



6. Traffic Study



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Transportation Impact Study

March 14, 2025

Project# 30088.3

To: James E Carothers, PE & Anita Ashton
 City of Camas
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CC: Eric Hahn, PE, City of Vancouver
 David Jardin, Clark County Department of Public Works
 Bryce Hanson, PE, LSIT, AKS Engineering & Forestry, LLC
 Andy Swanson & Kevin Miller, Camas Woods LLC

RE: Camas Woods 2 Transportation Impact Study (City File PA24-1022)

Camas Woods LLC proposes to develop up to 78 townhomes as part of Camas Woods 2. The new homes are proposed within a land area situated on the north side of SE 8th Street west of the previously submitted Camas Woods site.

A Transportation Impact Study (TIS) is required as part of the land use submittal per City of Camas Municipal Code (CMC) Section 17.11.030.B.12. This memorandum documents the TIS analysis, findings, and recommendations and is predicated in part on the *Camas Woods Transportation Impact Study* dated November 5, 2024.

Subject to City and Washington State Department of Transportation (WSDOT) review and direction, the following recommendations were identified to be implemented in conjunction with Camas Woods 2 site development:

- Construct a southbound left-turn lane on NE Everett Street at SE 8th Street with at least 100 feet of storage.
- Make a proportional mitigation contribution to the City of Camas' planned NW Sierra Street/NW Lake Road roundabout project.
 - Pending City direction, the contribution could be made through (1) payment of a future Traffic Impact Fee (TIF) that incorporates the roundabout cost or (2) via a proportional share mitigation assessment program should the City choose to implement a cost sharing assessment methodology for the roundabout project (we understand City staff anticipates the future TIF program will in part fund the planned roundabout).
- Collaborate with WSDOT to identify and implement (if construction is required) capacity mitigation at the NE 242nd Avenue/NE 28th Street intersection in conjunction with site development.
 - Potential options identified to explore with WSDOT include but are not limited to implementation of interim all-way stop control or payment of a proportional share contribution to a future intersection capacity improvement.

- Post a STOP (R1-1) sign southbound on the new public street approach ("A" Street) to SE 8th Street within the project site in accordance with applicable City standards and the *Manual on Uniform Traffic Control Devices* (MUTCD).
- Subject to City of Vancouver concurrence and final residential unit count confirmation, pay \$800 in proportionate share contributions to the 192nd Avenue/NE 13th Street intersection as identified per City of Vancouver requirements.
- Locate and maintain site landscaping, above-ground utilities, and site signage within the site as well as at the site driveways to provide adequate intersection sight distance per applicable City requirements.
- Contribute financially to the NE Everett Street/NE Everett Drive intersection roundabout design and construction if a reimbursement mechanism is identified for the new roundabout in conjunction with Camas Woods land use entitlement.
 - The analysis findings presented in this study are predicated on the assumption that the Camas Woods project has reconstructed the NE Everett Street/NE Everett Drive intersection to a three-approach single lane roundabout in conjunction with site development prior to Camas Woods 2 site development.

The details of the study methodology, findings, and recommendations are summarized herein.

INTRODUCTION

Camas Woods LLC proposes to develop up to 78 townhomes on approximately 8.8 acres of land located on the north side of SE 8th Street directly west of the previously submitted Camas Woods project. Figure 1 shows the site vicinity map and Figure 2 shows a preliminary site plan.

Primary vehicular site access is proposed via a new public street ("A" Street) connection to SE 8th Street. SE 8th Street would in turn be connected between NE Everett Street and the previously proposed Camas Woods project.

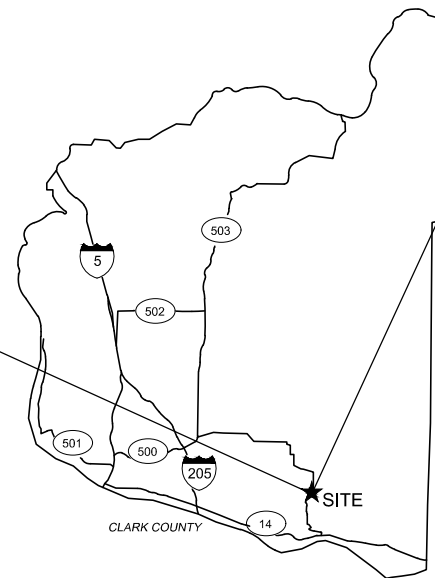
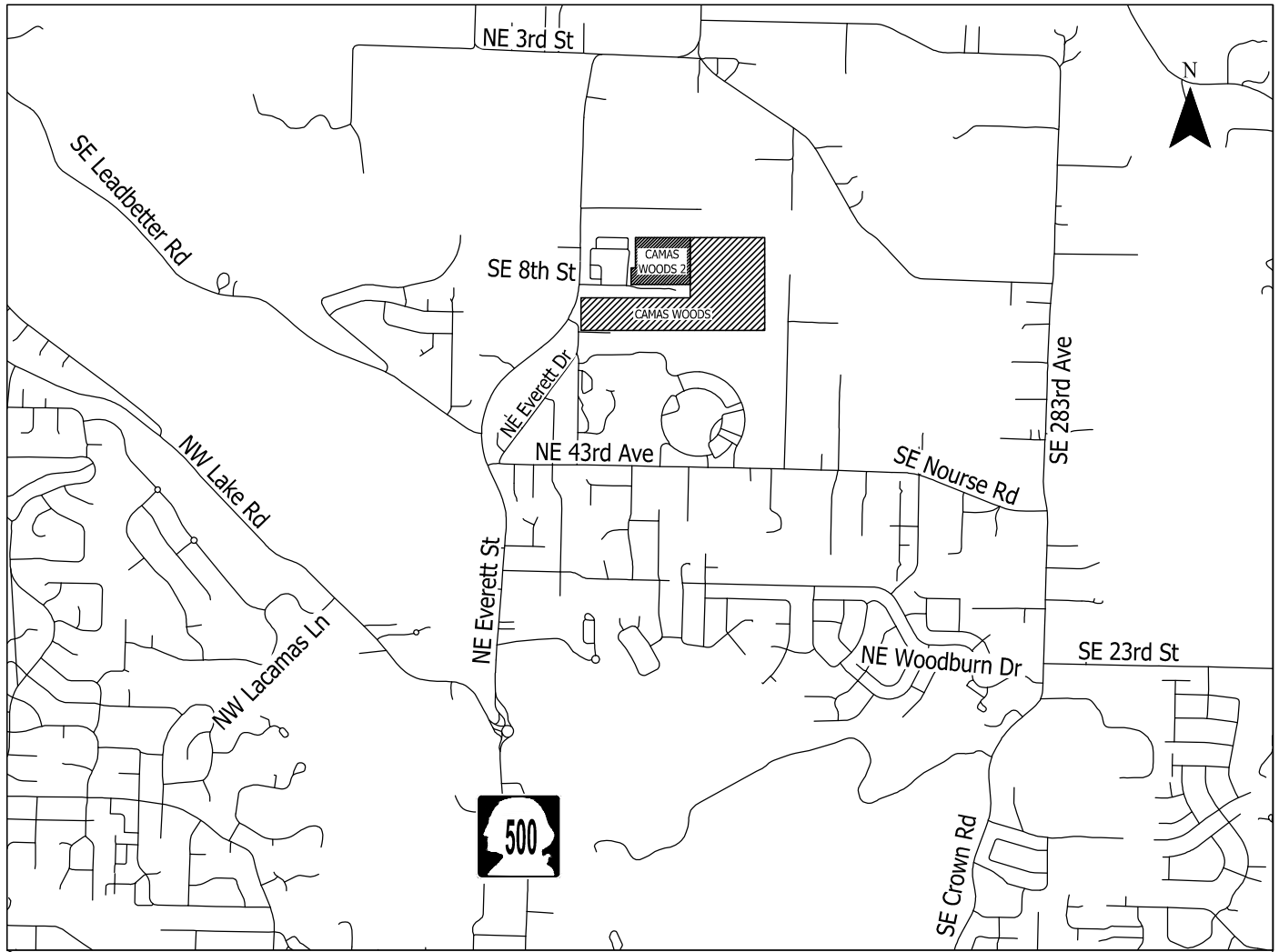
For consistency with the prior *Camas Woods Transportation Impact Study*, full occupancy of the 78 townhomes is assumed to occur by 2030.

STUDY METHODOLOGY

This study is predicated on and prepared as a supplement to the *Camas Woods Transportation Impact Study*. Analysis of weekday morning (7-9 AM), school PM (2-4 PM) and weekday PM (4-6 PM) commuter peak period traffic conditions were assessed for the following analysis scenarios:

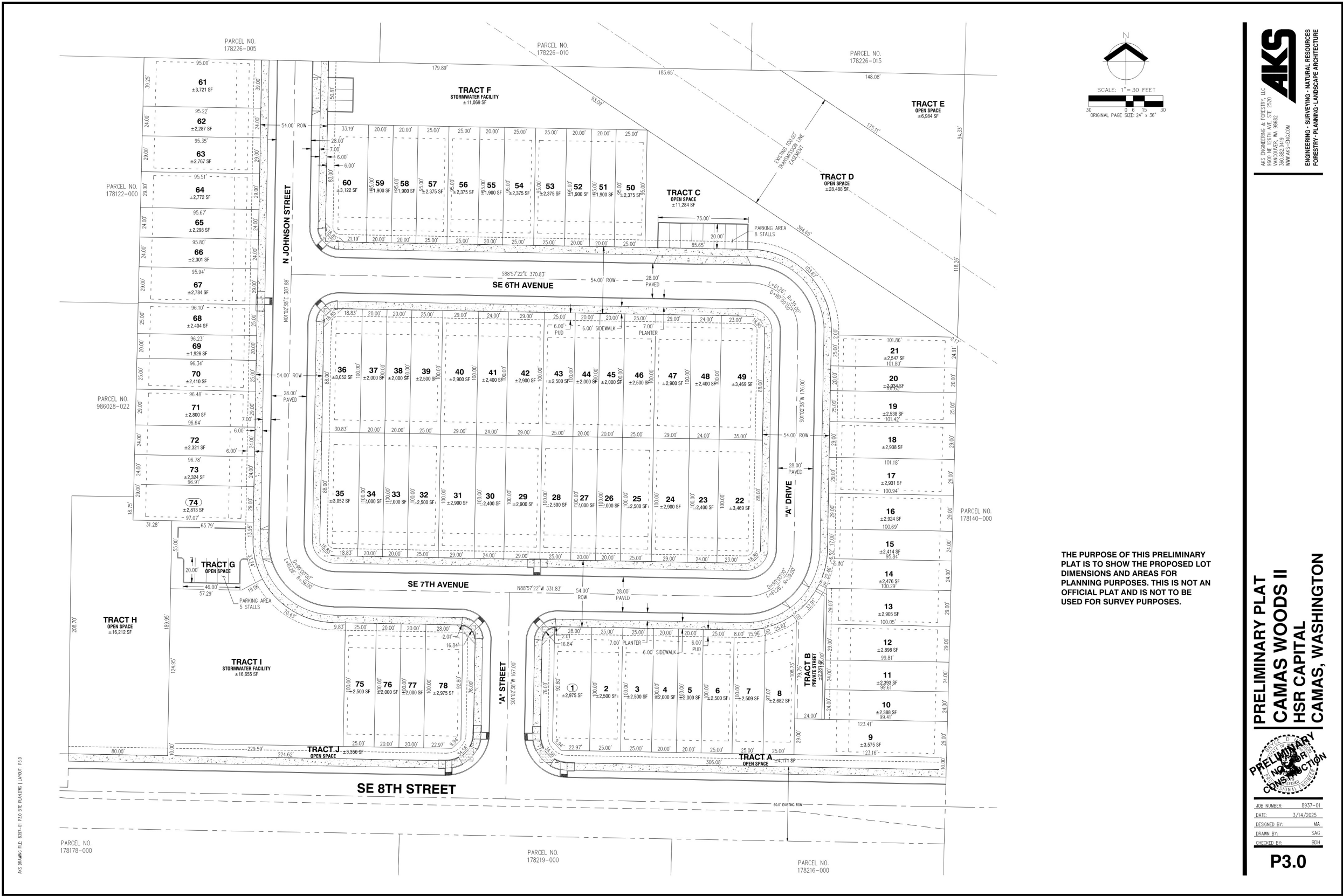
- Year 2030 background traffic conditions (including background growth and identified in-process developments with the previously submitted Camas Woods development, but not including any site-generated traffic volumes related to the proposed Camas Woods 2 development); and,
- Year 2030 total traffic conditions with Camas Woods 2 site-generated traffic volumes and the completion of SE 8th Street as a two-way public street connection between NE Everett Street and Camas Woods, resulting in the re-routing of some background Camas Woods trips to and from NE Everett Street via SE 8th Street.

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Site Vicinity Map
Camas, Washington

Figure
1



SITE PLAN PROVIDED BY AKS ENGINEERING & FORESTRY, LLC DATED MARCH 14, 2025

Preliminary Site Plan
Camas, Washington

Figure
2

The study intersections and capacity analysis methodology are identical to those documented in the *Camas Woods Transportation Impact Study* using the same intersection number system for easy of review. Analysis of existing conditions at the study intersections is incorporated by reference from the *Camas Woods Transportation Impact Study*.

Table 1 summarizes the applicable study intersection performance requirements for reference.

Table 1. Study Intersection Performance Metrics

ID	Study Intersection	Traffic Control	Jurisdictional Authority	Facility Designation	Operating Requirement
1	NE 232 nd Ave/NE 28 th St	TWSC	Clark County	Arterial	LOS E
2	SR 500/NE 28 th St	TWSC	RTC ¹	Urban non-HSS	LOS E
3	NE Everett St/SE 8 th St	TWSC	RTC ¹	Urban non-HSS	LOS E
4	NE Everett St/NE Everett Dr	TWSC	RTC ¹	Urban non-HSS	LOS E
5	NE Everett St/SE Leadbetter Rd	TWSC	RTC ¹	Urban non-HSS	LOS E
6	NE Everett St/NE 43 rd Ave	Signalized	RTC ¹	Urban non-HSS	LOS E
7	NE Everett St/NW Lake Rd	Roundabout	RTC ¹	Urban non-HSS	LOS E
8	NE Everett St/NE 17 th Ave	TWSC	RTC ¹	Urban non-HSS	LOS E
9	NE Everett St/NE 15 th Ave	TWSC	RTC ¹	Urban non-HSS	LOS E
10	NE Everett St/NE 14 th Ave	TWSC	RTC ¹	Urban non-HSS	LOS E
11	NE Dallas St/NE 6 th Ave	TWSC	City of Camas	City Arterial	LOS D
12	Division St/NW 6 th Ave	TWSC	City of Camas	City Arterial	LOS D
13	NW Norwood St/NW 6 th Ave	Roundabout	WSDOT	Urban HSS	LOS D
14	NW Lacamas Ln/NW Lake Rd	TWSC	City of Camas	City Arterial	LOS D
15	NW Sierra St/NW Lake Rd	TWSC	City of Camas	City Arterial	LOS D
16	NW Leadbetter Dr/NW Lake Rd	TWSC	City of Camas	City Arterial	LOS D
17	NW Parker St/NW Lake Rd	Signalized	City of Camas	City Arterial	LOS D
18	NW Friberg-Strunk St/NW Lake Rd	Signalized	City of Camas	City Arterial	LOS D
19	NW Parker St/NW Leadbetter Dr	TWSC	City of Camas	City Arterial	LOS D
20	NW Parker St/NE 38 th Ave	Signalized	City of Camas	City Arterial	LOS D
21	NW 232 nd Ave/N Shore Blvd	TWSC	City of Camas	City Arterial	LOS D
22	SE 283 rd Ave/SE Nourse Rd	TWSC	City of Camas	City Arterial	LOS D
23	SE 283 rd Ave/SE 23 rd St	TWSC	City of Camas	City Arterial	LOS D
24	SE 283 rd Ave/NE Woodburn Dr	TWSC	City of Camas	City Arterial	LOS D
25	SE Crown Rd/NE 3 rd Ave	Signalized	City of Camas	City Arterial	LOS D

Where: TWSC = Two-way Stop Control

¹ Regional Transportation Planning Organizations (RTPOs) have the authority to set LOS thresholds for non-Highways of Statewide Significance (non-HSS). The Urban non-HSS standard established by RTC for Clark County is LOS E.

2030 BACKGROUND TRAFFIC CONDITIONS

The year 2030 background traffic analysis identifies how the study intersections will operate prior to the construction and occupancy of Camas Woods 2 homes. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region plus presumes construction of the previously proposed Camas Woods but does not include traffic from the proposed development.

The year 2030 background traffic analysis volumes and findings are the year 2030 total traffic conditions documented in the *Camas Woods Transportation Impact Study*.

TRIP GENERATION ESTIMATE

The anticipated vehicular trips for the proposed townhomes were calculated based on fitted equation trip rates contained in the *Trip Generation Manual, 11th Edition* (Reference 1) as shown in Table 2. The daily, weekday AM and PM peak hour trip rates were obtained directly from the fitted curve equations within the *Trip Generation Manual* while the weekday school PM peak hour rates were obtained by applying a time of day adjustment factor to the daily trip generation for the 2:45-3:45 school PM period using data in the *Trip Generation Manual* appendix related to time of day trip profiles for vehicular trips.

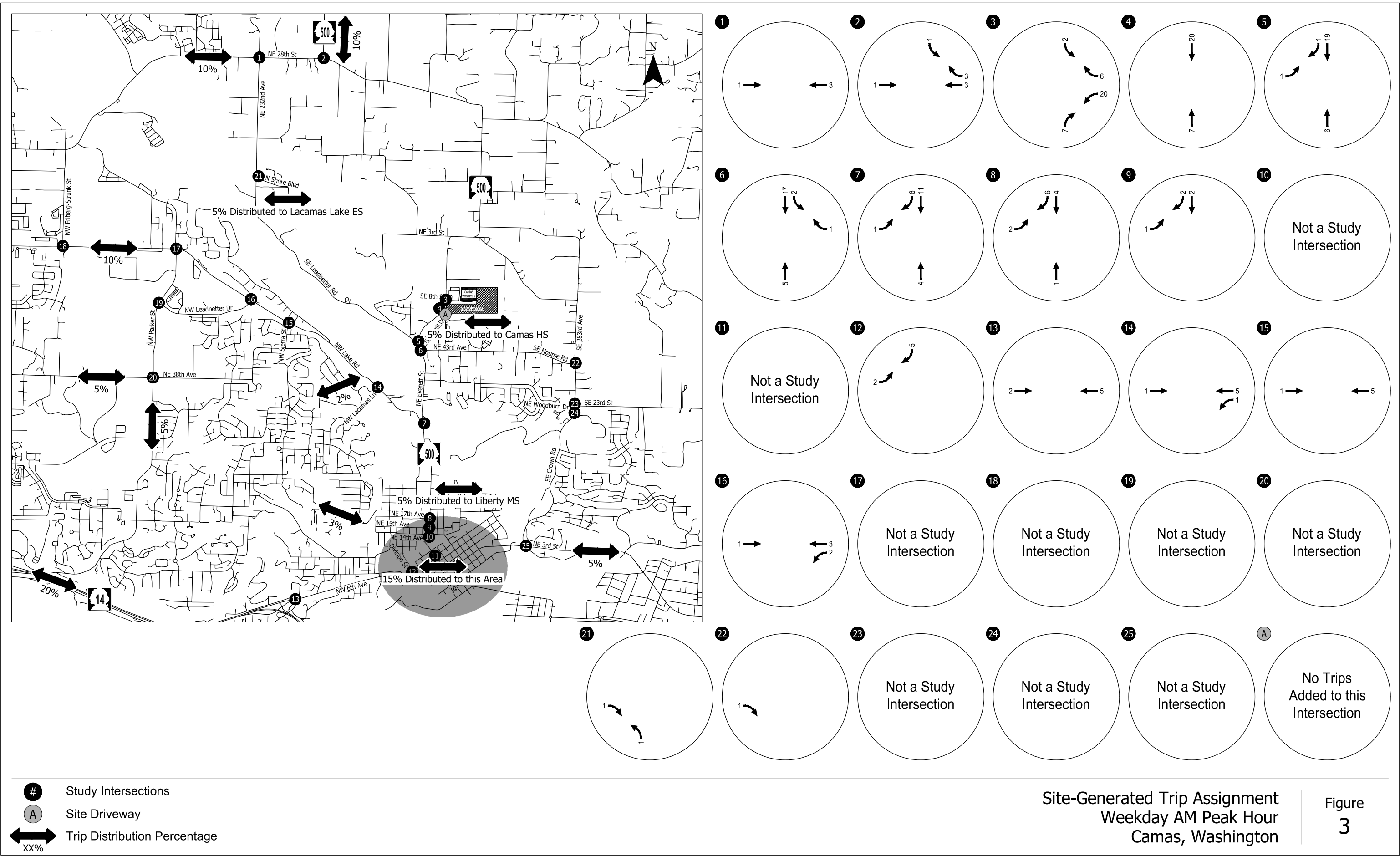
Table 2. Estimated Site Trip Generation

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak			Weekday School PM Peak			Weekday PM Peak		
				Total	In	Out	Total	In	Out	Total	In	Out
Attached Single-Family Homes	215	78 units	544	35	9	26	30	16	14	43	25	18

