

TRAFFIC ANALYSIS REPORT

FOR

NE 13TH STREET GAS STATION

NE 13TH STREET

CAMAS

SUBMITTED BY



September 2023

Project 23-24

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Prepared By

CHARBONNEAU Engineering LLC

9-13-23



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INTRODUCTION

This traffic analysis has been prepared to evaluate and document the operations and safety conditions for the NE 13th Street Gas Station development being planned in Camas, Washington. The development will construct a gas station with eight fueling positions, market, and car wash totaling 1,189 square feet. One single-family home will be demolished on the site.

The site is located at address #20101 NE 13th Street, on a 0.95-acre property (tax lot #176148-000). Currently a single-family home occupies the property. Figure 'a' in the appendix is a vicinity map highlighting the project location.

Both the City of Camas and City of Vancouver specified the transportation elements that needed to be addressed within the Pre-Application staff report (Camas – File #PA22-32). Therefore, it was necessary to evaluate several intersections in terms of traffic operations, safety, and for concurrency purposes.

TRAFFIC ANALYSIS CONSIDERATIONS

In order to address and evaluate the required transportation elements the following major tasks were performed.

- Inventory and record pertinent information such as traffic control devices, circulation patterns, lane conditions, pedestrian & bicycle facilities, transit zones, parking, and street characteristics.
- Record data on typical weekdays during the AM and PM peak traffic hours.
- Collect traffic count data at three study intersections.
- Address the City of Vancouver's concurrency needs including the number of trips distributed within the designated corridors and the associated proportionate share fees.
- Level of service (LOS) analysis of the study intersections and site access intersection to measure the approach delays for comparison to the City of Camas standards.
- Determination of vehicular queuing at the site access.
- Review intersection sight distance at the proposed access location.
- Documentation of the proposed access spacing and compare to the City's standards.
- Review traffic crash data furnished by WSDOT. Determine the intersection crash rates for the study intersections and verify if safety improvements are needed.

SITE DESCRIPTION, STREETS, ACCESS, AND CRITICAL INTERSECTIONS

Development of the NE 13th Street Gas Station facility includes construction of an eight fueling position gas station, market, and car wash totaling 1,189 square feet. The site consists of a 0.95-acre parcel that is situated within the southwest intersection corner at NE 13th Street and NW Friberg-Strunk Street.

Access to the proposed development will be provided with a separate driveway connection to NE 13th Street. No access will occur on NW Friberg-Strunk Street. The proposed access will be controlled by stop signing on the approach to NE 13th Street. The project site plan (Figure 'b') illustrates the access location.

The study intersections in the area include NE 13th Street at NE 192nd Avenue and at NW Friberg-Strunk Street and SE 1st Street at NW Friberg-Strunk Street. Each of the locations are controlled by signalization.

Northeast 192nd Avenue at NE 13th Street is configured as a tee-shaped design with single-lane approaches on the south and east legs. The north leg includes a separate left turn lane and southbound through lane. A marked pedestrian crosswalk is in place on the intersection's north leg.

NE 13th Street at NW Friberg-Strunk Street is a four-way design with separate right turn lanes on the west and south legs. The east approach includes a separate left turn lane. The north leg has a single lane approach. Pedestrian crosswalks occur on each approach.

NW Friberg-Strunk Street at SE 1st Street is a four-way design with a separate right turn lane on the north leg. The east and west approaches include separate left turn lanes. The south leg has a single lane approach. Pedestrian crosswalks occur on each approach.

The existing and proposed lane configurations and traffic control are presented in Figure 'c' in the report's appendix.

Southeast 13th Street is classified as a minor arterial within the Camas City limits and the City's minimum access spacing is 660 feet. The travel speed is posted at 35 MPH along the project site's frontage. The street grade is flat and the alignment is tangent. There is one travel lane in each direction with narrow paved/gravel surfaced shoulders of approximately one foot wide. Drainage ditches are present adjacent to the shoulders.

TRAFFIC OPERATIONAL ANALYSIS

In order to evaluate traffic flow and delay the study intersections were analyzed for level of service (LOS) conditions, delay, queuing, and safety. The intersections evaluated included NE 13th Street at NE 192nd Avenue and at NW Friberg-Strunk Street, and SE 1st Street at NW Friberg-Strunk Street. The site access at NE 13th Street was also evaluated.

To perform the LOS analysis new traffic counts were conducted. The counts were collected in August 2023 during the AM peak (7:00-9:00 AM) and PM peak (4:00-6:00 PM) traffic hours. Figure 1 illustrates the existing traffic volume data for the AM & PM peak hours.

Union High School is located approximately a half-mile south of the gas station/market site was not in session when the traffic counts were recorded. Therefore, to account for the

school's trips it was necessary to model the school's traffic. Using an enrollment of 1,970 students as provided by the school district, the trips were calculated using the ITE trip generation rates (LUC #525) for public high schools. Figure 2 illustrates the school's traffic assignments for the AM & PM peak hours.

Figure 3 presents the year 2023 traffic flow for the combined (existing plus modeled high school) traffic scenario.

In-Process traffic was accounted for in the project and is presented on Figure 4. Several approved (and not yet built) development projects were identified by the City. These included the following;

- Camas Heights – NE 28th St
- Green Mountain B1 South Phase
- Panattoni Industrial Bldg-Lot 6
- Lacamas Tech Center
- Village at Camas Meadows
- Parklands at Camas Meadows
- Green Mountain Estates
- Oak Tree Station

Three years of traffic growth at 2% per year was added to the existing traffic to account for future conditions. Figure 5 represents the year 2026 background traffic scenario and incorporates three years of growth traffic at 2% per year, in-process traffic, and existing traffic plus the modeled high school traffic.

Pass-By traffic is permitted in the trip generation calculations according to the ITE Trip Generation Handbook for the gas station use (LUC #945). These are trips that access the site from existing traffic flow within the area. Figure 6 illustrates these trips, which are included with the total traffic scenario.

VEHICULAR TRIP GENERATION

Trip rates presented in the Institute of Transportation Engineers (ITE) Trip Generation manual, 11th edition (year 2021) were utilized to estimate the site's trip generation. The trip generation is summarized in Table 1 (following page).

Trip rates for ITE land use code #945 (gas station w/market) and land use code #948 (automated car wash) was applied for the trip generation calculations. Trip credits were taken into account for the existing single-family home that occupies the property is also listed in the table.

Table 1 Trip Generation Summary

ITE Land Use	Units	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
PROPOSED SITE TRIPS								
Gas Station with Market (#945)	8 fueling positions							
Generation Rate ¹		265.12	16.06	50%	50%	18.42	50%	50%
Total Driveway Trips		2,121	128	64	64	147	74	73
Pass-By Trips ² (AM=62%; PM=56%)			79	40	39	82	41	41
Automated Car Wash (#948)	1,189 sq. ft.							
Generation Rate ^{1,3,4}		142.00	9.94	50%	50%	14.20	50%	50%
Total Driveway Trips		169	12	6	6	17	9	8
EXISTING SITE TRIPS (TRIP CREDITS)								
Single-Family (#210)	1 single-family home							
Generation Rate ¹		9.43	0.70	26%	74%	0.94	63%	37%
Total Driveway Trips		-9	-1	0	-1	-1	-1	0
Net Total Trips ⁵		2,281	139	70	69	163	82	81
Site Pass-by Trips		0	79	40	39	82	41	41
Net New Trips⁶		2,281	60	30	30	81	41	40

¹ Source: *Trip Generation*, 11th Edition, ITE, 2021, average rates.

² Pass-by percentages based on *Trip Generation Handbook*, 3rd Edition, ITE, 2017.

³ ADT rate estimated as 10 times the PM peak hour rate.

⁴ AM peak rate estimated as 70% of PM peak rate. AM peak distribution is reverse of PM peak distribution.

⁵ Net Total Trips = Proposed Total Site Trips - Existing Total Site Trips.

⁶ Net New Trips = Net Total Trips - Site Pass-by Trips.

Development of project is expected to generate a net of 2,281 daily trips, 60 net AM peak hour trips, and 81 net PM peak hour trips.

The NE 13th Street Gas Station trip distribution was based on the existing count data and engineering judgment. This information is presented on Figure 7. The corresponding trip assignments are presented on Figures 8a and 8b for the AM & PM peak hours, respectively. Figure 9 illustrates the year 2026 total traffic conditions.

CAPACITY ANALYSIS

Capacity analyses were performed to determine the levels of service for the weekday peak hours. Synchro v11.1 software was used to determine the approach delays and level of service (LOS) for the site access study intersections. The program is based on the year 2016 Highway Capacity Manual methodology. Table 2 summarizes the analysis results. Copies of the capacity analysis summaries are included in the appendix.

Table 2 Capacity Analysis Summary

Intersection	Type of Control	Peak Hour	Traffic Scenario											
			2023 Adjusted Existing				2026 Background				2026 Total			
			Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c
NE 192nd Avenue & NE 13th Street	Signal	AM	-	C	20.5	0.56	-	D	41.1	0.70	-	D	50.4	0.75
		PM	-	C	34.6	0.65	-	F	81.8	0.82	-	F	100.6	0.86
	Mitigated ¹	AM	-	-	-	-	-	-	-	-	-	-	-	-
		PM	-	-	-	-	-	D	35.8	0.71	-	D	41.2	0.73
Site Access & NE 13th Street	Two-way Stop	AM	NB	C	17.9	0.00	NB	C	24.0	0.01	NB	D	30.8	0.36
		PM	NB	A	0.0	0.00	NB	A	0.0	0.00	NB	D	31.1	0.40
NW Friberg-Strunk St & NE 13th Street	Signal	AM	-	B	13.2	0.27	-	B	17.7	0.35	-	B	17.7	0.35
		PM	-	B	16.3	0.27	-	C	23.2	0.36	-	C	23.1	0.37
NW Friberg-Strunk St & SE 1st St/NW Lake Rd	Signal	AM	-	C	25.7	0.28	-	C	24.5	0.30	-	C	24.9	0.30
		PM	-	B	16.7	0.29	-	B	17.6	0.33	-	B	17.7	0.33

Notes: 2016 Highway Capacity Manual methodology used in analysis, Synchro v11. NB - Northbound, Crit. Mov't - Critical movement or critical approach.

¹ Mitigation: Widen NE 13th Street approach at NE 192nd Avenue to provide a separate westbound left turn lane and westbound shared through-right lane.

With the exception of NE 13th Street at NE 192nd Avenue the analysis has documented that the study intersections will operate acceptable at LOS 'D' or better in the year 2026 total traffic scenario and meet the City's level of service standards.

At NE 13th Street and NE 192nd Avenue the analysis determined that the intersection will operate at LOS 'F' during the PM peak hour in the year 2026 background and total traffic scenarios. The failing condition is attributed to the growth and in-process traffic. The City has recognized and documented in the TSP that future improvements will be necessary on NE 13th Street (Goodwin Road) to accommodate heavier traffic. A year 2035 improvement is listed in Table 6 within the TSP that proposes street widening which should mitigate the issue. Specifically the current study finds that adding a separate westbound left turn lane at the NE 192nd Avenue signal will mitigate the failing condition to acceptable LOS 'D'. However, no mitigation is proposed in conjunction with the gas station & market development as the failure is due to the background traffic conditions.

Generally, LOS 'A', 'B', 'C', and 'D' are desirable service levels ranging from no vehicle delays to average or longer than average delays in the peak hours. Level 'E' represents long delays indicating signalization warrants need to be reviewed and signals considered only if warrants are met. Level 'F' indicates that intersection improvements, such as widening and signalization, may be required. According to the Highway Capacity Manual (HCM), the following delay times are associated with the LOS at stop controlled unsignalized and signalized intersections.

Level of Service criteria defined in Highway Capacity Manual

Level of Service (LOS)	Unsignalized Control Stopped Delay (sec/veh)	Signalized Control Stopped Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

QUEUING ANALYSIS

Queue lengths at the proposed site access intersection with NE 13th Street were assessed based on the 95th percentile demand values for the year 2026 total traffic scenarios. Both the AM & PM peak hour results were established in the Synchro analysis. Copies of the reports are included in the appendix.

During the AM peak hour the northbound site access approach is expected to experience a queue of one to two vehicles. For the westbound to southbound left turn from NE 13th Street into the site the projected queue is one car.

During the PM peak hour the northbound site access approach is expected to experience a queue of two vehicles. For the westbound to southbound left turn from NE 13th Street into the site the projected queue is one car.

INTERSECTION SIGHT DISTANCE

The development's access on NE 13th Street was analyzed for intersection sight distance requirements in accordance with the AASHTO standards. Northeast 13th Street has a posted speeds of 35 MPH and therefore the intersection sight distance standard is 390 feet.

A review of the sight distance at the site's access revealed that there are no restrictions in either direction along NE 13th Street and over 500 feet of sightline is available. Therefore, the intersection sight distance standard is met.

For safety reasons the sightlines must be maintained and potential obstructions due to street grade, buildings, parking, signing, fencing, landscaping, above ground utilities, or other objects shall not be permitted.

LEFT TURN LANE REQUIREMENTS

A left turn lane warrant was assessed for the westbound to southbound movement from NE 13th Street for traffic entering the site. The AM & PM peak hours were evaluated for the year 2026 total traffic scenario.

The turn lane is not warranted in the PM peak hour.

The warrant curve shown on Exhibit 1310-7a in the appendix indicates that a left turn is marginally met based on a 40 MPH travel speed. However, the travel speed on NE 13th Street is 35 MPH which if plotted indicates the warrant would not be met. It is also noted that the queuing analysis for the westbound left turn movement has confirmed that up to one vehicle may queue to make a left turn resulting in a LOS 'A' condition. As a result adding a westbound left turn lane on NE 13th Street is not proposed in conjunction with gas station, market, and car wash development.

The warrant figure is included in the appendix.

ACCESS SPACING & SPACING STANDARDS

The proposed access location was assessed for conformance to the City's access spacing standards. NE 13th Street is classified as a minor arterial and the City's minimum spacing is 660 feet.

The proposed access spacing will occur at approximately 200 feet west of the signalized intersection at Friberg-Strunk Street and therefore does not meet the spacing standard. Placing the site access any further to the west is not viable from an operational standpoint because trucks (including gas tanker trucks) need the turning capability to maneuver on-site in order to exit the lot. It is noted that the pre-application staff report indicates that the City would support the substandard spacing condition if the design is supported by a deviation request. The request will be presented in a separate document.

ACCIDENT HISTORY

Crash data for study intersections was obtained from WSDOT staff and reviewed to help identify if there were any traffic safety issues. The study period covered five years from January 2018 through December 2022 for the intersections at NE 13th Street/NE 192nd Avenue, NE 13th Street/Friberg-Strunk Street, and SE 1st Street/Friberg-Strunk Street.

The crash rates presented in Table 3 are based on the number of accidents per million entering vehicles (MEV) per year. Typically, an intersection is not considered unsafe unless its accident rate exceeds the threshold value of 1.0 accidents per MEV.

The study intersections did not experience a crash rate greater than 0.27 crashes per MEV/year and therefore no safety improvements are proposed.

Table 3 Crash Rate Results

Intersection	Crash History (Years)	Number of Crashes	Crashes per year	Annual Traffic Entering (veh/yr)	Crash rate per M.E.V.*
NE 192nd Ave & NE 13th St	5.26	9	1.7	6391700	0.27
NW Friberg-Strunk St & NE 13th St	5.26	3	0.6	3944592	0.14
SE 1st St & NW Friberg-Strunk St	5.26	5	1.0	5774444	0.16

* M.E.V. - million entering vehicles.

PEDESTRIANS, BICYCLES, & BUSES

No sidewalk is present on NE 13th Street adjacent to the project site's frontage. Sidewalk will be constructed with the development along the property's NE 13th Street frontage (south street side). Sidewalk is present on Friberg-Strunk Street.

Bike lanes are not provided on NE 13th Street. Bike lanes are present on Friberg-Strunk Street. Additional bicycle lanes are not planned with the development.

C-Tran does not provide transit service in the immediate area of the development. It does provide service between the Camas City Center and the 99th Street Transit Center in Vancouver.

CITY OF VANCOUVER CONCURRENCY DOCUMENTATION

Table 4 lists the City of Vancouver's intersections that are identified for future improvements. The table includes the number of peak hour site trips that will impact the locations, cost per trip, and the proportionate share fee equating to \$153,050.

Table 4 Proportionate Share Project Intersections & Fees

Intersection	Cost Per Trip	Peak Trips	Proportionate Share
AM PEAK HOUR			
Grove St / Columbia House Blvd / SR-14 WB off-ramp	\$600.00	0	\$0.00
PM PEAK HOUR			
137th Avenue - from NE 49th St to Fourth Plain Blvd	\$3,000.00	0	\$0.00
Fourth Plain Boulevard & NE 152nd Avenue	\$333.00	0	\$0.00
Leiser Rd/St. Helens Av/MacArthur Blvd (future)	\$2,000.00	0	\$0.00
SE 176th Avenue & SE 20th Street	\$400.00	0	\$0.00
NE 192nd Avenue & NE 13th Street	\$400.00	57	\$22,800.00
SE 192nd Avenue & SE 34th Street	\$150.00	13	\$1,950.00
SE 192nd Avenue & SR-14 ramp terminals	\$2,000.00	13	\$26,000.00
MacArthur Boulevard & Andresen Road roundabout	\$2,285.00	0	\$0.00
MacArthur Boulevard & Devine Road roundabout	\$2,226.00	0	\$0.00
NE 172nd Avenue & NE 18th Street	\$300.00	20	\$6,000.00
NE 179th Place & NE 18th Street	\$900.00	20	\$18,000.00
NE 187th Avenue & NE 18th Street	\$1,200.00	24	\$28,800.00
NE 162nd Avenue and NE 9th Street	\$1,500.00	0	\$0.00
NE 172nd Avenue and NE 9th Street	\$4,100.00	0	\$0.00
NE 192nd Avenue and NE 9th Street	\$1,100.00	33	\$36,300.00
NE 187th Avenue & SE 1st Street	\$1,100.00	12	\$13,200.00
PROPORTIONATE SHARE TOTAL			\$153,050.00

Table 5 provides a summary of the development's trips that are projected to travel in the City's adopted Transportation Management Zone (TMZ) corridors during the PM peak hour.

Table 5 Number of Site Generated Trips Using Adopted TMZ Corridors

TMZ Corridor	Limits of Corridor	PM Peak Hour Trips
Fourth Plain Boulevard	Mill Plain Boulevard to I-5	0
	I-5 to Andresen Road	0
	Andresen Road to I-205	0
	I-205 to NE 162nd Avenue	0
Burton Road / NE 28th Street	NE 18th Street to NE 112th Avenue	0
	NE 112th Avenue to NE 138th Avenue	0
	NE 138th Avenue to NE 162nd Avenue	0
NE 18th Street	NE 112th Avenue to NE 138th Avenue	4
	NE 138th Avenue to NE 162nd Avenue	8
Mill Plain Boulevard	Fourth Plain Boulevard to I-5	0
	I-5 to Andresen Road	0
	Andresen Road to I-205	0
	I-205 to NE 136th Avenue	4
	NE 136th Avenue to NE 164th Avenue	8
	NE 164th Avenue to NE 192nd Avenue	8
St. Johns / Ft. Van Way	Mill Plain Boulevard to NE 63rd Street	0
Andresen Road	Mill Plain Boulevard to SR-500	0
	SR-500 to NE 78th Street	0
NE 112th Avenue	Mill Plain Boulevard to NE 28th Street	0
	NE 28th Street to NE 51st Street	0
NE 136th / 137th Avenue	Mill Plain Boulevard to NE 28th Street	0
	NE 28th Street to Fourth Plain Boulevard	0
NE 162nd/164th Avenue	SE 1st Street to Fourth Plain Boulevard	0
	SR-14 to SE 1st Street	0
SE 192nd Avenue	SR-14 to NE 18th Street	57

Table 6 lists the number of site trips projected to impact the Mill Plain Blvd corridor intersections.

Table 6 Number of Site Generated Trips Impacting the Mill Plain Boulevard Corridor Intersections

Intersection	PM Peak Hour											
	SB			WB			NB			EB		
	R	T	L	R	T	L	R	T	L	R	T	L
Mill Plain Boulevard & Chkalov Drive/112th Avenue	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & SE 117th Avenue	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & SE 120th Avenue	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & SE 123rd/124th Avenue	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & SE 126th Avenue	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & Park Plaza Drive	-	-	-	-	-	-	-	-	-	-	-	-
Mill Plain Boulevard & SE 136th Avenue	-	-	-	-	2	-	-	-	-	-	2	-
Mill Plain Blvd. & Hearthwood Blvd./Park Crest Avenue	-	-	-	-	2	-	-	-	-	-	2	-
Mill Plain Boulevard & SE 164th Avenue	-	-	-	-	4	-	-	-	-	-	4	-
Mill Plain Boulevard & SE 172nd Avenue	-	-	-	-	4	-	-	-	-	-	4	-
Mill Plain Boulevard & SE 192nd Avenue	4	6	-	-	-	-	-	7	-	-	-	4

SUMMARY AND RECOMMENDATIONS

Development of the NE 13th Street Gas Station facility includes construction of a gas station with eight fueling positions, market, and car wash totaling 1,189 square feet. One existing home on the property will be demolished. The project will generate a net of 2,281 daily trips, 60 AM peak hour trips, and 81 PM peak hour trips.

