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	50	866	93	25	1112	25	0	0	144	0	0	45
Future Vol, veh/h	50	866	93	25	1112	25	0	0	144	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	866	93	25	1112	25	0	0	144	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1137	0	0	959	0	0	1619	2200	480	1708	2234	569
Stage 1	-	-	-	-	-	-	1013	1013	-	1175	1175	-
Stage 2	-	-	-	-	-	-	606	1187	-	533	1059	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	616	-	-	713	-	-	69	44	532	59	42	465
Stage 1	-	-	-	-	-	-	256	315	-	204	264	-
Stage 2	-	-	-	-	-	-	451	260	-	498	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	616	-	-	713	-	-	57	39	532	39	37	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	39	-	39	37	-
Stage 1	-	-	-	-	-	-	235	289	-	187	255	-
Stage 2	-	-	-	-	-	-	393	251	-	334	275	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	14.3	13.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	532	616	-	-	713	-	-	-	465
HCM Lane V/C Ratio	-	0.271	0.081	-	-	0.035	-	-	-	0.097
HCM Control Delay (s)	0	14.3	11.4	-	-	10.2	-	-	0	13.6
HCM Lane LOS	A	B	B	-	-	B	-	-	A	B
HCM 95th %tile Q(veh)	-	1.1	0.3	-	-	0.1	-	-	-	0.3

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	50	595	50	30	800	25	0	0	76	0	0	45
Future Vol, veh/h	50	595	50	30	800	25	0	0	76	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	626	53	32	842	26	0	0	80	0	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	868	0	0	679	0	0	1244	1691	340	1338	1704	434
Stage 1	-	-	-	-	-	-	759	759	-	919	919	-
Stage 2	-	-	-	-	-	-	485	932	-	419	785	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	778	-	-	909	-	-	131	92	656	113	93	576
Stage 1	-	-	-	-	-	-	365	413	-	296	353	-
Stage 2	-	-	-	-	-	-	532	343	-	588	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	778	-	-	909	-	-	111	83	656	92	84	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	111	83	-	92	84	-
Stage 1	-	-	-	-	-	-	340	385	-	276	341	-
Stage 2	-	-	-	-	-	-	471	331	-	481	379	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	11.2	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	656	778	-	-	909	-	-	-	576
HCM Lane V/C Ratio	-	0.122	0.068	-	-	0.035	-	-	-	0.082
HCM Control Delay (s)	0	11.2	10	-	-	9.1	-	-	0	11.8
HCM Lane LOS	A	B	A	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	0.4	0.2	-	-	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	790	50	25	945	25	0	0	76	0	0	45
Future Vol, veh/h	50	790	50	25	945	25	0	0	76	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	790	50	25	945	25	0	0	76	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	970	0	0	840	0	0	1438	1935	420	1503	1948	485
Stage 1	-	-	-	-	-	-	915	915	-	1008	1008	-
Stage 2	-	-	-	-	-	-	523	1020	-	495	940	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	712	-	-	791	-	-	94	65	582	84	64	528
Stage 1	-	-	-	-	-	-	294	350	-	258	316	-
Stage 2	-	-	-	-	-	-	505	312	-	525	340	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	712	-	-	791	-	-	79	59	582	67	58	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	59	-	67	58	-
Stage 1	-	-	-	-	-	-	273	326	-	240	306	-
Stage 2	-	-	-	-	-	-	447	302	-	424	316	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	12.1	12.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	582	712	-	-	791	-	-	-	528
HCM Lane V/C Ratio	-	0.131	0.07	-	-	0.032	-	-	-	0.085
HCM Control Delay (s)	0	12.1	10.4	-	-	9.7	-	-	0	12.5
HCM Lane LOS	A	B	B	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	0.4	0.2	-	-	0.1	-	-	-	0.3

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	50	730	92	30	1017	25	0	0	142	0	0	45
Future Vol, veh/h	50	730	92	30	1017	25	0	0	142	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	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, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	53	768	97	32	1071	26	0	0	149	0	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1097	0	0	865	0	0	1523	2084	433	1638	2119	549
Stage 1	-	-	-	-	-	-	923	923	-	1148	1148	-
Stage 2	-	-	-	-	-	-	600	1161	-	490	971	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	638	-	-	774	-	-	81	52	571	68	51	485
Stage 1	-	-	-	-	-	-	290	347	-	215	276	-
Stage 2	-	-	-	-	-	-	455	268	-	534	334	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	638	-	-	774	-	-	66	46	571	46	45	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	66	46	-	46	45	-
Stage 1	-	-	-	-	-	-	266	318	-	197	265	-
Stage 2	-	-	-	-	-	-	394	257	-	361	306	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	13.5	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	571	638	-	-	774	-	-	-	485
HCM Lane V/C Ratio	-	0.262	0.082	-	-	0.041	-	-	-	0.098
HCM Control Delay (s)	0	13.5	11.1	-	-	9.8	-	-	0	13.2
HCM Lane LOS	A	B	B	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	-	1	0.3	-	-	0.1	-	-	-	0.3

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	50	930	92	25	1157	25	0	0	142	0	0	45
Future Vol, veh/h	50	930	92	25	1157	25	0	0	142	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	1	1	1	2	2	2	2	2	2	0	0	0
Mvmt Flow	50	930	92	25	1157	25	0	0	142	0	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1182	0	0	1022	0	0	1705	2308	511	1785	2342	591
Stage 1	-	-	-	-	-	-	1076	1076	-	1220	1220	-
Stage 2	-	-	-	-	-	-	629	1232	-	565	1122	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.5	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4	3.3
Pot Cap-1 Maneuver	592	-	-	675	-	-	59	38	508	53	37	455
Stage 1	-	-	-	-	-	-	234	294	-	194	255	-
Stage 2	-	-	-	-	-	-	437	248	-	482	284	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	592	-	-	675	-	-	48	34	508	35	33	455
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	34	-	35	33	-
Stage 1	-	-	-	-	-	-	214	269	-	178	246	-
Stage 2	-	-	-	-	-	-	379	239	-	318	260	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	14.8	13.8
HCM LOS			B	B

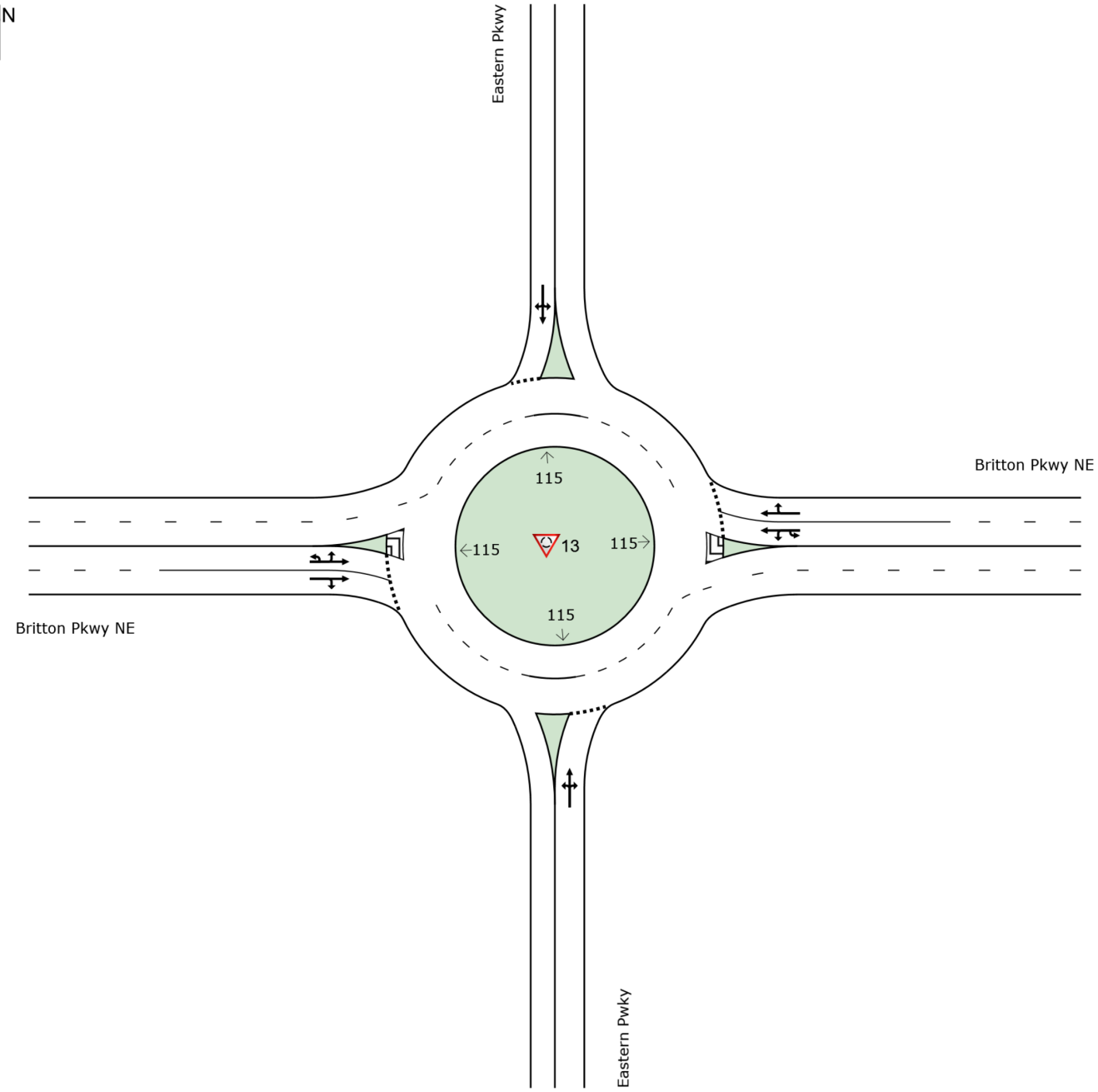
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	508	592	-	-	675	-	-	-	455
HCM Lane V/C Ratio	-	0.28	0.084	-	-	0.037	-	-	-	0.099
HCM Control Delay (s)	0	14.8	11.6	-	-	10.5	-	-	0	13.8
HCM Lane LOS	A	B	B	-	-	B	-	-	A	B
HCM 95th %tile Q(veh)	-	1.1	0.3	-	-	0.1	-	-	-	0.3