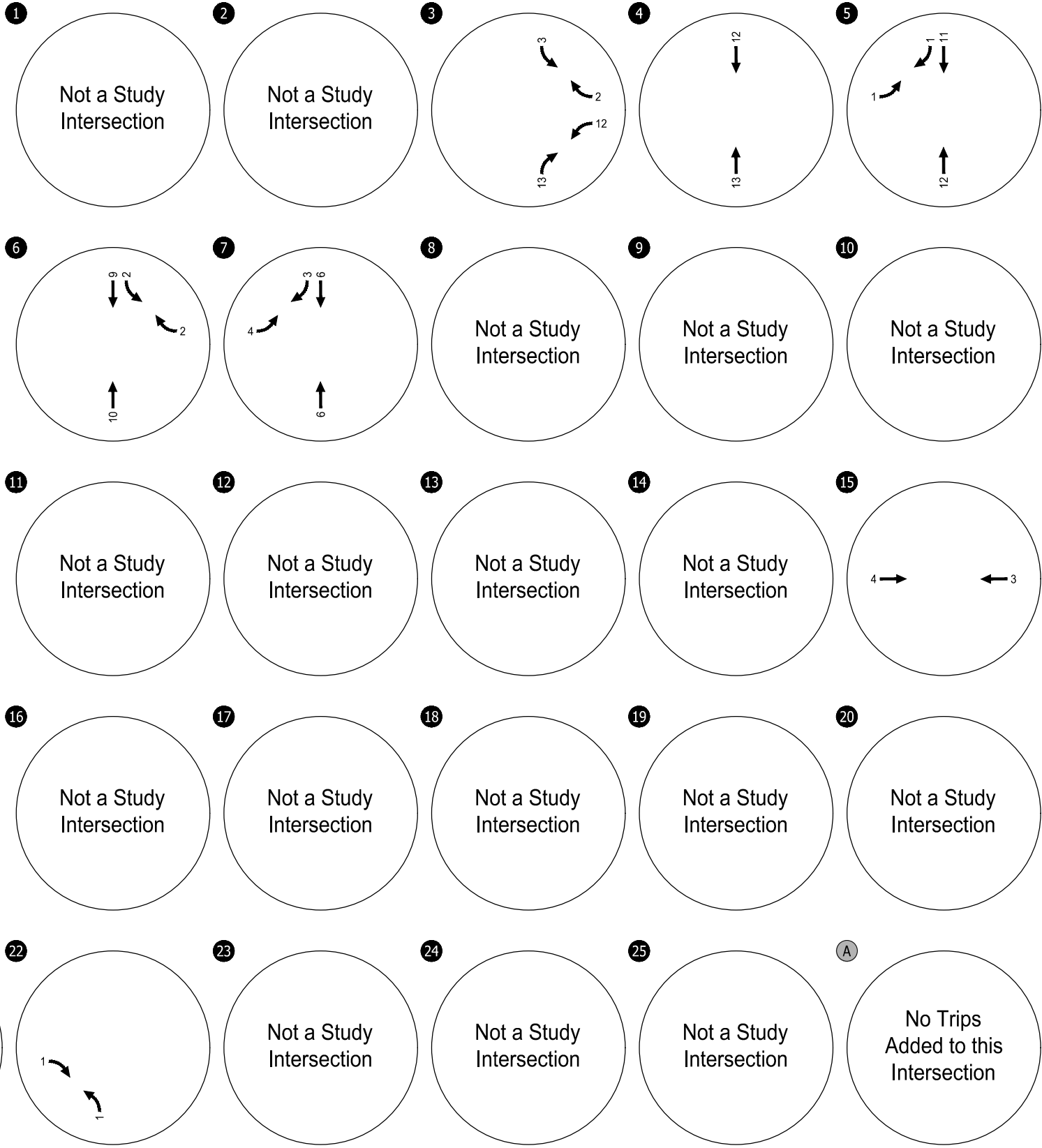
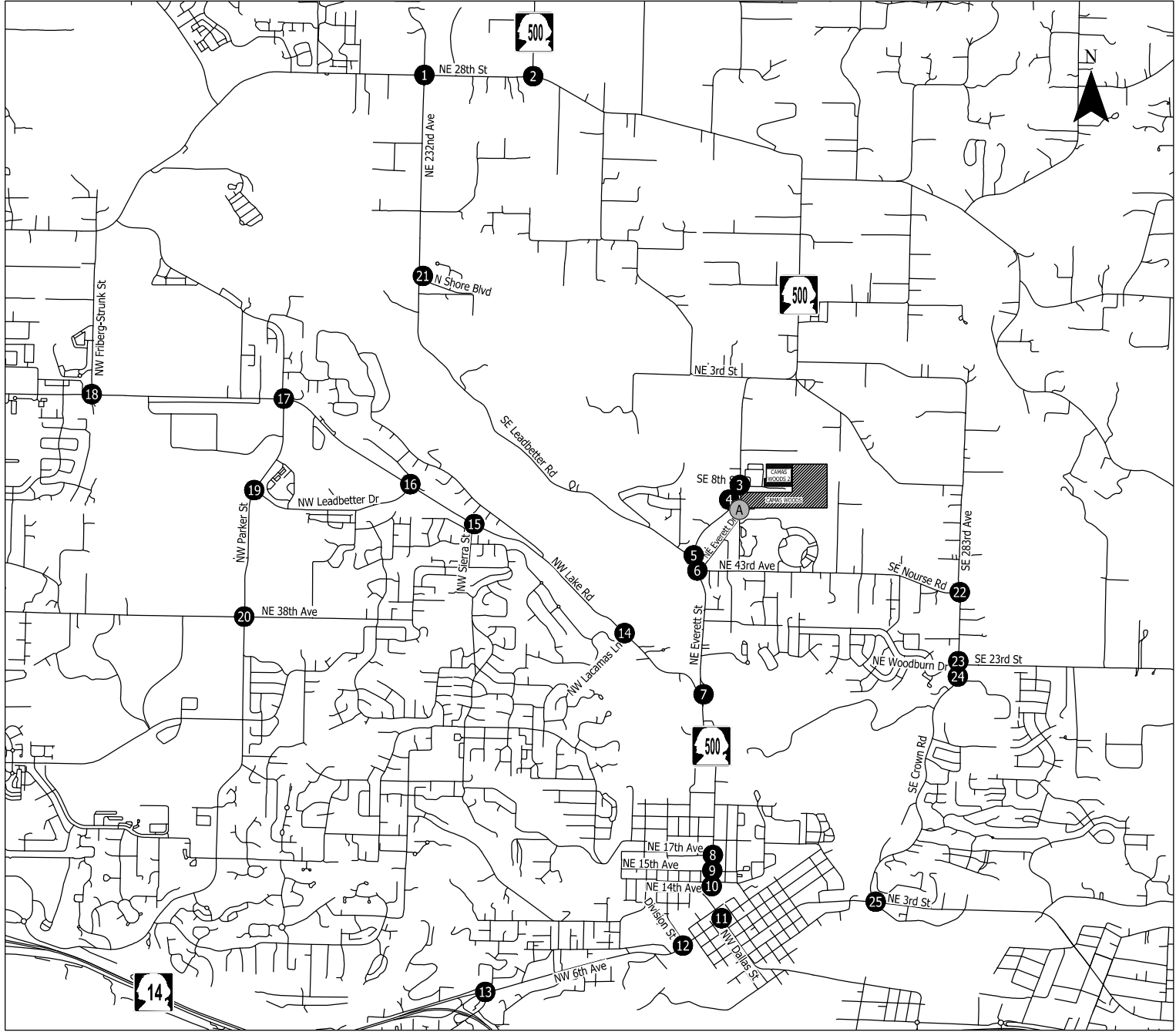
Note that the trip estimates shown in Table 2 and the study intersection operations analysis presented in this report do not include a reduction for the two existing single-family homes present on the Camas Woods 2 project site today. A typical single-family home can be estimated to generate approximately 10 trips per day including one during the weekday AM peak hour and one during the weekday PM peak hour based on trip rates in the *Trip Generation Manual*. While no reduction was made in the site trip generation to account for the existing site trips in this report, credit for the existing uses should be provided when calculating Traffic Impact Fees for the development.

Trip Distribution and Assignment

The site-generated trips shown in Table 2 were assigned using the residential trip distribution pattern shown in Figure 10 of the *Camas Woods Transportation Impact Study*. Figures 3 through 5 summarize the Phase 3 site-generated trip assignment during each of the three respective peak hour analysis periods.



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Study Intersections
A Site Driveway
XX% Trip Distribution Percentage

Site-Generated Trip Assignment
Weekday School PM Peak Hour
Camas, Washington
Figure 4



2030 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study intersections will operate with the traffic associated with full occupancy of Camas Woods 2 homes. The site-generated trips shown in Figures 3-5 were added to the previously prepared 2030 total traffic volumes (with recommended mitigations) reflected in *Camas Woods Transportation Impact Study* Figures 15-17.

Figures 6-9 show the 2030 total traffic conditions and the corresponding intersection operations during the three analysis periods. Note that the traffic volumes in Figures 6-9 assume that some Camas Woods trips from the prior study re-route to the new public street connection between Camas Woods and NE Everett Drive via SE 8th Street.

Study Intersection Assumptions

The 2030 total traffic analysis findings presented in this report are predicated on the assumption that:

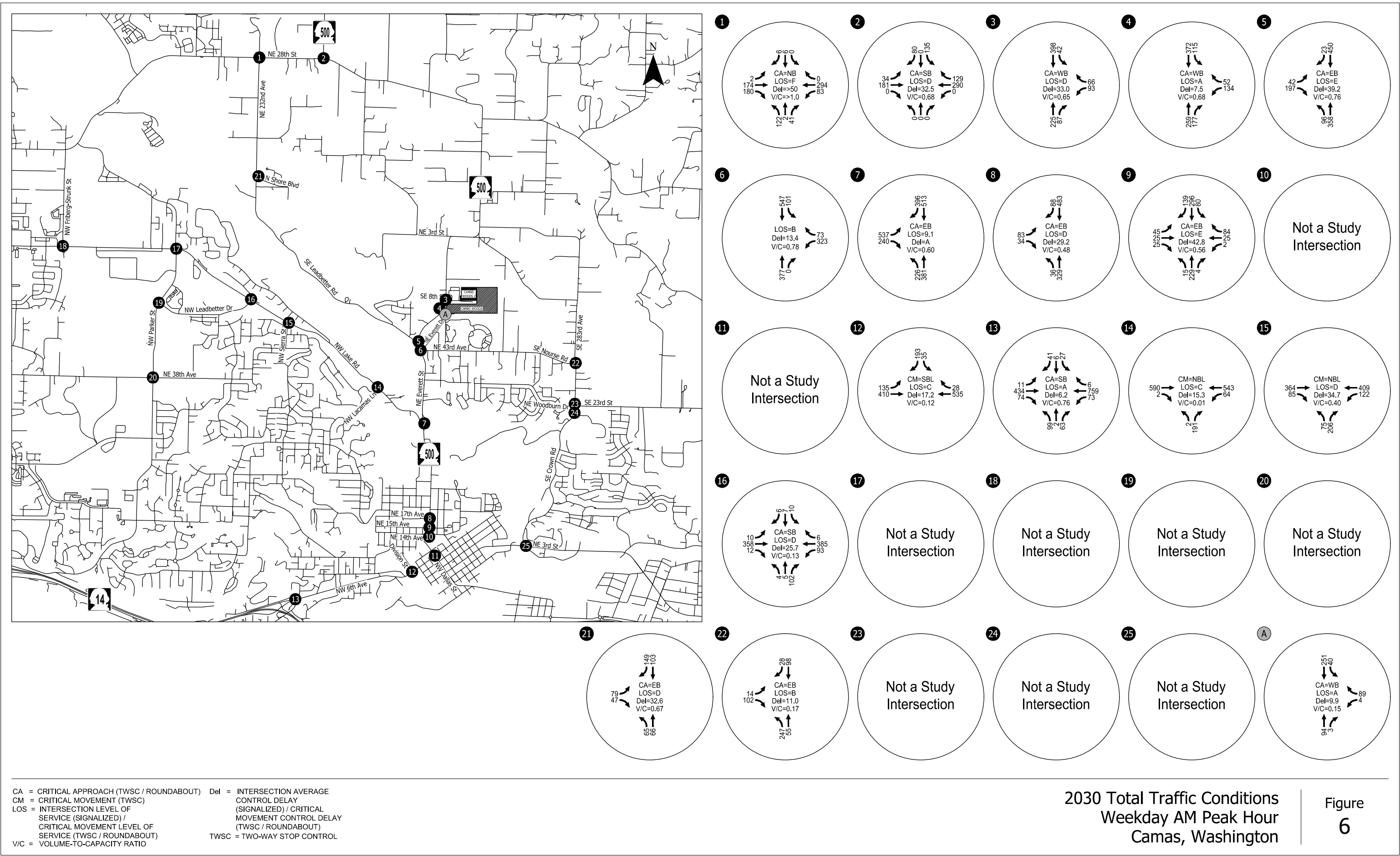
1. The Camas Woods project will reconstruct the NE Everett Street/NE Everett Drive intersection to a three-approach single lane roundabout in conjunction with site development prior to Camas Woods site development.
2. The Camas Woods 2 development will construct a southbound left-turn lane on NE Everett Street at SE 8th Street with at least 100 feet of storage prior to Phase 3 home occupancy.

Intersection Operations Findings

Compared to the prior 2030 total traffic analysis presented in the *Camas Woods Transportation Impact Study*, those intersections that did not satisfy the applicable performance metrics under background conditions are projected to experience an incremental increase in delay/degradation in operations with the addition of site trips associated with the 78 proposed townhomes.

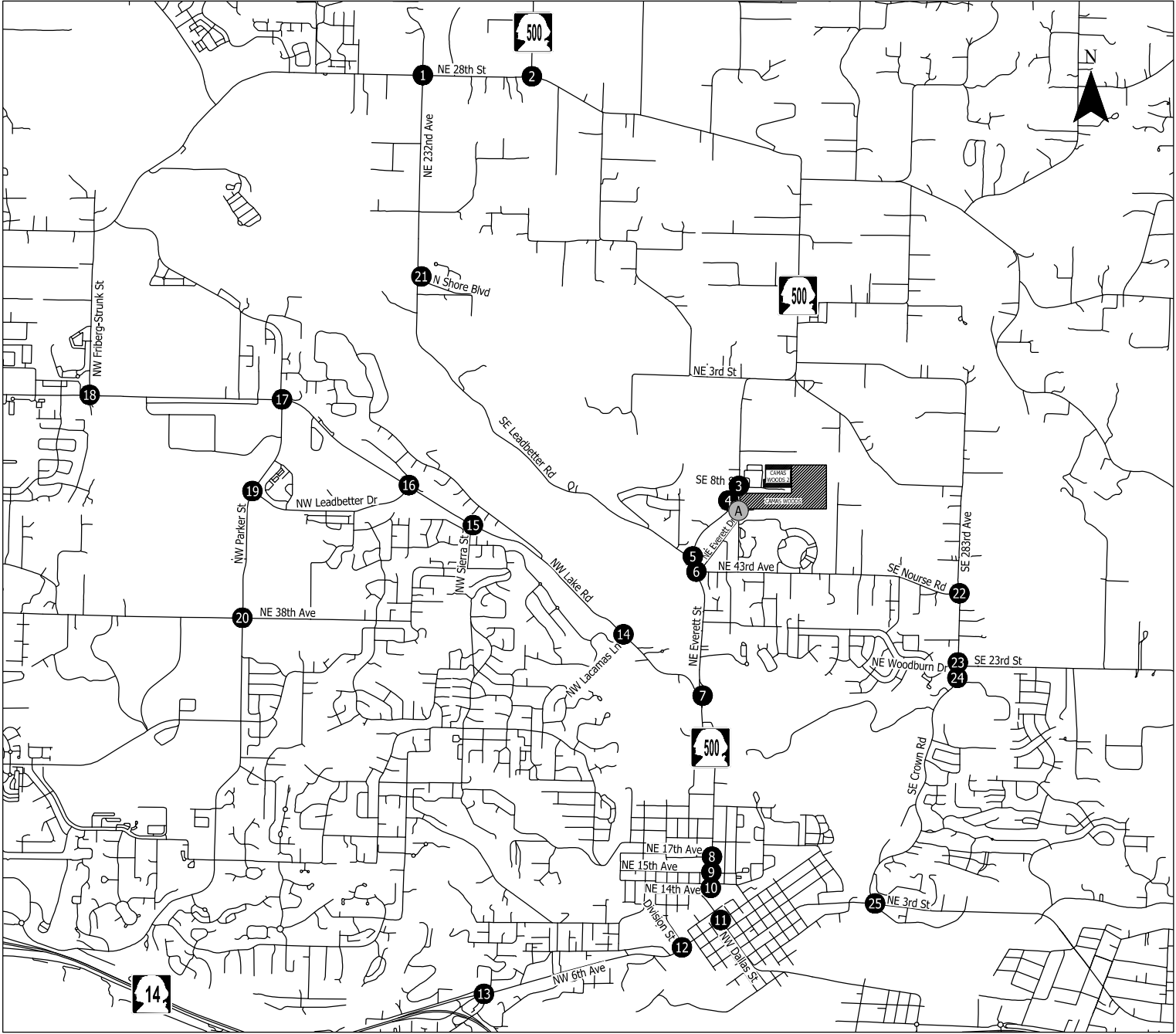
For ease of comparison, Tables 3-5 summarize intersection operations for each of the applicable analysis periods. Operations findings at intersections that don't satisfy the applicable performance requirements are then presented individually including recommended mitigation measures where appropriate. Per the City of Camas *Transportation Impact Study Guidelines*, mitigation measures are to be identified at locations where site traffic contributes to traffic operations that exceed the City's LOS performance standard.

Appendix A contains the year 2030 total traffic analysis worksheets.