The site is situated in the southwest corner of the intersection at NE 13th Street and Friberg-Strunk Street. Access to the proposed development will be provided with one driveway on NE 13th Street. The driveway will be controlled by stop signing. Intersection sight distance at the access point exceeds the minimum standard (390 feet) as over 500 feet of sightline is available in both directions on NE 13th Street. For safety reasons the sightlines must be maintained and potential obstructions due to street grade, buildings, parking, signing, fencing, landscaping, above ground utilities, or other objects shall not be permitted.

The capacity analysis has determined that only one intersection will fail. The signalized intersection at NE 13th Street and NE 192nd Avenue will operate at LOS `F` during the PM peak hour in the year 2026 background and total traffic scenarios. The failing condition is attributed to the growth and in-process traffic. The City has recognized and documented in the TSP that long range future improvements will be necessary on NE 13th Street (Goodwin Road) to accommodate heavier traffic. A year 2035 improvement is listed in Table 6 within the TSP that proposes street widening which should mitigate the issue. Specifically, the current study finds that adding a separate left turn lane on the westbound approach will mitigate the failing condition to acceptable LOS `D`. However, no mitigation is proposed in conjunction with the gas station & market development as the failure is due to the background traffic conditions.

No new traffic signals are proposed in conjunction with the proposed development.

A left turn lane warrant was assessed for the westbound to southbound movement from NE 13th Street for traffic entering the site. The AM & PM peak hours were evaluated for the year 2026 total traffic scenario. The turn lane is not warranted in the PM peak hour. The warrant curve (Exhibit 1310-7a in the appendix) indicates that a left turn is marginally met based on a 40 MPH travel speed. However, the travel speed on NE 13th Street is 35 MPH which if plotted indicates the warrant would not be met. It is also noted that the queuing analysis for the westbound left turn movement has confirmed that up to one vehicle may queue to make a left turn resulting in a LOS `A` condition. Considering these factors adding a westbound left turn lane on NE 13th Street is not proposed in conjunction with the development.

The City of Vancouver's concurrency requirements are documented and referenced in Tables #4, #5, & #6.

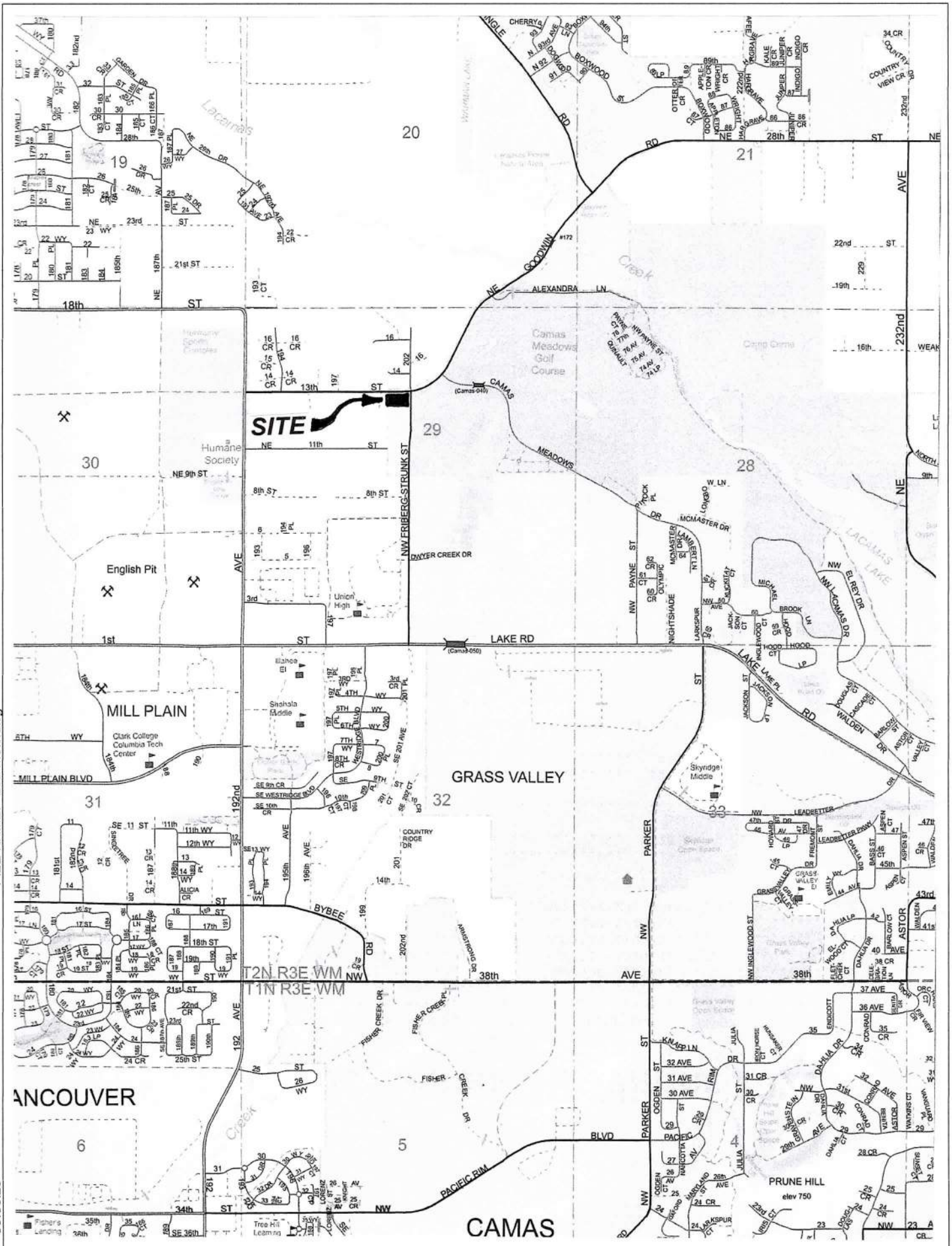
Based on the findings of the traffic analysis no off-site improvements to the transportation system are recommend.

APPENDIX

- Vicinity Map Figure `a`
- Site Plan Figure `b`
- Lane Configuration & Traffic Control Figure `c`
- Traffic Flow Figures
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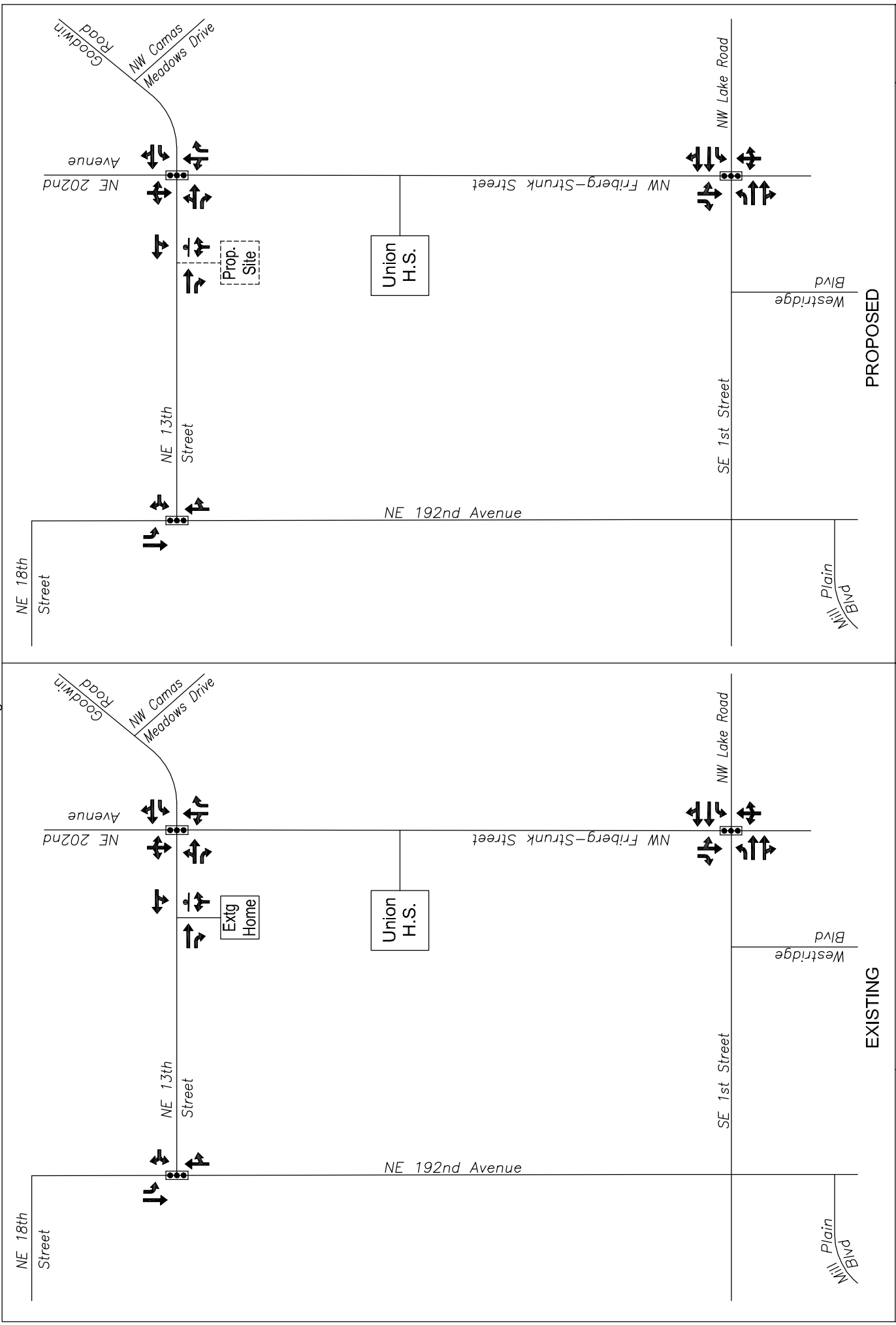
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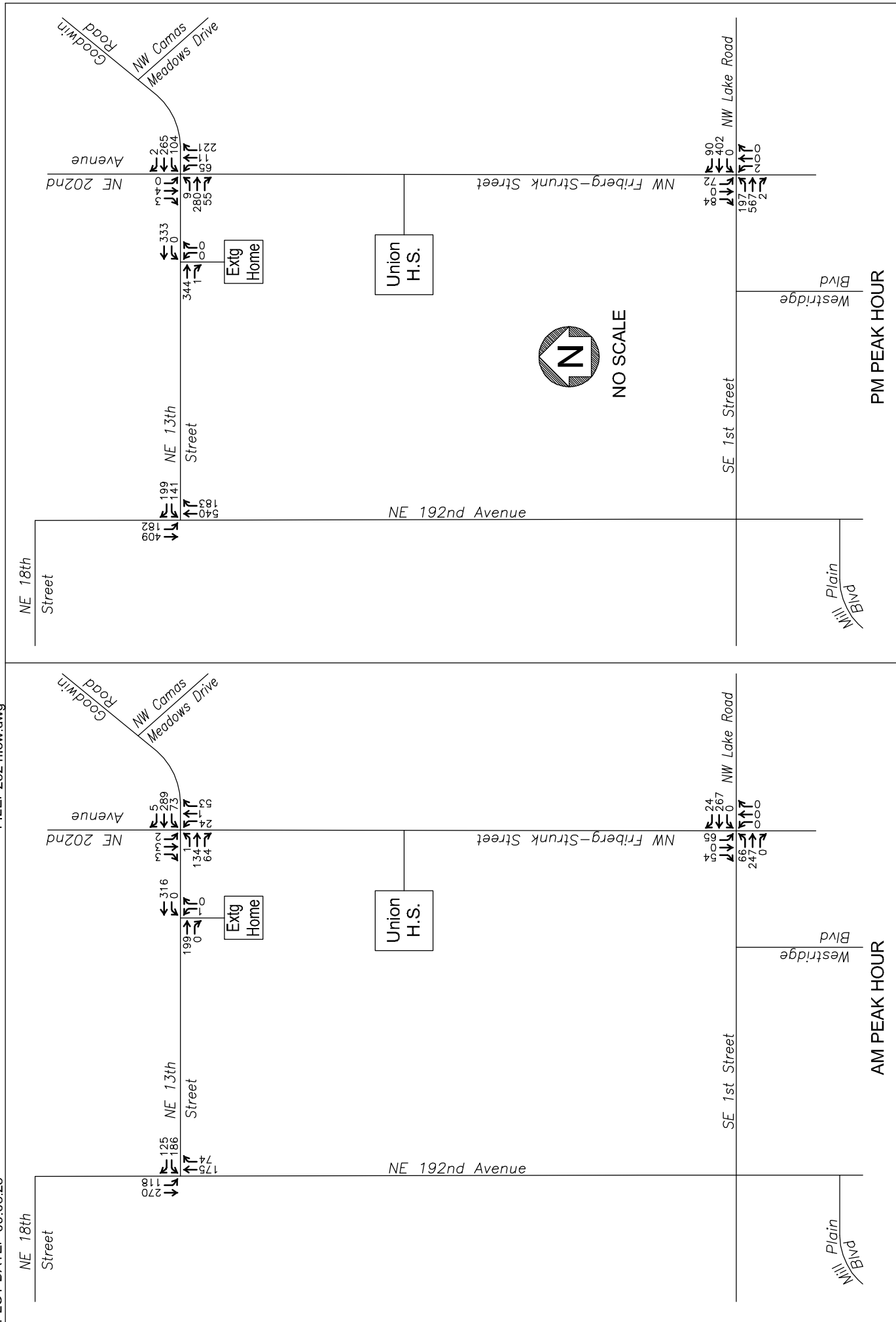
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<p>LANE CONFIGURATIONS AND TRAFFIC CONTROL 13TH STREET GAS STATION</p>	<p>NOTES: CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>
<p>FIGURE C</p>	<p>EXISTING</p>
<p>PROPOSED</p>	

PLOT DATE: 09.08.23

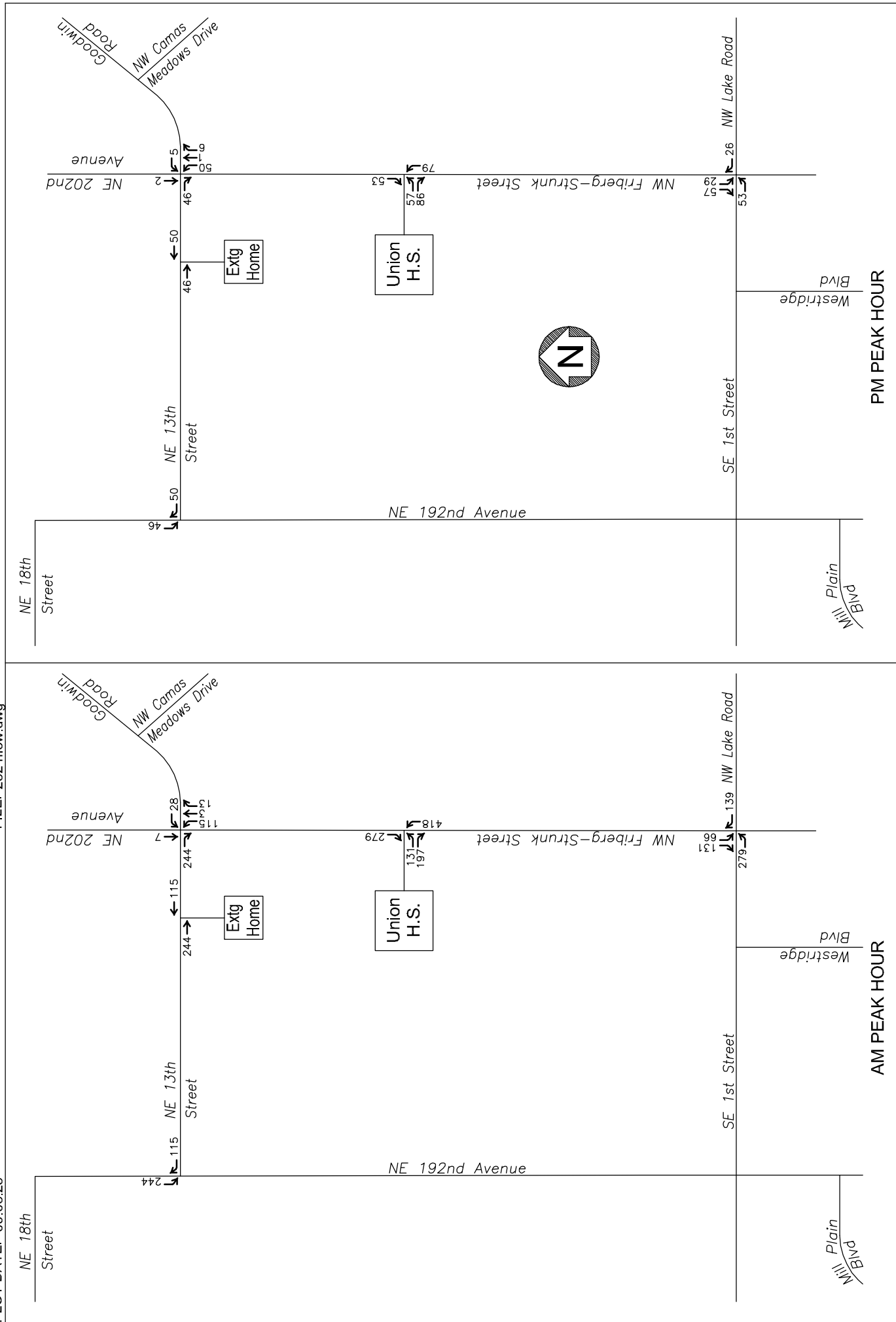
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<p>CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>	<p>NOTES:</p>	<p>2023 EXISTING TRAFFIC - WITHOUT UNION HIGH SCHOOL TRAFFIC - 13TH STREET GAS STATION</p>	FIGURE
			1

PLOT DATE: 09.08.23

FILE: 2324flow.dwg



CHARBONNEAU ENGINEERING LLC
 PROJECT: 23-24

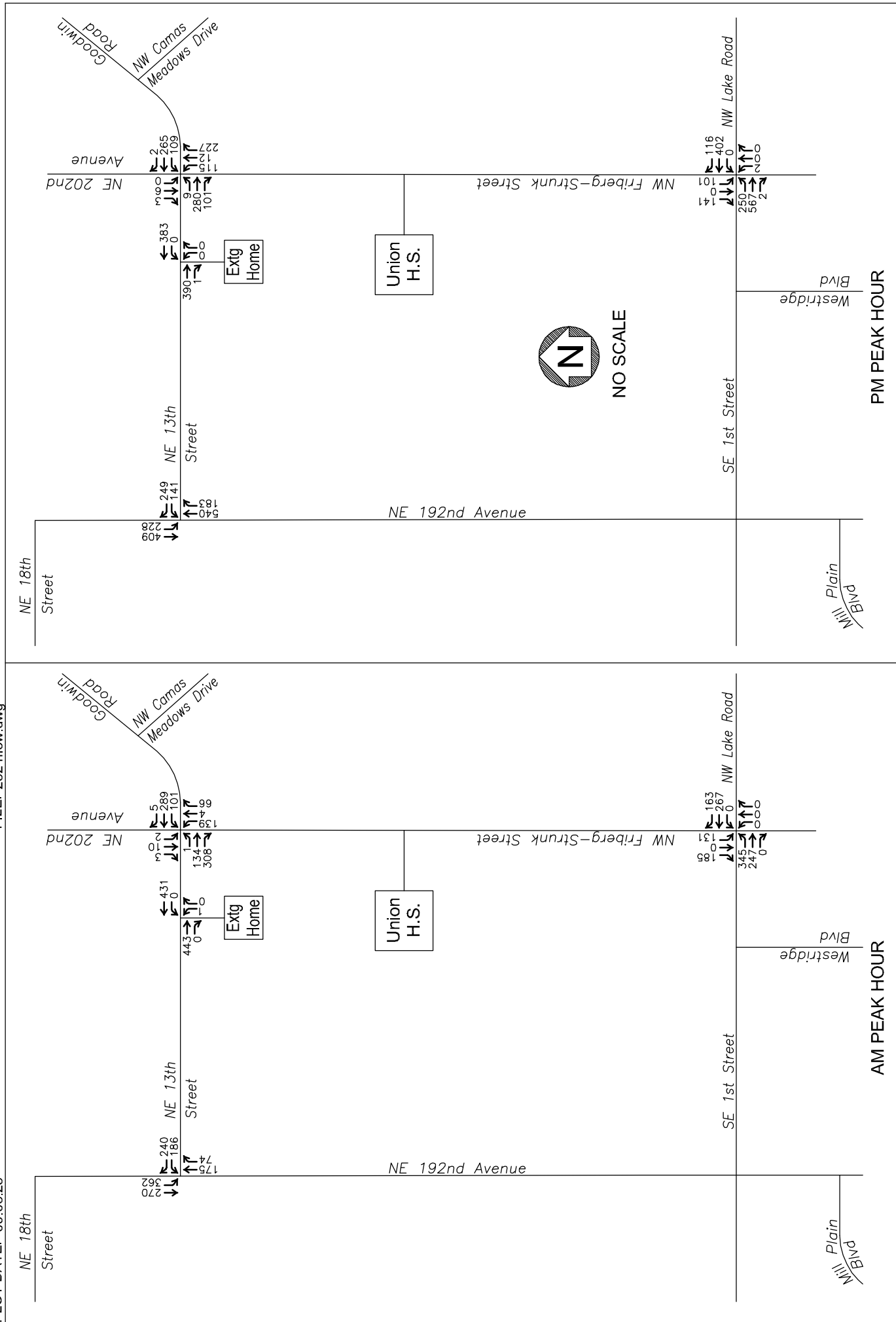
NOTES: The Union HS trip generation is based on High School (ITE 525) trip rates and an enrollment of 1,970 students.