SITE LAYOUT

Site: 13 [Eastern Pkwy NE/Britton Pkwy NE (Site Folder: Mitigation)]

Nisqually Quiemuth Mixed Use Village Project
Site Category: Mitigation
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternatve 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	37	2.0	39	2.0	0.111	11.5	LOS B	0.4	9.3	0.47	0.70	0.47	36.2
8	T1	1	2.0	1	2.0	0.111	5.2	LOS A	0.4	9.3	0.47	0.70	0.47	35.9
18	R2	60	2.0	64	2.0	0.111	5.3	LOS A	0.4	9.3	0.47	0.70	0.47	34.8
Approach		98	2.0	104	2.0	0.111	7.6	LOS A	0.4	9.3	0.47	0.70	0.47	35.3
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.315	12.9	LOS B	2.0	50.7	0.23	0.48	0.23	37.9
1	L2	136	3.0	145	3.0	0.315	10.3	LOS B	2.0	50.7	0.23	0.48	0.23	36.8
6	T1	725	3.0	771	3.0	0.315	3.9	LOS A	2.0	51.5	0.22	0.41	0.22	37.3
16	R2	35	3.0	37	3.0	0.315	4.1	LOS A	2.0	51.5	0.21	0.36	0.21	36.4
Approach		906	3.0	964	3.0	0.315	4.9	LOS A	2.0	51.5	0.22	0.42	0.22	37.2
North: Eastern Pkwy														
7	L2	35	0.0	37	0.0	0.073	12.1	LOS B	0.3	6.5	0.52	0.75	0.52	35.5
4	T1	1	0.0	1	0.0	0.073	5.8	LOS A	0.3	6.5	0.52	0.75	0.52	35.2
14	R2	25	0.0	27	0.0	0.073	5.8	LOS A	0.3	6.5	0.52	0.75	0.52	34.2
Approach		61	0.0	65	0.0	0.073	9.5	LOS A	0.3	6.5	0.52	0.75	0.52	34.9
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.314	13.6	LOS B	1.8	47.6	0.41	0.46	0.41	38.2
5	L2	15	4.0	16	4.0	0.314	11.0	LOS B	1.8	47.6	0.41	0.46	0.41	37.0
2	T1	760	4.0	809	4.0	0.314	4.5	LOS A	1.9	48.9	0.39	0.45	0.39	37.0
12	R2	39	4.0	41	4.0	0.314	4.7	LOS A	1.9	48.9	0.38	0.43	0.38	35.7
Approach		815	4.0	867	4.0	0.314	4.7	LOS A	1.9	48.9	0.39	0.45	0.39	36.9
All Vehicles		1880	3.3	2000	3.3	0.315	5.1	LOS A	2.0	51.5	0.32	0.46	0.32	36.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	46	2.0	49	2.0	0.133	11.2	LOS B	0.4	10.6	0.41	0.66	0.41	36.4
8	T1	1	2.0	1	2.0	0.133	4.8	LOS A	0.4	10.6	0.41	0.66	0.41	36.2
18	R2	81	2.0	86	2.0	0.133	5.0	LOS A	0.4	10.6	0.41	0.66	0.41	35.0
Approach		128	2.0	136	2.0	0.133	7.2	LOS A	0.4	10.6	0.41	0.66	0.41	35.5
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.309	12.9	LOS B	1.9	49.2	0.24	0.50	0.24	37.7
1	L2	147	3.0	156	3.0	0.309	10.3	LOS B	1.9	49.2	0.24	0.50	0.24	36.6
6	T1	694	3.0	738	3.0	0.309	3.9	LOS A	1.9	49.8	0.23	0.42	0.23	37.3
16	R2	35	3.0	37	3.0	0.309	4.1	LOS A	1.9	49.8	0.22	0.37	0.22	36.3
Approach		886	3.0	943	3.0	0.309	5.1	LOS A	1.9	49.8	0.23	0.43	0.23	37.1
North: Eastern Pkwy														
7	L2	35	0.0	37	0.0	0.073	12.1	LOS B	0.3	6.6	0.52	0.75	0.52	35.5
4	T1	1	0.0	1	0.0	0.073	5.8	LOS A	0.3	6.6	0.52	0.75	0.52	35.2
14	R2	25	0.0	27	0.0	0.073	5.8	LOS A	0.3	6.6	0.52	0.75	0.52	34.2
Approach		61	0.0	65	0.0	0.073	9.4	LOS A	0.3	6.6	0.52	0.75	0.52	34.9
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.249	13.6	LOS B	1.4	35.8	0.39	0.46	0.39	38.2
5	L2	15	4.0	16	4.0	0.249	11.0	LOS B	1.4	35.8	0.39	0.46	0.39	37.0
2	T1	568	4.0	604	4.0	0.249	4.5	LOS A	1.4	36.8	0.38	0.45	0.38	37.0
12	R2	58	4.0	62	4.0	0.249	4.6	LOS A	1.4	36.8	0.37	0.44	0.37	35.8
Approach		642	4.0	683	4.0	0.249	4.7	LOS A	1.4	36.8	0.38	0.45	0.38	36.9
All Vehicles		1717	3.2	1827	3.2	0.309	5.3	LOS A	1.9	49.8	0.31	0.46	0.31	36.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2026) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	36	2.0	38	2.0	0.121	11.6	LOS B	0.4	10.3	0.49	0.70	0.49	36.3
8	T1	1	2.0	1	2.0	0.121	5.3	LOS A	0.4	10.3	0.49	0.70	0.49	36.0
18	R2	69	2.0	73	2.0	0.121	5.4	LOS A	0.4	10.3	0.49	0.70	0.49	34.9
Approach		106	2.0	113	2.0	0.121	7.5	LOS A	0.4	10.3	0.49	0.70	0.49	35.4
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.321	12.8	LOS B	2.1	53.0	0.22	0.47	0.22	38.0
1	L2	125	3.0	133	3.0	0.321	10.2	LOS B	2.1	53.0	0.22	0.47	0.22	36.9
6	T1	759	3.0	807	3.0	0.321	3.9	LOS A	2.1	53.8	0.21	0.40	0.21	37.4
16	R2	35	3.0	37	3.0	0.321	4.1	LOS A	2.1	53.8	0.20	0.36	0.20	36.4
Approach		929	3.0	988	3.0	0.321	4.8	LOS A	2.1	53.8	0.21	0.41	0.21	37.3
North: Eastern Pkwy														
7	L2	35	0.0	37	0.0	0.074	12.2	LOS B	0.3	6.6	0.53	0.76	0.53	35.5
4	T1	1	0.0	1	0.0	0.074	5.8	LOS A	0.3	6.6	0.53	0.76	0.53	35.2
14	R2	25	0.0	27	0.0	0.074	5.9	LOS A	0.3	6.6	0.53	0.76	0.53	34.1
Approach		61	0.0	65	0.0	0.074	9.5	LOS A	0.3	6.6	0.53	0.76	0.53	34.9
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.326	13.5	LOS B	1.9	50.0	0.40	0.45	0.40	38.2
5	L2	10	4.0	11	4.0	0.326	10.9	LOS B	1.9	50.0	0.40	0.45	0.40	37.1
2	T1	798	4.0	849	4.0	0.326	4.5	LOS A	2.0	51.2	0.38	0.44	0.38	37.1
12	R2	45	4.0	48	4.0	0.326	4.6	LOS A	2.0	51.2	0.37	0.43	0.37	35.7
Approach		854	4.0	909	4.0	0.326	4.6	LOS A	2.0	51.2	0.38	0.44	0.38	37.0
All Vehicles		1950	3.3	2074	3.3	0.326	5.0	LOS A	2.1	53.8	0.31	0.45	0.31	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 1 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	32	2.0	34	2.0	0.061	11.7	LOS B	0.2	5.0	0.48	0.73	0.48	35.4
8	T1	1	2.0	1	2.0	0.061	5.3	LOS A	0.2	5.0	0.48	0.73	0.48	35.2
18	R2	20	2.0	21	2.0	0.061	5.4	LOS A	0.2	5.0	0.48	0.73	0.48	34.1
Approach		53	2.0	56	2.0	0.061	9.2	LOS A	0.2	5.0	0.48	0.73	0.48	34.9
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.346	12.9	LOS B	2.2	57.1	0.23	0.43	0.23	38.4
1	L2	76	3.0	81	3.0	0.346	10.3	LOS B	2.2	57.1	0.23	0.43	0.23	37.3
6	T1	885	3.0	941	3.0	0.346	3.9	LOS A	2.3	57.7	0.22	0.39	0.22	37.5
16	R2	25	3.0	27	3.0	0.346	4.1	LOS A	2.3	57.7	0.21	0.36	0.21	36.3
Approach		996	3.0	1060	3.0	0.346	4.5	LOS A	2.3	57.7	0.22	0.40	0.22	37.5
North: Eastern Pkwy														
7	L2	30	0.0	32	0.0	0.068	12.3	LOS B	0.2	6.2	0.55	0.76	0.55	35.5
4	T1	5	0.0	5	0.0	0.068	6.0	LOS A	0.2	6.2	0.55	0.76	0.55	35.2
14	R2	20	0.0	21	0.0	0.068	6.1	LOS A	0.2	6.2	0.55	0.76	0.55	34.1
Approach		55	0.0	59	0.0	0.068	9.5	LOS A	0.2	6.2	0.55	0.76	0.55	34.9
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.328	13.3	LOS B	2.0	50.5	0.33	0.43	0.33	38.4
5	L2	20	4.0	21	4.0	0.328	10.7	LOS B	2.0	50.5	0.33	0.43	0.33	37.3
2	T1	850	4.0	904	4.0	0.328	4.2	LOS A	2.0	51.3	0.32	0.42	0.32	37.3
12	R2	19	4.0	20	4.0	0.328	4.4	LOS A	2.0	51.3	0.31	0.40	0.31	36.0
Approach		890	4.0	947	4.0	0.328	4.4	LOS A	2.0	51.3	0.32	0.42	0.32	37.2
All Vehicles		1994	3.3	2121	3.3	0.346	4.7	LOS A	2.3	57.7	0.28	0.42	0.28	37.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Village Alternative 2 PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	41	2.0	44	2.0	0.088	11.3	LOS B	0.3	6.9	0.42	0.69	0.42	35.9
8	T1	1	2.0	1	2.0	0.088	4.9	LOS A	0.3	6.9	0.42	0.69	0.42	35.7
18	R2	41	2.0	44	2.0	0.088	5.1	LOS A	0.3	6.9	0.42	0.69	0.42	34.6
Approach		83	2.0	88	2.0	0.088	8.1	LOS A	0.3	6.9	0.42	0.69	0.42	35.3
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.341	12.9	LOS B	2.2	55.7	0.25	0.45	0.25	38.3
1	L2	87	3.0	93	3.0	0.341	10.3	LOS B	2.2	55.7	0.25	0.45	0.25	37.1
6	T1	854	3.0	909	3.0	0.341	3.9	LOS A	2.2	56.3	0.24	0.40	0.24	37.4
16	R2	25	3.0	27	3.0	0.341	4.2	LOS A	2.2	56.3	0.23	0.37	0.23	36.3
Approach		976	3.0	1038	3.0	0.341	4.6	LOS A	2.2	56.3	0.24	0.41	0.24	37.3
North: Eastern Pkwy														
7	L2	30	0.0	32	0.0	0.063	12.3	LOS B	0.2	5.8	0.54	0.76	0.54	35.4
4	T1	1	0.0	1	0.0	0.063	5.9	LOS A	0.2	5.8	0.54	0.76	0.54	35.1
14	R2	20	0.0	21	0.0	0.063	6.0	LOS A	0.2	5.8	0.54	0.76	0.54	34.1
Approach		51	0.0	54	0.0	0.063	9.7	LOS A	0.2	5.8	0.54	0.76	0.54	34.8
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.265	13.2	LOS B	1.5	38.6	0.33	0.44	0.33	38.4
5	L2	20	4.0	21	4.0	0.265	10.6	LOS B	1.5	38.6	0.33	0.44	0.33	37.3
2	T1	658	4.0	700	4.0	0.265	4.2	LOS A	1.5	39.4	0.31	0.42	0.31	37.3
12	R2	38	4.0	40	4.0	0.265	4.4	LOS A	1.5	39.4	0.30	0.41	0.30	36.0
Approach		717	4.0	763	4.0	0.265	4.4	LOS A	1.5	39.4	0.31	0.42	0.31	37.2
All Vehicles		1827	3.3	1944	3.3	0.341	4.8	LOS A	2.2	56.3	0.28	0.43	0.28	37.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 13 [Britton Blvd NE/Eastern Pkwy (Site Folder: Mitigation)]