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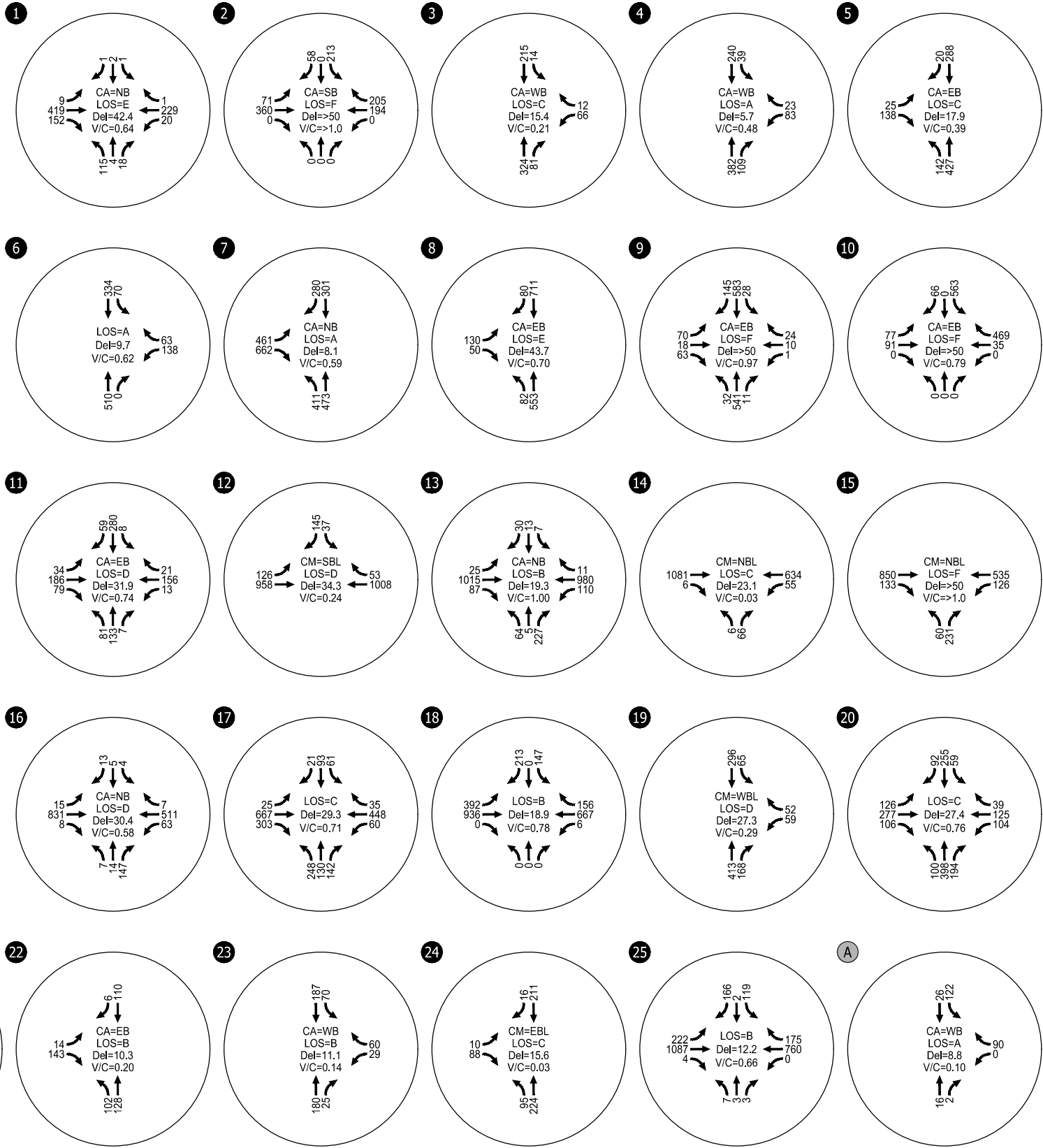
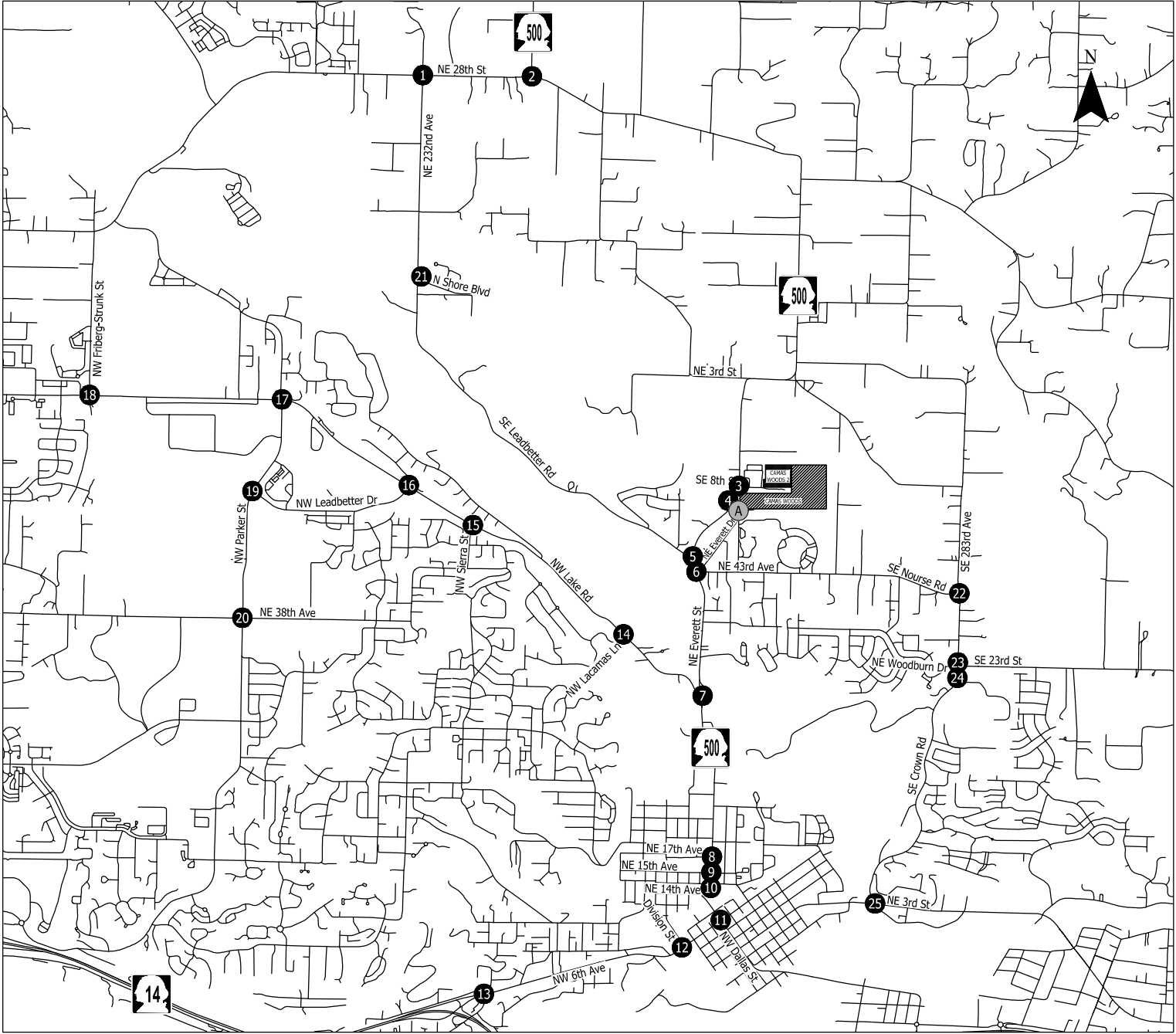
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CA = CRITICAL APPROACH (TWSC / ROUNDABOUT) Del = INTERSECTION AVERAGE
CM = CRITICAL MOVEMENT (TWSC) CONTROL DELAY
LOS = INTERSECTION LEVEL OF (SIGNALIZED) / CRITICAL
SERVICE (SIGNALIZED) / MOVEMENT CONTROL DELAY
CRITICAL MOVEMENT LEVEL OF (TWSC / ROUNDABOUT)
V/C = VOLUME-TO-CAPACITY RATIO TWSC = TWO-WAY STOP CONTROL

2030 Total Traffic Conditions
Weekday School PM Peak Hour
Camas, Washington

Figure
7



CA = CRITICAL APPROACH (TWSC / ROUNDABOUT) Del = INTERSECTION AVERAGE
CM = CRITICAL MOVEMENT (TWSC) CONTROL DELAY
LOS = INTERSECTION LEVEL OF (SIGNALIZED) / CRITICAL
SERVICE (SIGNALIZED) / MOVEMENT CONTROL DELAY
CRITICAL MOVEMENT LEVEL OF (TWSC / ROUNDABOUT)
SERVICE (TWSC / ROUNDABOUT)
V/C = VOLUME-TO-CAPACITY RATIO TWSC = TWO-WAY STOP CONTROL

2030 Total Traffic Conditions
Weekday PM Peak Hour
Camas, Washington

Figure
8

Table 3. Projected Weekday AM Peak Hour Study Intersection Operations Summary

ID	Study Intersection	Traffic Control	Operating Requirement	Existing Conditions ¹	2030 Background Traffic ²	2030 Total Traffic
1	NE 232 nd Ave/ NE 28 th St	TWSC	LOS E	CA = NB LOS D, 30.5 sec V/C = 0.54	CA = NB LOS F, >50 sec V/C > 1.0	CA = NB LOS F, >50 sec V/C > 1.0
2	NE 242 nd Avenue (SR 500)/ NE 28 th St	TWSC	LOS E	CA = SB LOS C, 18.5 sec V/C = 0.45	CA = SB LOS D, 31.7 sec V/C = 0.67	CA = SB LOS D, 32.5 sec V/C = 0.68
3	NE Everett St/ SE 8 th St	TWSC	LOS E	CA = WB LOS C, 18.1 sec V/C = 0.33	CA = WB LOS D, 26.4 sec V/C = 0.48	CA = WB LOS D, 33.0 sec V/C = 0.65
4	NE Everett St/ NE Everett Dr	TWSC in Existing Roundabout in 2030	LOS E	CA = WB LOS D, 26.7 sec V/C = 0.43	LOS A, 7.8 sec V/C = 0.63	LOS A, 7.5 sec V/C = 0.68
5	NE Everett St/ SE Leadbetter Rd	TWSC	LOS E	CA = EB LOS C, 22.7 sec V/C = 0.54	CA = EB LOS D, 34.7 sec V/C = 0.71	CA = EB LOS E, 39.2 sec V/C = 0.76
6	NE Everett St/ NE 43 rd Ave	Signalized	LOS E	LOS B, 12.4 sec V/C = 0.69	LOS B, 13.3 sec V/C = 0.77	LOS B, 13.4 sec V/C = 0.78
7	NE Everett St/ NW Lake Rd	Roundabout	LOS E	LOS A, 8.5 sec V/C = 0.52	LOS A, 9.0 sec V/C = 0.59	LOS A, 9.1 sec V/C = 0.60
8	NE Everett St/ NE 17 th Ave	TWSC	LOS E	CA = EB LOS B, 22.9 sec V/C = 0.38	CA = EB LOS D, 28.5 sec V/C = 0.47	CA = EB LOS D, 29.2 sec V/C = 0.48
9	NE Everett St/ NE 15 th Ave	TWSC	LOS E	CA = EB LOS D, 32.9 sec V/C = 0.46	CA = EB LOS E, 41.6 sec V/C = 0.55	CA = EB LOS E, 42.8 sec V/C = 0.56
12	Division St/ NW 6 th Ave	TWSC	LOS D	CM = SBL LOS C, 15.7 sec V/C = 0.04	CM = SBL LOS C, 17.1 sec V/C = 0.12	CM = SBL LOS C, 17.2 sec V/C = 0.12
13	NW Norwood St/ NW 6 th Ave	Roundabout	LOS D	LOS A, 6.2 sec V/C = 0.73	LOS A, 6.2 sec V/C = 0.76	LOS A, 6.2 sec V/C = 0.76
14	NW Lacamas Ln/ NW Lake Rd	TWSC	LOS D	CM = NBL LOS B, 14.7 sec V/C = 0.01	CM = NBL LOS C, 15.2 sec V/C = 0.01	CM = NBL LOS C, 15.3 sec V/C = 0.01
15	NW Sierra St/ NW Lake Rd	TWSC	LOS D	CM = NBL LOS D, 30.6 sec V/C = 0.37	CM = NBL LOS D, 34.2 sec V/C = 0.40	CM = NBL LOS D, 34.7 sec V/C = 0.40
16	NW Leadbetter Dr/ NW Lake Rd	TWSC	LOS D	CA = SB LOS C, 23.0 sec V/C = 0.11	CA = SB LOS D, 25.4 sec V/C = 0.13	CA = SB LOS D, 25.7 sec V/C = 0.13

ID	Study Intersection	Traffic Control	Operating Requirement	Existing Conditions ¹	2030 Background Traffic ²	2030 Total Traffic
21	NW 232 nd Ave/ N Shore Blvd	TWSC	LOS D	CA = EB LOS C, 17.9 sec V/C = 0.37	CA = EB LOS D, 32.0 sec V/C = 0.67	CA = EB LOS D, 32.6 sec V/C = 0.67
22	SE 283 rd Ave/ SE Nourse Rd	TWSC	LOS D	CA = EB LOS B, 10.8 sec V/C = 0.15	CA = EB LOS B, 11.0 sec V/C = 0.17	CA = EB LOS B, 11.0 sec V/C = 0.17
A	NE Everett Street/ N Rekdahl Street	TWSC	LOS D	<i>Not Applicable</i>	CA = WB LOS B, 10.3 sec V/C = 0.22	CA = WB LOS A, 9.9 sec V/C = 0.15

Where: TWSC = Two-way Stop Control, LOS = Level of Service, CA = Critical Approach, CM = Critical Movement, V/C = Volume-to-Capacity ratio, NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, R = Right-turn

¹ Refer to the existing conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

² Refer to the traffic conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

Table 4. Projected Weekday School PM Peak Hour Study Intersection Operations Summary

ID	Study Intersection	Traffic Control	Operating Requirement	Existing Conditions ¹	2030 Background ²	2030 Total Traffic
3	NE Everett St/ SE 8 th St	TWSC	LOS E	CA = WB LOS C, 16.2 sec V/C = 0.29	CA = WB LOS C, 21.1 sec V/C = 0.39	CA = WB LOS D, 32.0 sec V/C = 0.62
4	NE Everett St/ NE Everett Dr	TWSC in Existing Roundabout in 2030	LOS E	CA = WB LOS B, 13.8 sec V/C = 0.07	LOS A, 6.0 sec V/C = 0.56	LOS A, 5.7 sec V/C = 0.57
5	NE Everett St/ SE Leadbetter Rd	TWSC	LOS E	CA = EB LOS B, 12.5 sec V/C = 0.20	CA = EB LOS C, 19.2 sec V/C = 0.40	CA = EB LOS C, 20.6 sec V/C = 0.44
6	NE Everett St/ NE 43 rd Ave	Signalized	LOS E	LOS A, 9.3 sec V/C = 0.58	LOS B, 10.3 sec V/C = 0.64	LOS B, 10.4 sec V/C = 0.65
7	NE Everett St/ NW Lake Rd	Roundabout	LOS E	LOS A, 6.8 sec V/C = 0.32	LOS A, 6.9 sec V/C = 0.36	LOS A, 7.0 sec V/C = 0.37
15	NW Sierra St/ NW Lake Rd	TWSC	LOS D	CM = NBL LOS E, 35.4 sec V/C = 0.40	CM = NBL LOS E, 40.7 sec V/C = 0.45	CM = NBL LOS E, 41.5 sec V/C = 0.45
21	NW 232 nd Ave/ N Shore Blvd	TWSC	LOS D	CA = EB LOS A, 9.4 sec V/C = 0.07	CA = EB LOS B, 10.2 sec V/C = 0.17	CA = EB LOS B, 10.3 sec V/C = 0.17
22	SE 283 rd Ave/ SE Nourse Rd	TWSC	LOS D	CA = EB LOS A, 9.6 sec V/C = 0.12	CA = EB LOS A, 9.7 sec V/C = 0.14	CA = EB LOS A, 9.7 sec V/C = 0.14
A	NE Everett Street/ N Rekdahl Street	TWSC	LOS D	<i>Not Applicable</i>	CA = WB LOS A, 9.1 sec V/C = 0.13	CA = WB LOS A, 9.0 sec V/C = 0.09

Where: TWSC = Two-way Stop Control, LOS = Level of Service, CA = Critical Approach, CM = Critical Movement, V/C = Volume-to-Capacity ratio, NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, R = Right-turn

¹ Refer to the existing conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

² Refer to the traffic conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

Table 5. Projected Weekday PM Peak Hour Study Intersection Operations Summary

ID	Study Intersection	Traffic Control	Operating Requirement	Existing Conditions ¹	2030 Background ²	2030 Total Traffic
1	NE 232 nd Ave/ NE 28 th St	TWSC	LOS E	CA = NB LOS C, 17.3 sec V/C = 0.21	CA = NB LOS E, 41.8 sec V/C = 0.63	CA = NB LOS E, 42.4 sec V/C = 0.64
2	NE 242 nd Avenue (SR 500)/ NE 28 th St	TWSC	LOS E	CA = SB LOS E, 38.7 sec V/C = 0.73	CA = SB LOS F, >50 sec V/C >1.0	CA = SB LOS F, >50 sec V/C >1.0
3	NE Everett St/ SE 8 th St	TWSC	LOS E	CA = WB LOS B, 12.1 sec V/C = 0.07	CA = WB LOS B, 13.6 sec V/C = 0.08	CA = WB LOS C, 15.4 sec V/C = 0.21
4	NE Everett St/ NE Everett Dr	TWSC in Existing Roundabout in 2030	LOS E	CA = WB LOS B, 11.6 sec V/C = 0.03	LOS A, 6.0 sec V/C = 0.47	LOS A, 5.7 sec V/C = 0.48
5	NE Everett St/ SE Leadbetter Rd	TWSC	LOS E	CA = EB LOS B, 10.8 sec V/C = 0.16	CA = EB LOS C, 16.9 sec V/C = 0.38	CA = EB LOS C, 17.9 sec V/C = 0.39
6	NE Everett St/ NE 43 rd Ave	Signalized	LOS E	LOS A, 8.8 sec V/C = 0.54	LOS A, 9.6 sec V/C = 0.61	LOS A, 9.7 sec V/C = 0.62
7	NE Everett St/ NW Lake Rd	Roundabout	LOS E	LOS A, 7.7 sec V/C = 0.54	LOS A, 8.1 sec V/C = 0.58	LOS A, 8.1 sec V/C = 0.59
8	NE Everett St/ NE 17 th Ave	TWSC	LOS E	CA = EB LOS D, 25.4 sec V/C = 0.44	CA = EB LOS E, 39.6 sec V/C = 0.66	CA = EB LOS E, 43.7 sec V/C = 0.70
9	NE Everett St/ NE 15 th Ave	TWSC	LOS E	CA = EB LOS F, >50.0 sec V/C = 0.85	CA = EB LOS F, >50 sec V/C = 0.97	CA = EB LOS F, >50 sec V/C = 0.97
10	NE Everett St/ NE 14 th Ave	TWSC	LOS E	CA = EB LOS E, 44.4 sec V/C = 0.70	CA = EB LOS F, >50 sec V/C = 0.78	CA = EB LOS F, >50 sec V/C = 0.79
11	NE Dallas St/ NE 6 th Ave	TWSC	LOS D	CA = EB LOS D, 29.2 sec V/C = 0.71	CA = EB LOS D, 31.4 sec V/C = 0.73	CA = EB LOS D, 31.9 sec V/C = 0.74
12	Division St/ NW 6 th Ave	TWSC	LOS D	CM = SBL LOS D, 25.3 sec V/C = 0.11	CM = SBL LOS D, 33.0 sec V/C = 0.23	CM = SBL LOS D, 34.3 sec V/C = 0.24
13	NW Norwood St/ NW 6 th Ave	Roundabout	LOS D	LOS B, 14.6 sec V/C = 0.97	LOS B, 18.3 sec V/C = 0.99	LOS B, 19.3 sec V/C = 1.0
14	NW Lacamas Ln/ NW Lake Rd	TWSC	LOS D	CM = NBL LOS C, 21.7 sec V/C = 0.03	CM = NBL LOS C, 23.0 sec V/C = 0.03	CM = NBL LOS C, 23.1 sec V/C = 0.03
15	NW Sierra St/ NW Lake Rd	TWSC	LOS D	CM = NBL LOS F, >50 sec	CM = NBL LOS F, >50 sec	CM = NBL LOS F, >50 sec

ID	Study Intersection	Traffic Control	Operating Requirement	Existing Conditions ¹	2030 Background ²	2030 Total Traffic
				V/C = 0.85	V/C = 0.99	V/C = 1.0
16	NW Leadbetter Dr/ NW Lake Rd	TWSC	LOS D	CA = NB LOS D, 26.2 sec V/C = 0.50	CA = NB LOS D, 29.1 sec V/C = 0.54	CA = NB LOS D, 30.4 sec V/C = 0.58
17	NW Parker St/ NW Lake Rd	Signalized	LOS D	LOS C, 27.4 sec V/C = 0.69	LOS C, 29.9 sec V/C = 0.71	LOS C, 29.3 sec V/C = 0.71
18	NW Friberg-Strunk St/ NW Lake Rd	Signalized	LOS D	LOS B, 14.6 sec V/C = 0.68	LOS B, 18.9 sec V/C = 0.78	LOS B, 18.9 sec V/C = 0.78
19	NW Parker St/ NW Leadbetter Dr	TWSC	LOS D	CM = WBL LOS C, 23.7 sec V/C = 0.22	CM = WBL LOS D, 27.3 sec V/C = 0.29	CM = WBL LOS D, 27.3 sec V/C = 0.29
20	NW Parker St/ NE 38 th Ave	Signalized	LOS D	LOS C, 26.4 sec V/C = 0.75	LOS D, 27.3 sec V/C = 0.76	LOS D, 27.4 sec V/C = 0.76
21	NW 232 nd Ave/ N Shore Blvd	TWSC	LOS D	CA = EB LOS A, 9.6 sec V/C = 0.14	CA = EB LOS B, 10.7 sec V/C = 0.25	CA = EB LOS B, 10.8 sec V/C = 0.25
22	SE 283 rd Ave/ SE Nourse Rd	TWSC	LOS D	CA = EB LOS B, 10.2 sec V/C = 0.18	CA = EB LOS B, 10.3 sec V/C = 0.20	CA = EB LOS B, 10.3 sec V/C = 0.20
23	SE 283 rd Ave/ SE 23 rd St	TWSC	LOS D	CA = WB LOS B, 10.9 sec V/C = 0.13	CA = WB LOS B, 11.1 sec V/C = 0.14	CA = WB LOS B, 11.1 sec V/C = 0.14
24	SE 283 rd Ave/ NE Woodburn Dr	TWSC	LOS D	CM = EBL LOS C, 15.0 sec V/C = 0.03	CA = EB LOS C, 15.6 sec V/C = 0.03	CA = EB LOS C, 15.6 sec V/C = 0.03
25	SE Crown Rd/ NE 3 rd Ave	Signalized	LOS D	LOS B, 12.1 sec V/C = 0.65	LOS B, 12.2 sec V/C = 0.66	LOS B, 12.2 sec V/C = 0.66
A	NE Everett Street/ N Rekdahl Street	TWSC	LOS D	<i>Not Applicable</i>	CA = WB LOS A, 8.9 sec V/C = 0.13	CA = WB LOS A, 8.8 sec V/C = 0.10

Where: TWSC = Two-way Stop Control, LOS = Level of Service, CA = Critical Approach, CM = Critical Movement, V/C = Volume-to-Capacity ratio, NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, R = Right-turn

¹ Refer to the existing conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

² Refer to the traffic conditions analysis documented in the *Camas Woods Transportation Impact Study* dated November 5, 2024.