UNION HIGH SCHOOL TRAFFIC - MODELED - 13TH STREET GAS STATION

FIGURE 2

PLOT DATE: 09.08.23

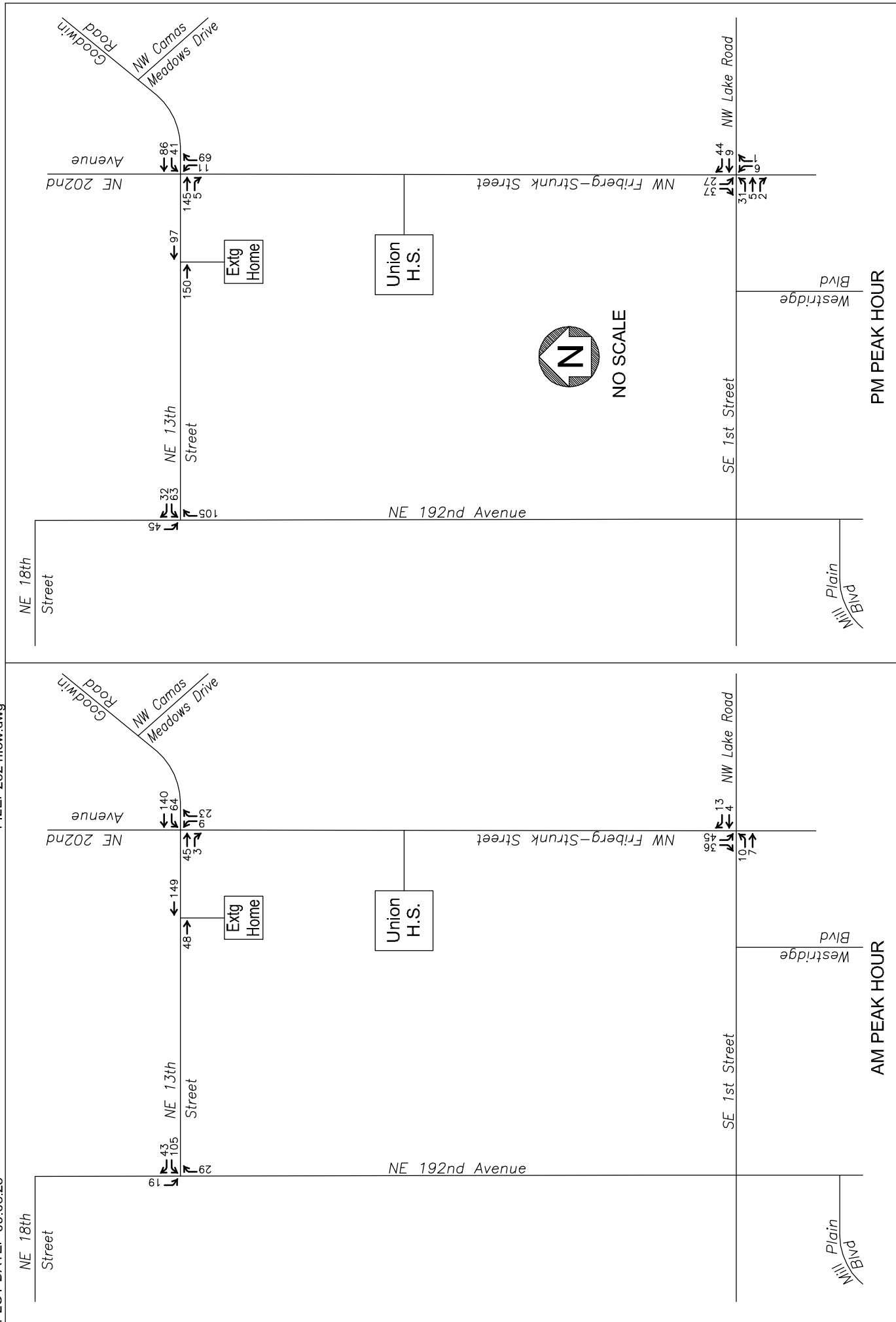
FILE: 2324flow.dwg



<p>2023 ADJUSTED EXISTING TRAFFIC - WITH UNION HIGH SCHOOL TRAFFIC - 13TH STREET GAS STATION</p>	<p>NOTES: CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>
<p>PM PEAK HOUR</p>	<p>AM PEAK HOUR</p>
<p>FIGURE</p>	<p>3</p>

FILE: 2324flow.dwg

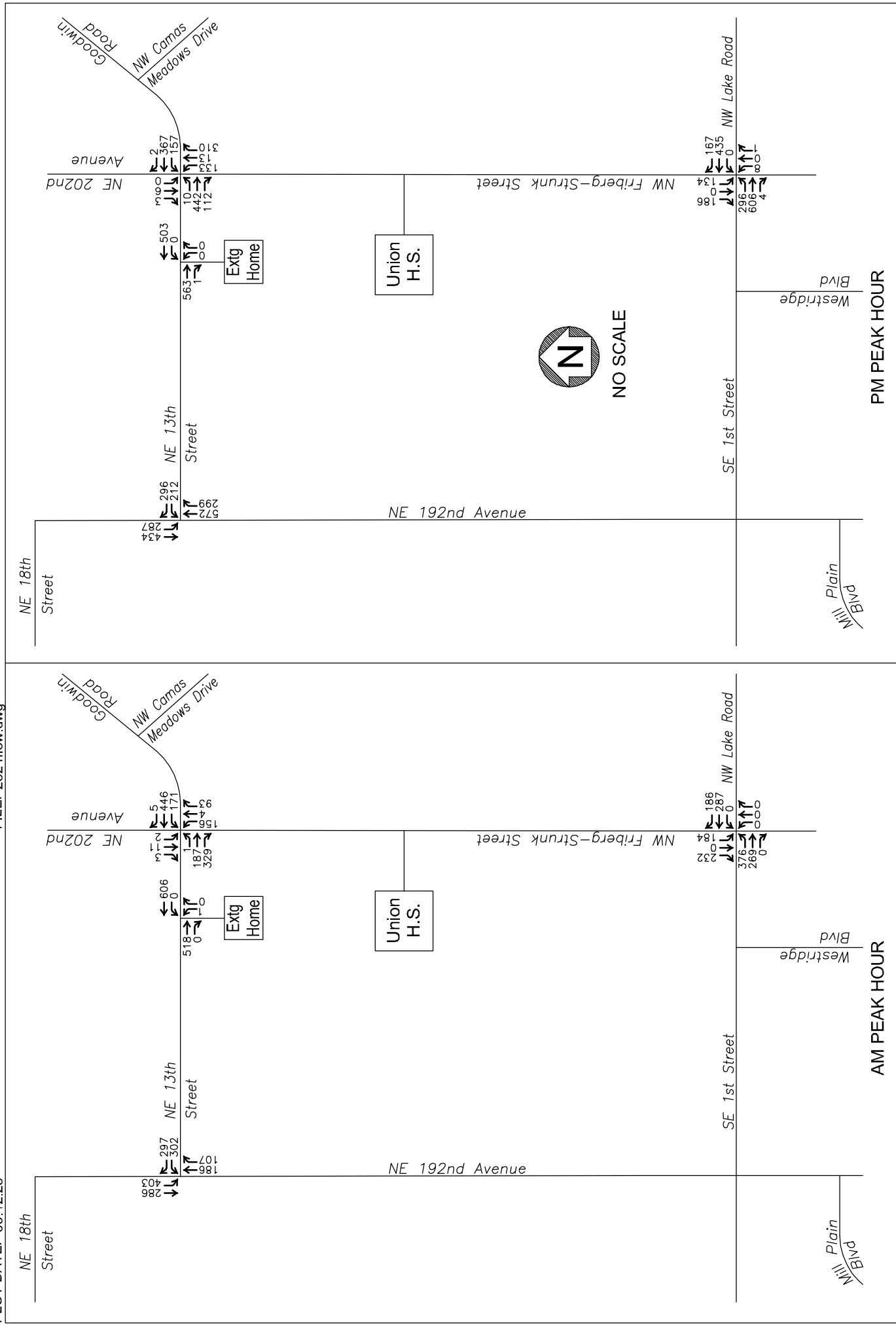
PLOT DATE: 09.08.23



<p>IN-PROCESS TRAFFIC 13TH STREET GAS STATION</p>	<p>AM PEAK HOUR</p>
<p>PM PEAK HOUR</p>	<p>NOTES: CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>
<p>FIGURE 4</p>	<p>FIGURE 4</p>

PLOT DATE: 09.12.23

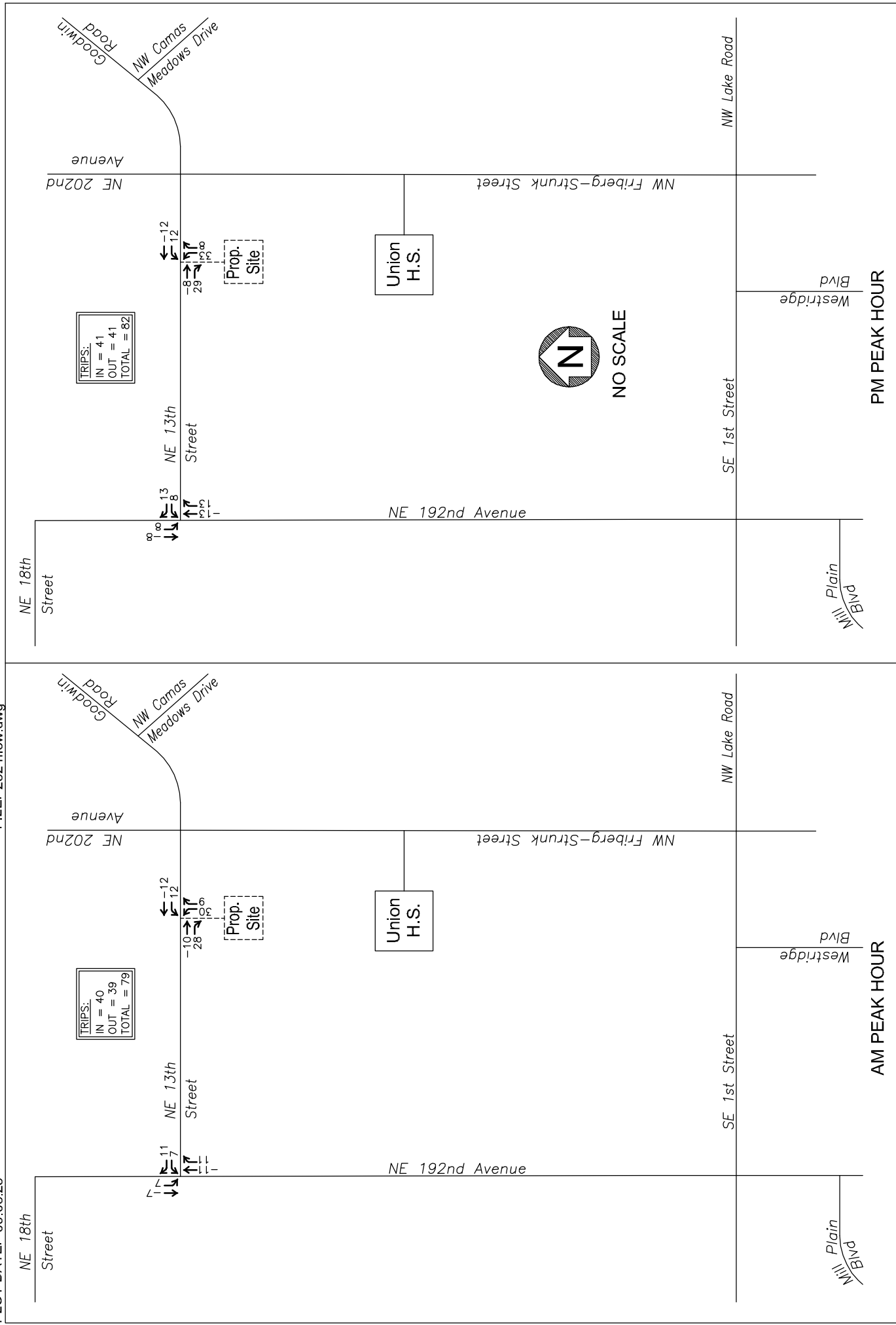
FILE: 2324flow.dwg



NOTES: 2026 Background Traffic = 2023 Adjusted Existing Traffic + growth (2%/yr for 3 yrs) + In-process Traffic.

PLOT DATE: 09.08.23

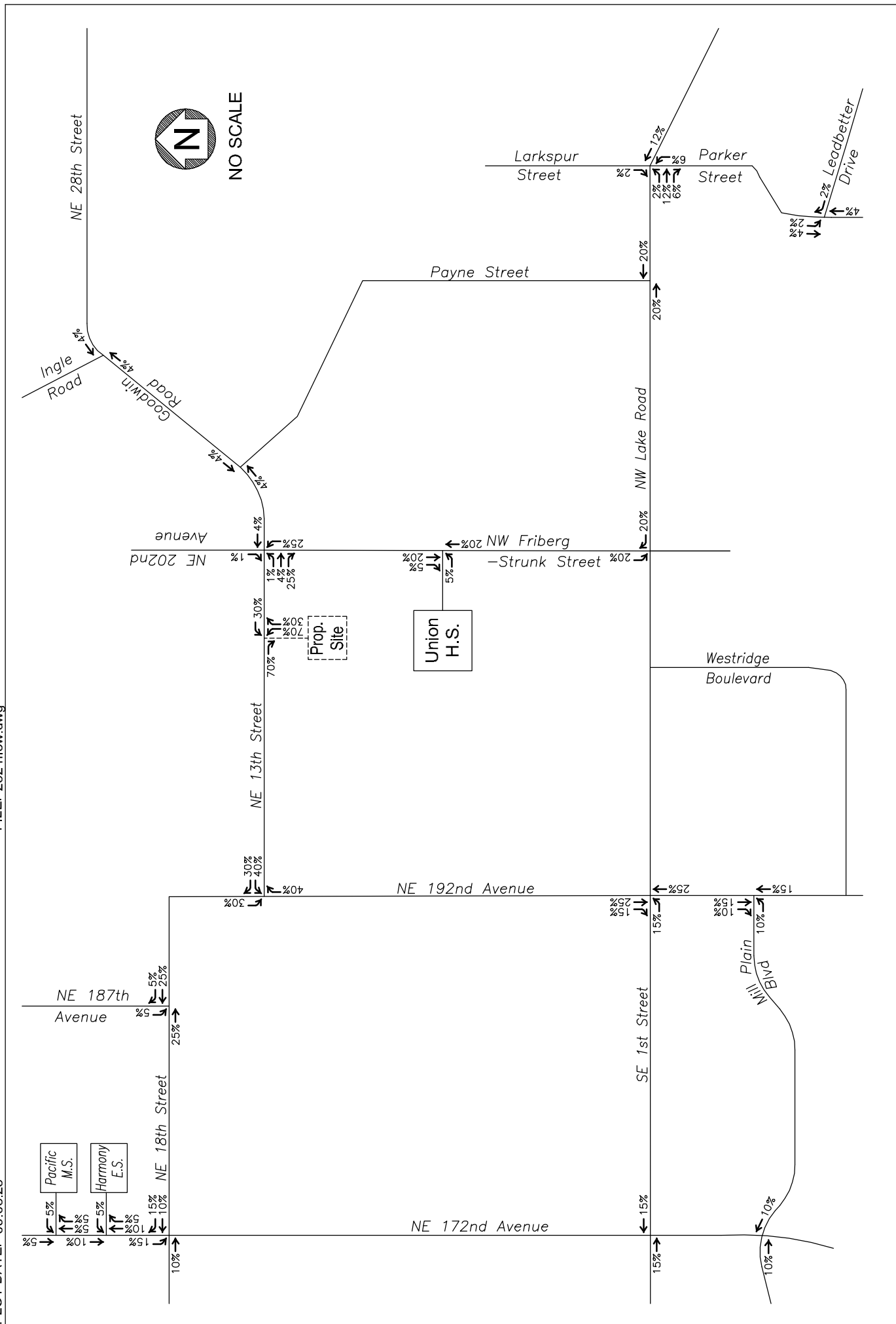
FILE: 2324flow.dwg



<p>CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>	<p>NOTES: Pass-by trips based on rates published in the <i>ITE Trip Generation Handbook</i>.</p>	<p>PASS-BY TRIPS 13TH STREET GAS STATION</p>	<p>FIGURE</p>
			<p>6</p>

PLOT DATE: 09.08.23

FILE: 2324flow.dwg

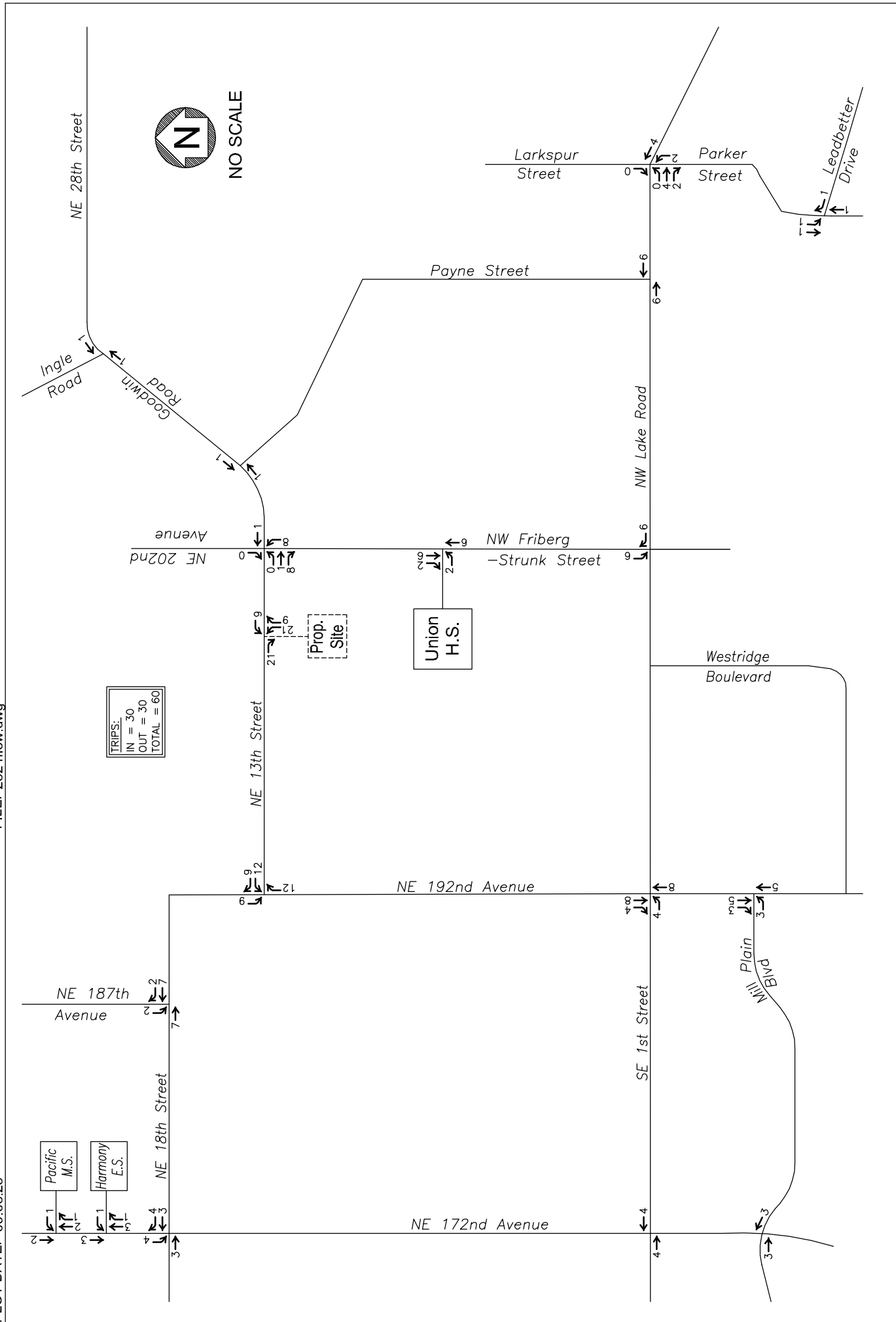



NOTES: The site's trip distribution is based on existing traffic patterns and engineering judgment.