Nisqually Quiemuth Village Mixed Use Project
Site Category: Future (2045) With-Project Combined Development PM Peak Hour
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Eastern Pwky														
3	L2	36	2.0	38	2.0	0.121	11.6	LOS B	0.4	10.3	0.49	0.70	0.49	36.3
8	T1	1	2.0	1	2.0	0.121	5.3	LOS A	0.4	10.3	0.49	0.70	0.49	36.0
18	R2	69	2.0	73	2.0	0.121	5.4	LOS A	0.4	10.3	0.49	0.70	0.49	34.9
Approach		106	2.0	113	2.0	0.121	7.5	LOS A	0.4	10.3	0.49	0.70	0.49	35.4
East: Britton Pkwy NE														
1u	U	10	3.0	11	3.0	0.321	12.8	LOS B	2.1	53.0	0.22	0.47	0.22	38.0
1	L2	125	3.0	133	3.0	0.321	10.2	LOS B	2.1	53.0	0.22	0.47	0.22	36.9
6	T1	759	3.0	807	3.0	0.321	3.9	LOS A	2.1	53.8	0.21	0.40	0.21	37.4
16	R2	35	3.0	37	3.0	0.321	4.1	LOS A	2.1	53.8	0.20	0.36	0.20	36.4
Approach		929	3.0	988	3.0	0.321	4.8	LOS A	2.1	53.8	0.21	0.41	0.21	37.3
North: Eastern Pkwy														
7	L2	35	0.0	37	0.0	0.074	12.2	LOS B	0.3	6.6	0.53	0.76	0.53	35.5
4	T1	1	0.0	1	0.0	0.074	5.8	LOS A	0.3	6.6	0.53	0.76	0.53	35.2
14	R2	25	0.0	27	0.0	0.074	5.9	LOS A	0.3	6.6	0.53	0.76	0.53	34.1
Approach		61	0.0	65	0.0	0.074	9.5	LOS A	0.3	6.6	0.53	0.76	0.53	34.9
West: Britton Pkwy NE														
5u	U	1	4.0	1	4.0	0.326	13.5	LOS B	1.9	50.0	0.40	0.45	0.40	38.2
5	L2	10	4.0	11	4.0	0.326	10.9	LOS B	1.9	50.0	0.40	0.45	0.40	37.1
2	T1	798	4.0	849	4.0	0.326	4.5	LOS A	2.0	51.2	0.38	0.44	0.38	37.1
12	R2	45	4.0	48	4.0	0.326	4.6	LOS A	2.0	51.2	0.37	0.43	0.37	35.7
Approach		854	4.0	909	4.0	0.326	4.6	LOS A	2.0	51.2	0.38	0.44	0.38	37.0
All Vehicles		1950	3.3	2074	3.3	0.326	5.0	LOS A	2.1	53.8	0.31	0.45	0.31	37.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix F: Related Pages from Topgolf El Segundo Report

400 SOUTH SEPULVEDA BOULEVARD
PROPOSED TOPGOLF PROJECT
TRAFFIC IMPACT ANALYSIS
City of El Segundo, California

Prepared for:

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October 31, 2016

AT:dt/RK11914.doc
JN:0003-2016-02

Table 4
Forecast Weekday Daily & Peak Hour
Trip Generation Summary of Proposed Project

Land Use	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			Weekday Daily Trips
	In	Out	Total	In	Out	Total	
Proposed Topgolf Project	45	6	51	129	118	247	2,241

Source: *400 South Sepulveda Proposed Topgolf Project Trip Generation Analysis (RK Engineering Group, June 6, 2016)*.

As shown in Table 4, the proposed project is forecast to conservatively generate approximately 2,241 weekday daily trips which include approximately 51 weekday AM peak hour trips and approximately 247 weekday PM peak hour trips.

Based on the *400 South Sepulveda Proposed Topgolf Project Trip Generation Analysis (RK Engineering Group, June 6, 2016),* Table 5 summarizes the conservative forecast weekend daily and peak hour trip generation for the proposed project.

Table 5
Forecast Weekend Daily & Peak Hour
Trip Generation Summary of Proposed Topgolf Project

Land Use	Weekend Mid-Day Peak Hour Trips			Weekend Daily Trips
	In	Out	Total	
Proposed Topgolf Project	90	90	180	3,766

Source: *400 South Sepulveda Proposed Topgolf Project Trip Generation Analysis (RK Engineering Group, June 6, 2016)*.

As shown in Table 5, the proposed project is forecast to conservatively generate approximately 3,766 weekend daily trips which include approximately 180 weekend mid-day peak hour trips.

Since the proposed project is forecast to generate less than 50 trips at any study intersection during the weekday AM peak hour, City of El Segundo and Caltrans staff determined a weekday AM peak hour analysis is not required for the proposed project. Accordingly, this analysis evaluates weekday PM peak hour and weekend-day mid-day peak hour conditions for potential traffic impacts associated with the proposed project at the twenty-two study intersections identified by City of El Segundo and Caltrans staff.

Appendix G: Trip Generation Calculations

Appendix G: Trip Generation Calculations

1.21359.00 - Nisqually Quiemuth Village Mixed Use Project
Alternative 1 – Proposed Mixed Use Development