Total Traffic Intersection Operations Discussion

Considerations associated with each of the intersections not satisfying the applicable agency performance metrics during one or more of the three peak hour analysis periods are presented below.

NE 232nd Avenue/NE 28th Street (Intersection #1)

As shown in the tables, the northbound stop-control movement does not meet County standards under year 2030 background or total traffic operations during the weekday AM peak hour. Figure 2 demonstrates that the proposed site development is not projected to add any weekday AM peak hour trips to this movement. Accordingly, no mitigation is recommended in conjunction with the proposed site development per CCC Section 40.350.020.G.1.c.1 (the proposed development adds fewer than five (5) peak hour trips to the failing intersection approach). We note that no site-generated trips that are projected to use the northbound approach at this intersection given they can reach the intersection traveling westbound on NE 28th Street by first leaving the project site and traveling north on NE Everett Street to travel SR 500 north to NE 28th Street.

NE 242nd Avenue/NE 28th Street (Intersection #2)

Consistent with the background conditions a, delay experienced on the southbound stop controlled approach continues to result in LOS F operations (exceed LOS E requirement) during the weekday PM peak hour with a V/C ratio over 1.0. The intersection is projected to continue to operate acceptably during the weekday AM peak hour analysis period.

Implementation of interim all-way stop control at the intersection would provide for acceptable operations during the weekday PM peak hour (southbound approach LOS D with a V/C ratio of 0.83, overall intersection LOS C) as well as the other analysis periods. In the longer-term, installation of a roundabout or other alternative traffic control device and/or turn lanes may be appropriate. Given the forecast LOS F conditions occur under background conditions and that the proposed Camas Woods 2 development is projected to add 3 southbound left-turns to the intersection during the weekday PM peak hour (8 total site trips are projected to enter the intersection during the PM peak hour), we recommend the Applicant collaborate with WSDOT to determine if implementation of interim all-way stop control or a proportional share financial contribution to a future intersection capacity improvement is appropriate in conjunction with the proposed development.

NE Everett Street/NE 15th Avenue (Intersection #9)

Consistent with forecast background conditions, delay experienced on the eastbound stop controlled approach continues to result in LOS F operations (exceed LOS E requirement) during the weekday PM peak hour (V/C ratio = 0.97). Given the eastbound stop controlled intersection approach is projected to operate near capacity without site trips and that there are intersections further to the north that drivers can use as a route alternative (including but not limited to NE 17th Avenue, NE 19th Avenue and NE 21st Avenue to the north), no inbound site-generated trips are projected to be added to the failing approach. As such, no mitigation is recommended in conjunction with site development.

NE Everett Street/NE 14th Avenue (Intersection #10)

Consistent with forecast background conditions, delay experienced on the eastbound stop controlled approach continues to result in LOS F operations (exceed LOS E requirement) during the weekday PM peak hour (V/C ratio = 0.79). No site-generated trips are projected to use the eastbound approach during the PM

peak hour given there are alternative travel routes available eastbound within the downtown urban grid that drivers can use as a route alternative to the project site (including but not limited to NE 17th Avenue, NE 19th Avenue and NE 21st Avenue to the north). As such, no mitigation is recommended in conjunction with site development.

NW Sierra Street/NW Lake Road (Intersection #15)

Consistent with forecast background conditions, delay experienced by the stop controlled northbound left-turn movement results in LOS F operations (exceeds LOS D requirement and with a V/C ratio of 1.0) during the weekday PM peak hour. As noted previously, the City of Camas is currently advancing design plans to construct a roundabout at the intersection but the funding for and timing of the roundabout construction was unknown at the time this report was prepared. Subject to direction from the City of Camas, it may be appropriate for the applicant to financially contribute towards the planned roundabout through payment of a future Traffic Impact Fee (if the fee methodology incorporates the roundabout cost) or a proportional share mitigation assessment program should the City alternatively choose to implement a cost sharing assessment methodology for the roundabout project (we understand City staff anticipate the future Traffic Impact Fee program will in part fund the planned roundabout).

INTERSECTION QUEUING CONSIDERATIONS

Table 5 summarizes projected queues at the NE Everett Street/SE 8th Street and NE Everett Street/NE Everett Drive study intersections for existing and projected future traffic conditions¹. As shown, all the movements are anticipated to experience vehicular queues that can be accommodated within the turn bay lengths at the two intersections assuming provision of a separate southbound left-turn lane on NE Everett Street at SE 8th Street with site development.

Table 5. Weekday Peak Hour Projected 95th Percentile Queues at Study Intersections

Intersection	Movement	Storage (feet)	95 th -percentile Queue (feet)									Adequate Storage Provided?
			AM Peak Hour			School PM Peak Hour			PM Peak Hour			
			EX	BK	TT	EX	BK	TT	EX	BK	TT	
NE Everett Street/ SE 8 th Street	SB	>300	25	25	25	25	25	25	25	25	25	Yes
	SBL	100	N/A	N/A	25	N/A	N/A	25	N/A	N/A	25	Yes
	NBR	80	0	0	0	0	0	0	0	0	0	Yes
	WB	190	50	75	75	50	50	50	25	25	25	Yes
NE Everett Street/ NE Everett Drive with Roundabout	SB	375 ¹	N/A	150	175	N/A	75	75	N/A	50	50	Yes
	WB	>165 ²	N/A	75	50	N/A	25	25	N/A	25	25	Yes
	NB	>500	N/A	125	125	N/A	125	125	N/A	100	100	Yes

Where: EX = 2024 Existing Conditions, BK = 2030 Background Traffic Conditions, TT = 2030 Total Traffic Conditions, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = left-turn, T = Through, R = Right-turn

¹ There is approximately 375 feet between SE 8th Street and NE Everett Drive along NE Everett Street.

² Approximate storage distance to the first paved access driveways on NE Everett Drive east (south) of NE Everett Street. Additional storage is available to the south.

¹ Queues were rounded to the nearest 25 feet.

INTERSECTION SIGHT DISTANCE

Documentation demonstrating adequate intersection sight distance at the new public street roadways and intersections will be provided by AKS Engineering & Forestry through the site plan application process. We recommend that on-site landscaping, signage, and any new above-ground utilities be appropriately located and maintained to provide adequate intersection sight distance per applicable City requirements.

PROPORTIONATE SHARE CONTRIBUTIONS

The City of Vancouver collects proportionate share fee contributions from all future development that add one or more site-generated trips to an adopted list of intersections that require mitigation. Table 6 provides a summary of the current proportional share fee intersections, the mitigation cost per trip, the estimated number of site-generated trips added based on the current site plan by land use type as well as the corresponding mitigation fee anticipated. We anticipate the final fee amount due will be determined at the time of site plan application and payment will be paid prior to building permit issuance.

Table 6. City of Vancouver Proportionate Share Fee Summary

Mitigation Location	Mitigation Cost/Peak Hour Trip	Commercial		Residential		Total	
		Peak Hour Trips Added	Estimated Mitigation Cost	Peak Hour Trips Added	Estimated Mitigation Cost	Peak Hour Trips Added	Estimated Mitigation Cost
137 th Ave: 49 th St to Fourth Plain Blvd	\$3,000/PM	0	\$0	0	\$0	0	\$0
Fourth Plain Blvd & 152 nd Ave Signal	\$333/PM	0	\$0	0	\$0	0	\$0
Lieser/St. Helens/MacArthur	\$2,000/PM	0	\$0	0	\$0	0	\$0
176 th Ave & SE 20 th St	\$400/PM	0	\$0	0	\$0	0	\$0
192 nd Avenue & NE 13 th Street	\$400/PM	0	\$0	2	\$800	2	\$800
192 nd Ave & SE 34 th St	\$150/PM	0	\$0	0	\$0	0	\$0
192 nd Ave & SR-14 ramps	\$2,000/PM	0	\$0	0	\$0	0	\$0
MacArthur & Andresen Roundabout	\$2,285/PM	0	\$0	0	\$0	0	\$0
MacArthur & Devine Roundabout	\$2,226/PM	0	\$0	0	\$0	0	\$0
Grove St/Columbia House Blvd/SR-14 WB Ramp	\$600/AM	0	\$0	0	\$0	0	\$0
NE 172 nd Avenue & NE 18 th Street	\$300/PM	0	\$0	0	\$0	0	\$0
NE 179 th Place & NE 18 th Street	\$900/PM	0	\$0	0	\$0	0	\$0
NE 187 th Avenue & NE 18 th Street	\$1,200/PM	0	\$0	0	\$0	0	\$0
NE 162 nd Avenue & NE 9 th Street	\$1,500/PM	0	\$0	0	\$0	0	\$0
NE 172 nd Avenue & NE 9 th Street	\$4,100/PM	0	\$0	0	\$0	0	\$0
NE 192 nd Avenue & NE 9 th Street	\$1,100/PM	0	\$0	0	\$0	0	\$0
NE 187 th Avenue & SE 1 st Street	\$1,100/PM	0	\$0	0	\$0	0	\$0
Total Proportional Share Cost			\$0		\$800		\$800

SUMMARY FINDINGS & RECOMMENDATIONS

Based on the transportation impact analysis results, the proposed townhomes can be developed while maintaining acceptable operations at the study intersections assuming provision of the recommended mitigation measures in conjunction with site redevelopment.

Findings

- By the future opening year 2030, the following study intersections are projected to not satisfy the applicable performance metrics:
 - NE 232nd Avenue/NE 28th Street (Intersection #1): AM peak hour LOS F operations with a V/C >1.0;
 - NE 242nd Avenue/NE 28th Street (Intersection #2): PM peak hour LOS F operations with a V/C >1.0;
 - NE Everett Street/NE 15th Avenue (Intersection #9): PM peak hour LOS F operations with a V/C = 0.97;
 - NE Everett Street/NE 14th Avenue (Intersection #10): PM peak hour LOS F operations with a V/C = 0.78; and
 - NW Sierra Street/NW Lake Road (Intersection #15): School PM peak hour LOS F operations with a V/C = 0.45 and PM peak hour LOS F operations with a V/C = 0.99.
- The proposed development adds one or more site-generated trips to each of the study intersections listed above that do not satisfy the applicable performance metrics prior to site development. The following site development impacts and potential mitigation considerations were identified.
 - NE 232nd Avenue/NE 28th Street (Intersection #1): AM peak hour LOS F operations with a V/C >1.0
 - CCC Section 40.350.020.G.1.c.1 requires a proposed development provide mitigation when five (5) or more peak hour trips are added to a failing intersection approach on a regionally significant intersection.
 - The proposed site development is projected to add no (0) weekday AM peak hour trips to the stop controlled northbound approach when the Clark County LOS standard is not met.
 - NE 242nd Avenue/NE 28th Street (Intersection #2): PM peak hour LOS F operations with a V/C >1.0
 - Implementation of interim all-way stop control at the intersection would provide for acceptable operations during the weekday PM peak hour with site trips added (southbound approach LOS D with a V/C ratio of 0.83, overall intersection LOS C).
 - In the longer-term, installation of a roundabout or other alternative traffic control device and/or turn lanes may be appropriate.
 - NE Everett Street/NE 15th Avenue (Intersection #9): PM peak hour LOS F operations with a V/C = 0.97
 - No inbound site-generated trips are projected to be added to the failing eastbound approach which remains under-capacity.
 - There are intersections further to the north that drivers can use as alternative routes (including but not limited to NE 17th Avenue, NE 19th Avenue and NE 21st Avenue to the north).
 - NE Everett Street/NE 14th Avenue (Intersection #10): PM peak hour LOS F operations with a V/C = 0.79.

- No inbound site-generated trips are projected to be added to the failing eastbound approach which remains under-capacity.
- There are intersections further to the north that drivers can use as alternative routes (including but not limited to NE 17th Avenue, NE 19th Avenue and NE 21st Avenue to the north).
- NW Sierra Street/NW Lake Road (Intersection #15): School PM peak hour LOS F operations with a V/C = 0.45 and PM peak hour LOS F operations with a V/C = 1.0.
 - The City of Camas is currently advancing design plans to construct a roundabout at the intersection but the funding for and timing of the roundabout construction was unknown at the time this report was prepared.
 - It may be appropriate for the Camas Woods 2 development to financially contribute towards the planned future roundabout through payment of a future Traffic Impact Fee methodology that incorporates the roundabout cost or a proportional share mitigation assessment program.
- The proposed site development is projected to add 2 weekday PM peak hour trips to the 192nd Avenue/NE 13th Street intersection in the City of Vancouver where proportional share mitigation payments are assessed.

Recommendations

Based on the traffic operations analysis findings, we recommend the following traffic control changes in conjunction with the proposed Camas Woods 2 site development.

- Construct a southbound left-turn lane on NE Everett Street at SE 8th Street with at least 100 feet of storage.
- Make a proportional mitigation contribution to the City of Camas' planned NW Sierra Street/NW Lake Road roundabout project.
 - Pending City direction, the contribution could be made through (1) payment of a future Traffic Impact Fee (TIF) that incorporates the roundabout cost or (2) via a proportional share mitigation assessment program should the City choose to implement a cost sharing assessment methodology for the roundabout project (we understand City staff anticipates the future TIF program will in part fund the planned roundabout).
- Collaborate with WSDOT to identify and implement (if construction is required) capacity mitigation at the NE 242nd Avenue/NE 28th Street intersection in conjunction with site development.
 - Potential options identified to explore with WSDOT include but are not limited to implementation of interim all-way stop control or payment of a proportional share contribution to a future intersection capacity improvement.
- Post a STOP (R1-1) sign southbound on the new public street approach ("A" Street) to SE 8th Street within the project site in accordance with applicable City standards and the *Manual on Uniform Traffic Control Devices* (MUTCD).
- Subject to City of Vancouver concurrence and final residential unit count confirmation, pay \$800 in proportionate share contributions to the 192nd Avenue/NE 13th Street intersection as identified per City of Vancouver requirements.

- Locate and maintain site landscaping, above-ground utilities, and site signage within the site as well as at the site driveways to provide adequate intersection sight distance per applicable City requirements.
- Contribute financially to the NE Everett Street/NE Everett Drive intersection roundabout design and construction if a reimbursement mechanism is identified for the new roundabout in conjunction with Camas Woods land use entitlement.
 - The analysis findings presented in this study are predicated on the assumption that the Camas Woods project has reconstructed the NE Everett Street/NE Everett Drive intersection to a three-approach single lane roundabout in conjunction with site development prior to Camas Woods 2 site development.

Please contact us if you have any questions regarding our analysis findings or recommendations.

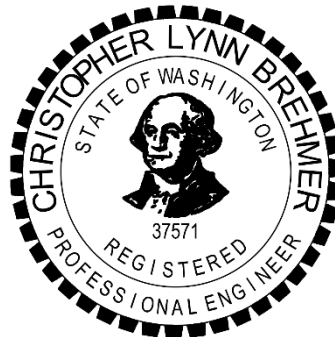
Sincerely,
KITTELSON & ASSOCIATES, INC.



Chris Brehmer, PE
Senior Principal Engineer



Julia Kuhn, PE
Senior Principal Engineer




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REFERENCES

1. Institute of Transportation Engineers. *Trip Generation Manual, 11th Edition*. September 2021.

LIST OF APPENDIX

- A. Year 2030 Total Traffic Conditions Analysis Worksheets

Appendix A: Year 2030 Total Traffic Analysis

Intersection Level Of Service Report
Intersection 1: NE 232nd Avenue & NE 28th Street

Control Type:	Two-way stop	Delay (sec / veh):	208.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.157

Intersection Setup

Name	NE 232nd Avenue			NE 232nd Avenue			NE 28th Street			NE 28th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	10.00	10.00	10.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			25.00			40.00			40.00		
Grade [%]	0.02			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE 232nd Avenue			NE 232nd Avenue			NE 28th Street			NE 28th Street		
Base Volume Input [veh/h]	122	2	41	0	6	6	2	174	180	83	294	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	0.00	6.00	0.00	0.00	0.00	0.00	8.00	12.00	11.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	2	41	0	6	6	2	174	180	83	294	0
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	1	14	0	2	2	1	61	63	29	104	0
Total Analysis Volume [veh/h]	172	3	58	0	8	8	3	245	254	117	414	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.16	0.02	0.09	0.00	0.05	0.01	0.00	0.00	0.00	0.11	0.00	0.00
d_M, Delay for Movement [s/veh]	208.92	204.83	190.24	28.94	27.18	11.46	8.12	0.00	0.00	8.67	0.00	0.00
Movement LOS	F	F	F	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	12.85	12.85	12.85	0.19	0.19	0.19	0.01	0.01	0.01	0.21	0.21	0.21
95th-Percentile Queue Length [ft/ln]	321.29	321.29	321.29	4.75	4.75	4.75	0.14	0.14	0.14	5.21	5.21	5.21
d_A, Approach Delay [s/veh]	204.22			19.32			0.05			1.91		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	38.17											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: SR 500 & NE 28th Street

Control Type:	Two-way stop	Delay (sec / veh):	34.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name	Private Driveway			SR 500			NE 28th Street			SR 500		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	20.00			45.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Private Driveway			SR 500			NE 28th Street			SR 500		
Base Volume Input [veh/h]	0	0	0	135	0	80	34	181	0	0	290	129
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	15.00	0.00	6.00	4.00	6.00	0.00	0.00	3.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	135	0	80	34	181	0	0	290	129
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	41	0	24	10	55	0	0	87	39
Total Analysis Volume [veh/h]	0	0	0	163	0	96	41	218	0	0	349	155
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.53	0.00	0.15	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	19.03	16.82	9.35	34.70	33.73	28.87	8.47	0.00	0.00	7.64	0.00	0.00
Movement LOS	C	C	A	D	D	D	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	4.87	4.87	4.87	0.07	0.07	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	121.68	121.68	121.68	1.75	1.75	1.75	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.07			32.54			1.34			0.00		
Approach LOS	C			D			A			A		
d_I, Intersection Delay [s/veh]	8.59											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: NE Everett Street & SE 8th Street

Control Type:	Two-way stop	Delay (sec / veh):	36.8
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	85.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Base Volume Input [veh/h]	225	87	42	398	93	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	225	87	42	398	93	66
Peak Hour Factor	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	31	15	142	33	24
Total Analysis Volume [veh/h]	321	124	60	569	133	94
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.01	0.52	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	8.38	0.00	36.77	27.55
Movement LOS	A	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.17	0.00	4.38	4.38
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.22	0.00	109.61	109.61
d_A, Approach Delay [s/veh]	0.00		0.80		32.95	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	6.14					
Intersection LOS	E					

MOVEMENT SUMMARY

 Site: 4 [NE Everett St & NE Everett Dr_TotalAM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