**NEW TRIP DISTRIBUTION
AM PEAK HOUR AND PM PEAK HOUR
13TH STREET GAS STATION**

PLOT DATE: 09.08.23

FILE: 2324flow.dwg



 <p>CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>	<p>NOTES: The site's trip generation is based on Gas Station with Market (ITE 945) and Automated Car Wash (ITE 948) trip rates.</p>	<p>FIGURE 8a</p>
<p>NEW TRIP ASSIGNMENT AM PEAK HOUR 13TH STREET GAS STATION</p>		

PLOT DATE: 09.08.23

FILE: 2324flow.dwg

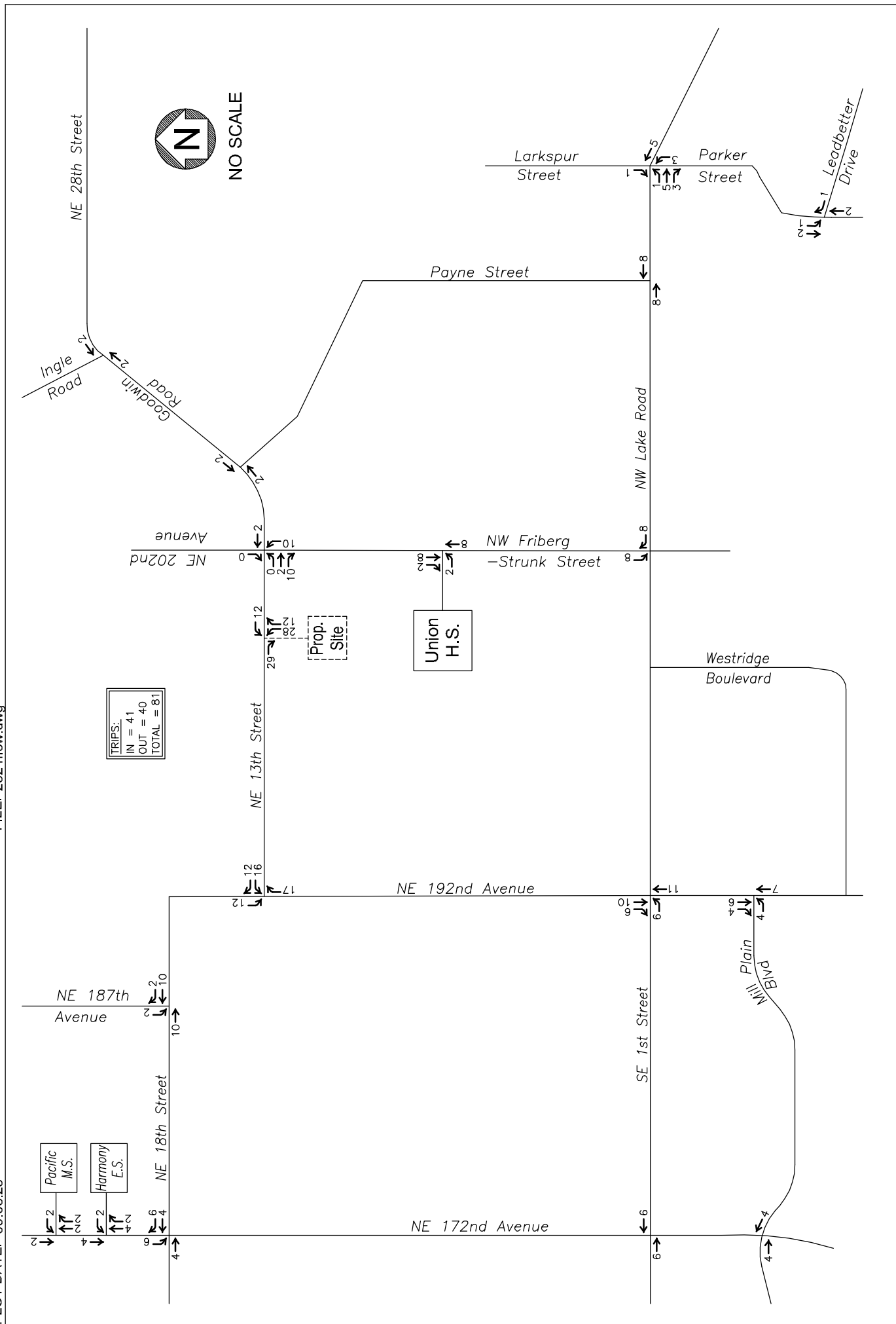

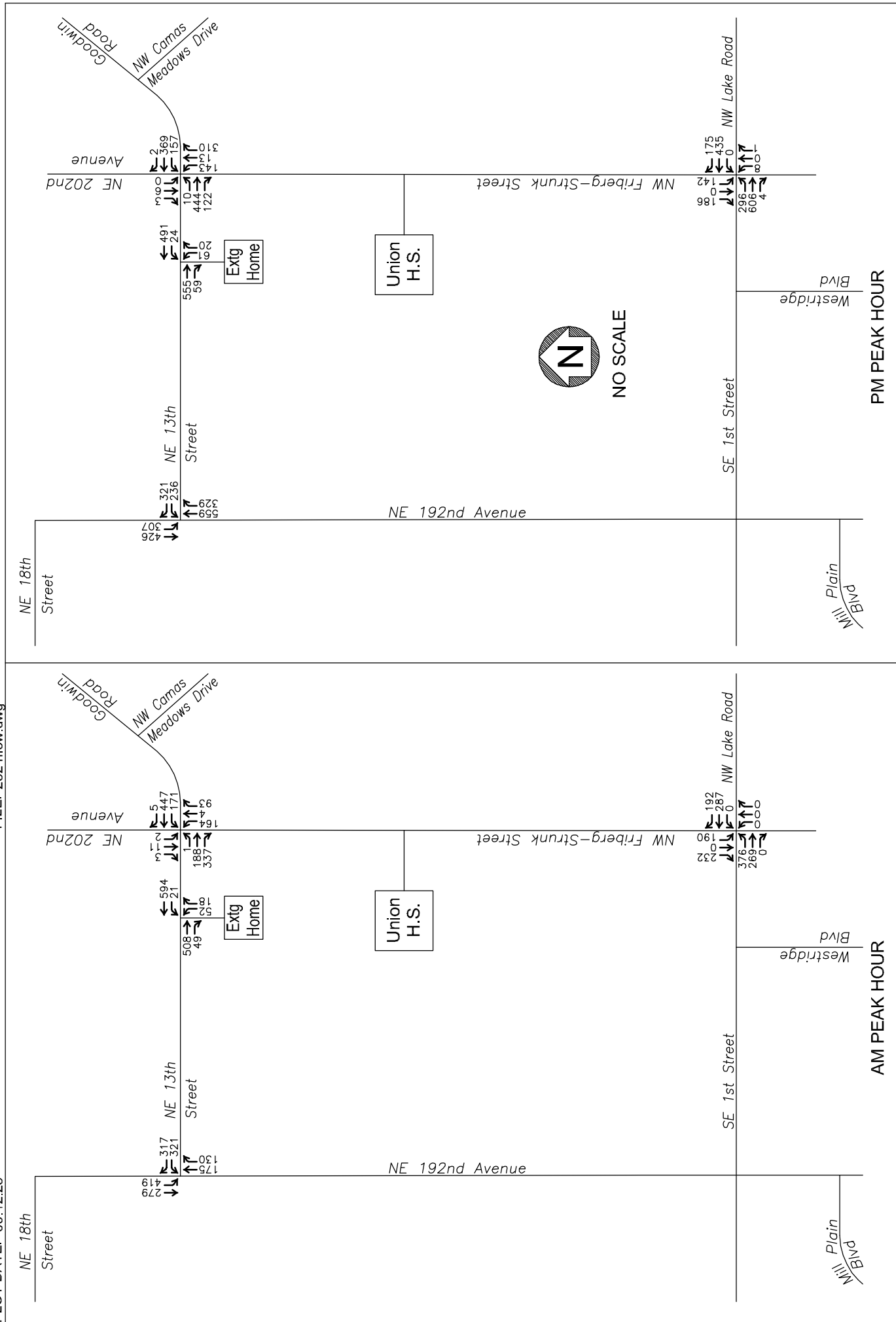


FIGURE	8b
NEW TRIP ASSIGNMENT PM PEAK HOUR 13TH STREET GAS STATION	
NOTES: The site's trip generation is based on Gas Station with Market (ITE 945) and Automated Car Wash (ITE 948) trip rates.	
 CHARBONNEAU ENGINEERING LLC PROJECT: 23-24	

PLOT DATE: 09.12.23

FILE: 2324flow.dwg



<p>2026 TOTAL TRAFFIC 13TH STREET GAS STATION</p>	<p>NOTES: 2026 Total Traffic = 2026 Background Traffic + Pass-by Traffic + New Trip Assignment.</p>	<p>CHARBONNEAU ENGINEERING LLC PROJECT: 23-24</p>
<p>PM PEAK HOUR</p>	<p>AM PEAK HOUR</p>	<p>FIGURE 9</p>

File Name: NE 192nd Ave at NE 13th St
 Start Date: 8/1/2023
 Start Time: 7:00 AM
 Site Code: 1

Peak Hour: 7:55-8:55AM
 Peak 15-min: 8:40-8:55AM

ALL VEHICLES Time Period	Northbound NE 192nd Ave				Southbound NE 192nd Ave				Eastbound NE 13th St				Westbound NE 13th St				5-min Total	Hourly Totals										
	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left			Thru	Right	U-Turn	RTOR						
7:00 AM	0	16	4	0	0	3	12	0	0	0	0	0	0	0	0	11	0	8	0	0	54	824						
7:05 AM	0	11	1	0	0	1	17	0	0	0	0	0	0	0	0	11	0	7	0	0	48	836						
7:10 AM	0	9	7	0	0	3	18	0	0	0	0	0	0	0	0	11	0	9	0	0	57	851						
7:15 AM	0	11	4	0	0	4	17	0	0	0	0	0	0	0	0	6	0	10	0	0	52	882						
7:20 AM	0	12	2	0	0	7	16	0	0	0	0	0	0	0	0	14	0	4	0	0	55	906						
7:25 AM	0	18	6	0	0	9	19	0	0	0	0	0	0	0	0	10	0	6	0	0	68	919						
7:30 AM	0	13	5	0	0	9	17	0	0	0	0	0	0	0	0	16	0	13	0	0	73	938						
7:35 AM	0	22	2	0	0	17	15	0	0	0	0	0	0	0	0	10	0	14	0	0	80	935						
7:40 AM	0	8	2	0	0	16	19	0	0	0	0	0	0	0	0	15	0	14	0	0	74	933						
7:45 AM	0	13	4	0	0	9	24	0	0	0	0	0	0	0	0	15	0	20	0	0	85	937						
7:50 AM	0	13	8	0	0	15	26	0	0	0	0	0	0	0	0	15	0	12	0	0	89	945						
7:55 AM	0	14	7	0	0	15	25	0	0	0	0	0	0	0	0	15	0	13	0	0	89	945						
8:00 AM	0	13	4	0	0	10	16	0	0	0	0	0	0	0	0	11	0	12	0	0	89	948						
8:05 AM	0	17	4	0	0	10	17	0	0	0	0	0	0	0	0	8	0	7	0	0	66	945						
8:10 AM	0	15	12	0	0	9	29	0	0	0	0	0	0	0	0	13	0	10	0	0	63	945						
8:15 AM	0	14	7	0	0	6	17	0	0	0	0	0	0	0	0	19	0	13	0	0	88	945						
8:20 AM	0	16	5	0	0	4	18	0	0	0	0	0	0	0	0	16	0	9	0	0	76	945						
8:25 AM	0	14	11	0	0	9	27	0	0	0	0	0	0	0	0	18	0	8	0	0	68	945						
8:30 AM	0	11	10	0	0	5	25	0	0	0	0	0	0	0	0	16	0	3	0	0	87	945						
8:35 AM	0	19	3	0	0	8	21	0	0	0	0	0	0	0	0	13	0	14	0	0	70	945						
8:40 AM	0	15	2	0	0	8	22	0	0	0	0	0	0	0	0	18	0	13	0	0	78	945						
8:45 AM	0	18	3	0	0	16	27	0	0	0	0	0	0	0	0	14	0	15	0	0	78	945						
8:50 AM	0	9	6	0	0	18	26	0	0	0	0	0	0	0	0	25	0	8	0	0	93	945						
8:55 AM	0	16	7	0	0	12	17	0	0	0	0	0	0	0	0	19	0	15	0	0	92	945						
Time Period	NB	NB	NB	U-Turn	NB	RTOR	NB	NB	U-Turn	NB	RTOR	SB	SB	U-Turn	SB	RTOR	EB	EB	U-Turn	EB	RTOR	WB	WB	U-Turn	WB	RTOR	PHF=	
Cars	0	167	72	0	0	0	113	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184	0	121	0	0	0.90
Trucks	0	8	2	0	0	0	5	22	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4	0	0		
Peak Vols	0	175	74	0	0	0	118	270	0	0	0	0	0	0	0	0	0	0	0	0	0	186	0	125	0	0		
Trucks %	4.0%				7.0%				0%				1.9%				PHF=											
Peds	0				1				0				1															

File Name: NE 192nd Ave at NE 13th St
 Start Date: 8/1/2023
 Start Time: 4:00 PM
 Site Code: 1

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

ALL VEHICLES Time Period	Northbound NE 192nd Ave				Southbound NE 192nd Ave				Eastbound NE 13th St				Westbound NE 13th St				5-min Total	Hourly Totals				
	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left			Thru	Right	U-Turn	RTOR
4:00 PM	0	40	12	0	0	4	28	0	0	0	0	0	0	0	0	7	0	14	0	0	105	1547
4:05 PM	0	36	10	0	0	12	21	0	0	0	0	0	0	0	0	19	0	10	0	0	108	1577
4:10 PM	0	22	11	0	0	18	43	0	0	0	0	0	0	0	0	21	0	13	0	0	128	1601
4:15 PM	0	51	16	0	0	10	24	0	0	0	0	0	0	0	0	19	0	9	0	0	129	1611
4:20 PM	0	43	11	0	0	19	23	0	0	0	0	0	0	0	0	10	0	11	0	0	117	1629
4:25 PM	0	44	9	0	0	12	29	0	0	0	0	0	0	0	0	7	0	13	0	0	114	1648
4:30 PM	0	46	15	0	0	16	27	0	0	0	0	0	0	0	0	9	0	14	0	0	127	1654
4:35 PM	0	47	12	0	0	20	28	0	0	0	0	0	0	0	0	8	0	15	0	0	130	1643
4:40 PM	0	37	19	0	0	13	33	0	0	0	0	0	0	0	0	12	0	18	0	0	132	1642
4:45 PM	0	38	21	0	0	21	32	0	0	0	0	0	0	0	0	13	0	20	0	0	145	1650
4:50 PM	0	45	15	0	0	10	30	0	0	0	0	0	0	0	0	12	0	27	0	0	139	1630
4:55 PM	0	50	19	0	0	16	57	0	0	0	0	0	0	0	0	10	0	21	0	0	173	1600
5:00 PM	0	47	9	0	0	14	36	0	0	0	0	0	0	0	0	13	0	16	0	0	135	1546
5:05 PM	0	50	17	0	0	8	42	0	0	0	0	0	0	0	0	8	0	7	0	0	132	
5:10 PM	0	41	17	0	0	19	36	0	0	0	0	0	0	0	0	12	0	13	0	0	138	
5:15 PM	0	37	11	0	0	22	38	0	0	0	0	0	0	0	0	22	0	17	0	0	147	
5:20 PM	0	51	15	0	0	11	27	0	0	0	0	0	0	0	0	12	0	20	0	0	136	
5:25 PM	0	51	13	0	0	12	23	0	0	0	0	0	0	0	0	10	0	11	0	0	120	
5:30 PM	0	37	13	0	0	14	25	0	0	0	0	0	0	0	0	10	0	17	0	0	116	
5:35 PM	0	50	16	0	0	16	28	0	0	0	0	0	0	0	0	13	0	6	0	0	129	
5:40 PM	0	42	12	0	0	19	33	0	0	0	0	0	0	0	0	15	0	19	0	0	140	
5:45 PM	0	44	14	0	0	15	35	0	0	0	0	0	0	0	0	10	0	7	0	0	125	
5:50 PM	0	33	10	0	0	16	31	0	0	0	0	0	0	0	0	7	0	12	0	0	109	
5:55 PM	0	41	14	0	0	11	26	0	0	0	0	0	0	0	0	12	0	15	0	0	119	

Time Period	NB		NB U-Turn		NB RTOR		SB		SB U-Turn		SB RTOR		EB		EB U-Turn		EB RTOR		WB		WB U-Turn		WB RTOR			
	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru
Cars	0	540	174	0	0	182	405	0	0	0	0	0	0	0	0	0	0	139	0	197	0	0	0	0	0	0
Trucks	0	0	9	0	0	0	4	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
Peak Vols	0	540	183	0	0	182	409	0	0	0	0	0	0	141	0	199	0	141	0	199	0	0	0	0	0	0
Trucks %	1.2%				0.7%				0%				1.2%				PHF=		0.90							
Peds	0				0				0				0				0									

File Name: NW Friberg-Strunk St at NE 13th St
 Start Date: 8/1/2023
 Start Time: 7:00 AM
 Site Code: 2

Peak Hour: 7:30-8:30AM
 Peak 15-min: 7:35-7:50AM

ALL VEHICLES Time Period	Northbound NE Friberg-Strunk St				Southbound NE 202nd Ave				Eastbound NE 13th St				Westbound NE Goodwin Rd				5-min Total	Hourly Totals				
	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left			Thru	Right	U-Turn	RTOR
7:00 AM	4	0	3	0	0	0	0	1	0	0	0	0	0	0	4	12	1	0	0	0	32	571
7:05 AM	1	0	4	0	0	0	1	1	0	0	0	0	0	0	0	18	0	0	0	0	26	592
7:10 AM	2	0	4	0	0	0	0	0	0	0	0	2	0	0	7	16	0	0	0	0	36	601
7:15 AM	2	0	6	0	0	0	1	1	0	0	0	2	0	0	3	12	0	0	0	0	37	622
7:20 AM	1	0	4	0	0	0	0	0	0	0	0	4	0	0	12	15	0	0	0	0	42	636
7:25 AM	0	0	2	0	0	0	0	2	0	0	0	2	0	0	6	18	0	0	0	0	38	635
7:30 AM	2	0	3	0	0	0	1	1	0	0	0	8	0	0	4	24	0	0	0	0	50	652
7:35 AM	4	0	5	0	0	0	1	0	0	0	0	9	0	0	4	19	1	0	0	0	51	652
7:40 AM	0	0	5	0	0	0	1	0	0	0	0	13	0	0	8	31	1	0	0	0	69	647
7:45 AM	5	0	8	0	0	0	0	0	0	0	0	5	0	0	9	35	0	0	0	0	72	634
7:50 AM	2	0	7	0	0	0	1	0	0	0	0	5	0	0	4	18	1	0	0	0	51	625
7:55 AM	4	0	5	0	0	1	0	1	0	0	0	7	0	0	8	25	0	0	0	0	67	632
8:00 AM	2	0	4	0	0	0	0	1	0	0	0	4	0	0	12	20	0	0	0	0	53	628
8:05 AM	2	0	2	0	0	0	0	0	0	0	0	7	0	0	4	17	0	0	0	0	35	
8:10 AM	1	1	5	0	0	0	0	0	0	0	0	16	0	0	7	21	0	0	0	0	57	
8:15 AM	0	0	2	0	0	0	0	0	0	0	0	11	1	0	5	32	0	0	0	0	51	
8:20 AM	0	0	4	0	0	1	0	0	0	0	0	10	2	0	2	21	1	0	0	0	41	
8:25 AM	2	0	3	0	0	0	0	0	0	0	1	15	1	0	6	26	1	0	0	0	55	
8:30 AM	0	1	4	0	0	1	0	1	0	0	0	17	3	0	3	19	1	0	0	0	50	
8:35 AM	6	0	4	0	0	0	0	0	0	0	0	10	2	0	7	17	0	0	0	0	46	
8:40 AM	1	0	6	0	0	0	0	0	0	0	0	7	2	0	9	31	0	0	0	0	56	
8:45 AM	2	0	1	0	0	2	1	0	0	0	1	11	7	0	5	33	0	0	0	0	63	
8:50 AM	2	0	1	0	0	0	0	0	0	0	0	14	6	0	10	25	0	0	0	0	58	
8:55 AM	2	0	5	0	0	1	0	1	0	0	0	8	10	0	6	29	1	0	0	0	63	