Proposed Use

Land Use	Setting	Size	Units	Model[1]	Rate	Inbound %	Gross Trips Inbound	Gross Trips Outbound	Gross Trips Subtotal	Land Use Type	Internal Trips In	Internal Trips Out	Internal Trips Total	Internal Trips %	External trips In	External trips Out	External trips Total	Pass-By %	Pass-By In	Pass-By Out	Pass-By Total	Total Net New Inbound	Total Net New Outbound	Total Net New Total
Shopping Center [>150k sf] (LU #820)		**833,500**	sf							Retail														
Daily	General Urban/Suburban			Rate	37.01	50%	15,424	15,424	30,848		428	428	856	3%	14996	14996	29992	19%	2849	2849	5698	12,147	12,147	24,294
AM Peak Hour	General Urban/Suburban			Rate	0.84	62%	434	266	700		7	2	9	1%	427	264	691	19%	66	66	132	361	198	559
PM Peak Hour	General Urban/Suburban			Rate	3.40	48%	1,360	1,474	2,834		52	69	121	4%	1308	1405	2713	19%	258	258	516	1,050	1,147	2,197
Hotel (LU #310)		**200**	rooms							Hotel														
Daily	General Urban/Suburban			Rate	7.99	50%	799	799	1,598		101	101	202	13%	698	698	1396		-	-	-	698	698	1,396
AM Peak Hour	General Urban/Suburban			Rate	0.46	56%	52	40	92		0	7	7	8%	52	33	85		-	-	-	52	33	85
PM Peak Hour	General Urban/Suburban			Rate	0.59	51%	60	58	118		12	9	21	18%	48	49	97		-	-	-	48	49	97
Multifamily Housing (Mid-Rise) (LU #221)		**320**	du							Residential														
Daily	General Urban/Suburban			Rate	4.54	50%	726	726	1,452		192	192	384	26%	534	534	1068		-	-	-	534	534	1,068
AM Peak Hour	General Urban/Suburban			Rate	0.37	23%	27	91	118		1	2	3	3%	26	89	115		-	-	-	26	89	115
PM Peak Hour	General Urban/Suburban			Rate	0.39	61%	76	49	125		39	24	63	50%	37	25	62		-	-	-	37	25	62
General Office (LU #710)		**30,000**	sf							Office														
Daily	General Urban/Suburban			Rate	9.74	50%	146	146	292		31	31	62	21%	115	115	230		-	-	-	115	115	230
AM Peak Hour	General Urban/Suburban			Rate	1.16	86%	30	5	35		3	1	4	11%	27	4	31		-	-	-	27	4	31
PM Peak Hour	General Urban/Suburban			Rate	1.15	16%	6	29	35		4	7	11	31%	2	22	24		-	-	-	2	22	24
Truck Stop (LU #950)		**26**	VFP					*Truck Trips*		All Other Land Uses										*Diverted Trips*				
Daily	General Urban/Suburban			Rate	224.00	50%	2,912	2,912	5,824		0	0	0	0%	2912	2912	5824	75%	2184	2184	4368	728	728	1,456
AM Peak Hour	General Urban/Suburban			Rate	13.97	49%	178	185	363		0	0	0	0%	178	185	363	76%	138	138	276	40	47	87
PM Peak Hour	General Urban/Suburban			Rate	15.42	53%	213	188	401		0	0	0	0%	213	188	401	75%	150	150	300	63	38	101
Car Dealership (LU #840)		**30,000**	sf							Retail														
Daily	General Urban/Suburban			Rate	27.84	50%	418	418	836		12	12	24	3%	406	406	812		-	-	-	406	406	812
AM Peak Hour	General Urban/Suburban			Rate	1.86	73%	41	15	56		1	0	1	2%	40	15	55		-	-	-	40	15	55
PM Peak Hour	General Urban/Suburban			Rate	2.42	40%	29	44	73		1	2	3	4%	28	42	70		-	-	-	28	42	70
TopGolf (Rates from Transpo Group TIA)[3]		**93**	bays							Cinema/Entertainment														
Daily[4]	General Urban/Suburban			Rate	16.60	50%	772	772	1,544		102	102	204	13%	670	670	1340		-	-	-	670	670	1,340
AM Peak Hour[4]	General Urban/Suburban			Rate	0.38	88%	32	4	36		0	0	0	0%	32	4	36		-	-	-	32	4	36
PM Peak Hour	General Urban/Suburban			Rate	1.83	54%	91	79	170		24	21	45	26%	67	58	125		-	-	-	67	58	125
Subtotal																								
Daily							21,197	21,197	42,394		866	866	1,732	4%	20,331	20,331	40,662		5,033	5,033	10,066	15,298	15,298	30,596
AM Peak Hour							794	606	1,400		12	12	24	2%	782	594	1,376		204	204	408	578	390	968
PM Peak Hour							1,835	1,921	3,756		132	132	264	7%	1,703	1,789	3,492		408	408	816	1,295	1,381	2,676

Notes:

sf = square feet, VFP = vehicle fueling position

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. Pass-by rate for truck stop (LU #950) based on rate established in ITE Trip Gen manual for LU 945 convenience store/gas station
3. Topgolf Renton Transportation Impact Analysis (Transpo Group, July 2019). Only the PM peak hour trip rate is available in this study.
4. A 2016 study for a Topgolf facility in El Segundo, CA was used to find the relationship between the number of AM peak hour and daily trips and the number of PM peak hour trips as well as the in/out split for the AM peak. The daily trips and AM peak hour trips were respectively 9.07 times and 0.21 times the number of PM peak hour trips, and the AM peak hour inbound split was 88%.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	30	5
Retail				756	475	281
Restaurant				0	0	0
Cinema/Entertainment				36	32	4
Residential				118	27	91
Hotel				92	52	40
All Other Land Uses[2]				0	0	0
Total				1037	616	421

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	1	6	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,037	616	421
Internal Capture Percentage	2%	2%	3%
External Vehicle-Trips[3]	1,013	604	409
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	20%
Retail	2%	1%
Restaurant	N/A	N/A
Cinema/Entertainment	0%	0%
Residential	4%	2%
Hotel	0%	18%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	30	30	1.00	5	5
Retail	1.00	475	475	1.00	281	281
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	32	32	1.00	4	4
Residential	1.00	27	27	1.00	91	91
Hotel	1.00	52	52	1.00	40	40

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	3	0	0	0
Retail	81		37	0	39	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	30	6	4	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		152	0	0	0	0
Retail	1		0	0	1	0
Restaurant	4	38		0	1	2
Cinema/Entertainment	0	0	0		0	0
Residential	1	81	0	0		0
Hotel	1	19	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	27	30	27	0	0
Retail	8	467	475	467	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	32	32	32	0	0
Residential	1	26	27	26	0	0
Hotel	0	52	52	52	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	4	5	4	0	0
Retail	2	279	281	279	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	4	4	4	0	0
Residential	2	89	91	89	0	0
Hotel	7	33	40	33	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	6	29
Retail				2907	1389	1518
Restaurant				0	0	0
Cinema/Entertainment				170	91	79
Residential				125	76	49
Hotel				118	60	58
All Other Land Uses[2]				0	0	0
Total				3355	1622	1733

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	1	0
Retail	2		0	24	35	10
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	17	0		3	1
Residential	2	21	0	0		1
Hotel	0	9	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	3,355	1,622	1,733
Internal Capture Percentage	8%	8%	8%
External Vehicle-Trips[3]	3,091	1,490	1,601
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	67%	24%
Retail	4%	5%
Restaurant	N/A	N/A
Cinema/Entertainment	26%	27%
Residential	51%	49%
Hotel	20%	16%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	6	6	1.00	29	29
Retail	1.00	1389	1389	1.00	1518	1518
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	91	91	1.00	79	79
Residential	1.00	76	76	1.00	49	49
Hotel	1.00	60	60	1.00	58	58

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	1	0	1	0
Retail	30		440	61	395	76
Restaurant	0	0		0	0	0
Cinema/Entertainment	2	17	24		6	2
Residential	2	21	10	0		1
Hotel	0	9	39	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		111	0	1	3	0
Retail	2		0	24	35	10
Restaurant	2	695		29	12	43
Cinema/Entertainment	0	56	0		3	1
Residential	3	139	0	0		7
Hotel	0	28	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	4	2	6	2	0	0
Retail	53	1336	1389	1336	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	24	67	91	67	0	0
Residential	39	37	76	37	0	0
Hotel	12	48	60	48	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	22	29	22	0	0
Retail	71	1447	1518	1447	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	21	58	79	58	0	0
Residential	24	25	49	25	0	0
Hotel	9	49	58	49	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

1.21359.00 - Nisqually Quiemuth Village Mixed Use Project
Alternative 2 – Reduced Intensity Mixed Use Development

Proposed Use

							Gross Trips				Internal Trips				External trips			Pass-By				Total Net New		
Land Use	**Setting**	**Size**	**Units**	**Model[1]**	**Rate**	**Inbound %**	**Inbound**	**Outbound**	**Subtotal**	**Land Use Type**	**In**	**Out**	**Total**	**%**	**In**	**Out**	**Total**	**%**	**In**	**Out**	**Total**	**Inbound**	**Outbound**	**Total**
Shopping Center [>150k sf] (LU #820)		**338,500**	sf							Retail														
Daily	General Urban/Suburban			Rate	37.01	50%	6,264	6,264	12,528		363	363	726	6%	5901	5901	11802	19%	1121	1121	2242	4,780	4,780	9,560
AM Peak Hour	General Urban/Suburban			Rate	0.84	62%	176	108	284		4	1	5	2%	172	107	279	19%	27	27	54	145	80	225
PM Peak Hour	General Urban/Suburban			Rate	3.40	48%	552	599	1,151		51	62	113	10%	501	537	1038	19%	99	99	198	402	438	840
Hotel (LU #310)		**200**	rooms							Hotel														
Daily	General Urban/Suburban			Rate	7.99	50%	799	799	1,598		101	101	202	13%	698	698	1396		-	-	-	698	698	1,396
AM Peak Hour	General Urban/Suburban			Rate	0.46	56%	52	40	92		0	7	7	8%	52	33	85		-	-	-	52	33	85
PM Peak Hour	General Urban/Suburban			Rate	0.59	51%	60	58	118		12	9	21	18%	48	49	97		-	-	-	48	49	97
Multifamily Housing (Mid-Rise) (LU #221)		**320**	du							Residential														
Daily	General Urban/Suburban			Rate	4.54	50%	726	726	1,452		192	192	384	26%	534	534	1068		-	-	-	534	534	1,068
AM Peak Hour	General Urban/Suburban			Rate	0.37	23%	27	91	118		1	2	3	3%	26	89	115		-	-	-	26	89	115
PM Peak Hour	General Urban/Suburban			Rate	0.39	61%	76	49	125		39	24	63	50%	37	25	62		-	-	-	37	25	62
General Office (LU #710)		**30,000**	sf							Office														
Daily	General Urban/Suburban			Rate	9.74	50%	146	146	292		31	31	62	21%	115	115	230		-	-	-	115	115	230
AM Peak Hour	General Urban/Suburban			Rate	1.16	86%	30	5	35		3	1	4	11%	27	4	31		-	-	-	27	4	31
PM Peak Hour	General Urban/Suburban			Rate	1.15	16%	6	29	35		4	7	11	31%	2	22	24		-	-	-	2	22	24
Recreational Community Center (LU #495)		**200,000**	sf							Cinema/Entertainment														
Daily	General Urban/Suburban			Rate	28.82	50%	2,882	2,882	5,764		104	104	208	4%	2778	2778	5556		-	-	-	2,778	2,778	5,556
AM Peak Hour	General Urban/Suburban			Rate	1.91	66%	252	130	382		0	0	0	0%	252	130	382		-	-	-	252	130	382
PM Peak Hour	General Urban/Suburban			Rate	2.50	47%	235	265	500		15	21	36	7%	220	244	464		-	-	-	220	244	464
Car Dealership (LU #840)		**10,000**	sf							Retail														
Daily	General Urban/Suburban			Rate	27.84	50%	139	139	278		6	6	12	4%	133	133	266		-	-	-	133	133	266
AM Peak Hour	General Urban/Suburban			Rate	1.86	73%	14	5	19		0	0	0	0%	14	5	19		-	-	-	14	5	19
PM Peak Hour	General Urban/Suburban			Rate	2.42	40%	10	14	24		1	1	2	8%	9	13	22		-	-	-	9	13	22
TopGolf (Rates from Transpo Group TIA)[3]		**93**	bays							Cinema/Entertainment														
Daily[4]	General Urban/Suburban			Rate	16.60	50%	772	772	1,544		27	27	54	4%	745	745	1490		-	-	-	745	745	1,490
AM Peak Hour[4]	General Urban/Suburban			Rate	0.38	88%	32	4	36		0	0	0	0%	32	4	36		-	-	-	32	4	36
PM Peak Hour	General Urban/Suburban			Rate	1.83	54%	91	79	170		6	6	12	7%	85	73	158		-	-	-	85	73	158
Private School (K-8) (LU #530)		**200**	students							All Other Land Uses														
Daily	General Urban/Suburban			Rate	4.11	50%	411	411	822		0	0	0	0%	411	411	822		-	-	-	411	411	822
AM Peak Hour	General Urban/Suburban			Rate	1.01	56%	113	89	202		0	0	0	0%	113	89	202		-	-	-	113	89	202
PM Peak Hour	General Urban/Suburban			Rate	0.26	46%	24	28	52		0	0	0	0%	24	28	52		-	-	-	24	28	52
Convenience Store / Gas Station - GFA (5.5-10k) (LU #945)		**10**	VFP							Retail														
Daily	General Urban/Suburban			Rate	345.75	50%	1,729	1,729	3,458		97	97	194	6%	1632	1632	3264	75%	1224	1224	2448	408	408	816
AM Peak Hour	General Urban/Suburban			Rate	31.60	50%	158	158	316		4	1	5	2%	154	157	311	76%	118	118	236	36	39	75
PM Peak Hour	General Urban/Suburban			Rate	26.90	50%	135	134	269		12	14	26	10%	123	120	243	75%	91	91	182	32	29	61
Athletic Complex (LU #488)[5]		**12**	fields							Cinema/Entertainment														
Daily	General Urban/Suburban			Rate	71.33	50%	428	428	856		15	15	30	4%	413	413	826		-	-	-	413	413	826
AM Peak Hour	General Urban/Suburban			Rate	0.99	61%	7	5	12		0	0	0	0%	7	5	12		-	-	-	7	5	12
PM Peak Hour	General Urban/Suburban			Rate	16.43	66%	130	67	197		9	5	14	7%	121	62	183		-	-	-	121	62	183
Subtotal																								
Daily							14,296	14,296	28,592		936	936	1,872	7%	13,360	13,360	26,720		2,345	2,345	4,690	11,015	11,015	22,030
AM Peak Hour							861	635	1,496		12	12	24	2%	849	623	1,472		145	145	290	704	478	1,182
PM Peak Hour							1,319	1,322	2,641		149	149	298	11%	1,170	1,173	2,343		190	190	380	980	983	1,963