SR500/NE Everett Drive

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: SR500															
8	T1	All MCs	370	3.0	370	3.0	0.588	5.9	LOS A	5.0	126.6	0.58	0.53	0.58	34.6
18	R2	All MCs	253	1.0	253	1.0	0.588	5.7	LOS A	5.0	126.6	0.58	0.53	0.58	34.3
Approach			623	2.2	623	2.2	0.588	5.8	LOS A	5.0	126.6	0.58	0.53	0.58	34.5
East: NE Everett Drive															
1	L2	All MCs	191	4.0	191	4.0	0.303	11.7	LOS B	1.7	44.8	0.58	0.68	0.58	32.5
16	R2	All MCs	74	0.0	74	0.0	0.303	6.4	LOS A	1.7	44.8	0.58	0.68	0.58	32.9
Approach			266	2.9	266	2.9	0.303	10.2	LOS B	1.7	44.8	0.58	0.68	0.58	32.6
North: SR500															
7	L2	All MCs	164	0.0	164	0.0	0.676	11.6	LOS B	6.7	169.8	0.68	0.61	0.71	33.1
4	T1	All MCs	531	3.0	531	3.0	0.676	6.9	LOS A	6.7	169.8	0.68	0.61	0.71	33.6
Approach			696	2.3	696	2.3	0.676	8.0	LOS A	6.7	169.8	0.68	0.61	0.71	33.5
All Vehicles			1584	2.3	1584	2.3	0.676	7.5	LOS A	6.7	169.8	0.62	0.59	0.64	33.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report
Intersection 5: NE Everett Street & SE Leadbetter Road

Control Type:	Two-way stop	Delay (sec / veh):	52.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.315

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.04		-0.02		0.03	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Base Volume Input [veh/h]	96	358	450	23	42	197
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	4.00	4.00	0.00	1.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	358	450	23	42	197
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	104	131	7	12	57
Total Analysis Volume [veh/h]	112	416	523	27	49	229
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.01	0.00	0.32	0.44
d_M, Delay for Movement [s/veh]	8.94	0.00	0.00	0.00	52.64	36.37
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.37	0.00	0.00	0.00	6.01	6.01
95th-Percentile Queue Length [ft/ln]	9.17	0.00	0.00	0.00	150.15	150.15
d_A, Approach Delay [s/veh]	1.90		0.00		39.23	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	8.78					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 6: NE Everett Street & NE 43rd Avenue

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.782

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	300.00	120.00	100.00	100.00	80.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.03		-0.04		-0.04	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Base Volume Input [veh/h]	377	468	101	547	323	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	5.00	18.00	4.00	11.00	4.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	377	0	101	547	323	73
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	110	0	29	159	94	21
Total Analysis Volume [veh/h]	438	0	117	636	376	85
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	20	40	40	0
Amber [s]	4.0	0.0	3.0	4.0	3.0	0.0
All red [s]	1.0	0.0	2.0	1.0	1.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	3.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	9	14	9	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	4	5	4	0
Vehicle Extension [s]	5.0	0.0	3.0	3.5	3.0	0.0
Minimum Recall	Yes		No	Yes	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	45	45	45	45	45	45
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	23	23	13	13
g / C, Green / Cycle	0.34	0.34	0.52	0.52	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.25	0.00	0.11	0.35	0.23	0.05
s, saturation flow rate [veh/h]	1737	1451	1020	1840	1653	1564
c, Capacity [veh/h]	585	489	570	950	469	444
d1, Uniform Delay [s]	13.26	0.00	7.00	8.05	14.97	12.23
k, delay calibration	0.23	0.23	0.11	0.13	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.10	0.00	0.18	0.99	3.23	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.00	0.21	0.67	0.80	0.19
d, Delay for Lane Group [s/veh]	17.36	0.00	7.18	9.04	18.19	12.43
Lane Group LOS	B	A	A	A	B	B
Critical Lane Group	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.69	0.00	0.40	3.10	3.48	0.59
50th-Percentile Queue Length [ft/ln]	92.37	0.00	9.95	77.61	86.99	14.76
95th-Percentile Queue Length [veh/ln]	6.65	0.00	0.72	5.59	6.26	1.06
95th-Percentile Queue Length [ft/ln]	166.26	0.00	17.90	139.71	156.58	26.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.36	0.00	7.18	9.04	18.19	12.43
Movement LOS	B	A	A	A	B	B
d_A, Approach Delay [s/veh]	17.36		8.75		17.13	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	13.37					
Intersection LOS	B					
Intersection V/C	0.782					

Emissions

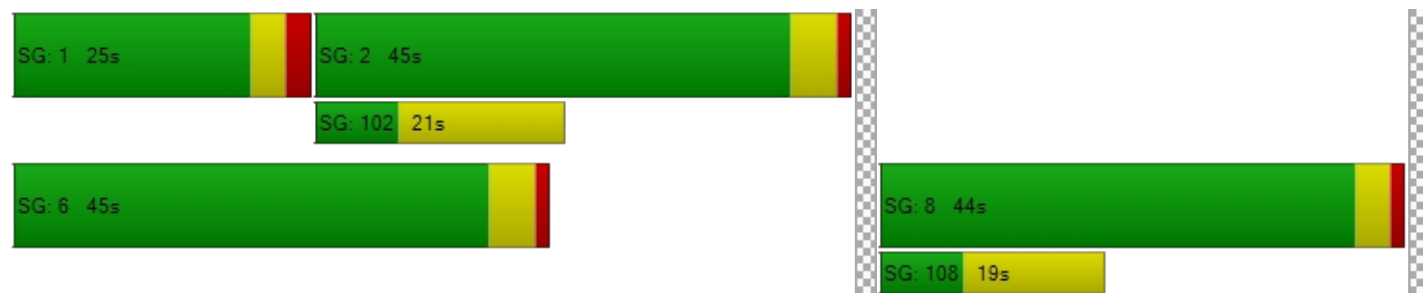
Vehicle Miles Traveled [mph]	256.90	0.00	8.18	44.45	9.83	2.22
Stops [stops/h]	296.08	0.00	31.88	248.79	278.83	47.33
Fuel consumption [US gal/h]	13.57	0.00	0.72	4.74	2.90	0.50
CO [g/h]	948.28	0.00	50.50	331.07	202.97	34.71
NOx [g/h]	184.50	0.00	9.82	64.41	39.49	6.75
VOC [g/h]	219.77	0.00	11.70	76.73	47.04	8.04

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	12.81	12.81
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.384	2.120
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1781	1781	1781
d_b, Bicycle Delay [s]	0.27	0.27	0.27
I_b,int, Bicycle LOS Score for Intersection	2.282	2.802	1.560
Bicycle LOS	B	C	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



MOVEMENT SUMMARY

 Site: 7 [NE Everett St & NW Lake Rd_TotalAM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: NE Everett Street															
3	L2	All MCs	238	12.0	238	12.0	0.384	14.6	LOS B	2.5	67.5	0.79	0.76	0.80	30.7
8	T1	All MCs	401	8.0	401	8.0	0.482	7.7	LOS A	3.9	104.0	0.84	0.71	0.89	34.2
Approach			639	9.5	639	9.5	0.482	10.2	LOS B	3.9	104.0	0.82	0.73	0.86	32.8
North: NE Everett Street															
4	T1	All MCs	540	9.0	540	9.0	0.484	5.5	LOS A	3.7	100.1	0.62	0.53	0.62	34.6
14	R2	All MCs	417	4.0	417	4.0	0.350	5.2	LOS A	2.4	62.9	0.54	0.54	0.54	35.0
Approach			957	6.8	957	6.8	0.484	5.3	LOS A	3.7	100.1	0.59	0.53	0.59	34.8
West: NW Lake Road															
5	L2	All MCs	565	3.0	565	3.0	0.598	15.2	LOS B	5.9	152.1	0.87	0.81	1.03	30.7
12	R2	All MCs	253	6.0	253	6.0	0.280	6.9	LOS A	1.9	48.5	0.72	0.65	0.72	34.6
Approach			818	3.9	818	3.9	0.598	12.7	LOS B	5.9	152.1	0.82	0.76	0.93	31.7
All Vehicles			2414	6.5	2414	6.5	0.598	9.1	LOS A	5.9	152.1	0.73	0.66	0.78	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report
Intersection 8: NE Everett Street & NE 17th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	31.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 17th Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 17th Avenue	
Base Volume Input [veh/h]	36	329	483	88	83	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	5.00	3.00	0.00	4.00	6.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	329	483	88	83	34
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	93	137	25	24	10
Total Analysis Volume [veh/h]	41	374	549	100	94	39
Pedestrian Volume [ped/h]	0		2		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.01	0.00	0.40	0.08
d_M, Delay for Movement [s/veh]	9.10	0.00	0.00	0.00	31.59	23.59
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.14	0.00	0.00	0.00	2.42	2.42
95th-Percentile Queue Length [ft/ln]	3.50	0.00	0.00	0.00	60.59	60.59
d_A, Approach Delay [s/veh]	0.90		0.00		29.24	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	3.56					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: NE Everett Street & NE 15th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	50.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	NE Everett Street (SR 500)			NE Everett Street (SR 500)			NE 15th Avenue			NE 15th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Everett Street (SR 500)			NE Everett Street (SR 500)			NE 15th Avenue			NE 15th Avenue		
Base Volume Input [veh/h]	15	229	4	80	296	139	45	25	25	2	25	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	7.00	7.00	0.00	0.00	2.00	2.00	3.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	229	4	80	296	139	45	25	25	2	25	84
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	69	1	24	89	42	14	8	8	1	8	25
Total Analysis Volume [veh/h]	18	276	5	96	357	167	54	30	30	2	30	101
Pedestrian Volume [ped/h]	5			16			0			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.07	0.00	0.00	0.38	0.13	0.05	0.01	0.14	0.14
d_M, Delay for Movement [s/veh]	8.60	0.00	0.00	8.04	0.00	0.00	50.57	40.42	31.01	29.08	25.27	13.16
Movement LOS	A	A	A	A	A	A	F	E	D	D	D	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.24	0.00	0.00	2.99	2.99	2.99	1.20	1.20	1.20
95th-Percentile Queue Length [ft/ln]	1.35	0.00	0.00	6.06	0.00	0.00	74.75	74.75	74.75	30.03	30.03	30.03
d_A, Approach Delay [s/veh]	0.52			1.24			42.75			16.13		
Approach LOS	A			A			E			C		
d_I, Intersection Delay [s/veh]	6.81											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 12: Division Street & NE 6th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	17.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name	Division Street		NW 6th Avenue		NE 6th Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	40.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	-0.12		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Division Street		NW 6th Avenue		NE 6th Avenue	
Base Volume Input [veh/h]	35	193	135	410	535	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	4.00	5.00	4.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	193	135	410	535	28
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	55	38	116	152	8
Total Analysis Volume [veh/h]	40	219	153	466	608	32
Pedestrian Volume [ped/h]	2		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.29	0.17	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	17.22	11.74	9.08	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.40	1.21	0.28	0.14	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.08	30.27	6.96	3.48	0.00	0.00
d_A, Approach Delay [s/veh]	12.59		2.25		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.06					
Intersection LOS	C					

MOVEMENT SUMMARY

 Site: 13 [NW Norwood St & NW 6th Ave_TotalAM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Que	Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: NW 6th Avenue															
3	L2	All MCs	106	1.0	106	1.0	0.214	12.6	LOS B	1.2	30.1	0.62	0.69	0.62	32.6
8	T1	All MCs	2	0.0	2	0.0	0.214	6.3	LOS A	1.2	30.1	0.62	0.69	0.62	33.3
18	R2	All MCs	68	13.0	68	13.0	0.214	7.4	LOS A	1.2	30.1	0.62	0.69	0.62	32.7
Approach			176	5.6	176	5.6	0.214	10.5	LOS B	1.2	30.1	0.62	0.69	0.62	32.7
East: NW 6th Avenue															
1	L2	All MCs	78	3.0	78	3.0	0.761	11.4	LOS B	9.1	234.5	0.68	0.50	0.68	33.7
6	T1	All MCs	816	3.0	816	3.0	0.761	5.1	LOS A	9.1	234.5	0.68	0.50	0.68	34.4
16	R2	All MCs	6	50.0	6	50.0	0.761	7.2	LOS A	9.1	234.5	0.68	0.50	0.68	33.1
Approach			901	3.3	901	3.3	0.761	5.7	LOS A	9.1	234.5	0.68	0.50	0.68	34.4
North: NW Norwood Street															
7	L2	All MCs	29	4.0	29	4.0	0.172	17.8	LOS B	1.1	28.7	0.88	0.80	0.88	31.0
4	T1	All MCs	6	0.0	6	0.0	0.172	11.0	LOS B	1.1	28.7	0.88	0.80	0.88	31.7
14	R2	All MCs	44	5.0	44	5.0	0.172	11.8	LOS B	1.1	28.7	0.88	0.80	0.88	31.4
Approach			80	4.2	80	4.2	0.172	13.9	LOS B	1.1	28.7	0.88	0.80	0.88	31.3
West: NW 6th Avenue															
5	L2	All MCs	12	27.0	12	27.0	0.484	11.4	LOS B	3.5	92.5	0.41	0.43	0.41	33.9
2	T1	All MCs	467	7.0	467	7.0	0.484	4.5	LOS A	3.5	92.5	0.41	0.43	0.41	35.4
12	R2	All MCs	80	3.0	80	3.0	0.484	4.6	LOS A	3.5	92.5	0.41	0.43	0.41	35.1
Approach			558	6.9	558	6.9	0.484	4.7	LOS A	3.5	92.5	0.41	0.43	0.41	35.4
All Vehicles			1715	4.8	1715	4.8	0.761	6.2	LOS A	9.1	234.5	0.59	0.51	0.59	34.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Intersection Level Of Service Report
Intersection 14: NW Lacamas Lane & NW Lake Road

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	NW Lacamas Lane		NW Lake Road		NW Lake Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	85.00	100.00	100.00	110.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	-0.11		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	NW Lacamas Lane		NW Lake Road		NW Lake Road	
Base Volume Input [veh/h]	2	191	590	2	64	543
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	4.00	0.00	10.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	191	590	2	64	543
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	51	159	1	17	146
Total Analysis Volume [veh/h]	2	205	634	2	69	584
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.35	0.01	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	15.30	14.48	0.00	0.00	9.28	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	1.57	0.00	0.00	0.25	0.00
95th-Percentile Queue Length [ft/ln]	0.43	39.35	0.00	0.00	6.14	0.00
d_A, Approach Delay [s/veh]	14.49		0.00		0.98	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.43					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 15: NW Sierra Street & NW Lake Road

Control Type:	Two-way stop	Delay (sec / veh):	34.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Base Volume Input [veh/h]	75	206	364	85	122	409
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	4.00	7.00	2.00	8.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	206	364	85	122	409
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	55	97	23	32	109
Total Analysis Volume [veh/h]	80	219	387	90	130	435
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.40	0.35	0.00	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	34.69	13.96	0.00	0.00	8.89	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.80	1.59	0.00	0.00	0.42	0.00
95th-Percentile Queue Length [ft/ln]	44.90	39.77	0.00	0.00	10.51	0.00
d_A, Approach Delay [s/veh]	19.50		0.00		2.05	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	5.21					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 16: NW Lake Road & NW Leadbetter Drive

Control Type:	Two-way stop	Delay (sec / veh):	33.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.080

Intersection Setup

Name	NW Leadbetter Drive			NW Leadbetter Drive			NW Lake Road			NW Lake Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	NW Leadbetter Drive			NW Leadbetter Drive			NW Lake Road			NW Lake Road		
Base Volume Input [veh/h]	4	5	102	10	7	6	10	358	12	93	385	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	20.00	16.00	0.00	0.00	17.00	0.00	4.00	0.00	5.00	2.00	33.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	5	102	10	7	6	10	358	12	93	385	6
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	28	3	2	2	3	97	3	25	105	2
Total Analysis Volume [veh/h]	4	5	111	11	8	7	11	389	13	101	418	7
Pedestrian Volume [ped/h]	2			2			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.03	0.18	0.08	0.04	0.01	0.01	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	27.32	25.92	12.79	33.78	25.21	13.72	8.19	0.00	0.00	8.48	0.00	0.00
Movement LOS	D	D	B	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.87	0.87	0.87	0.44	0.44	0.44	0.03	0.00	0.00	0.29	0.00	0.00
95th-Percentile Queue Length [ft/ln]	21.72	21.72	21.72	11.02	11.02	11.02	0.73	0.00	0.00	7.30	0.00	0.00
d_A, Approach Delay [s/veh]	13.82			25.74			0.22			1.63		
Approach LOS	B			D			A			A		
d_I, Intersection Delay [s/veh]	3.02											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 21: N Shore Boulevard and NE 232nd Avenue

Control Type:	Two-way stop	Delay (sec / veh):	35.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		-0.02		0.02	
Crosswalk	No		No		No	

Volumes

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Base Volume Input [veh/h]	65	66	103	149	79	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	13.00	3.00	7.00	6.00	7.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	66	103	149	79	47
Peak Hour Factor	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	33	52	75	40	24
Total Analysis Volume [veh/h]	130	132	206	298	158	94
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.00	0.00	0.00	0.53	0.14
d_M, Delay for Movement [s/veh]	8.73	0.00	0.00	0.00	35.13	28.39
Movement LOS	A	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.23	0.23	0.00	0.00	4.76	4.76
95th-Percentile Queue Length [ft/ln]	5.83	5.83	0.00	0.00	119.04	119.04
d_A, Approach Delay [s/veh]	4.33		0.00		32.62	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.19					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 22: SE 283rd Avenue & SE Nourse Road

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.02	
Crosswalk	No		No		No	

Volumes

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Base Volume Input [veh/h]	247	55	98	28	14	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	2.00	10.00	18.00	0.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	247	55	98	28	14	102
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	15	27	8	4	28
Total Analysis Volume [veh/h]	268	60	107	30	15	111
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.00	0.00	0.05	0.12
d_M, Delay for Movement [s/veh]	7.91	0.00	0.00	0.00	18.15	9.98
Movement LOS	A	A	A	A	C	A
95th-Percentile Queue Length [veh/ln]	0.56	0.56	0.00	0.00	0.62	0.62
95th-Percentile Queue Length [ft/ln]	14.02	14.02	0.00	0.00	15.51	15.51
d_A, Approach Delay [s/veh]	6.46		0.00		10.95	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.92					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 101: NE Everett Drive and Site Access

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	NE Everett Drive		NE Everett Drive		Site Access	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Drive		NE Everett Drive		Site Access	
Base Volume Input [veh/h]	94	3	40	251	4	89
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	1.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	3	40	251	4	89
Peak Hour Factor	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	1	14	90	1	32
Total Analysis Volume [veh/h]	134	4	57	359	6	127
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.04	0.00	0.01	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	7.53	0.00	13.95	9.72
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.10	0.54	0.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.45	2.45	13.53	13.53
d_A, Approach Delay [s/veh]	0.00		1.03		9.91	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: NE Everett Street & SE 8th Street

Control Type:	Two-way stop	Delay (sec / veh):	35.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.468

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	85.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Base Volume Input [veh/h]	302	116	33	269	73	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	0.00	2.00	5.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	302	116	33	269	73	57
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	120	46	13	107	29	23
Total Analysis Volume [veh/h]	479	184	52	427	116	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.06	0.00	0.47	0.15
d_M, Delay for Movement [s/veh]	0.00	0.00	9.08	0.00	35.71	27.28
Movement LOS	A	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.18	0.00	3.93	3.93
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.41	0.00	98.13	98.13
d_A, Approach Delay [s/veh]	0.00		0.99		32.03	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	5.24					
Intersection LOS	E					

MOVEMENT SUMMARY

 Site: 4 [NE Everett St & NE Everett Dr_TotalSchoolPM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

SR500/NE Everett Drive

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of [Veh.	Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: SR500															
8	T1	All MCs	563	3.0	563	3.0	0.573	4.9	LOS A	4.9	125.3	0.32	0.43	0.32	35.2
18	R2	All MCs	113	0.0	113	0.0	0.573	4.8	LOS A	4.9	125.3	0.32	0.43	0.32	34.9
Approach			676	2.5	676	2.5	0.573	4.9	LOS A	4.9	125.3	0.32	0.43	0.32	35.1
East: NE Everett Drive															
1	L2	All MCs	86	0.0	86	0.0	0.151	12.4	LOS B	0.8	19.7	0.61	0.72	0.61	32.2
16	R2	All MCs	34	0.0	34	0.0	0.151	7.4	LOS A	0.8	19.7	0.61	0.72	0.61	32.5
Approach			120	0.0	120	0.0	0.151	11.0	LOS B	0.8	19.7	0.61	0.72	0.61	32.3
North: SR500															
7	L2	All MCs	54	0.0	54	0.0	0.428	9.8	LOS A	3.0	77.0	0.34	0.46	0.34	34.2
4	T1	All MCs	436	2.0	436	2.0	0.428	5.0	LOS A	3.0	77.0	0.34	0.46	0.34	34.9
Approach			490	1.8	490	1.8	0.428	5.5	LOS A	3.0	77.0	0.34	0.46	0.34	34.8
All Vehicles			1286	2.0	1286	2.0	0.573	5.7	LOS A	4.9	125.3	0.36	0.47	0.36	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report
Intersection 5: NE Everett Street & SE Leadbetter Road