Time Period	NB		NB U-Turn		NB RTOR		SB		SB U-Turn		SB RTOR		EB		EB U-Turn		EB RTOR		WB		WB U-Turn		WB RTOR		PHF=	
	Left	Thru	Right	Turn	Left	RTOR	Left	Thru	Right	Turn	Left	RTOR	Left	Thru	Right	Turn	Left	RTOR	Left	Thru	Right	Turn	Left	RTOR		
Cars	24	1	51	0	0	0	2	3	3	0	0	0	1	127	62	0	0	0	0	70	286	5	0	0	0	0.85
Trucks	0	0	2	0	0	0	0	0	0	0	0	0	0	7	2	0	0	0	3	3	0	0	0	0		
Peak Vols	24	1	53	0	0	0	2	3	3	0	0	0	1	134	64	0	0	0	73	289	5	0	0	0		
Trucks %	2.6%						0.0%						4.5%						1.6%							
Peds	0						0						0						0							

File Name: NW Friberg-Strunk St at NE 13th St
 Start Date: 8/1/2023
 Start Time: 4:00 PM
 Site Code: 2

Peak Hour: 4:40-5:40PM
 Peak 15-min: 4:40-4:55PM

ALL VEHICLES Time Period	Northbound NE 192nd Ave				Southbound NE 192nd Ave				Eastbound NE 13th St				Westbound NE 13th St				5-min Total	Hourly Totals				
	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left	Thru	Right	U-Turn	RTOR	Left			Thru	Right	U-Turn	RTOR
4:00 PM	8	0	16	0	0	0	0	0	0	0	0	2	0	0	0	5	16	0	0	0	62	982
4:05 PM	4	0	18	0	0	0	0	0	0	0	2	16	2	0	0	7	24	0	0	0	73	988
4:10 PM	2	2	26	0	0	0	0	0	0	0	0	20	4	0	0	5	26	0	0	0	85	997
4:15 PM	13	0	18	0	0	0	0	0	0	0	1	21	6	0	0	4	40	0	0	0	103	992
4:20 PM	1	0	22	0	0	0	0	0	0	0	0	28	0	0	0	8	15	0	0	0	75	977
4:25 PM	3	1	19	0	0	0	0	0	0	0	0	19	4	0	0	4	17	0	0	0	67	982
4:30 PM	6	0	15	0	0	0	0	0	0	0	0	28	4	0	0	3	22	0	0	0	78	1016
4:35 PM	6	1	9	0	0	0	0	0	0	0	0	23	2	0	0	13	20	0	0	0	74	1001
4:40 PM	8	1	25	0	0	0	0	0	0	0	0	26	6	0	0	7	21	0	0	0	94	1019
4:45 PM	11	0	19	0	0	0	0	0	0	0	0	31	6	0	0	11	26	0	0	0	104	1008
4:50 PM	4	0	15	0	0	0	0	0	0	0	0	27	6	0	0	6	30	0	0	0	88	982
4:55 PM	3	0	12	0	0	0	0	0	0	0	1	22	3	0	0	11	27	0	0	0	79	970
5:00 PM	4	0	20	0	0	0	0	1	0	0	0	23	3	0	0	5	12	0	0	0	68	969
5:05 PM	3	3	21	0	0	0	0	1	0	0	0	20	3	0	0	8	23	0	0	0	82	
5:10 PM	5	5	14	0	0	0	0	0	0	0	0	20	3	0	0	8	25	0	0	0	80	
5:15 PM	7	1	15	0	0	0	0	0	0	0	1	25	6	0	0	6	25	2	0	0	88	
5:20 PM	6	1	19	0	0	0	0	1	0	0	4	18	4	0	0	7	20	0	0	0	80	
5:25 PM	6	0	26	0	0	0	0	0	0	0	2	23	7	0	0	11	26	0	0	0	101	
5:30 PM	3	0	16	0	0	0	0	1	0	0	1	11	5	0	0	9	16	0	0	0	63	
5:35 PM	5	0	19	0	0	0	0	1	1	0	0	34	3	0	0	15	14	0	0	0	92	
5:40 PM	7	1	16	0	0	0	0	0	4	0	0	25	6	0	0	7	17	0	0	0	83	
5:45 PM	3	0	17	0	0	0	0	1	4	1	0	21	4	0	0	12	15	0	0	0	78	
5:50 PM	5	0	14	0	0	0	0	1	1	0	0	25	3	0	0	8	19	0	0	0	76	
5:55 PM	2	0	20	0	0	0	0	0	1	0	0	25	4	0	0	8	18	0	0	0	78	

Time Period	NB		NB U-Turn		NB RTOR		SB		SB U-Turn		SB RTOR		EB		EB U-Turn		EB RTOR		WB		WB U-Turn		WB RTOR		PHF=		
	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn	Left	Thru	Right	Turn			
Cars	65	11	219	0	0	0	4	3	0	0	0	0	9	280	55	0	0	0	0	0	104	262	2	0	0	0	0.89
Trucks	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	
Peak Vols	65	11	221	0	0	0	4	3	0	0	0	0	9	280	55	0	0	0	0	0	104	265	2	0	0	0	
Trucks %	0.7%				0.0%				0.0%				0.0%				0.8%				0.8%						
Peds	4				4				1				3														

File Name: NW Friberg-Strunk St at SE 1st St
 Start Date: 8/1/2023
 Start Time: 4:00 PM
 Site Code: 3

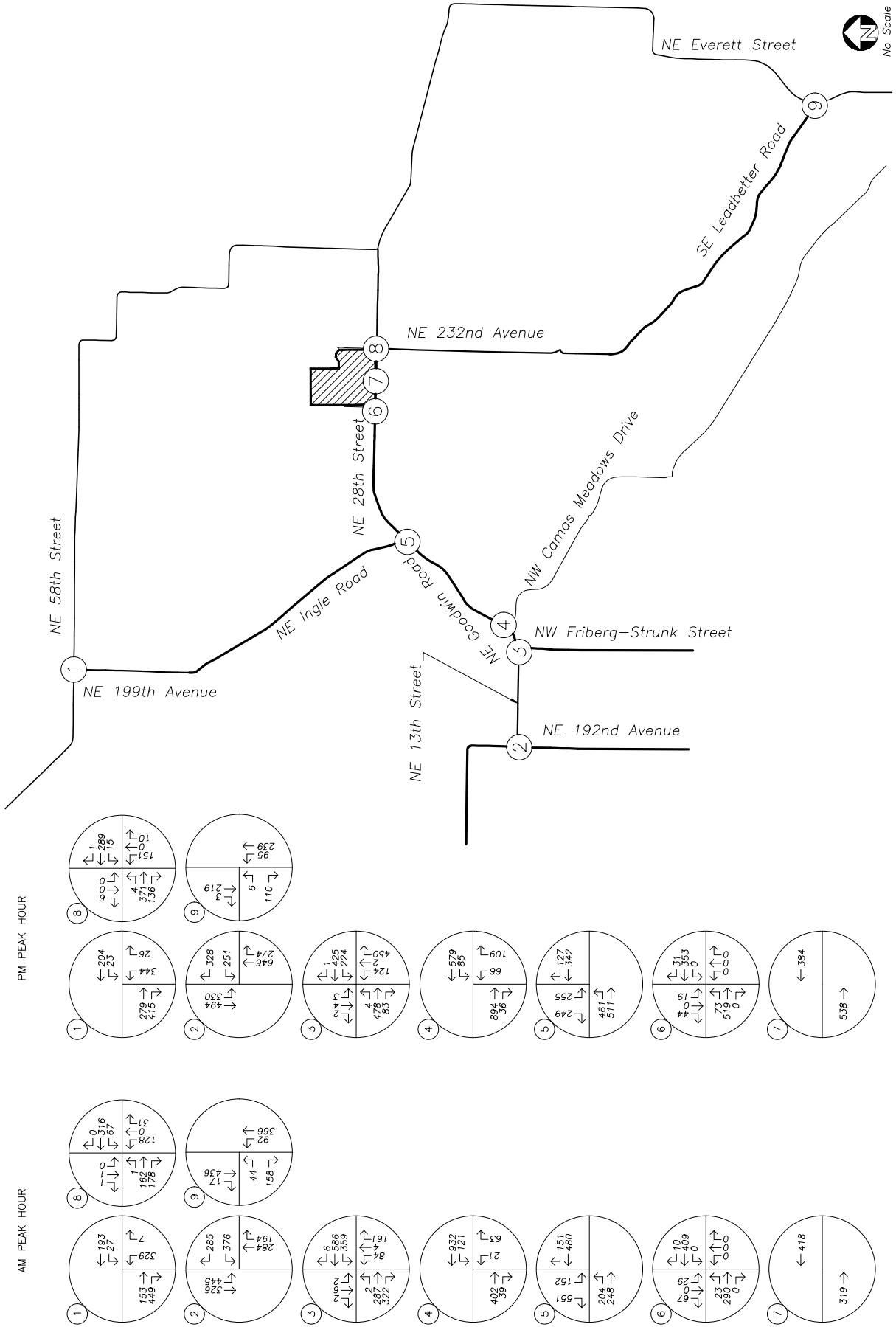
Peak Hour: 7:35-8:35AM
 Peak 15-min: 7:45-8:00AM

Time Period	Northbound N/A			Southbound NE Friberg-Strunk St			Eastbound SE 1st St			Westbound NW Lake Rd			5-min Total	Hourly Totals		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			U-Turn	RTOR
7:00 AM	0	0	0	3	0	2	2	12	0	0	4	0	0	38	637	
7:05 AM	0	0	0	1	0	1	5	13	0	0	1	0	0	39	674	
7:10 AM	0	0	0	3	0	1	2	14	0	0	3	0	0	38	692	
7:15 AM	0	0	0	5	0	2	7	13	0	0	4	0	0	41	705	
7:20 AM	0	0	0	5	0	4	2	17	0	0	2	0	0	52	708	
7:25 AM	0	0	0	5	0	8	4	9	0	0	0	0	0	39	710	
7:30 AM	1	0	0	5	0	2	2	12	0	0	3	0	0	38	713	
7:35 AM	0	0	0	6	0	3	5	16	0	0	3	0	0	51	723	
7:40 AM	0	0	0	9	0	6	9	15	0	0	0	0	0	65	711	
7:45 AM	0	0	0	5	0	7	9	23	0	0	5	0	0	75	701	
7:50 AM	0	0	0	5	0	8	7	25	0	0	2	0	0	72	685	
7:55 AM	0	0	0	7	0	4	7	32	0	0	2	0	0	89	678	
8:00 AM	0	0	0	7	0	5	3	32	0	0	2	0	0	75	672	
8:05 AM	0	0	0	9	0	5	2	18	0	0	2	0	0	57	57	
8:10 AM	0	0	0	6	0	2	5	12	0	0	4	0	0	51	51	
8:15 AM	0	0	0	5	0	5	2	16	0	0	0	0	0	44	44	
8:20 AM	0	0	0	2	0	3	5	21	0	0	2	0	0	54	54	
8:25 AM	0	0	0	3	0	2	5	16	0	0	2	0	0	42	42	
8:30 AM	0	0	0	1	0	4	7	21	0	0	0	0	0	48	48	
8:35 AM	0	0	0	2	0	3	2	15	0	0	1	6	0	39	39	
8:40 AM	1	0	0	3	0	6	7	16	0	0	2	0	0	55	55	
8:45 AM	0	0	0	2	0	6	5	21	0	0	0	1	0	59	59	
8:50 AM	1	0	0	4	0	14	2	23	0	0	3	0	0	65	65	
8:55 AM	0	0	0	4	0	7	11	28	0	0	7	0	0	83	83	
	NB NB NB U- NB			SB SB SBU- SB			EB EB EBU- EB			WB WB WBU- WB						
Time Period	Left	Thru	Right	Turn	RTOR	Left	Thru	Right	Turn	RTOR	Left	Thru	Right	Turn	RTOR	
Cars	0	0	0	0	0	63	0	53	0	0	0	265	24	0	0	
Trucks	0	0	0	0	0	2	0	1	0	0	0	2	0	0	0	
Peak Vols	0	0	0	0	0	65	0	54	0	0	0	267	24	0	0	
Trucks %	0%					2.5%					2.9%					0.7%
Peds	0					7					2					1
	PHF=															
	0.77															

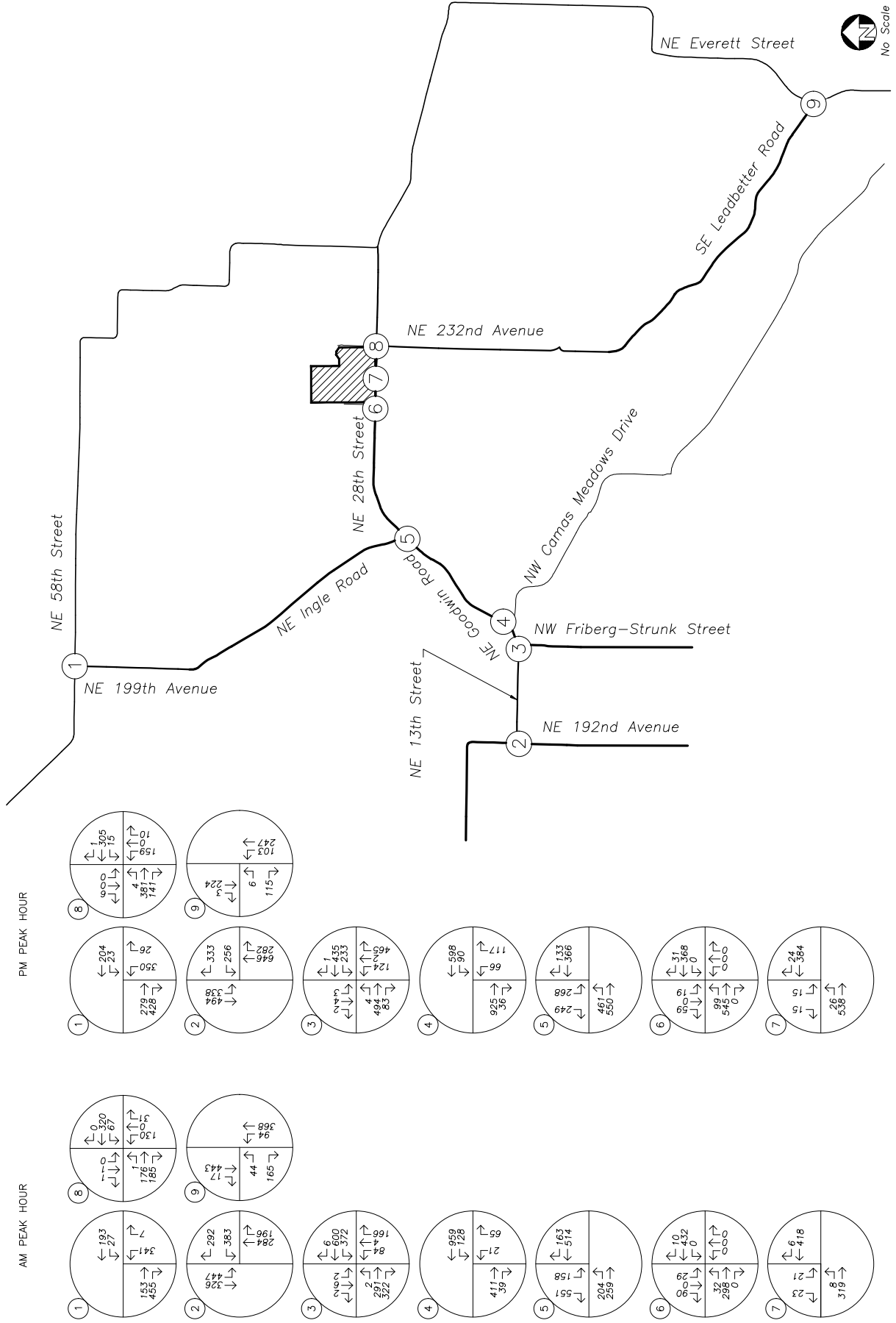
0% Build-Out Camas Heights Subdivision - 8/24/23

Figure 5
Camas Heights
10/22/2021

TRAFFIC VOLUMES
Year 2023 Background Conditions
AM & PM Peak Hours



0% Build-Out Camas Heights Subdivision - 8/24/23



CURRENT PROPOSED DEVELOPMENT PLAN

The B1 South Phase consists of 124 attached units and 2 single-family detached homes and is expected to be completed by 2020. It is located in the southwest portion of the overall site, directly south of Phase 1. Access will be provided via the neighborhood collector built with Phase 1, which connects to NE Ingle Road. In the future, this neighborhood collector will connect to Phase 3 of the site.

Trip Generation

Trip generation estimates for the proposed development were generated based on information provided in the standard reference manual *Trip Generation, 9th Edition* published by the Institute of Transportation Engineers (ITE – Reference 2). Table 1 summarizes the daily, weekday AM, and weekday PM peak-hour trips for the B1 South Phase assumed development.

Table 1: Trip Generation Estimate – B1 South Phase

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Residential Condominium/ Townhouse	230	124 units	720	55	9	46	65	43	22
Single-Family Detached Housing	210	2 units	20	2	1	1	2	1	1
Total Residential (126 units)			740	57	10	47	67	44	23

Table 2 summarizes the overall master plan trip generation and then deducts for the cumulative Phase 1¹, Phase 2¹ Phase 3, and B1 South Phase trips to summarize the number of net new trips that will remain vested.

¹ While previous traffic analysis assumed 215 units in Phase 1, Phase 1 as platted consists of 201 units. While previous traffic analysis assumed 230 units in Phase 2, Phase 2 is now platted for 228 units. The updated trip totals are shown in Table 2.

Table 2: Master Plan Trip Generation and Build-out Debiting (Includes Phase 1, 2 and 3)

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Apartment	220	536 units	3,570	275	55	220	330	215	115
Single-Family Detached Housing	210	764 units	7,270	575	145	430	765	480	285
Total Residential (1,300 units)			10,840	850	200	650	1,095	695	400
Internalization (6% Daily, 54% PM)			630	0	0	0	60	30	30
Shopping Center	820	90,000 square feet	6,340	145	90	55	560	270	290
Internalization (10% Daily, 11% PM)			630	0	0	0	60	30	30
Pass-By Trips (34%)			1,940	50	25	25	170	85	85
Total Vested Trips			17,180	995	290	705	1,655	965	690
Less Internalization			1,260	0	0	0	120	60	60
Less Pass-by trips			1,940	50	25	25	170	85	85
Vested Net New Trips for Full Build-out			13,980	945	265	680	1,365	820	545
Deduct for Net New Trips for Phase 1			1,914	150	40	110	200	125	75
Deduct for Net New Trips for Phase 2			2,170	170	40	130	230	145	85
Deduct for Net New Trips for Phase 3			1,514	120	30	90	160	100	60
Deduct for Net New Trips for B1 South Phase ¹			740	55	10	45	70	45	25
Remaining Trips			7,642	450	145	305	705	405	300

¹Consistent with the accounting for the other phases, peak hour trips have been rounded to the nearest five trips for the overall trip generation debiting.

As seen in Table 2, after accounting for Phase 1, Phase 2, Phase 3 and B1 South Phase development, a total of 7,642 daily; 450 weekday AM peak hour; and 705 weekday PM peak hour trips remain in the master plan approval.

Trip Distribution and Assignment

The distribution of site-generated trips onto the study area roadway system was estimated utilizing the trip distribution provided in the Master Plan TIA. Appendix C illustrates the trip assignment.

EVALUATION OF OUTSTANDING MITIGATION NEEDS

The Master Plan TIA identified recommended mitigations for intersections not meeting standards under background and/or total traffic conditions. As part of each phase's transportation compliance letter, the TIA recommended evaluation of the following:

- Need for an eastbound right-turn lane at NE 199th Avenue/NE 58th Street (SR 500). As part of the Phase 3 Transportation Compliance Letter, this recommendation was adapted to provide a proportionate share contribution to a future roundabout, per direction from WSDOT.
- NE Ingle Road/NE Goodwin Road operations (including traffic signal warrant analysis).

- Assessment of proportionate share contribution at NE 192nd Avenue/NE 13th Street.

NE 199th Avenue/NE 58th Street (SR 500)

The Master Plan TIA recommended that future subdivision applications provide an updated assessment as to the potential need for providing a right-turn taper or lane at NE 199th Avenue/NE 58th Street (SR 500), considering both the need for a right-turn taper or lane and delay with the northbound left-turn. Based on subsequent discussions with WSDOT and Clark County staff, WSDOT has identified a single-lane roundabout as the preferred mitigation at the intersection in lieu of installation of a westbound right-turn lane. Recognizing the cost of designing and constructing a roundabout exceeds the impacts associated with the Green Mountain Master Plan and represents an “ultimate” long-term improvement need, WSDOT and Clark County will coordinate to administer a proportionate share impact mitigation methodology.