Notes:

sf = square feet, VFP = vehicle fueling position

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. Pass-by rate for convenience store (LU #945) based on rate established in ITE Trip Gen manual for LU 945 convenience store/gas station
3. Topgolf Renton Transportation Impact Analysis (Transpo Group, July 2019). Only the PM peak hour trip rate is available in this study.
4. A 2016 study for a Topgolf facility in El Segundo, CA was used to find the relationship between the number of AM peak hour and daily trips and the number of PM peak hour trips as well as the in/out split for the AM peak. The daily trips and AM peak hour trips were respectively 9.07 times and 0.21 times the number of PM peak hour trips, and the AM peak hour inbound split was 88%.
5. LU #488 is Soccer Complex in the ITE Trip Generation Manual. The independent variable is fields. The same rate was applied to the baseball fields and soccer fields.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	30	5
Retail				619	348	271
Restaurant				0	0	0
Cinema/Entertainment				430	291	139
Residential				118	27	91
Hotel				92	52	40
All Other Land Uses[2]				0	0	0
Total				1294	748	546

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	1	6	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,294	748	546
Internal Capture Percentage	2%	2%	2%
External Vehicle-Trips[3]	1,270	736	534
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	20%
Retail	2%	1%
Restaurant	N/A	N/A
Cinema/Entertainment	0%	0%
Residential	4%	2%
Hotel	0%	18%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	30	30	1.00	5	5
Retail	1.00	348	348	1.00	271	271
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	291	291	1.00	139	139
Residential	1.00	27	27	1.00	91	91
Hotel	1.00	52	52	1.00	40	40

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	3	0	0	0
Retail	79		35	0	38	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	30	6	4	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		111	0	0	0	0
Retail	1		0	0	1	0
Restaurant	4	28		0	1	2
Cinema/Entertainment	0	0	0		0	0
Residential	1	59	0	0		0
Hotel	1	14	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	27	30	27	0	0
Retail	8	340	348	340	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	291	291	291	0	0
Residential	1	26	27	26	0	0
Hotel	0	52	52	52	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	4	5	4	0	0
Retail	2	269	271	269	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	139	139	139	0	0
Residential	2	89	91	89	0	0
Hotel	7	33	40	33	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	6	29
Retail				1444	697	747
Restaurant				0	0	0
Cinema/Entertainment				867	456	411
Residential				125	76	49
Hotel				118	60	58
All Other Land Uses[2]				0	0	0
Total				2589	1295	1294

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	1	0
Retail	2		0	30	35	10
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	28	0		3	1
Residential	2	21	0	0		1
Hotel	0	9	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	2,589	1,295	1,294
Internal Capture Percentage	12%	12%	12%
External Vehicle-Trips[3]	2,291	1,146	1,145
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	67%	24%
Retail	9%	10%
Restaurant	N/A	N/A
Cinema/Entertainment	7%	8%
Residential	51%	49%
Hotel	20%	16%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	6	6	1.00	29	29
Retail	1.00	697	697	1.00	747	747
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	456	456	1.00	411	411
Residential	1.00	76	76	1.00	49	49
Hotel	1.00	60	60	1.00	58	58

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	1	0	1	0
Retail	15		217	30	194	37
Restaurant	0	0		0	0	0
Cinema/Entertainment	8	86	127		33	8
Residential	2	21	10	0		1
Hotel	0	9	39	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		56	0	5	3	0
Retail	2		0	119	35	10
Restaurant	2	349		146	12	43
Cinema/Entertainment	0	28	0		3	1
Residential	3	70	0	0		7
Hotel	0	14	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	4	2	6	2	0	0
Retail	64	633	697	633	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	30	426	456	426	0	0
Residential	39	37	76	37	0	0
Hotel	12	48	60	48	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	22	29	22	0	0
Retail	77	670	747	670	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	32	379	411	379	0	0
Residential	24	25	49	25	0	0
Hotel	9	49	58	49	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

1.21359.00 - Nisqually Quiemuth Village Mixed Use Project

Combined Development (Village Alternative 1 and Casino Alternative A)