Control Type:	Two-way stop	Delay (sec / veh):	40.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.178

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.04		-0.02		0.03	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Base Volume Input [veh/h]	131	409	340	20	17	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	4.00	2.00	1.00	1.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	409	340	20	17	120
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	129	108	6	5	38
Total Analysis Volume [veh/h]	166	518	430	25	22	152
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.01	0.00	0.00	0.18	0.26
d_M, Delay for Movement [s/veh]	8.81	0.00	0.00	0.00	40.73	17.72
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.52	0.00	0.00	0.00	2.13	2.13
95th-Percentile Queue Length [ft/ln]	13.12	0.00	0.00	0.00	53.31	53.31
d_A, Approach Delay [s/veh]	2.14		0.00		20.63	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.85					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 6: NE Everett Street & NE 43rd Avenue

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	300.00	120.00	100.00	100.00	80.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.03		-0.04		-0.04	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Base Volume Input [veh/h]	462	136	67	399	161	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	1.00	4.00	2.00	1.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	462	0	67	399	161	69
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	0	20	120	48	21
Total Analysis Volume [veh/h]	557	0	81	481	194	83
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	20	40	40	0
Amber [s]	4.0	0.0	3.0	4.0	3.0	0.0
All red [s]	1.0	0.0	2.0	1.0	1.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	3.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	9	14	9	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	4	5	4	0
Vehicle Extension [s]	5.0	0.0	3.0	3.5	3.0	0.0
Minimum Recall	Yes		No	Yes	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	40	40	40	40	40	40
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	24	24	6	6
g / C, Green / Cycle	0.43	0.43	0.61	0.61	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.32	0.00	0.08	0.26	0.11	0.05
s, saturation flow rate [veh/h]	1737	1502	1040	1869	1795	1589
c, Capacity [veh/h]	740	640	679	1144	292	259
d1, Uniform Delay [s]	9.67	0.00	4.75	4.05	15.68	14.76
k, delay calibration	0.23	0.23	0.11	0.13	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.31	0.00	0.08	0.30	2.59	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.00	0.12	0.42	0.66	0.32
d, Delay for Lane Group [s/veh]	12.98	0.00	4.83	4.35	18.27	15.47
Lane Group LOS	B	A	A	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.33	0.00	0.12	0.86	1.65	0.63
50th-Percentile Queue Length [ft/ln]	83.32	0.00	2.88	21.50	41.13	15.72
95th-Percentile Queue Length [veh/ln]	6.00	0.00	0.21	1.55	2.96	1.13
95th-Percentile Queue Length [ft/ln]	149.97	0.00	5.18	38.70	74.03	28.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.98	0.00	4.83	4.35	18.27	15.47
Movement LOS	B	A	A	A	B	B
d_A, Approach Delay [s/veh]	12.98		4.42		17.43	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	10.42					
Intersection LOS	B					
Intersection V/C	0.649					

Emissions

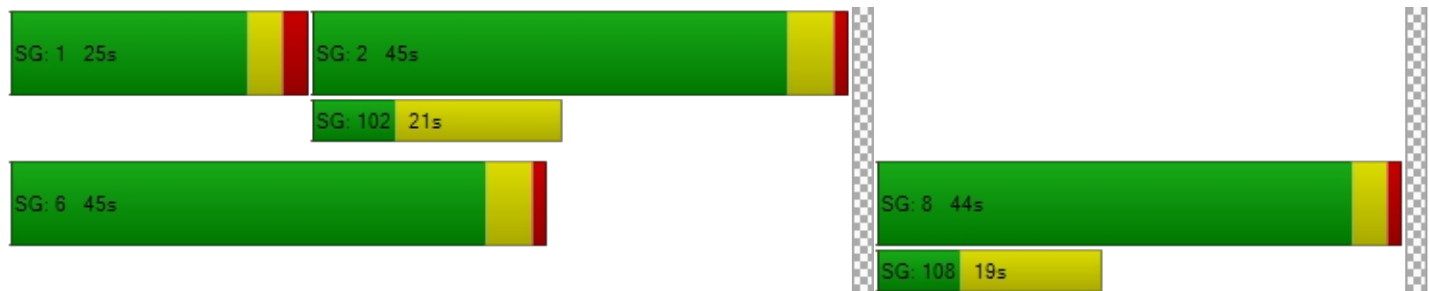
Vehicle Miles Traveled [mph]	326.70	0.00	5.66	33.62	5.07	2.17
Stops [stops/h]	301.66	0.00	10.41	77.84	148.91	56.91
Fuel consumption [US gal/h]	16.19	0.00	0.37	2.29	1.52	0.58
CO [g/h]	1131.89	0.00	26.12	160.25	106.30	40.34
NOx [g/h]	220.22	0.00	5.08	31.18	20.68	7.85
VOC [g/h]	262.33	0.00	6.05	37.14	24.64	9.35

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	10.41	10.41
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.347	2.043
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2011	2011	2011
d_b, Bicycle Delay [s]	0.00	0.00	0.00
I_b,int, Bicycle LOS Score for Intersection	2.479	2.487	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



MOVEMENT SUMMARY

 Site: 7 [NE Everett St & NW Lake Rd_TotalSchoolIPM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: NE Everett Street															
3	L2	All MCs	277	1.0	277	1.0	0.271	11.5	LOS B	1.6	41.4	0.54	0.66	0.54	31.9
8	T1	All MCs	434	3.0	434	3.0	0.365	5.0	LOS A	2.5	63.5	0.56	0.51	0.56	35.2
Approach			711	2.2	711	2.2	0.365	7.5	LOS A	2.5	63.5	0.55	0.57	0.55	33.8
North: NE Everett Street															
4	T1	All MCs	402	3.0	402	3.0	0.330	5.0	LOS A	2.1	55.0	0.51	0.49	0.51	35.1
14	R2	All MCs	305	1.0	305	1.0	0.243	5.0	LOS A	1.5	37.5	0.48	0.53	0.48	35.2
Approach			707	2.1	707	2.1	0.330	5.0	LOS A	2.1	55.0	0.50	0.51	0.50	35.2
West: NW Lake Road															
5	L2	All MCs	304	2.0	304	2.0	0.269	11.7	LOS B	1.7	43.3	0.58	0.67	0.58	31.8
12	R2	All MCs	395	2.0	395	2.0	0.348	5.8	LOS A	2.3	59.5	0.62	0.59	0.62	34.9
Approach			699	2.0	699	2.0	0.348	8.4	LOS A	2.3	59.5	0.60	0.62	0.60	33.4
All Vehicles			2117	2.1	2117	2.1	0.365	7.0	LOS A	2.5	63.5	0.55	0.57	0.55	34.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report**Intersection 15: NW Sierra Street & NW Lake Road**

Control Type:	Two-way stop	Delay (sec / veh):	41.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.455

Intersection Setup

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Base Volume Input [veh/h]	74	113	472	108	105	378
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	2.00	2.00	1.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	113	472	108	105	378
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	31	128	29	29	103
Total Analysis Volume [veh/h]	80	123	513	117	114	411
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.45	0.24	0.01	0.00	0.12	0.00
d_M, Delay for Movement [s/veh]	41.51	14.10	0.00	0.00	9.27	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.13	0.92	0.00	0.00	0.40	0.00
95th-Percentile Queue Length [ft/ln]	53.16	22.93	0.00	0.00	10.10	0.00
d_A, Approach Delay [s/veh]	24.90		0.00		2.01	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	4.50					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 21: N Shore Boulevard and NE 232nd Avenue

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		-0.02		0.02	
Crosswalk	No		No		No	

Volumes

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Base Volume Input [veh/h]	20	19	14	111	107	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	4.00	6.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	19	14	111	107	13
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	5	4	32	31	4
Total Analysis Volume [veh/h]	23	22	16	128	123	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.15	0.02
d_M, Delay for Movement [s/veh]	7.51	0.00	0.00	0.00	10.33	9.55
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.60	0.60
95th-Percentile Queue Length [ft/ln]	0.97	0.97	0.00	0.00	14.99	14.99
d_A, Approach Delay [s/veh]	3.84		0.00		10.25	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.85					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 22: SE 283rd Avenue & SE Nourse Road

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.02	
Crosswalk	No		No		No	

Volumes

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Base Volume Input [veh/h]	71	99	67	11	11	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	6.00	4.00	0.00	9.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	99	67	11	11	95
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	29	20	3	3	28
Total Analysis Volume [veh/h]	84	116	79	13	13	112
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.02	0.12
d_M, Delay for Movement [s/veh]	7.53	0.00	0.00	0.00	12.12	9.39
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.48	0.48
95th-Percentile Queue Length [ft/ln]	3.67	3.67	0.00	0.00	12.11	12.11
d_A, Approach Delay [s/veh]	3.16		0.00		9.67	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 101: NE Everett Drive and Site Access

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	NE Everett Drive		NE Everett Drive		Site Access	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Drive		NE Everett Drive		Site Access	
Base Volume Input [veh/h]	23	5	70	48	4	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	5	70	48	4	61
Peak Hour Factor	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	2	25	17	1	22
Total Analysis Volume [veh/h]	33	7	100	69	6	87
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.06	0.00	0.01	0.08
d_M, Delay for Movement [s/veh]	0.00	0.00	7.39	0.00	10.95	8.82
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.18	0.18	0.31	0.31
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.41	4.41	7.65	7.65
d_A, Approach Delay [s/veh]	0.00		4.37		8.96	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.21					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 1: NE 232nd Avenue & NE 28th Street**

Control Type:	Two-way stop	Delay (sec / veh):	43.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name	NE 232nd Avenue			NE 232nd Avenue			NE 28th Street			NE 28th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	10.00	10.00	10.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			25.00			40.00			40.00		
Grade [%]	0.02			0.00			0.02			-0.02		
Crosswalk	No			No			No			No		

Volumes

Name	NE 232nd Avenue			NE 232nd Avenue			NE 28th Street			NE 28th Street		
Base Volume Input [veh/h]	115	4	18	1	2	1	9	419	152	20	229	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	100.00	0.00	1.00	0.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	4	18	1	2	1	9	419	152	20	229	1
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	1	5	0	1	0	3	119	43	6	65	0
Total Analysis Volume [veh/h]	131	5	20	1	2	1	10	476	173	23	260	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.58	0.02	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	43.57	42.25	34.75	20.44	19.99	11.28	7.75	0.00	0.00	8.83	0.00	0.00
Movement LOS	E	E	D	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	3.90	3.90	3.90	0.04	0.04	0.04	0.02	0.02	0.02	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	97.52	97.52	97.52	1.08	1.08	1.08	0.44	0.44	0.44	0.97	0.97	0.97
d_A, Approach Delay [s/veh]	42.40			17.93			0.12			0.72		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	6.32											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 2: SR 500 & NE 28th Street

Control Type:	Two-way stop	Delay (sec / veh):	188.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.164

Intersection Setup

Name	Private Driveway			SR 500			NE 28th Street			SR 500		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	20.00			45.00			40.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Private Driveway			SR 500			NE 28th Street			SR 500		
Base Volume Input [veh/h]	0	0	0	213	0	58	71	360	0	0	194	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	6.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	213	0	58	71	360	0	0	194	205
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	63	0	17	21	106	0	0	57	60
Total Analysis Volume [veh/h]	0	0	0	251	0	68	84	424	0	0	228	241
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.16	0.00	0.10	0.08	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	24.05	22.72	10.68	188.46	186.82	177.00	8.36	0.00	0.00	8.14	0.00	0.00
Movement LOS	C	C	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	15.85	15.85	15.85	0.15	0.15	0.15	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	396.13	396.13	396.13	3.67	3.67	3.67	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.15			186.01			1.38			0.00		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	46.33											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: NE Everett Street & SE 8th Street

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.190

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	85.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE 8th Street	
Base Volume Input [veh/h]	324	81	14	215	66	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	324	81	14	215	66	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	96	24	4	64	20	4
Total Analysis Volume [veh/h]	386	96	17	256	79	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.19	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.35	0.00	15.84	12.58
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.00	0.79	0.79
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.19	0.00	19.72	19.72
d_A, Approach Delay [s/veh]	0.00		0.52		15.35	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.85					
Intersection LOS	C					

MOVEMENT SUMMARY

 Site: 4 [NE Everett St & NE Everett Dr_TotalPM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

SR500/NE Everett Drive

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of [Veh.	Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: SR500															
8	T1	All MCs	455	0.0	455	0.0	0.483	4.7	LOS A	3.5	88.4	0.25	0.43	0.25	35.5
18	R2	All MCs	130	1.0	130	1.0	0.483	4.6	LOS A	3.5	88.4	0.25	0.43	0.25	35.1
Approach			585	0.2	585	0.2	0.483	4.7	LOS A	3.5	88.4	0.25	0.43	0.25	35.4
East: NE Everett Drive															
1	L2	All MCs	99	0.0	99	0.0	0.142	11.6	LOS B	0.7	17.5	0.53	0.69	0.53	32.5
16	R2	All MCs	27	0.0	27	0.0	0.142	6.6	LOS A	0.7	17.5	0.53	0.69	0.53	32.8
Approach			126	0.0	126	0.0	0.142	10.5	LOS B	0.7	17.5	0.53	0.69	0.53	32.5
North: SR500															
7	L2	All MCs	46	0.0	46	0.0	0.295	9.8	LOS A	1.7	44.3	0.31	0.48	0.31	34.3
4	T1	All MCs	286	3.0	286	3.0	0.295	5.0	LOS A	1.7	44.3	0.31	0.48	0.31	34.9
Approach			332	2.6	332	2.6	0.295	5.7	LOS A	1.7	44.3	0.31	0.48	0.31	34.8
All Vehicles			1043	0.9	1043	0.9	0.483	5.7	LOS A	3.5	88.4	0.30	0.48	0.30	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report
Intersection 5: NE Everett Street & SE Leadbetter Road

Control Type:	Two-way stop	Delay (sec / veh):	32.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.172

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.04		-0.02		0.03	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		SE Leadbetter Road	
Base Volume Input [veh/h]	142	427	288	20	25	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	4.00	5.00	5.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	427	288	20	25	138
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	120	81	6	7	39
Total Analysis Volume [veh/h]	160	480	324	22	28	155
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.00	0.00	0.00	0.17	0.22
d_M, Delay for Movement [s/veh]	8.40	0.00	0.00	0.00	32.23	15.27
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.45	0.00	0.00	0.00	1.88	1.88
95th-Percentile Queue Length [ft/ln]	11.30	0.00	0.00	0.00	46.89	46.89
d_A, Approach Delay [s/veh]	2.10		0.00		17.87	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.95					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 6: NE Everett Street & NE 43rd Avenue

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	300.00	120.00	100.00	100.00	80.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.03		-0.04		-0.04	
Curb Present	No		No		No	
Crosswalk	No		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 43rd Avenue	
Base Volume Input [veh/h]	510	316	70	334	138	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	0.00	4.00	0.00	0.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	510	0	70	334	138	63
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	0	19	91	38	17
Total Analysis Volume [veh/h]	554	0	76	363	150	68
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	20	40	40	0
Amber [s]	4.0	0.0	3.0	4.0	3.0	0.0
All red [s]	1.0	0.0	2.0	1.0	1.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	3.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	9	14	9	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	4	5	4	0
Vehicle Extension [s]	5.0	0.0	3.0	3.5	3.0	0.0
Minimum Recall	Yes		No	Yes	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	0.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	23	23	5	5
g / C, Green / Cycle	0.43	0.43	0.62	0.62	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.31	0.00	0.07	0.20	0.08	0.04
s, saturation flow rate [veh/h]	1767	1502	1080	1840	1809	1614
c, Capacity [veh/h]	757	643	741	1147	240	215
d1, Uniform Delay [s]	8.79	0.00	4.09	3.26	15.13	14.48
k, delay calibration	0.23	0.23	0.11	0.13	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.93	0.00	0.06	0.19	2.64	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.00	0.10	0.32	0.62	0.32
d, Delay for Lane Group [s/veh]	11.72	0.00	4.15	3.45	17.77	15.32
Lane Group LOS	B	A	A	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.82	0.00	0.07	0.40	1.19	0.49
50th-Percentile Queue Length [ft/ln]	70.62	0.00	1.78	9.90	29.79	12.26
95th-Percentile Queue Length [veh/ln]	5.08	0.00	0.13	0.71	2.15	0.88
95th-Percentile Queue Length [ft/ln]	127.12	0.00	3.20	17.81	53.63	22.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.72	0.00	4.15	3.45	17.77	15.32
Movement LOS	B	A	A	A	B	B
d_A, Approach Delay [s/veh]	11.72		3.57		17.01	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	9.72					
Intersection LOS	A					
Intersection V/C	0.621					

Emissions

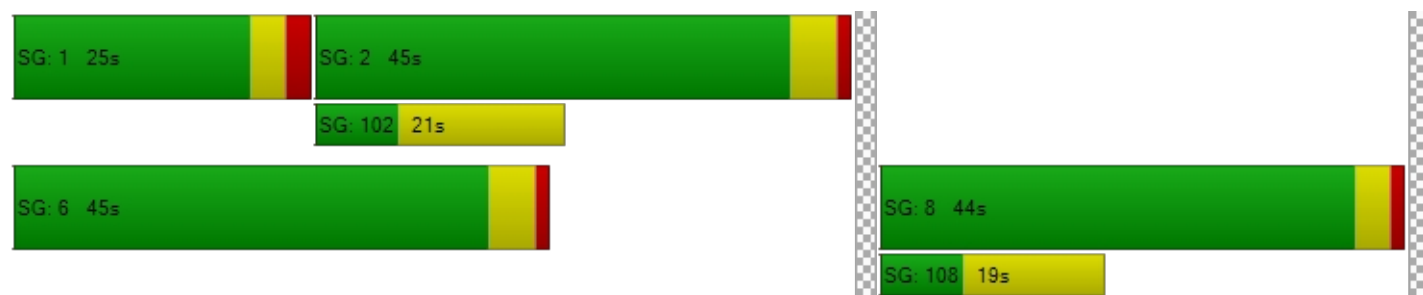
Vehicle Miles Traveled [mph]	324.94	0.00	5.31	25.37	3.92	1.78
Stops [stops/h]	276.48	0.00	6.97	38.75	116.64	48.02
Fuel consumption [US gal/h]	15.79	0.00	0.32	1.51	1.17	0.48
CO [g/h]	1103.47	0.00	22.31	105.80	81.53	33.29
NOx [g/h]	214.69	0.00	4.34	20.58	15.86	6.48
VOC [g/h]	255.74	0.00	5.17	24.52	18.90	7.71

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	9.04	9.04
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.288	2.018
Crosswalk LOS	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2175	2175	2175
d_b, Bicycle Delay [s]	0.14	0.14	0.14
I_b,int, Bicycle LOS Score for Intersection	2.474	2.284	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