Payment of proportionate share mitigation towards the future roundabout will allow Green Mountain Master Plan development (as well as other subsequent development) a basis to satisfy transportation concurrency while providing a funding mechanism to allow the public agencies to advance intersection improvements. The proportionate cost share of intersection improvements attributable to Green Mountain B1 South Phase will be based on weekday PM peak hour trips through the intersection. The B1 South Phase is projected to add 14 site-generated trips to the intersection during the weekday PM peak hour (refer to Appendix C).

NE Ingle Road/NE Goodwin Road

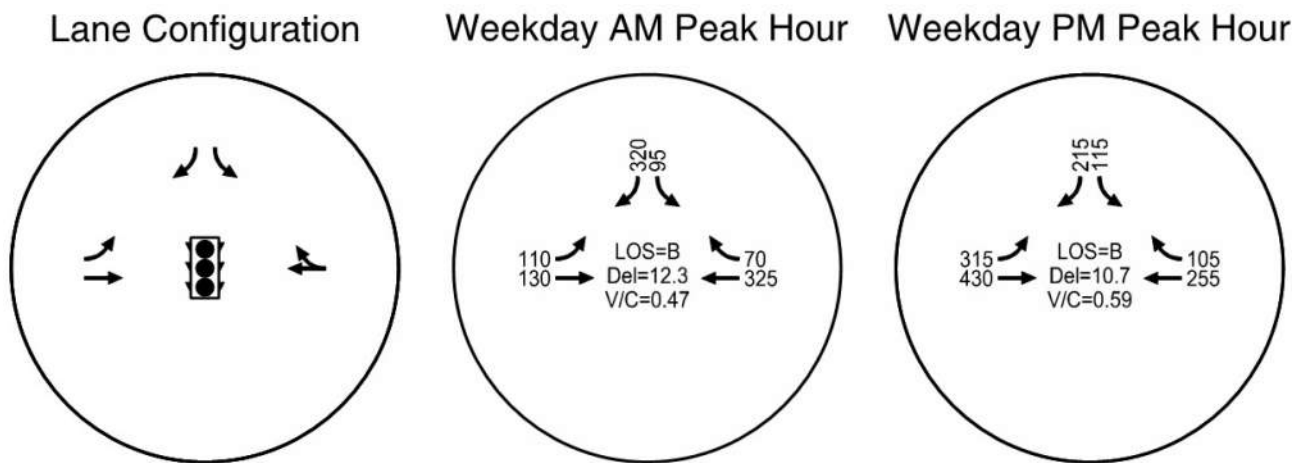
In the Master Plan TIA, the intersection of NE Ingle Road/NE Goodwin Road was projected to not meet City of Camas intersection operating standards in the 2029 background conditions during the weekday PM peak hour and the 2029 total traffic conditions during both the weekday AM and PM peak hours. Therefore, the following series of mitigations were recommended in conjunction with the Master Plan development:

- Construct an eastbound left-turn lane on NE Goodwin Road at NE Ingle Road with the first Phase 1 trip (*completed*).
- Construct a westbound right-turn lane on NE Goodwin Road at NE Ingle Road with the 203rd Phase 1 trip (prior to occupancy of 203rd single family home on site). The right-turn lane should provide at least 100 feet of storage (*this improvement was reprioritized after signalization of NE Goodwin Road at NE Ingle Road. It is anticipated that the right-turn lane will be constructed prior to or in-conjunction with completion of the phase that fronts Goodwin Road in the turn-lane area*).

- Construct a three-lane roadway section (with center two-way left-turn lane) on NE Goodwin Road along the site frontage in conjunction with standard frontage improvements as adjacent development occurs (*will be constructed with Phase 2 development*).
- Upon completion of Phase 1 site development (including construction of the eastbound left-turn lane on NE Goodwin Road at NE Ingle Road with Phase 1), the developer shall monitor the need for installation of a traffic signal with each future subdivision application at the intersection and construct a traffic signal when the intersection no longer satisfies City of Camas performance standard (LOS "D" and v/c of 0.90 or better) and the intersection volumes meet traffic signal warrants (subject to direction from the City of Camas) (*recommended with Phase 3 site development*).

Signalized intersection operations are provided in Exhibit 1 assuming Phase 1, Phase 2, Phase 3 and B1 South Phase site development as well as approved background traffic. Given ongoing construction activity in the area, traffic counts previously collected in October 2016 for the Phase 2 TCL were used with four years of growth added² to inform an updated operations analysis. The count sheets are provided in Appendix D. Appendix E contains the 2020 total traffic conditions traffic operations worksheets.

Exhibit 1: NE Ingle Road/NE Goodwin Road 2020 Total Traffic Lane Configuration and Operations



As seen in Exhibit 1, with buildout of the B1 South Phase and the prior approved master plan development phases, the intersection is projected to satisfy City of Camas performance standard (LOS "D" and v/c of 0.90 or better).

² Based on direction provided in the original traffic study, a 1% growth was applied to City of Camas roadways.

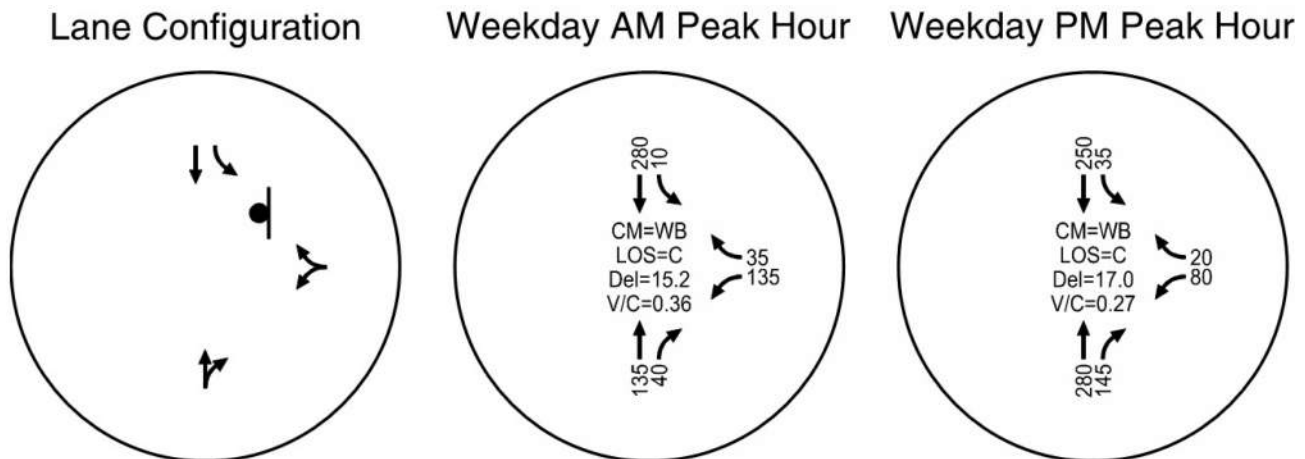
NE 192nd Avenue/NE 13th Street

The Master Plan TIA identified a proportionate cost sharing methodology to fund future construction of a northbound right-turn lane and a westbound right-turn lane on NE 13th Avenue at NE 192nd Avenue, provided in *Appendix F*. Under this methodology, each weekday PM peak hour trip would be assessed a fee of \$391. Based on the B1 South Phase trip assignment (refer to *Appendix C*), the B1 South Phase adds 31 trips to the intersection of NE 192nd Avenue/NE 13th Street and therefore should be responsible for contributing \$12,121 towards future improvements at the intersection.

ON-SITE CIRCULATION AND OPERATIONS

As seen in Figure 2, the B1 South Phase is located in the southwest portion of the overall site, immediately south of Phase 1. Access will be provided via a local roadway off the neighborhood circulator that connects to NE Ingle Road, developed with Phase 1. The neighborhood circulator will be located along the east edge of the B1 South Phase and connect to Phase 2 and NE 28th Street in the future. All trips were assumed to utilize the neighborhood circulator access on NE Ingle Road developed with Phase 1. The Phase 1 access was analyzed in the April 2015 memorandum *Phase 1 Access Assessment*, provided in *Appendix G*. Operations were reassessed with the additional B1 South Phase trips, as well as through trips on NE Ingle Road associated with prior approved phases and background growth. The weekday AM and PM peak hour operations are shown in Exhibit 2. *Appendix E* contains the traffic operations worksheets.

Exhibit 2: NE Ingle Road Neighborhood Circulator Site Access – 2020 Total Traffic Lane Configuration and Operations

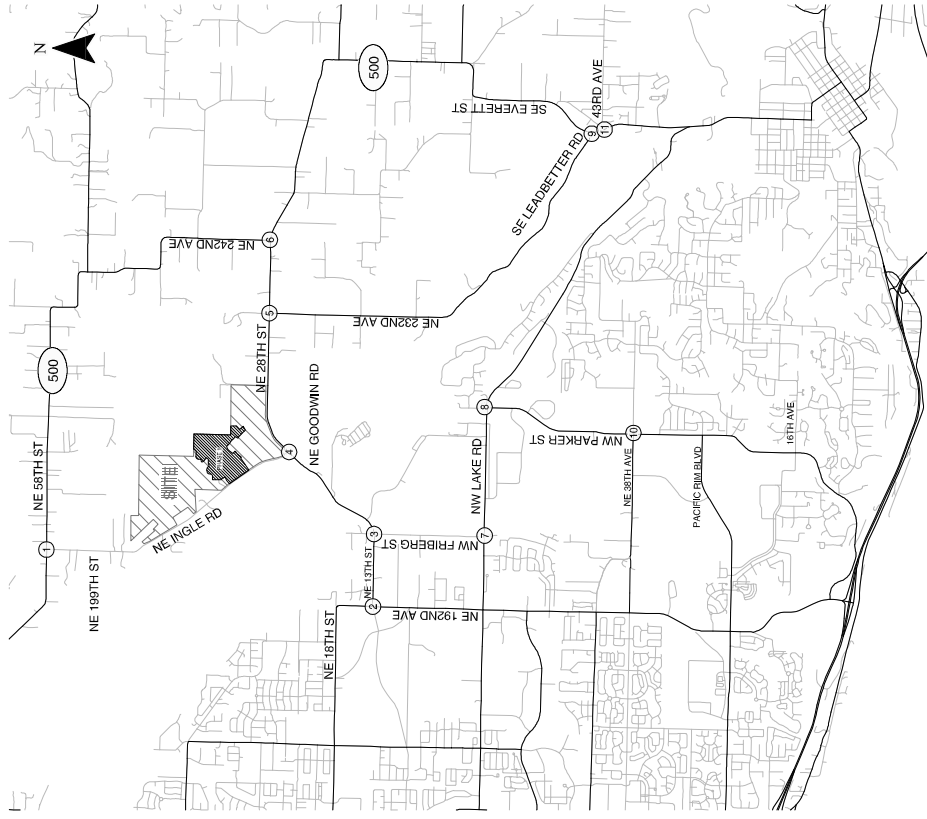


As seen in the exhibit, the access is projected to operate acceptably during both the weekday AM and PM peak hours. The anticipated 95th percentile queueing is provided in Table 3. Queues are rounded up to the nearest 25 feet.

90% Build-Out Green Mountain PRD Phase 1 8/24/23

Green Mountain Master Plan

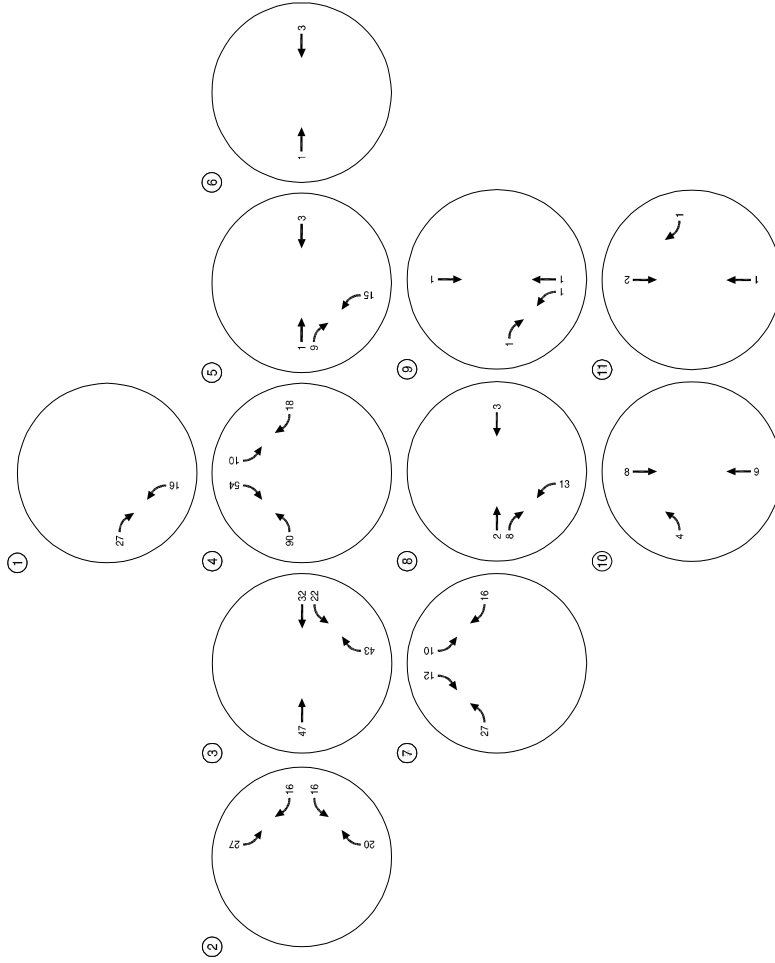
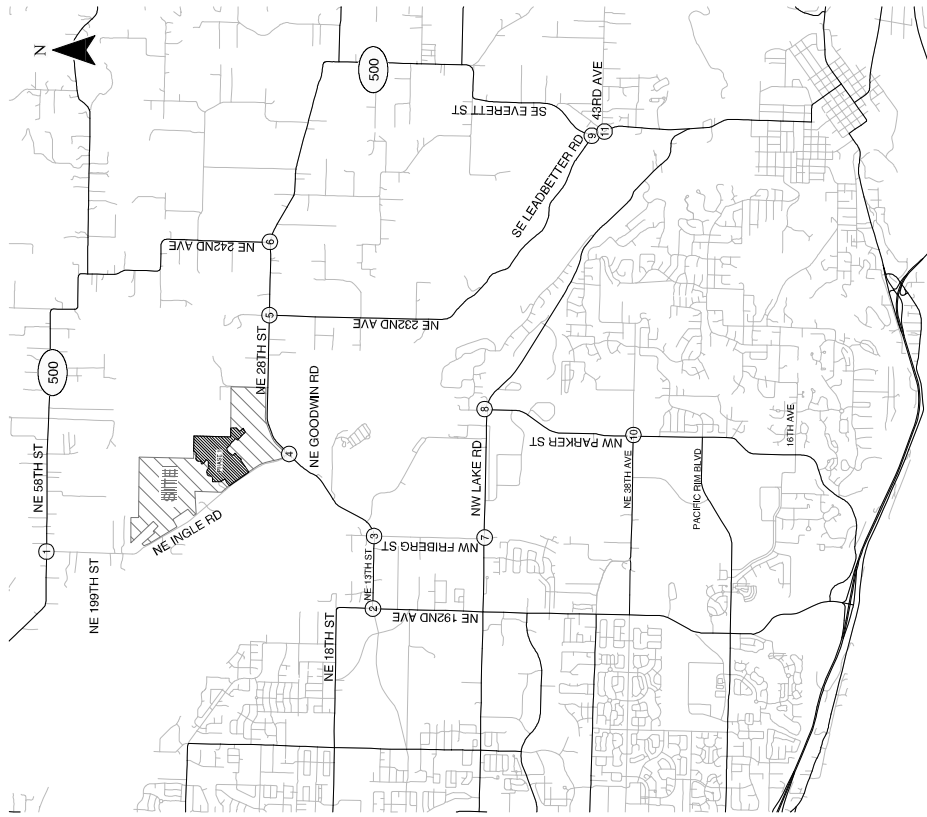
November 2014



Total Estimated Trip Assignment - Phase 1
Weekday AM Peak Hour
Camas, Washington

Figure
7

90% Build-Out Green Mountain PRD Phase 1 8/24/23



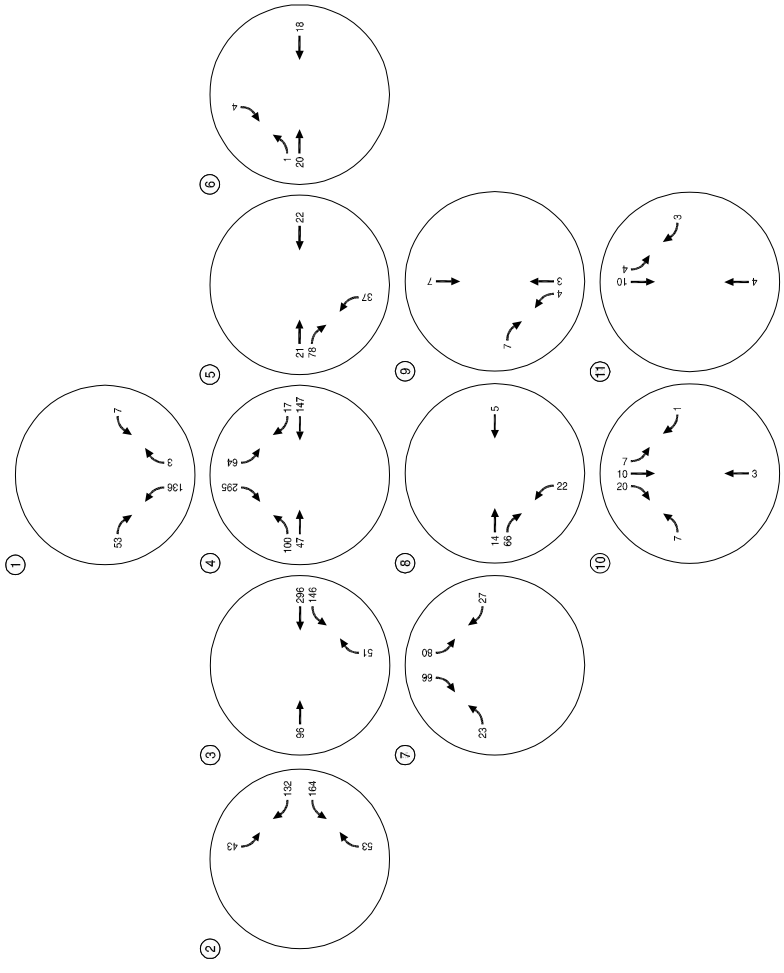
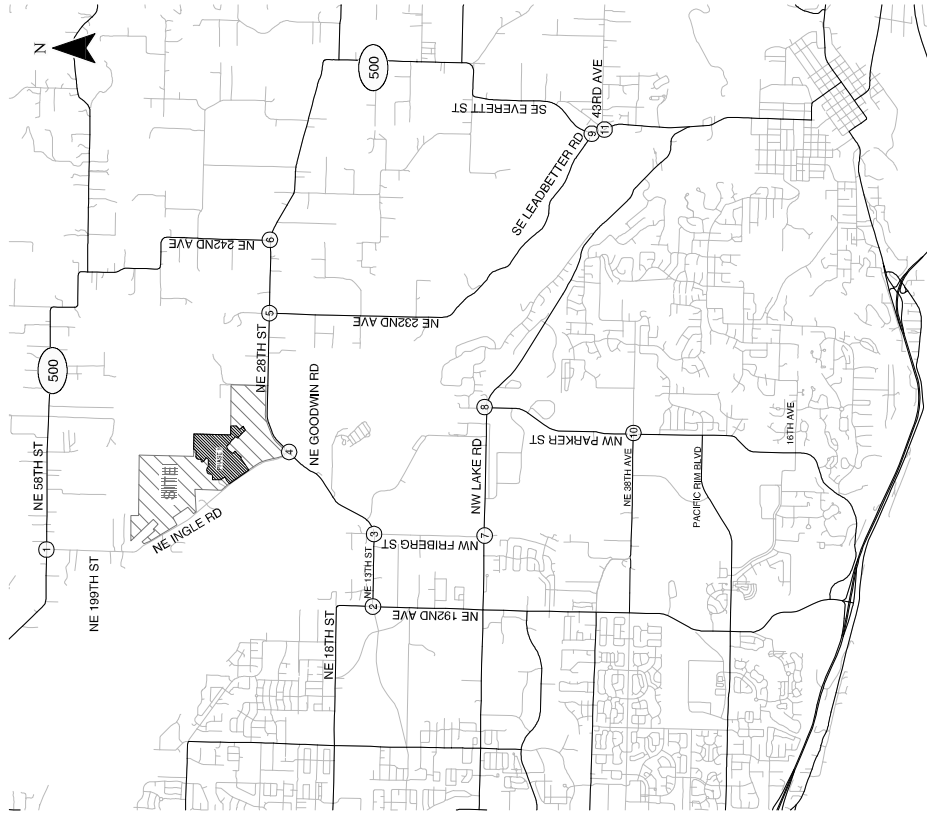
Total Estimated Trip Assignment - Phase 1
Weekday PM Peak Hour
Camas, Washington