Proposed Use

Land Use	Setting	Size	Units	Model[1]	Rate	Inbound %	Gross Trips Inbound	Gross Trips Outbound	Gross Trips Subtotal	Land Use Type	Internal Trips In	Internal Trips Out	Internal Trips Total	Internal Trips %	External trips In	External trips Out	External trips Total	Pass-By %	Pass-By In	Pass-By Out	Pass-By Total	Total Net New Inbound	Total Net New Outbound	Total Net New Total
Casino Alternative A																								
Casino & Hotel (Rates from Siletz EA TIA)[2]		**2,360**	gaming positions							Cinema/Entertainment														
Daily	General Urban/Suburban			Rate	3.36	50%	3,965	3,965	7,930		316	316	632	8%	3649	3649	7298		-	-	-	3,649	3,649	7,298
AM Peak Hour	General Urban/Suburban			Rate	0.14	59%	195	135	330		0	0	0	0%	195	135	330		-	-	-	195	135	330
PM Peak Hour	General Urban/Suburban			Rate	0.25	48%	283	307	590		46	48	94	16%	237	259	496		-	-	-	237	259	496
Cultural Center/Musuem (LU #580)[3]		**20,000**	sf							All Other Land Uses														
Daily	General Urban/Suburban			Rate	1.80	50%	18	18	36		0	0	0	0%	18	18	36		-	-	-	18	18	36
AM Peak Hour	General Urban/Suburban			Rate	0.28	86%	5	1	6		0	0	0	0%	5	1	6		-	-	-	5	1	6
PM Peak Hour	General Urban/Suburban			Rate	0.18	16%	1	3	4		0	0	0	0%	1	3	4		-	-	-	1	3	4
Village Alternative 1																								
Shopping Center [>150k sf] (LU #820)		**833,500**	sf							Retail														
Daily	General Urban/Suburban			Rate	37.01	50%	15,424	15,424	30,848		630	630	1260	4%	14794	14794	29588	19%	2811	2811	5622	11,983	11,983	23,966
AM Peak Hour	General Urban/Suburban			Rate	0.84	62%	434	266	700		7	2	9	1%	427	264	691	19%	66	66	132	361	198	559
PM Peak Hour	General Urban/Suburban			Rate	3.40	48%	1,360	1,474	2,834		90	105	195	7%	1270	1369	2639	19%	251	251	502	1,019	1,118	2,137
Hotel (LU #310)		**200**	rooms							Hotel														
Daily	General Urban/Suburban			Rate	7.99	50%	799	799	1,598		101	101	202	13%	698	698	1396		-	-	-	698	698	1,396
AM Peak Hour	General Urban/Suburban			Rate	0.46	56%	52	40	92		0	7	7	8%	52	33	85		-	-	-	52	33	85
PM Peak Hour	General Urban/Suburban			Rate	0.59	51%	60	58	118		12	9	21	18%	48	49	97		-	-	-	48	49	97
Multifamily Housing (Mid-Rise) (LU #221)		**320**	du							Residential														
Daily	General Urban/Suburban			Rate	4.54	50%	726	726	1,452		192	192	384	26%	534	534	1068		-	-	-	534	534	1,068
AM Peak Hour	General Urban/Suburban			Rate	0.37	23%	27	91	118		1	2	3	3%	26	89	115		-	-	-	26	89	115
PM Peak Hour	General Urban/Suburban			Rate	0.39	61%	76	49	125		39	24	63	50%	37	25	62		-	-	-	37	25	62
General Office (LU #710)		**30,000**	sf							Office														
Daily	General Urban/Suburban			Rate	9.74	50%	146	146	292		31	31	62	21%	115	115	230		-	-	-	115	115	230
AM Peak Hour	General Urban/Suburban			Rate	1.16	86%	30	5	35		3	1	4	11%	27	4	31		-	-	-	27	4	31
PM Peak Hour	General Urban/Suburban			Rate	1.15	16%	6	29	35		4	7	11	31%	2	22	24		-	-	-	2	22	24
Truck Stop (LU #950)[4]		**26**	VFP				*Truck Trips*			All Other Land Uses									*Diverted Trips*					
Daily	General Urban/Suburban			Rate	224.00	50%	2,912	2,912	5,824		0	0	0	0%	2912	2912	5824	75%	2184	2184	4368	728	728	1,456
AM Peak Hour	General Urban/Suburban			Rate	13.97	49%	178	185	363		0	0	0	0%	178	185	363	76%	138	138	276	40	47	87
PM Peak Hour	General Urban/Suburban			Rate	15.42	53%	213	188	401		0	0	0	0%	213	188	401	75%	150	150	300	63	38	101
Car Dealership (LU #840)		**30,000**	sf							Retail														
Daily	General Urban/Suburban			Rate	27.84	50%	418	418	836		18	18	36	4%	400	400	800		-	-	-	400	400	800
AM Peak Hour	General Urban/Suburban			Rate	1.86	73%	41	15	56		1	0	1	2%	40	15	55		-	-	-	40	15	55
PM Peak Hour	General Urban/Suburban			Rate	2.42	40%	29	44	73		2	3	5	7%	27	41	68		-	-	-	27	41	68
TopGolf (Rates from Transpo Group TIA)[5]		**93**	bays							Cinema/Entertainment														
Daily[6]	General Urban/Suburban			Rate	16.60	50%	772	772	1,544		61	61	122	8%	711	711	1422		-	-	-	711	711	1,422
AM Peak Hour[6]	General Urban/Suburban			Rate	0.38	88%	32	4	36		0	0	0	0%	32	4	36		-	-	-	32	4	36
PM Peak Hour	General Urban/Suburban			Rate	1.83	54%	91	79	170		15	12	27	16%	76	67	143		-	-	-	76	67	143
Subtotal																								
Daily							25,180	25,180	50,360		1,349	1,349	2,698	5%	23,831	23,831	47,662		4,995	4,995	9,990	18,836	18,836	37,672
AM Peak Hour							994	742	1,736		12	12	24	1%	982	730	1,712		204	204	408	778	526	1,304
PM Peak Hour							2,119	2,231	4,350		208	208	416	10%	1,911	2,023	3,934		401	401	802	1,510	1,622	3,132

Notes:

sf = square feet, VFP = vehicle fueling position

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. Casino-Hotel trip rates based on the Siletz Casino Enivornmental Assessment (EA) TIA, near Salem, OR.
3. Daily rates were not available for the Musuem land use. 10 times the PM peak hour rate was assumed for the daily rate.
4. Pass-by rate for truck stop (LU #950) based on rate established in ITE Trip Gen manual for LU 945 convenience store/gas station
5. Topgolf Renton Transportation Impact Analysis (Transpo Group, July 2019). Only the PM peak hour trip rate is available in this study.
6. A 2016 study for a Topgolf facility in El Segundo, CA was used to find the relationship between the number of AM peak hour and daily trips and the number of PM peak hour trips as well as the in/out split for the AM peak. The daily trips and AM peak hour trips were respectively 9.07 times and 0.21 times the number of PM peak hour trips, and the AM peak hour inbound split was 88%.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	30	5
Retail				756	475	281
Restaurant				0	0	0
Cinema/Entertainment				366	227	139
Residential				118	27	91
Hotel				92	52	40
All Other Land Uses[2]				0	0	0
Total				1367	811	556

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	1	6	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,367	811	556
Internal Capture Percentage	2%	1%	2%
External Vehicle-Trips[3]	1,343	799	544
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	20%
Retail	2%	1%
Restaurant	N/A	N/A
Cinema/Entertainment	0%	0%
Residential	4%	2%
Hotel	0%	18%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	30	30	1.00	5	5
Retail	1.00	475	475	1.00	281	281
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	227	227	1.00	139	139
Residential	1.00	27	27	1.00	91	91
Hotel	1.00	52	52	1.00	40	40

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	3	0	0	0
Retail	81		37	0	39	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	30	6	4	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		152	0	0	0	0
Retail	1		0	0	1	0
Restaurant	4	38		0	1	2
Cinema/Entertainment	0	0	0		0	0
Residential	1	81	0	0		0
Hotel	1	19	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	27	30	27	0	0
Retail	8	467	475	467	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	227	227	227	0	0
Residential	1	26	27	26	0	0
Hotel	0	52	52	52	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	4	5	4	0	0
Retail	2	279	281	279	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	139	139	139	0	0
Residential	2	89	91	89	0	0
Hotel	7	33	40	33	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				35	6	29
Retail				2907	1389	1518
Restaurant				0	0	0
Cinema/Entertainment				760	374	386
Residential				125	76	49
Hotel				118	60	58
All Other Land Uses[2]				0	0	0
Total				3945	1905	2040

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	1	0
Retail	2		0	61	35	10
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	56	0		3	1
Residential	2	21	0	0		1
Hotel	0	9	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	3,945	1,905	2,040
Internal Capture Percentage	11%	11%	10%
External Vehicle-Trips[3]	3,529	1,697	1,832
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	67%	24%
Retail	7%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	16%	16%
Residential	51%	49%
Hotel	20%	16%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	0
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	6	6	1.00	29	29
Retail	1.00	1389	1389	1.00	1518	1518
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	374	374	1.00	386	386
Residential	1.00	76	76	1.00	49	49
Hotel	1.00	60	60	1.00	58	58

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	1	0	1	0
Retail	30		440	61	395	76
Restaurant	0	0		0	0	0
Cinema/Entertainment	8	81	120		31	8
Residential	2	21	10	0		1
Hotel	0	9	39	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		111	0	4	3	0
Retail	2		0	97	35	10
Restaurant	2	695		120	12	43
Cinema/Entertainment	0	56	0		3	1
Residential	3	139	0	0		7
Hotel	0	28	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	4	2	6	2	0	0
Retail	92	1297	1389	1297	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	61	313	374	313	0	0
Residential	39	37	76	37	0	0
Hotel	12	48	60	48	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	22	29	22	0	0
Retail	108	1410	1518	1410	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	60	326	386	326	0	0
Residential	24	25	49	25	0	0
Hotel	9	49	58	49	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

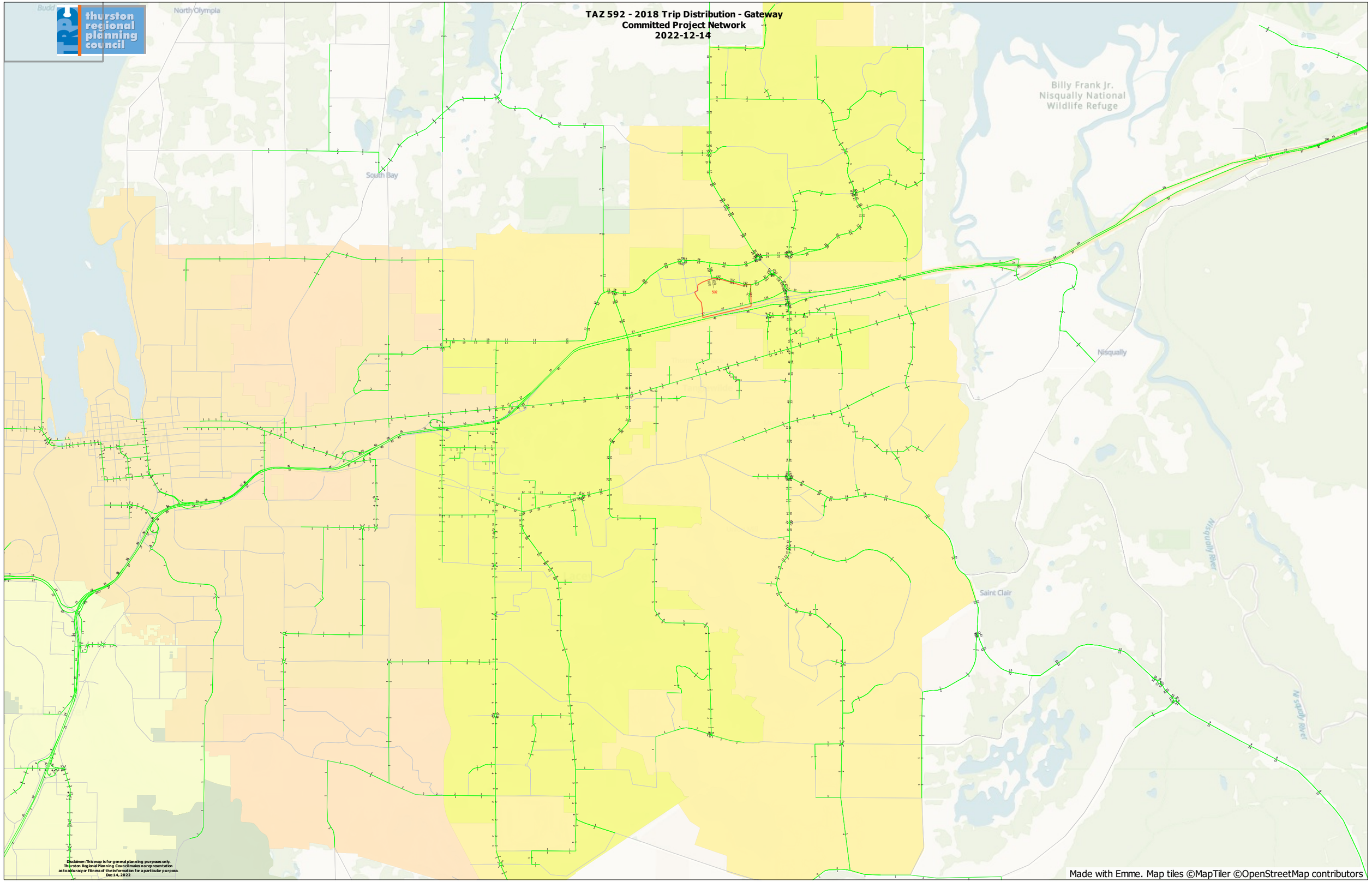
[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix H: TRPC Distribution Model Plot