MOVEMENT SUMMARY

 Site: 7 [NE Everett St & NW Lake Rd_TotalIPM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of [Veh.	Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: NE Everett Street															
3	L2	All MCs	433	1.0	433	1.0	0.478	13.3	LOS B	3.6	90.3	0.75	0.73	0.78	31.5
8	T1	All MCs	498	2.0	498	2.0	0.476	6.2	LOS A	3.6	91.9	0.74	0.62	0.74	34.6
Approach			931	1.5	931	1.5	0.478	9.5	LOS A	3.6	91.9	0.75	0.68	0.76	33.0
North: NE Everett Street															
4	T1	All MCs	317	4.0	317	4.0	0.305	5.8	LOS A	2.1	53.0	0.65	0.57	0.65	34.6
14	R2	All MCs	295	1.0	295	1.0	0.271	5.7	LOS A	1.8	46.0	0.63	0.60	0.63	34.9
Approach			612	2.6	612	2.6	0.305	5.8	LOS A	2.1	53.0	0.64	0.58	0.64	34.7
West: NW Lake Road															
5	L2	All MCs	485	1.0	485	1.0	0.403	11.4	LOS B	2.9	73.1	0.60	0.65	0.60	31.8
12	R2	All MCs	697	2.0	697	2.0	0.587	6.1	LOS A	5.2	132.7	0.71	0.62	0.73	34.7
Approach			1182	1.6	1182	1.6	0.587	8.3	LOS A	5.2	132.7	0.66	0.63	0.68	33.4
All Vehicles			2724	1.8	2724	1.8	0.587	8.1	LOS A	5.2	132.7	0.69	0.64	0.70	33.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report
Intersection 8: NE Everett Street & NE 17th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	45.2
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 17th Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	NE Everett Street (SR 500)		NE Everett Street (SR 500)		NE 17th Avenue	
Base Volume Input [veh/h]	82	553	711	80	130	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	2.00	3.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	553	711	80	130	50
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	147	189	21	35	13
Total Analysis Volume [veh/h]	87	588	756	85	138	53
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.01	0.00	0.56	0.14
d_M, Delay for Movement [s/veh]	10.03	0.00	0.00	0.00	45.23	39.84
Movement LOS	B	A	A	A	E	E
95th-Percentile Queue Length [veh/ln]	0.36	0.00	0.00	0.00	4.75	4.75
95th-Percentile Queue Length [ft/ln]	9.08	0.00	0.00	0.00	118.73	118.73
d_A, Approach Delay [s/veh]	1.29		0.00		43.74	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	5.40					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 9: NE Everett Street & NE 15th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	94.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name	NE Everett Street (SR 500)			NE Everett Street (SR 500)			NE 15th Avenue			NE 15th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Everett Street (SR 500)			NE Everett Street (SR 500)			NE 15th Avenue			NE 15th Avenue		
Base Volume Input [veh/h]	32	541	11	28	583	145	70	18	63	1	10	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	0.00	0.00	2.00	1.00	0.00	0.00	3.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	541	11	28	583	145	70	18	63	1	10	24
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	150	3	8	162	40	19	5	18	0	3	7
Total Analysis Volume [veh/h]	36	601	12	31	648	161	78	20	70	1	11	27
Pedestrian Volume [ped/h]	8			2			0			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	No
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.03	0.01	0.00	0.75	0.09	0.13	0.01	0.10	0.05
d_M, Delay for Movement [s/veh]	9.56	0.00	0.00	8.84	0.00	0.00	94.31	76.36	66.47	59.45	42.58	15.65
Movement LOS	A	A	A	A	A	A	F	F	F	F	E	C
95th-Percentile Queue Length [veh/ln]	0.14	0.00	0.00	0.10	0.00	0.00	6.22	6.22	6.22	0.61	0.61	0.61
95th-Percentile Queue Length [ft/ln]	3.42	0.00	0.00	2.48	0.00	0.00	155.52	155.52	155.52	15.36	15.36	15.36
d_A, Approach Delay [s/veh]	0.53			0.33			80.57			24.37		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	8.91											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 10: NE Everett Street & NE 14th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	64.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.515

Intersection Setup

Name				NE Everett Street (SR 500)			NE 14th Avenue			SR 500		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			2.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				NE Everett Street (SR 500)			NE 14th Avenue			SR 500		
Base Volume Input [veh/h]	0	0	0	563	0	66	77	91	0	0	35	469
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	2.00	0.00	0.00	2.00	2.00	2.00	3.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	563	0	66	77	91	0	0	35	469
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	1.0000	0.8600	0.8600	0.8600	1.0000	1.0000	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	164	0	19	22	26	0	0	10	136
Total Analysis Volume [veh/h]	0	0	0	655	0	77	90	106	0	0	41	545
Pedestrian Volume [ped/h]	3			1			5			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.41	0.00	0.00	0.52	0.27	0.00	0.00	0.11	0.50
d_M, Delay for Movement [s/veh]	7.28	0.00	0.00	9.07	0.00	0.00	64.25	52.93	0.00	0.00	20.05	13.95
Movement LOS	A	A	A	A		A	F	F			C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	2.28	0.00	2.28	5.91	5.91	0.00	0.00	4.28	4.28
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	56.91	0.00	56.91	147.70	147.70	0.00	0.00	106.97	106.97
d_A, Approach Delay [s/veh]	2.43			8.12			58.13			14.38		
Approach LOS	A			A			F			B		
d_I, Intersection Delay [s/veh]	17.02											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 11: NE Dallas Street & NE 6th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	38.0
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.148

Intersection Setup

Name	NE Dallas Street			NE Dallas Street			NE 6th Avenue			NE 6th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Dallas Street			NE Dallas Street			NE 6th Avenue			NE 6th Avenue		
Base Volume Input [veh/h]	81	133	7	8	280	59	34	186	79	13	156	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	0.00	0.00	0.00	2.00	0.00	3.00	1.00	1.00	0.00	4.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	133	7	8	280	59	34	186	79	13	156	21
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	37	2	2	79	17	10	52	22	4	44	6
Total Analysis Volume [veh/h]	91	149	8	9	315	66	38	209	89	15	175	24
Pedestrian Volume [ped/h]	0			9			1			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.01	0.00	0.00	0.15	0.48	0.11	0.07	0.41	0.03
d_M, Delay for Movement [s/veh]	8.20	0.00	0.00	7.52	0.00	0.00	37.98	32.18	28.60	31.17	22.00	17.45
Movement LOS	A	A	A	A	A	A	E	D	D	D	C	C
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.16	0.02	0.02	0.02	5.99	5.99	5.99	2.81	2.81	2.81
95th-Percentile Queue Length [ft/ln]	4.03	4.03	4.03	0.39	0.39	0.39	149.81	149.81	149.81	70.21	70.21	70.21
d_A, Approach Delay [s/veh]	3.01			0.17			31.89			22.13		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	13.69											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 12: Division Street & NE 6th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	34.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.241

Intersection Setup

Name	Division Street		NW 6th Avenue		NE 6th Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	40.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	-0.12		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Division Street		NW 6th Avenue		NE 6th Avenue	
Base Volume Input [veh/h]	37	145	126	958	1008	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	3.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	145	126	958	1008	53
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	38	33	252	265	14
Total Analysis Volume [veh/h]	39	153	133	1008	1061	56
Pedestrian Volume [ped/h]	2		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.27	0.21	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	34.25	13.68	10.87	0.00	0.00	0.00
Movement LOS	D	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.90	1.09	0.24	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.55	27.14	5.98	2.99	0.00	0.00
d_A, Approach Delay [s/veh]	17.86		1.27		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.99					
Intersection LOS	D					

MOVEMENT SUMMARY

 **Site: 13 [NW Norwood St & NW 6th Ave_TotalPM (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand [Total	Flows HV]	Arrival [Total	Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	ft				mph
South: NW 6th Avenue															
3	L2	All MCs	67	2.0	67	2.0	0.926	59.6	LOS E	14.1	358.5	1.00	1.40	2.15	19.8
8	T1	All MCs	5	0.0	5	0.0	0.926	53.0	LOS D	14.1	358.5	1.00	1.40	2.15	20.1
18	R2	All MCs	236	2.0	236	2.0	0.926	53.5	LOS D	14.1	358.5	1.00	1.40	2.15	20.0
Approach			308	2.0	308	2.0	0.926	54.8	LOS D	14.1	358.5	1.00	1.40	2.15	19.9
East: NW 6th Avenue															
1	L2	All MCs	115	3.0	115	3.0	0.957	14.4	LOS E	28.9	745.0	1.00	0.77	1.05	32.6
6	T1	All MCs	1021	4.0	1021	4.0	0.957	8.2	LOS E	28.9	745.0	1.00	0.77	1.05	33.3
16	R2	All MCs	11	0.0	11	0.0	0.957	8.1	LOS E	28.9	745.0	1.00	0.77	1.05	33.1
Approach			1147	3.9	1147	3.9	0.957	8.8	LOS A	28.9	745.0	1.00	0.77	1.05	33.2
North: NW Norwood Street															
7	L2	All MCs	7	0.0	7	0.0	0.204	23.4	LOS C	1.5	37.9	1.00	0.87	1.00	27.1
4	T1	All MCs	14	0.0	14	0.0	0.204	17.1	LOS B	1.5	37.9	1.00	0.87	1.00	27.6
14	R2	All MCs	31	7.0	31	7.0	0.204	28.2	LOS C	1.5	37.9	1.00	0.87	1.00	6.9
Approach			52	4.2	52	4.2	0.204	24.6	LOS C	1.5	37.9	1.00	0.87	1.00	9.9
West: NW 6th Avenue															
5	L2	All MCs	26	0.0	26	0.0	1.000	25.9	LOS E	42.5	1079.5	1.00	1.25	1.40	28.8
2	T1	All MCs	1057	2.0	1057	2.0	1.000	19.8	LOS E	42.5	1079.5	1.00	1.25	1.40	29.3
12	R2	All MCs	91	1.0	91	1.0	1.000	19.9	LOS E	42.5	1079.5	1.00	1.25	1.40	29.0
Approach			1174	1.9	1174	1.9	1.000	19.9	LOS B	42.5	1079.5	1.00	1.25	1.40	29.2
All Vehicles			2681	2.8	2681	2.8	1.000	19.3	LOS B	42.5	1079.5	1.00	1.05	1.33	28.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Intersection Level Of Service Report
Intersection 14: NW Lacamas Lane & NW Lake Road

Control Type:	Two-way stop	Delay (sec / veh):	23.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	NW Lacamas Lane		NW Lake Road		NW Lake Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	85.00	100.00	100.00	110.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	-0.11		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	NW Lacamas Lane		NW Lake Road		NW Lake Road	
Base Volume Input [veh/h]	6	66	1081	6	55	634
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	1.00	0.00	2.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	66	1081	6	55	634
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	18	294	2	15	172
Total Analysis Volume [veh/h]	7	72	1175	7	60	689
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.22	0.01	0.00	0.10	0.01
d_M, Delay for Movement [s/veh]	23.14	19.03	0.00	0.00	11.78	0.00
Movement LOS	C	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.11	0.82	0.00	0.00	0.34	0.00
95th-Percentile Queue Length [ft/ln]	2.63	20.56	0.00	0.00	8.43	0.00
d_A, Approach Delay [s/veh]	19.39		0.00		0.94	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.11					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 15: NW Sierra Street & NW Lake Road

Control Type:	Two-way stop	Delay (sec / veh):	221.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.008

Intersection Setup

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	NW Sierra Street		NW Lake Road		NW Lake Road	
Base Volume Input [veh/h]	60	231	850	133	126	535
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	1.00	2.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	231	850	133	126	535
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	63	231	36	34	145
Total Analysis Volume [veh/h]	65	251	924	145	137	582
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.01	0.84	0.01	0.00	0.21	0.01
d_M, Delay for Movement [s/veh]	221.76	57.37	0.00	0.00	11.88	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	4.97	7.15	0.00	0.00	0.78	0.00
95th-Percentile Queue Length [ft/ln]	124.23	178.77	0.00	0.00	19.43	0.00
d_A, Approach Delay [s/veh]	91.18		0.00		2.26	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	14.47					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 16: NW Lake Road & NW Leadbetter Drive

Control Type:	Two-way stop	Delay (sec / veh):	46.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name	NW Leadbetter Drive			NW Leadbetter Drive			NW Lake Road			NW Lake Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	NW Leadbetter Drive			NW Leadbetter Drive			NW Lake Road			NW Lake Road		
Base Volume Input [veh/h]	7	14	147	4	5	13	15	831	8	63	511	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	14.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	12.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	14	147	4	5	13	15	831	8	63	511	7
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	40	1	1	4	4	228	2	17	140	2
Total Analysis Volume [veh/h]	8	15	162	4	5	14	16	913	9	69	562	8
Pedestrian Volume [ped/h]	2			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.11	0.41	0.04	0.03	0.02	0.02	0.01	0.00	0.09	0.01	0.00
d_M, Delay for Movement [s/veh]	45.56	45.07	28.34	46.43	27.09	12.20	8.61	0.00	0.00	10.31	0.00	0.00
Movement LOS	E	E	D	E	D	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	3.40	3.40	3.40	0.31	0.31	0.31	0.05	0.00	0.00	0.30	0.00	0.00
95th-Percentile Queue Length [ft/ln]	85.09	85.09	85.09	7.77	7.77	7.77	1.20	0.00	0.00	7.61	0.00	0.00
d_A, Approach Delay [s/veh]	30.44			21.39			0.15			1.11		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	3.91											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 17: NW Parker Street & NW Lake Road

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	NW Parker Street			NW Larkspur Street			NW Lake Road			NW Lake Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	265.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	100.00	75.00	100.00	85.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NW Parker Street			NW Larkspur Street			NW Lake Road			NW Lake Road		
Base Volume Input [veh/h]	248	130	142	61	93	21	25	667	303	60	448	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	2.00	0.00	0.00	0.00	1.00	0.00	2.00	1.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	248	130	142	61	93	21	25	667	303	60	448	35
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	35	38	16	25	6	7	179	81	16	120	9
Total Analysis Volume [veh/h]	267	140	153	66	100	23	27	717	326	65	482	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			1			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Permiss
Signal Group	7	4	0	3	8	0	5	2	7	1	6	0
Auxiliary Signal Groups									2,7			
Maximum Green [s]	15	30	0	15	20	0	15	45	15	25	45	0
Amber [s]	3.0	3.6	0.0	3.0	3.0	0.0	3.0	4.0	3.0	3.0	3.6	0.0
All red [s]	2.2	2.3	0.0	2.6	3.3	0.0	2.5	1.7	2.2	2.7	1.9	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	22	0	0	16	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.2	3.9	0.0	3.6	4.3	0.0	3.5	3.7	3.2	3.7	3.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	14	0	9	14	0	9	14	9	9	14	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	8	5	5	8	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	Yes	No	No	Yes	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	81	81	81	81	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	5.55	5.90	5.95	6.30	5.60	5.70	5.70	5.60	5.50	5.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.90	0.00	4.30	0.00	3.70	0.00	0.00	3.50	3.50
g_i, Effective Green Time [s]	27	17	27	16	42	33	43	42	33	33
g / C, Green / Cycle	0.34	0.21	0.34	0.20	0.53	0.41	0.53	0.52	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.17	0.17	0.05	0.07	0.02	0.38	0.21	0.07	0.14	0.14
s, saturation flow rate [veh/h]	1527	1701	1396	1834	1134	1885	1588	879	1885	1830
c, Capacity [veh/h]	463	359	312	370	533	765	845	299	780	757
d1, Uniform Delay [s]	26.43	30.36	29.20	27.60	14.70	23.04	11.10	29.68	16.14	16.17
k, delay calibration	0.12	0.27	0.04	0.04	0.04	0.50	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.21	10.52	0.12	0.19	0.01	20.50	0.11	0.13	0.09	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.82	0.21	0.33	0.05	0.94	0.39	0.22	0.34	0.34
d, Delay for Lane Group [s/veh]	27.64	40.89	29.33	27.79	14.71	43.54	11.21	29.82	16.24	16.26
Lane Group LOS	C	D	C	C	B	D	B	C	B	B
Critical Lane Group	No	No	No	Yes	No	Yes	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.81	6.21	0.85	2.03	0.21	16.15	3.03	0.52	3.08	3.02
50th-Percentile Queue Length [ft/ln]	95.24	155.20	21.20	50.72	5.19	403.80	75.85	13.00	76.98	75.45
95th-Percentile Queue Length [veh/ln]	6.86	10.29	1.53	3.65	0.37	22.74	5.46	0.94	5.54	5.43
95th-Percentile Queue Length [ft/ln]	171.44	257.36	38.15	91.30	9.33	568.57	136.53	23.41	138.57	135.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.64	40.89	40.89	29.33	27.79	27.79	14.71	43.54	11.21	29.82	16.25	16.26
Movement LOS	C	D	D	C	C	C	B	D	B	C	B	B
d_A, Approach Delay [s/veh]	34.57			28.33			32.96			17.76		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	29.27											
Intersection LOS	C											
Intersection V/C	0.708											

Emissions

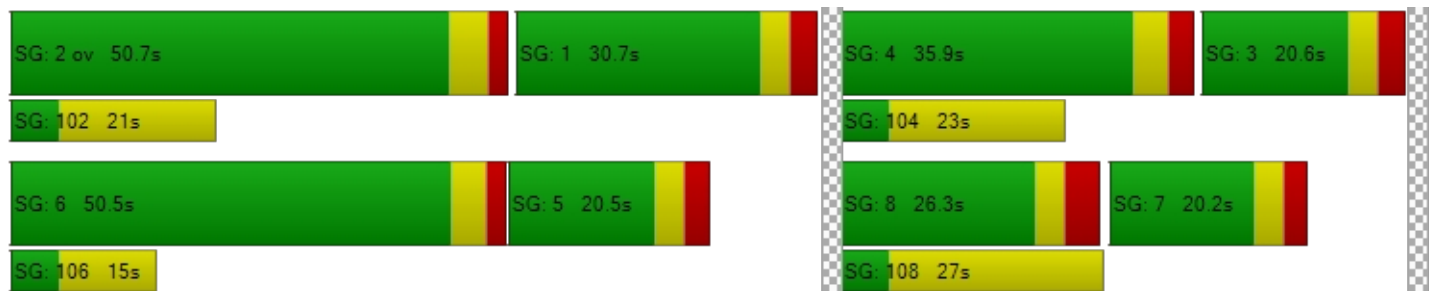
Vehicle Miles Traveled [mph]	123.72	135.77	4.54	8.46	23.88	634.26	288.38	46.33	187.33	183.31
Stops [stops/h]	170.16	277.28	37.87	90.62	9.26	721.41	135.51	23.23	137.54	134.79
Fuel consumption [US gal/h]	7.50	9.70	0.74	1.42	1.06	35.95	12.76	2.34	9.04	8.85
CO [g/h]	524.07	677.90	51.94	99.51	74.16	2513.19	891.59	163.22	632.13	618.77
NOx [g/h]	101.96	131.89	10.11	19.36	14.43	488.98	173.47	31.76	122.99	120.39
VOC [g/h]	121.46	157.11	12.04	23.06	17.19	582.46	206.63	37.83	146.50	143.41

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.80	31.80	31.80	31.80
I_p,int, Pedestrian LOS Score for Intersectio	2.414	2.076	3.017	2.639
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	744	496	1117	1117
d_b, Bicycle Delay [s]	15.91	22.79	7.87	7.88
I_b,int, Bicycle LOS Score for Intersection	2.484	1.871	3.325	2.042
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report**Intersection 18: NW Friberg-Strunk Street & NW Lake Road**

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.780

Intersection Setup

Name	Private Driveway			NW Friberg-Strunk Street			NW 1st Street			NW Lake Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	140.00	220.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	20.00			40.00			40.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Private Driveway			NW Friberg-Strunk Street			NW 1st Street			NW Lake Road		
Base Volume Input [veh/h]	0	0	0	147	0	213	392	936	0	6	667	156
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	0.00	2.00	0.00	1.00	0.00	0.00	1.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	147	0	213	392	936	0	6	667	156
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	40	0	58	107	254	0	2	181	42
Total Analysis Volume [veh/h]	0	0	0	160	0	232	426	1017	0	7	725	170
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			2			4			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	4	0	0	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	30	0	0	30	0	25	45	0	15	45	0
Amber [s]	0.0	3.0	0.0	0.0	4.0	0.0	3.0	4.0	0.0	3.0	4.0	0.0
All red [s]	0.0	2.9	0.0	0.0	2.0	0.0	2.6	1.5	0.0	2.8	1.6	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	0	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.9	0.0	0.0	4.0	0.0	3.6	3.5	0.0	3.8	3.6	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	9	14	0	9	14	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	8	0	5	8	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	63	63	63	63	63	63	63	63	63
L, Total Lost Time per Cycle [s]	5.90	6.00	6.00	5.60	5.50	5.50	5.80	5.60	5.60
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.00	4.00	3.60	3.50	3.50	3.80	3.60	3.60
g_i, Effective Green Time [s]	11	11	11	17	34	34	1	18	18
g / C, Green / Cycle	0.18	0.18	0.18	0.26	0.54	0.54	0.01	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.00	0.11	0.15	0.24	0.27	0.27	0.00	0.25	0.25
s, saturation flow rate [veh/h]	1795	1504	1566	1810	1885	1885	1810	1885	1745
c, Capacity [veh/h]	303	383	280	479	1013	1013	17	535	495
d1, Uniform Delay [s]	0.00	23.54	24.89	22.30	9.24	9.24	31.07	21.44	21.51
k, delay calibration	0.04	0.04	0.04	0.06	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.27	2.40	3.27	0.14	0.14	6.13	1.68	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.42	0.83	0.89	0.50	0.50	0.42	0.86	0.87
d, Delay for Lane Group [s/veh]	0.00	23.81	27.29	25.57	9.38	9.38	37.20	23.13	23.47
Lane Group LOS	A	C	C	C	A	A	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	1.99	3.18	5.74	3.35	3.35	0.13	6.16	5.82
50th-Percentile Queue Length [ft/ln]	0.00	49.68	79.51	143.51	83.79	83.79	3.25	153.99	145.39
95th-Percentile Queue Length [veh/ln]	0.00	3.58	5.72	9.67	6.03	6.03	0.23	10.23	9.77
95th-Percentile Queue Length [ft/ln]	0.00	89.43	143.12	241.74	150.81	150.81	5.84	255.74	244.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	23.81	23.81	27.29	25.57	9.38	9.38	37.20	23.25	23.47
Movement LOS	A	A	A	C	C	C	C	A	A	D	C	C
d_A, Approach Delay [s/veh]	0.00			25.87			14.16			23.40		
Approach LOS	A			C			B			C		
d_I, Intersection Delay [s/veh]	18.88											
Intersection LOS	B											
Intersection V/C	0.780											