Figure
8

90% Build-Out Green Mountain PRD Phase 1 8/24/23

Green Mountain Master Plan

November 2014



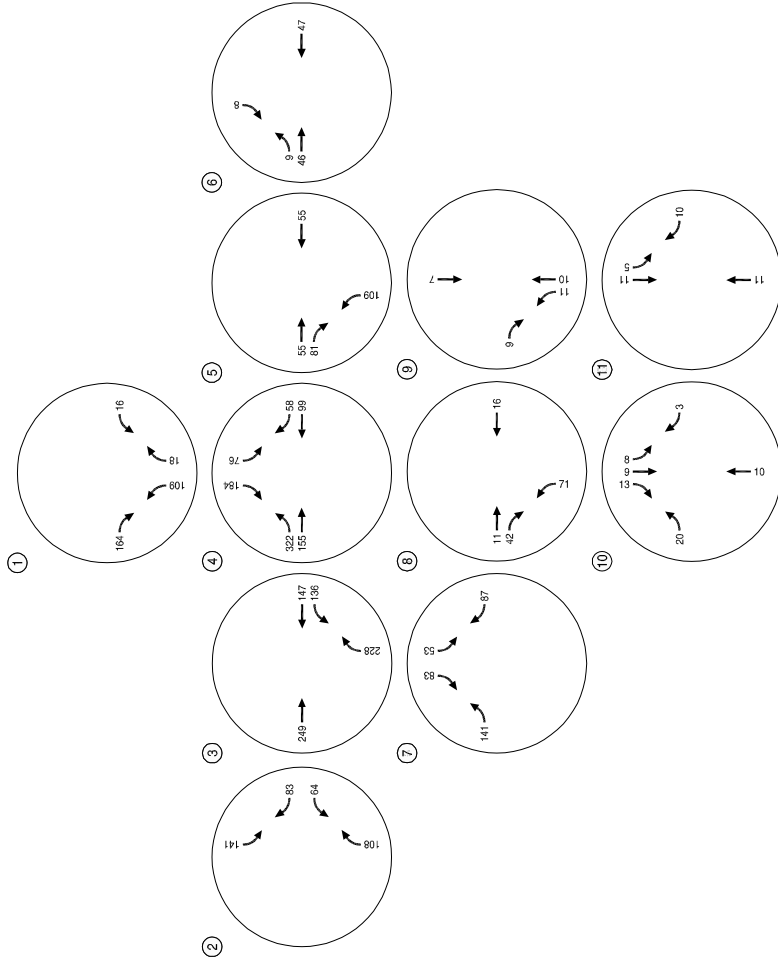
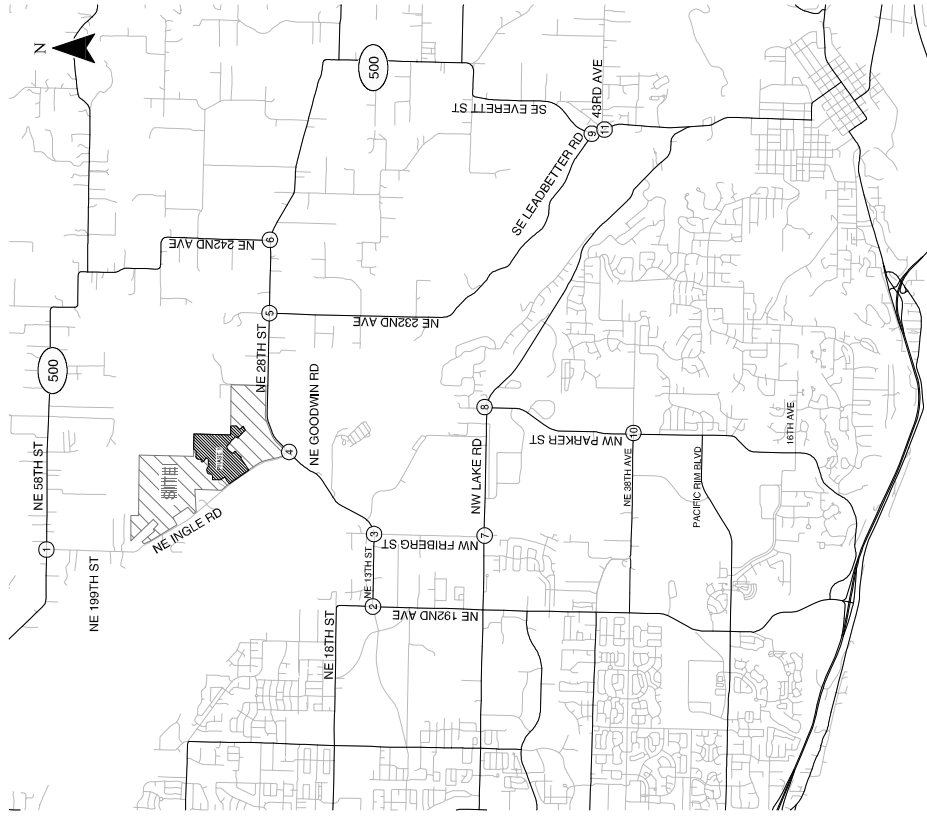
Total Estimated Trip Assignment - Full Build-Out
Weekday AM Peak Hour
Camas, Washington

Figure 9

90% Build-Out Green Mountain PRD Phase 1 8/24/23

Green Mountain Master Plan

November 2014



Total Estimated Trip Assignment - Full Build-Out
Weekday PM Peak Hour
Camas, Washington

Figure 10

Lacamas Tech Center
Camas, WA

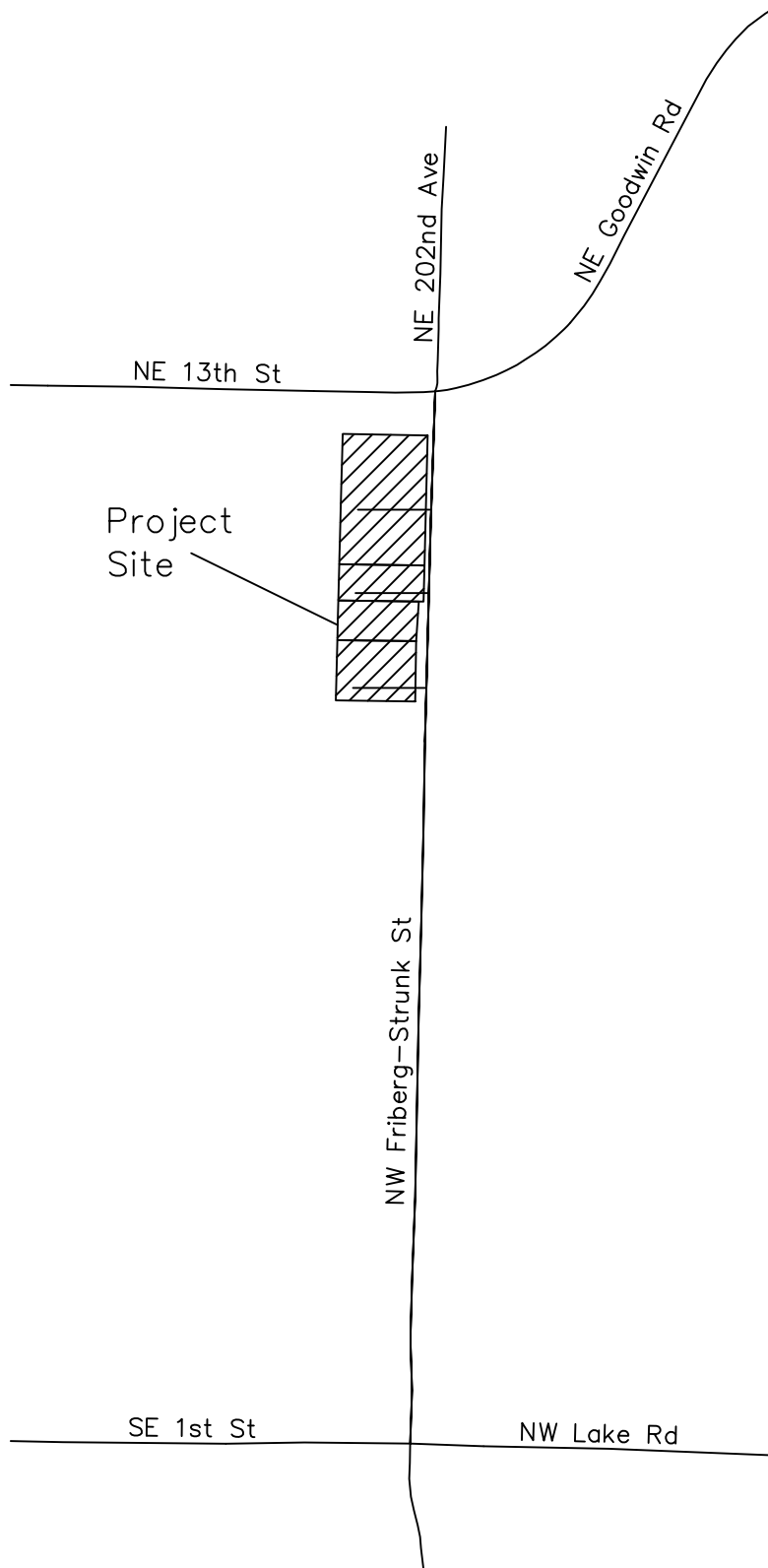
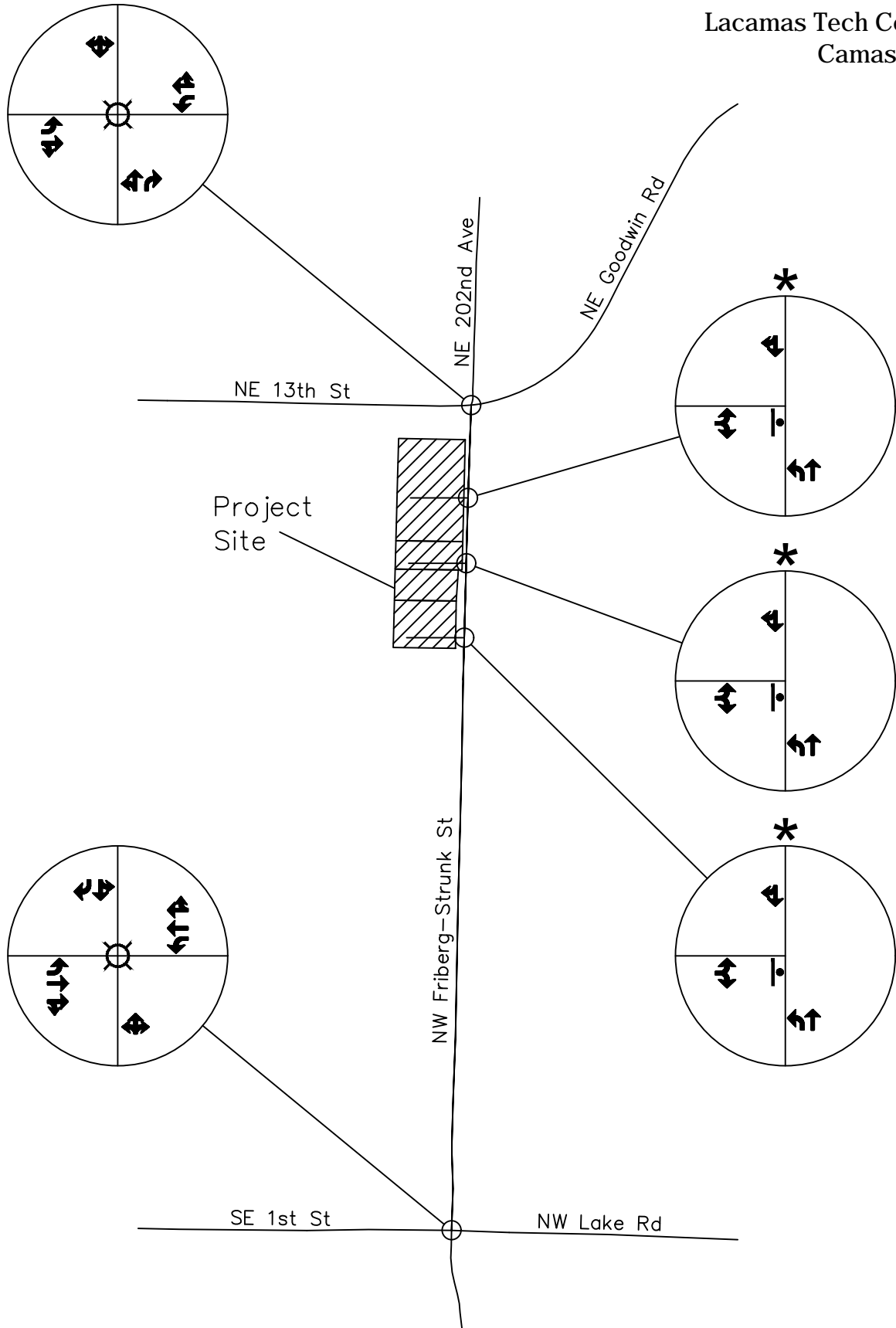


FIGURE 1
Site Vicinity Map



Lacamas Tech Center
Camas, WA



LEGEND



NOT TO SCALE



Lane Usage

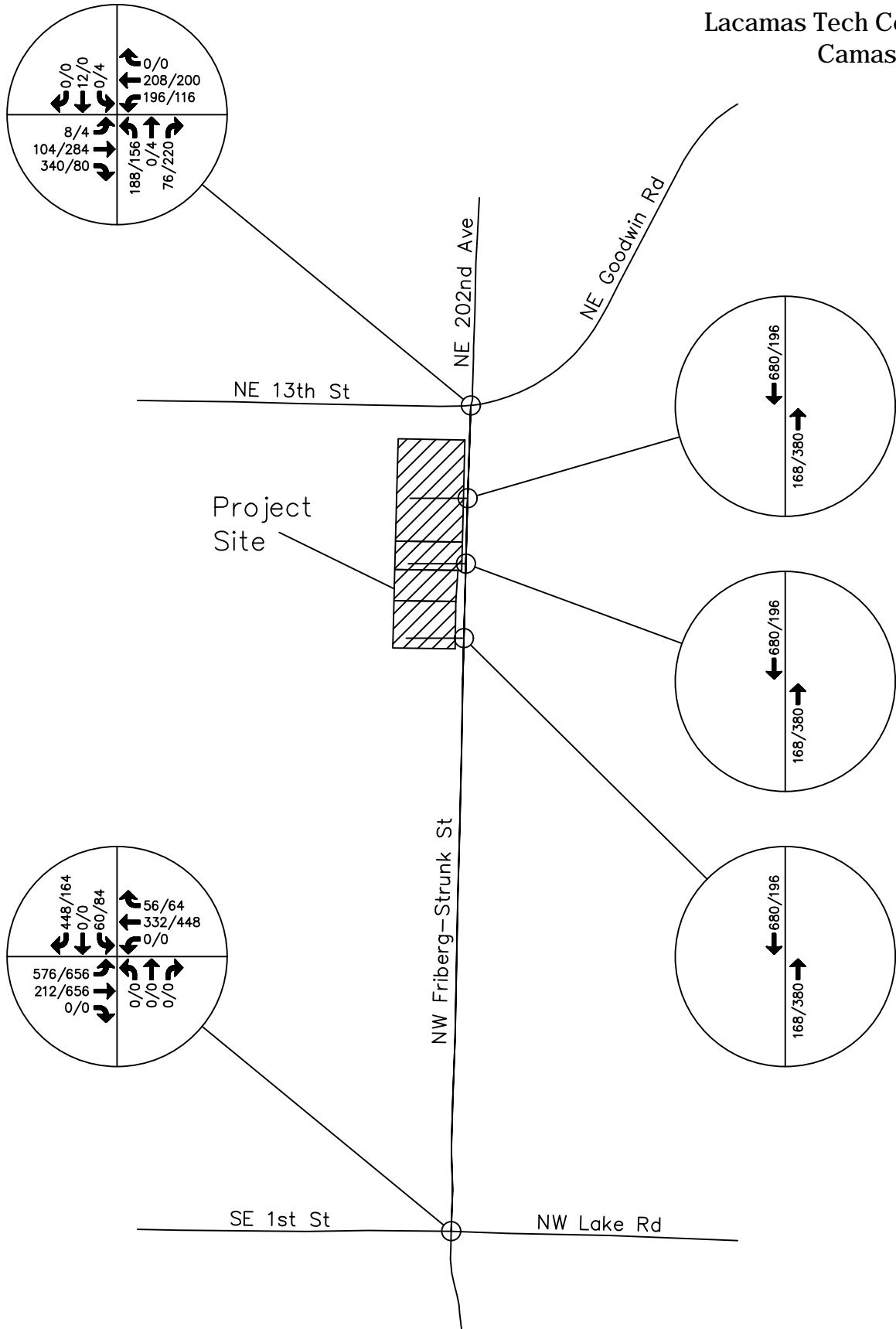
Traffic Signal

Stop Sign

* 2025 "With Project" Lane Configuration and Traffic Control

FIGURE 3
Existing Lane Configuration and Traffic Control

Lacamas Tech Center
Camas, WA

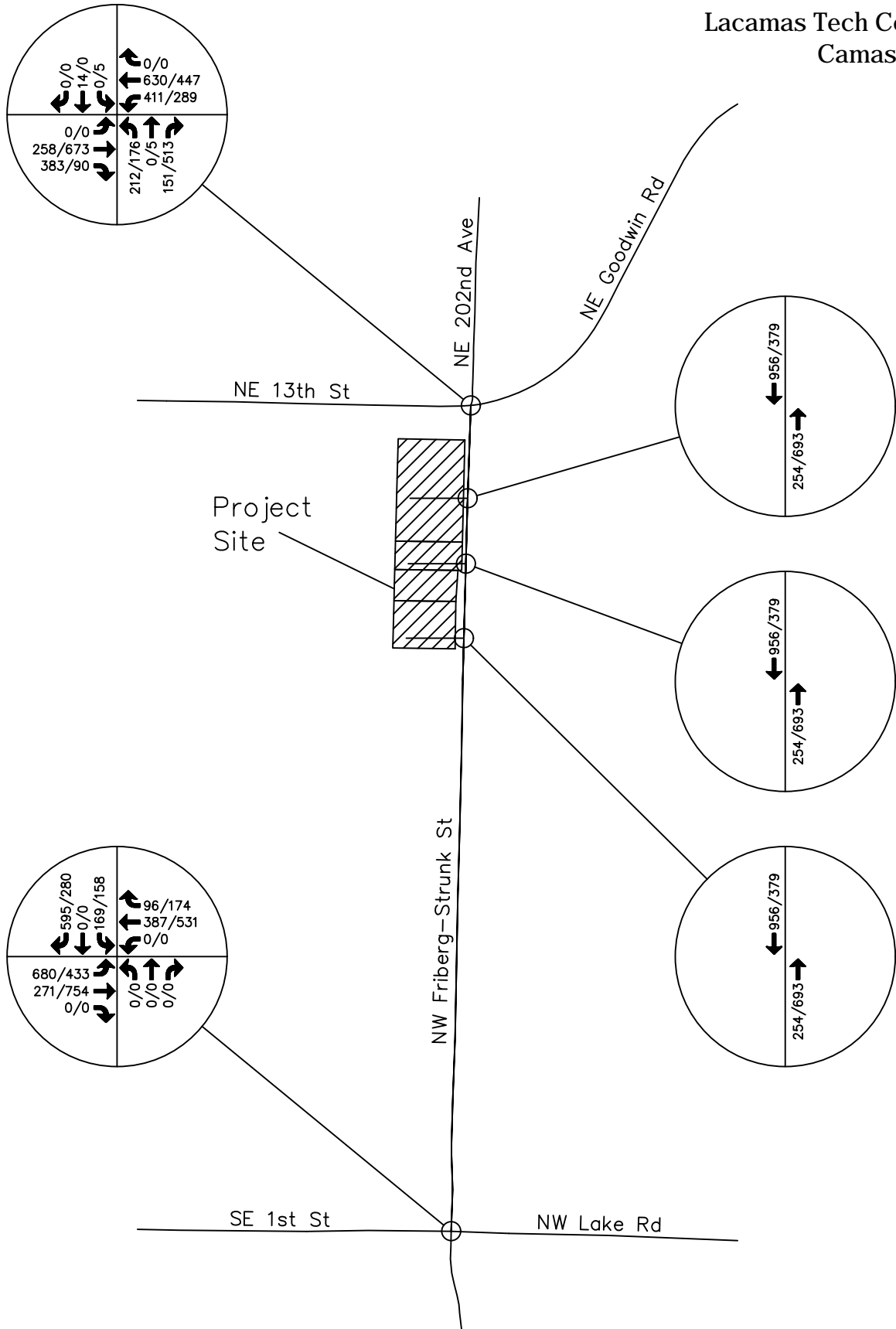


LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 4
Existing A.M. and P.M.
Peak Hour Traffic Volumes