TAZ 592 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14



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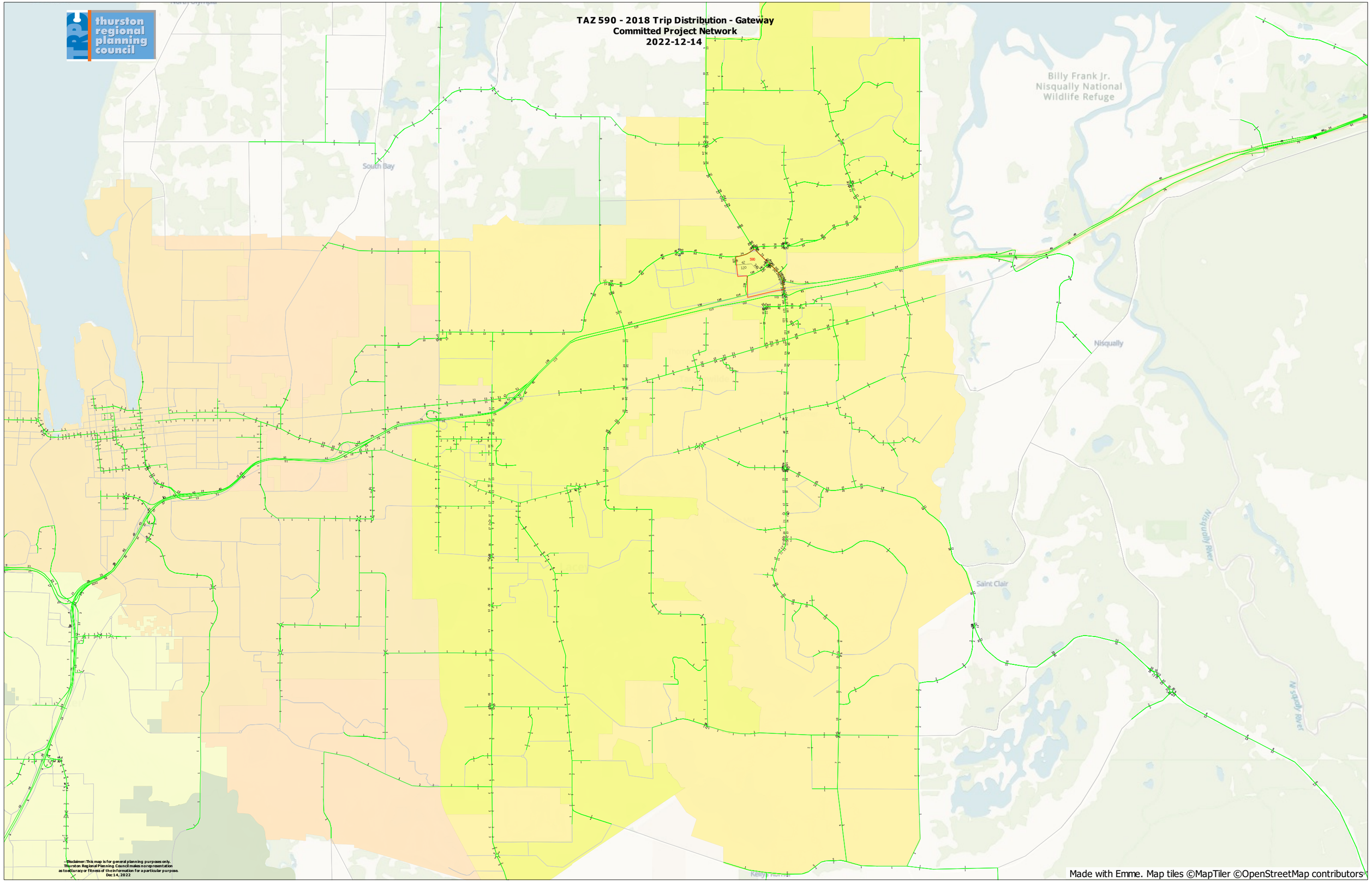
Thurston Regional Planning Council makes no representation
as to accuracy or fitness of the information for a particular purpose.
Dec 14, 2022

TAZ 590 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14



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Dec 14, 2022

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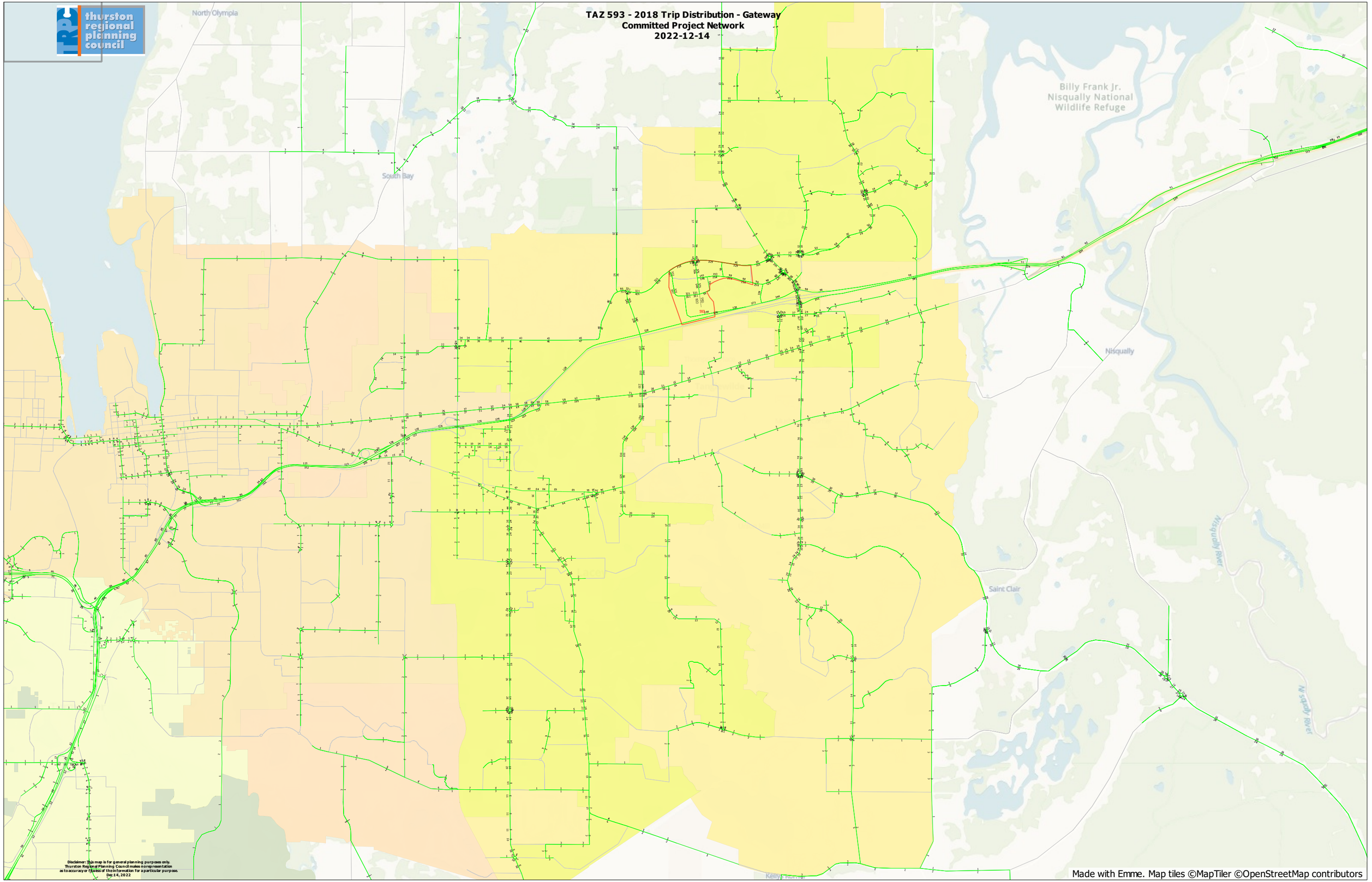
TAZ 593 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14