Emissions

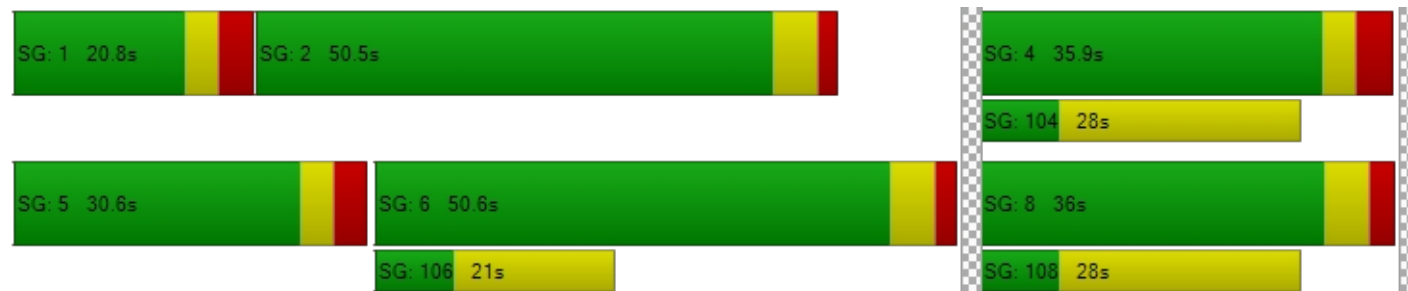
Vehicle Miles Traveled [mph]	0.00	11.34	16.44	46.13	55.07	55.07	6.19	409.06	382.66
Stops [stops/h]	0.00	113.67	181.91	328.32	191.69	191.69	7.43	352.30	332.63
Fuel consumption [US gal/h]	0.00	2.30	3.66	7.09	4.83	4.83	0.35	20.96	19.66
CO [g/h]	0.00	160.64	256.14	495.90	337.36	337.36	24.39	1465.26	1374.00
NOx [g/h]	0.00	31.25	49.83	96.48	65.64	65.64	4.75	285.09	267.33
VOC [g/h]	0.00	37.23	59.36	114.93	78.19	78.19	5.65	339.59	318.44

Other Modes

g_Walk,mi, Effective Walk Time [s]	8.5	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.54	21.43	21.43	21.43
I_p,int, Pedestrian LOS Score for Intersectio	1.701	2.349	2.904	2.913
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	953	953	1430	1430
d_b, Bicycle Delay [s]	8.62	8.63	2.56	2.56
I_b,int, Bicycle LOS Score for Intersection	1.560	2.206	2.750	2.304
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: NW Parker Street & NW Leadbetter Drive

Control Type:	Two-way stop	Delay (sec / veh):	27.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.291

Intersection Setup

Name	NW Parker Street		NW Parker Street		NW Leadbetter Drive	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	80.00	100.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.02		-0.02		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	NW Parker Street		NW Parker Street		NW Leadbetter Drive	
Base Volume Input [veh/h]	413	168	65	296	59	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	0.00	0.00	4.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	413	168	65	296	59	52
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	116	47	18	83	17	15
Total Analysis Volume [veh/h]	464	189	73	333	66	58
Pedestrian Volume [ped/h]	0		0		13	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.08	0.00	0.29	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	9.24	0.00	27.28	12.84
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.26	0.00	1.16	0.38
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.44	0.00	29.12	9.41
d_A, Approach Delay [s/veh]	0.00		1.66		20.52	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.72					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 20: NW Parker Street & NW 38th Avenue

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name	NW Parker Street			NW Parker Street			NW 38th Avenue			NW 38th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	245.00	100.00	130.00	130.00	100.00	100.00	130.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NW Parker Street			NW Parker Street			NW 38th Avenue			NW 38th Avenue		
Base Volume Input [veh/h]	100	398	194	59	255	92	126	277	106	104	125	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	398	194	59	255	92	126	277	106	104	125	39
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	116	56	17	74	27	37	81	31	30	36	11
Total Analysis Volume [veh/h]	116	463	226	69	297	107	147	322	123	121	145	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	4			13			4			11		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	7	5	2	3	3	8	0	7	4	0
Auxiliary Signal Groups			6,7			2,3						
Maximum Green [s]	15	25	15	15	25	15	15	20	0	15	20	0
Amber [s]	3.0	3.6	3.0	3.0	3.6	3.0	3.0	4.0	0.0	3.0	3.6	0.0
All red [s]	2.9	2.1	3.0	2.7	2.0	2.8	2.8	2.0	0.0	3.0	2.4	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	13	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.9	3.7	4.0	3.7	3.6	3.8	3.8	4.0	0.0	4.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	14	9	9	14	9	9	14	0	9	14	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	5	0	5	5	0
Vehicle Extension [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	Yes	No	No	Yes	No	No	No		No	No	
Maximum Recall	No	No	No	No	No	No	No	No		No	No	
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	74	74	74	74	74	74	74	74	74	74
L, Total Lost Time per Cycle [s]	5.80	5.70	5.70	5.65	5.60	5.60	5.90	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	3.70	0.00	0.00	3.60	0.00	0.00	4.00	0.00	4.00
g_i, Effective Green Time [s]	32	21	32	32	21	32	31	20	30	20
g / C, Green / Cycle	0.43	0.29	0.43	0.43	0.29	0.44	0.41	0.27	0.41	0.26
(v / s)_i Volume / Saturation Flow Rate	0.09	0.25	0.14	0.06	0.16	0.07	0.10	0.25	0.16	0.11
s, saturation flow rate [veh/h]	1310	1885	1587	1182	1900	1566	1467	1797	741	1778
c, Capacity [veh/h]	451	538	681	359	550	686	517	484	355	471
d1, Uniform Delay [s]	22.28	25.04	14.05	25.39	22.12	12.56	20.65	26.25	25.45	22.37
k, delay calibration	0.04	0.16	0.04	0.04	0.14	0.04	0.04	0.28	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	6.22	0.11	0.10	1.09	0.04	0.11	16.55	0.22	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.86	0.33	0.19	0.54	0.16	0.28	0.92	0.34	0.40
d, Delay for Lane Group [s/veh]	22.39	31.26	14.15	25.49	23.21	12.60	20.76	42.80	25.68	22.58
Lane Group LOS	C	C	B	C	C	B	C	D	C	C
Critical Lane Group	No	Yes	Yes	Yes	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.09	8.01	2.28	0.63	4.20	0.98	1.40	9.12	1.15	2.53
50th-Percentile Queue Length [ft/ln]	27.15	200.16	56.93	15.65	105.10	24.38	35.06	228.03	28.84	63.16
95th-Percentile Queue Length [veh/ln]	1.96	12.65	4.10	1.13	7.57	1.76	2.52	14.07	2.08	4.55
95th-Percentile Queue Length [ft/ln]	48.88	316.17	102.48	28.18	189.17	43.89	63.10	351.85	51.91	113.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.39	31.26	14.15	25.49	23.21	12.60	20.76	42.80	42.80	25.68	22.58	22.58
Movement LOS	C	C	B	C	C	B	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	25.18			21.14			37.33			23.79		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	27.40											
Intersection LOS	C											
Intersection V/C	0.761											

Emissions

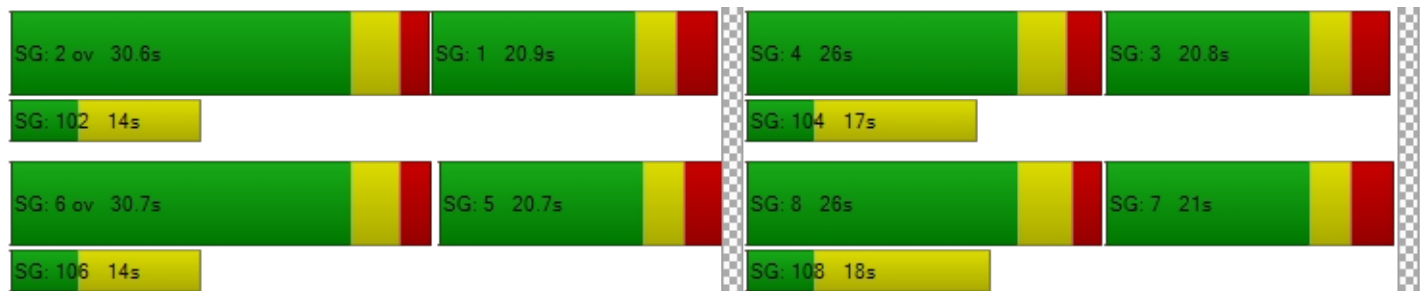
Vehicle Miles Traveled [mph]	15.76	62.89	30.70	40.39	173.86	62.64	30.95	93.68	28.22	44.31
Stops [stops/h]	52.95	390.27	111.01	30.52	204.93	47.54	68.35	444.62	56.23	123.15
Fuel consumption [US gal/h]	1.53	8.28	2.66	2.13	9.57	3.02	2.40	11.60	2.20	3.67
CO [g/h]	106.75	578.62	185.64	148.68	669.05	211.06	167.82	810.81	153.46	256.54
NOx [g/h]	20.77	112.58	36.12	28.93	130.17	41.06	32.65	157.75	29.86	49.91
VOC [g/h]	24.74	134.10	43.02	34.46	155.06	48.92	38.89	187.91	35.57	59.46

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.47	28.47	28.47	28.47
I_p,int, Pedestrian LOS Score for Intersectio	2.644	2.615	2.486	2.415
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	677	677	542	542
d_b, Bicycle Delay [s]	16.19	16.26	19.67	19.74
I_b,int, Bicycle LOS Score for Intersection	2.888	2.340	2.536	2.073
Bicycle LOS	C	B	B	B

Sequence

Ring 1	2	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: N Shore Boulevard and NE 232nd Avenue

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.219

Intersection Setup

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		-0.02		0.02	
Crosswalk	No		No		No	

Volumes

Name	N Shore Boulevard		NE 232nd Avenue		NE 232nd Avenue	
Base Volume Input [veh/h]	16	5	10	139	138	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	5	10	139	138	25
Peak Hour Factor	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	3	45	45	8
Total Analysis Volume [veh/h]	21	6	13	181	179	32
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.22	0.03
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	0.00	10.85	10.23
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	1.00	1.00
95th-Percentile Queue Length [ft/ln]	0.89	0.89	0.00	0.00	25.00	25.00
d_A, Approach Delay [s/veh]	5.92		0.00		10.75	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.62					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 22: SE 283rd Avenue & SE Nourse Road

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.02	
Crosswalk	No		No		No	

Volumes

Name	SE 283rd Avenue		SE 283rd Avenue		NE 43rd Avenue	
Base Volume Input [veh/h]	102	128	110	6	14	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	4.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	128	110	6	14	143
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	36	31	2	4	40
Total Analysis Volume [veh/h]	113	142	122	7	16	159
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.03	0.17
d_M, Delay for Movement [s/veh]	7.58	0.00	0.00	0.00	13.80	10.00
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.77	0.77
95th-Percentile Queue Length [ft/ln]	5.02	5.02	0.00	0.00	19.32	19.32
d_A, Approach Delay [s/veh]	3.36		0.00		10.34	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.77					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 23: SE 283rd Avenue & SE 23rd Street

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name	SE 283rd Avenue		SE 283rd Avenue		SE 23rd Street	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		40.00	
Grade [%]	-0.02		0.02		-0.03	
Crosswalk	No		No		No	

Volumes

Name	SE 283rd Avenue		SE 283rd Avenue		SE 23rd Street	
Base Volume Input [veh/h]	180	25	70	187	29	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	0.00	0.00	3.00	7.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	180	25	70	187	29	60
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	7	19	50	8	16
Total Analysis Volume [veh/h]	194	27	75	201	31	65
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.06	0.00	0.06	0.08
d_M, Delay for Movement [s/veh]	0.00	0.00	7.73	0.00	13.10	10.12
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.13	0.48	0.48
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.26	3.26	12.09	12.09
d_A, Approach Delay [s/veh]	0.00		2.10		11.08	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.77					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 24: SE 283rd Avenue and NE Woodburn Drive

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	SE 283rd Avenue		SE 283rd Avenue		NE Woodburn Drive	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	175.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	-0.02		0.02		0.02	
Crosswalk	No		No		Yes	

Volumes

Name	SE 283rd Avenue		SE 283rd Avenue		NE Woodburn Drive	
Base Volume Input [veh/h]	95	224	211	16	10	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	3.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	224	211	16	10	88
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	62	58	4	3	24
Total Analysis Volume [veh/h]	104	246	232	18	11	97
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.03	0.12
d_M, Delay for Movement [s/veh]	7.94	0.00	0.00	0.00	15.59	10.21
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.25	0.00	0.00	0.00	0.10	0.42
95th-Percentile Queue Length [ft/ln]	6.37	0.00	0.00	0.00	2.42	10.49
d_A, Approach Delay [s/veh]	2.36		0.00		10.76	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 25: SE Crown Road & NE 3rd Avenue

Control Type:	Signalized	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

Name	SE Crown Road			SE Crown Road			NE 3rd Avenue			NE 3rd Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	30.00	110.00	100.00	100.00	130.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	SE Crown Road			SE Crown Road			NE 3rd Avenue			NE 3rd Avenue		
Base Volume Input [veh/h]	7	3	3	119	2	166	222	1087	4	0	760	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	0.00	2.00	1.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	60	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	3	119	2	106	222	1087	4	0	760	175
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	1	33	1	30	62	305	1	0	213	49
Total Analysis Volume [veh/h]	8	3	3	134	2	119	249	1221	4	0	854	197
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			2			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	<i>Free Running</i>
Actuation Type	<i>Fully actuated</i>
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	4	0	0	8	5	5	2	0	1	6	0
Auxiliary Signal Groups						5,8						
Maximum Green [s]	0	25	0	0	25	25	25	45	0	15	45	0
Amber [s]	0.0	3.0	0.0	0.0	4.0	3.0	3.0	3.0	0.0	3.0	4.0	0.0
All red [s]	0.0	3.8	0.0	0.0	2.0	2.6	2.6	2.0	0.0	2.2	1.3	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	11	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.8	0.0	0.0	4.0	3.6	3.6	3.0	0.0	3.2	3.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	9	9	14	0	9	14	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	8	0	5	8	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No	No	No	No		No	No	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	45	45	45	45	45	45	45	45	45
L, Total Lost Time per Cycle [s]	6.80	6.00	5.60	5.60	5.00	5.00	5.20	5.30	5.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.80	0.00	0.00	3.60	3.00	3.00	3.20	3.30	3.30
g_i, Effective Green Time [s]	4	5	19	8	24	24	0	15	15
g / C, Green / Cycle	0.09	0.11	0.42	0.18	0.53	0.53	0.00	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.03	0.08	0.07	0.14	0.33	0.33	0.00	0.29	0.29
s, saturation flow rate [veh/h]	318	1811	1602	1810	1870	1868	1810	1870	1750
c, Capacity [veh/h]	166	277	672	321	997	995	0	637	596
d1, Uniform Delay [s]	18.94	19.28	8.26	17.82	7.36	7.37	0.00	13.92	13.92
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.50	0.05	1.54	0.23	0.23	0.00	1.29	1.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.49	0.18	0.78	0.61	0.62	0.00	0.85	0.85
d, Delay for Lane Group [s/veh]	19.00	19.78	8.31	19.37	7.60	7.60	0.00	15.20	15.30
Lane Group LOS	B	B	A	B	A	A	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.10	1.26	0.58	2.30	2.80	2.80	0.00	4.38	4.11
50th-Percentile Queue Length [ft/ln]	2.43	31.52	14.42	57.41	70.08	70.04	0.00	109.38	102.81
95th-Percentile Queue Length [veh/ln]	0.18	2.27	1.04	4.13	5.05	5.04	0.00	7.81	7.40
95th-Percentile Queue Length [ft/ln]	4.38	56.73	25.96	103.33	126.14	126.07	0.00	195.14	185.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.00	19.00	0.00	19.78	19.78	8.31	19.37	7.60	7.60	0.00	15.24	15.30
Movement LOS	B	B		B	B	A	B	A	A	A	B	B
d_A, Approach Delay [s/veh]	19.00			14.43			9.58			15.25		
Approach LOS	B			B			A			B		
d_I, Intersection Delay [s/veh]	12.20											
Intersection LOS	B											
Intersection V/C	0.661											

Emissions

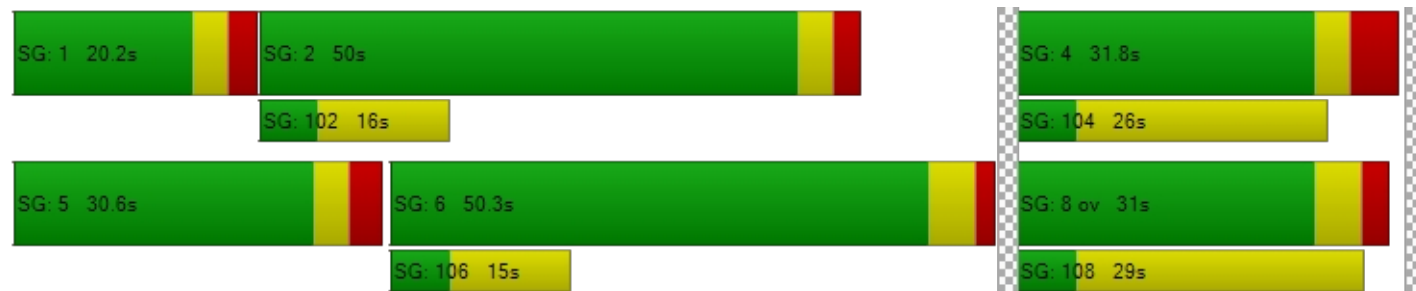
Vehicle Miles Traveled [mph]	0.67	9.12	7.98	19.31	47.52	47.48	0.00	49.15	46.03
Stops [stops/h]	7.73	100.18	45.84	182.46	222.73	222.60	0.00	347.65	326.75
Fuel consumption [US gal/h]	0.11	1.48	0.78	2.78	4.13	4.13	0.00	5.62	5.28
CO [g/h]	7.90	103.19	54.73	194.63	288.98	288.78	0.00	393.10	369.22
NOx [g/h]	1.54	20.08	10.65	37.87	56.23	56.19	0.00	76.48	71.84
VOC [g/h]	1.83	23.92	12.68	45.11	66.97	66.93	0.00	91.10	85.57

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	14.55	14.55	14.55	14.55
I_p,int, Pedestrian LOS Score for Intersectio	1.688	2.239	2.766	2.915
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1104	1104	1986	1986
d_b, Bicycle Delay [s]	4.55	4.55	0.00	0.00
I_b,int, Bicycle LOS Score for Intersection	1.578	2.079	2.776	2.427
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 101: NE Everett Drive and Site Access

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	NE Everett Drive		NE Everett Drive		Site Access	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Everett Drive		NE Everett Drive		Site Access	
Base Volume Input [veh/h]	16	2	122	26	0	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	2	122	26	0	90
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	1	36	8	0	27
Total Analysis Volume [veh/h]	19	2	145	31	0	107
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.09	0.00	0.00	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	7.41	0.00	11.39	8.76
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.26	0.26	0.33	0.33
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.56	6.56	8.37	8.37
d_A, Approach Delay [s/veh]	0.00		6.11		8.76	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	6.62					
Intersection LOS	A					