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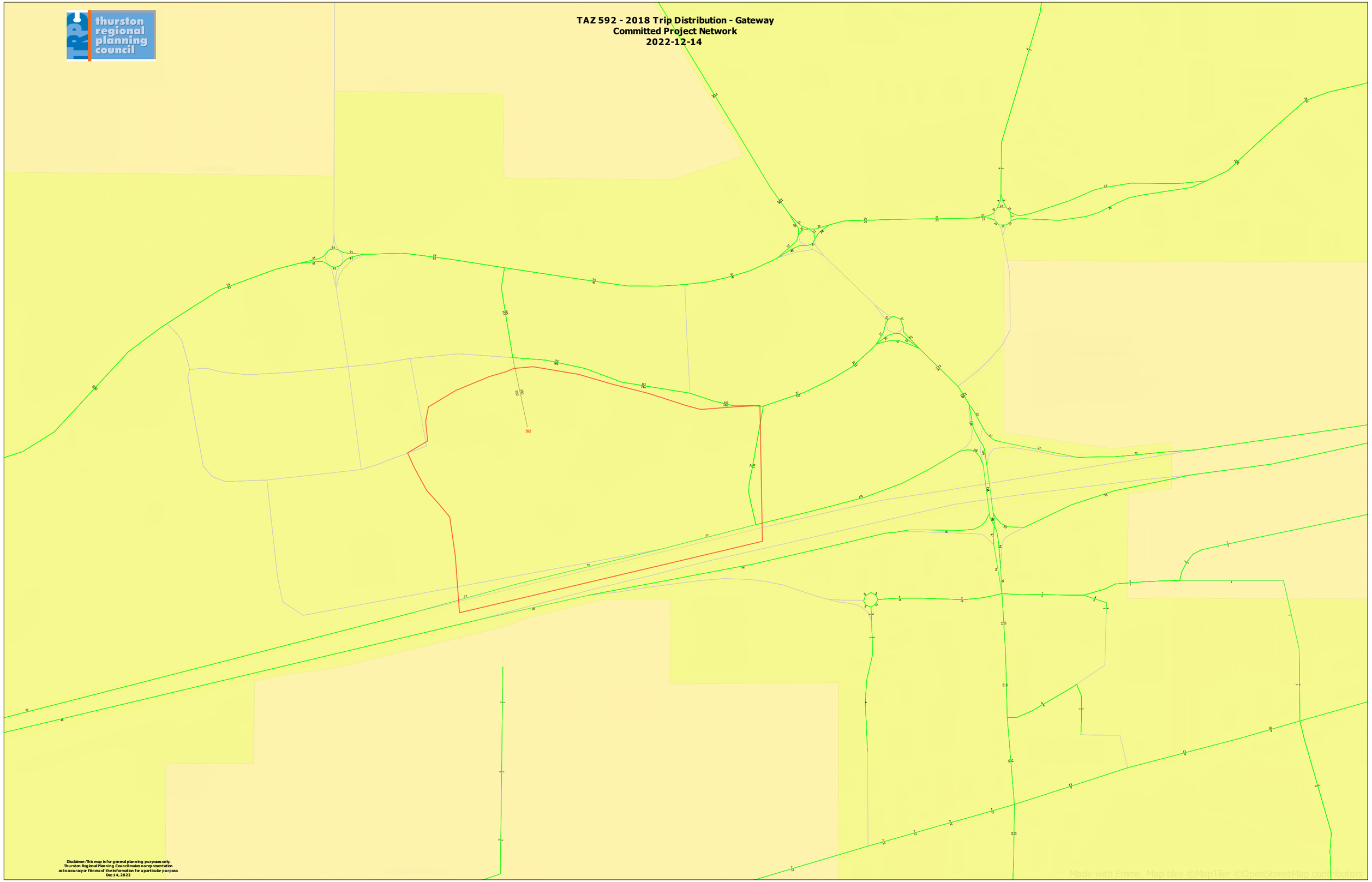
Dec 14, 2022

TAZ 592 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14



TAZ 590 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14

TAZ 593 - 2018 Trip Distribution - Gateway
Committed Project Network
2022-12-14

Appendix I: HCS LOS Worksheets

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2026
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Alternative 1		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	818	395	0	362
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	934	429	0	413

Weaving Flow Rate (v_w), pc/h	842	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	934	Density-Based Capacity (c_{IWL}), pc/h/ln	1786
Total Flow Rate (v), pc/h	1776	Demand Flow-Based Capacity (c_{IW}), pc/h	5063
Volume Ratio (VR)	0.474	Weaving Segment Capacity (c_W), veh/h	3401
Minimum Lane Change Rate (LC_{MIN}), lc/h	842	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3194
Maximum Weaving Length (L_{MAX}), ft	7524	Volume-to-Capacity Ratio (v/c)	0.53

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	126	Average Weaving Speed (S_W), mi/h	48.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	51	Average Non-Weaving Speed (S_{NW}), mi/h	52.4
Weaving Lane Change Rate (LC_W), lc/h	900	Average Speed (S), mi/h	50.7
Total Lane Change Rate (LC_{All}), lc/h	951	Density (D), pc/mi/ln	17.5
Weaving Intensity Factor (W)	0.408	Level of Service (LOS)	B

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2045
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Alternative 1		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	808	385	0	317
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	923	418	0	362

Weaving Flow Rate (v_w), pc/h	780	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	923	Density-Based Capacity (c_{IWL}), pc/h/ln	1800
Total Flow Rate (v), pc/h	1703	Demand Flow-Based Capacity (c_{IW}), pc/h	5240
Volume Ratio (VR)	0.458	Weaving Segment Capacity (c_W), veh/h	3427
Minimum Lane Change Rate (LC_{MIN}), lc/h	780	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3218
Maximum Weaving Length (L_{MAX}), ft	7340	Volume-to-Capacity Ratio (v/c)	0.50

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	125	Average Weaving Speed (S_W), mi/h	49.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	49	Average Non-Weaving Speed (S_{NW}), mi/h	53.0
Weaving Lane Change Rate (LC_W), lc/h	838	Average Speed (S), mi/h	51.3
Total Lane Change Rate (LC_{All}), lc/h	887	Density (D), pc/mi/ln	16.6
Weaving Intensity Factor (W)	0.386	Level of Service (LOS)	B

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2026
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Alternative 2		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	588	228	0	384
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	671	248	0	438

Weaving Flow Rate (v_w), pc/h	686	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	671	Density-Based Capacity (c_{IWL}), pc/h/ln	1757
Total Flow Rate (v), pc/h	1357	Demand Flow-Based Capacity (c_{IW}), pc/h	4743
Volume Ratio (VR)	0.506	Weaving Segment Capacity (c_W), veh/h	3345
Minimum Lane Change Rate (LC_{MIN}), lc/h	686	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3141
Maximum Weaving Length (L_{MAX}), ft	7897	Volume-to-Capacity Ratio (v/c)	0.41

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	91	Average Weaving Speed (S_W), mi/h	50.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	0	Average Non-Weaving Speed (S_{NW}), mi/h	54.5
Weaving Lane Change Rate (LC_W), lc/h	744	Average Speed (S), mi/h	52.5
Total Lane Change Rate (LC_{All}), lc/h	744	Density (D), pc/mi/ln	12.9
Weaving Intensity Factor (W)	0.336	Level of Service (LOS)	B

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2045
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Alternative 2		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	578	218	0	339
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	660	237	0	387

Weaving Flow Rate (v_w), pc/h	624	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	660	Density-Based Capacity (c_{IWL}), pc/h/ln	1775
Total Flow Rate (v), pc/h	1284	Demand Flow-Based Capacity (c_{IW}), pc/h	4938
Volume Ratio (VR)	0.486	Weaving Segment Capacity (c_W), veh/h	3380
Minimum Lane Change Rate (LC_{MIN}), lc/h	624	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3174
Maximum Weaving Length (L_{MAX}), ft	7663	Volume-to-Capacity Ratio (v/c)	0.39

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	89	Average Weaving Speed (S_W), mi/h	51.3
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	0	Average Non-Weaving Speed (S_{NW}), mi/h	55.1
Weaving Lane Change Rate (LC_W), lc/h	682	Average Speed (S), mi/h	53.2
Total Lane Change Rate (LC_{All}), lc/h	682	Density (D), pc/mi/ln	12.1
Weaving Intensity Factor (W)	0.314	Level of Service (LOS)	B

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2026
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Combined Development		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	869	390	0	471
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	992	423	0	538

Weaving Flow Rate (v_w), pc/h	961	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	992	Density-Based Capacity (c_{IWL}), pc/h/ln	1770
Total Flow Rate (v), pc/h	1953	Demand Flow-Based Capacity (c_{IW}), pc/h	4878
Volume Ratio (VR)	0.492	Weaving Segment Capacity (c_W), veh/h	3370
Minimum Lane Change Rate (LC_{MIN}), lc/h	961	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3164
Maximum Weaving Length (L_{MAX}), ft	7733	Volume-to-Capacity Ratio (v/c)	0.59

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	134	Average Weaving Speed (S_W), mi/h	47.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	63	Average Non-Weaving Speed (S_{NW}), mi/h	51.1
Weaving Lane Change Rate (LC_W), lc/h	1019	Average Speed (S), mi/h	49.5
Total Lane Change Rate (LC_{All}), lc/h	1082	Density (D), pc/mi/ln	19.7
Weaving Intensity Factor (W)	0.452	Level of Service (LOS)	B

HCS7 Freeway Weaving Report

Project Information

Analyst	Transpo Group	Date	4/18/2023
Agency		Analysis Year	2045
Jurisdiction		Time Period Analyzed	PM Peak Hour
Project Description	Nisqually Quiemuth Village Mixed Use Project - Combined Development		

Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Short Length (L_s), ft	450	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	3.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	Balanced Mix	Final Speed Adjustment Factor (SAF)	0.950
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.939
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Volume (V_i), veh/h	869	380	0	416
Peak Hour Factor (PHF)	0.92	0.94	0.92	0.92
Total Trucks, %	5.00	2.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980	1.000	0.952
Flow Rate (v_i), pc/h	992	413	0	475

Weaving Flow Rate (v_w), pc/h	888	Freeway Max Capacity (c_{IFL}), pc/h/ln	2327
Non-Weaving Flow Rate (v_{NW}), pc/h	992	Density-Based Capacity (c_{IWL}), pc/h/ln	1788
Total Flow Rate (v), pc/h	1880	Demand Flow-Based Capacity (c_{IW}), pc/h	5085
Volume Ratio (VR)	0.472	Weaving Segment Capacity (c_W), veh/h	3404
Minimum Lane Change Rate (LC_{MIN}), lc/h	888	Adjusted Weaving Area Capacity (c_{wa}), veh/h	3196
Maximum Weaving Length (L_{MAX}), ft	7501	Volume-to-Capacity Ratio (v/c)	0.56

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	134	Average Weaving Speed (S_W), mi/h	48.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	63	Average Non-Weaving Speed (S_{NW}), mi/h	51.8
Weaving Lane Change Rate (LC_W), lc/h	946	Average Speed (S), mi/h	50.1
Total Lane Change Rate (LC_{All}), lc/h	1009	Density (D), pc/mi/ln	18.8
Weaving Intensity Factor (W)	0.427	Level of Service (LOS)	B