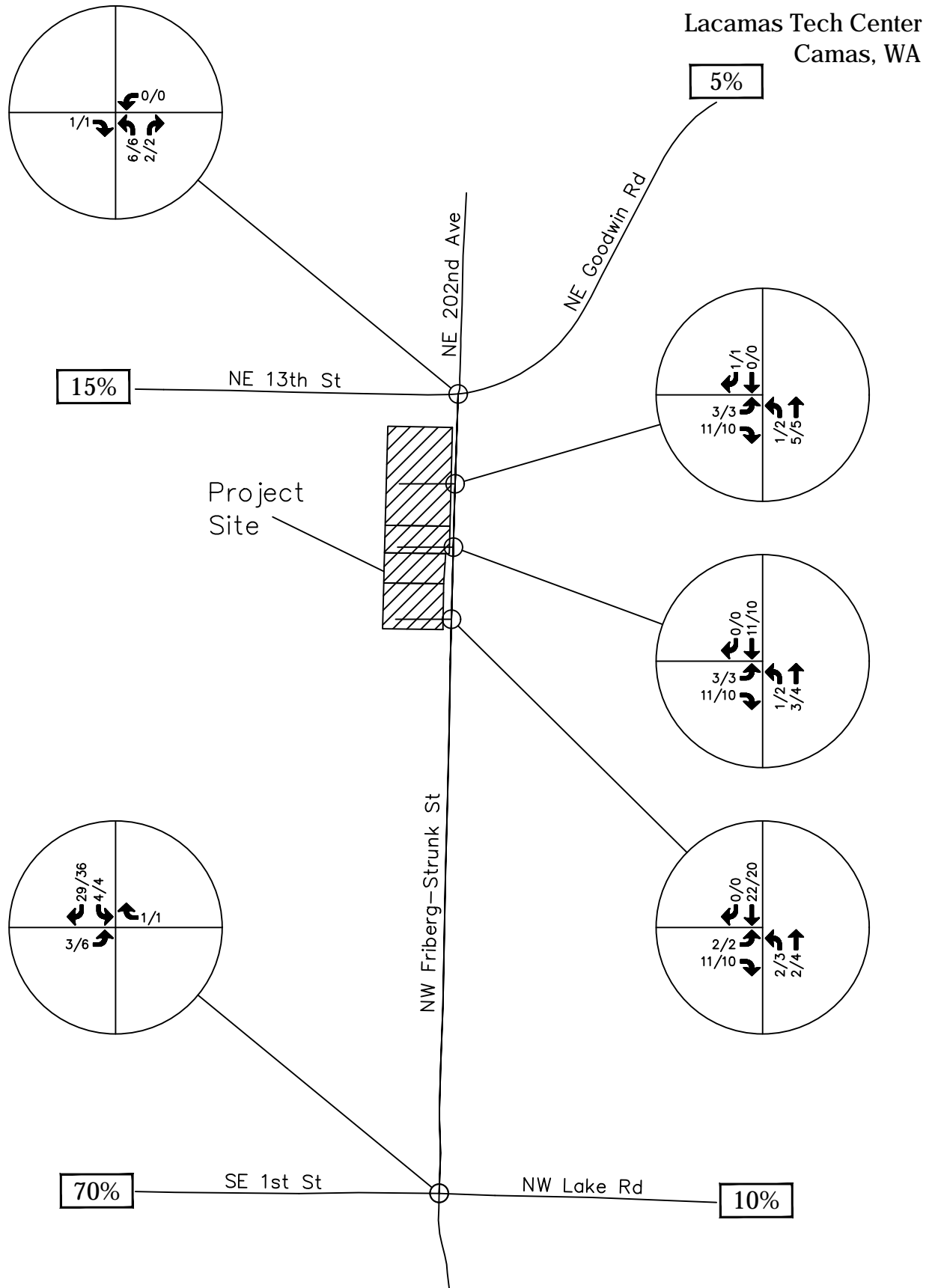
Lacamas Tech Center
Camas, WA



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 5
2025 "Without Project"
A.M. and P.M. Peak Hour Traffic Volumes



LEGEND

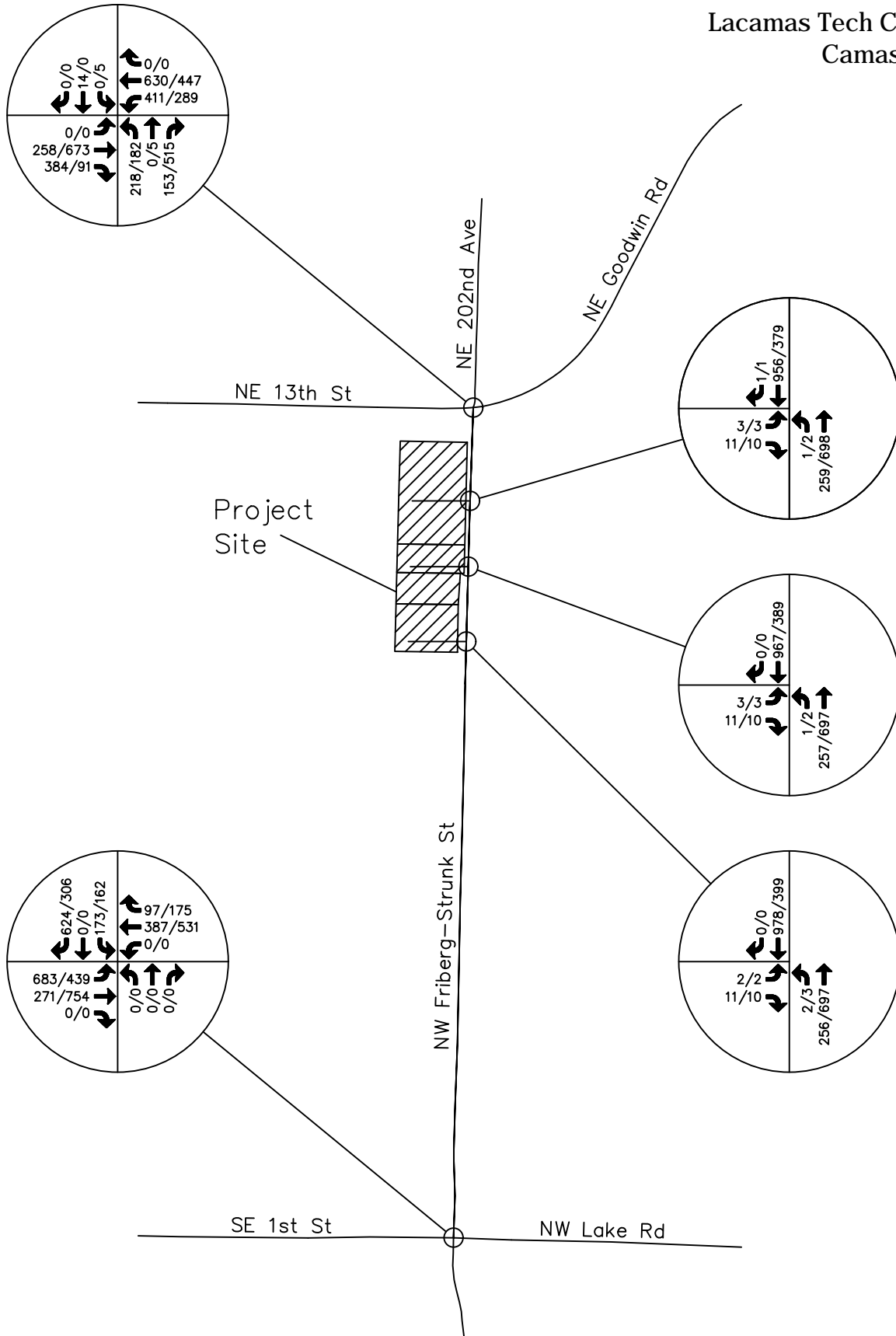
128/200 A.M./P.M. Peak Hour
Traffic Volume

10% Peak Hour Trip Distribution

FIGURE 6
Trip Distribution and Assignment
Traffic Volumes

NOT TO SCALE

Lacamas Tech Center
Camas, WA



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 7
2022 "With Project"
A.M. and P.M. Peak Hour Traffic Volumes

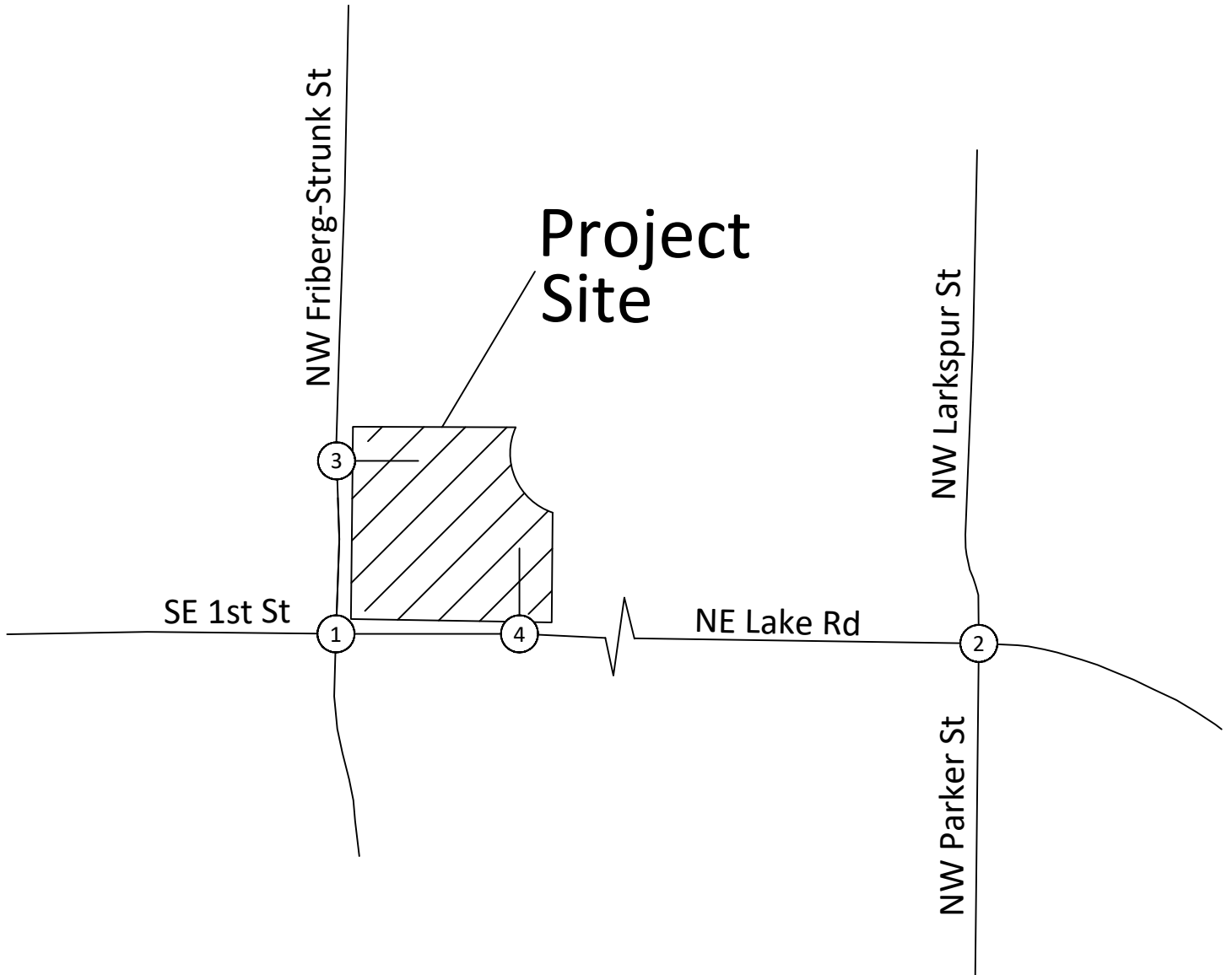
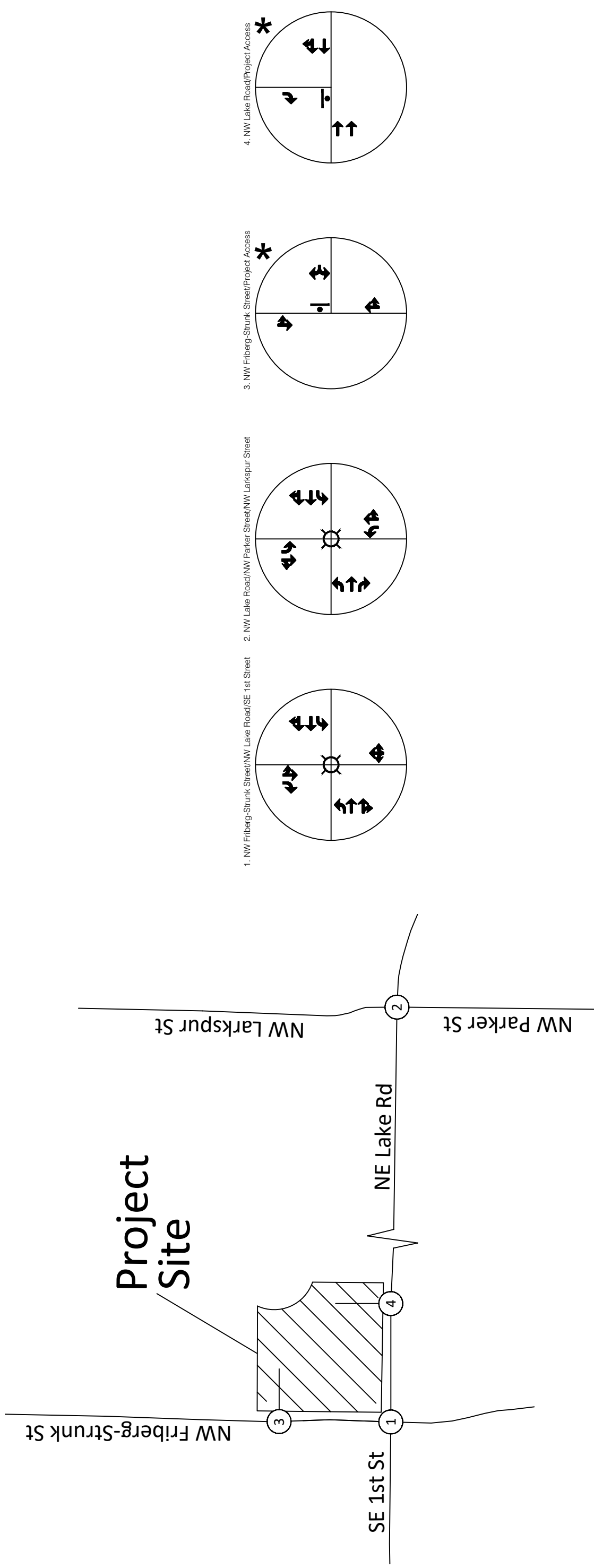


FIGURE 1
Vicinity Map

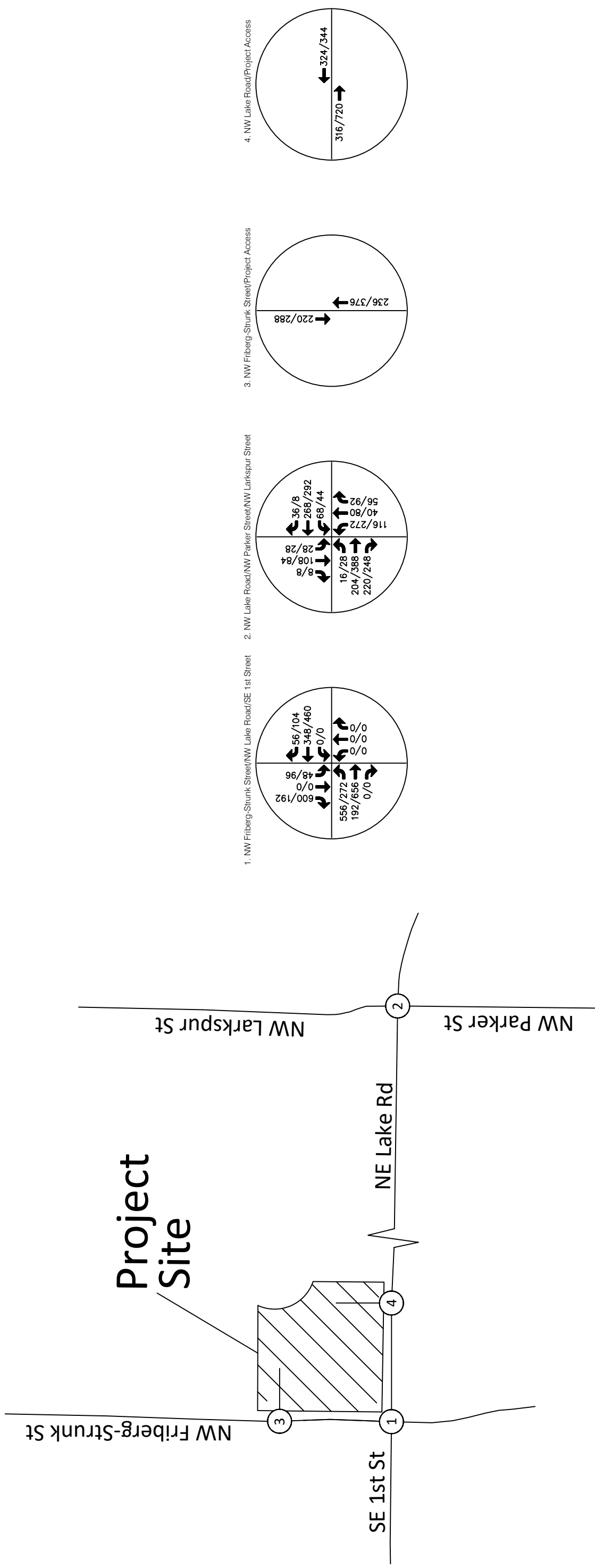


LEGEND

- Lane Usage
- Traffic Signal
- Roundabout
- Stop Sign
- 2027 "With Project" Lane Configuration

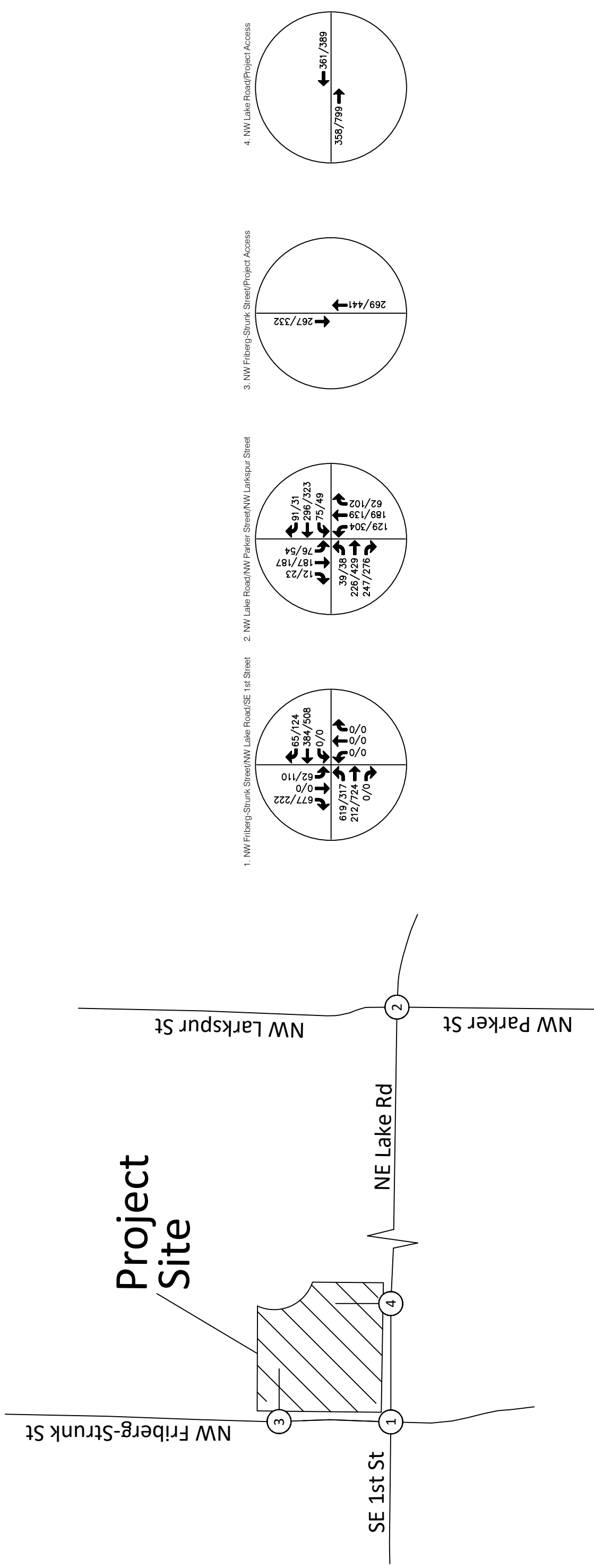
NOT TO SCALE

FIGURE 3
Existing Lane Configuration and Traffic Control



LEGEND
A.M./P.M. Peak Hour
128/200
Traffic Volume

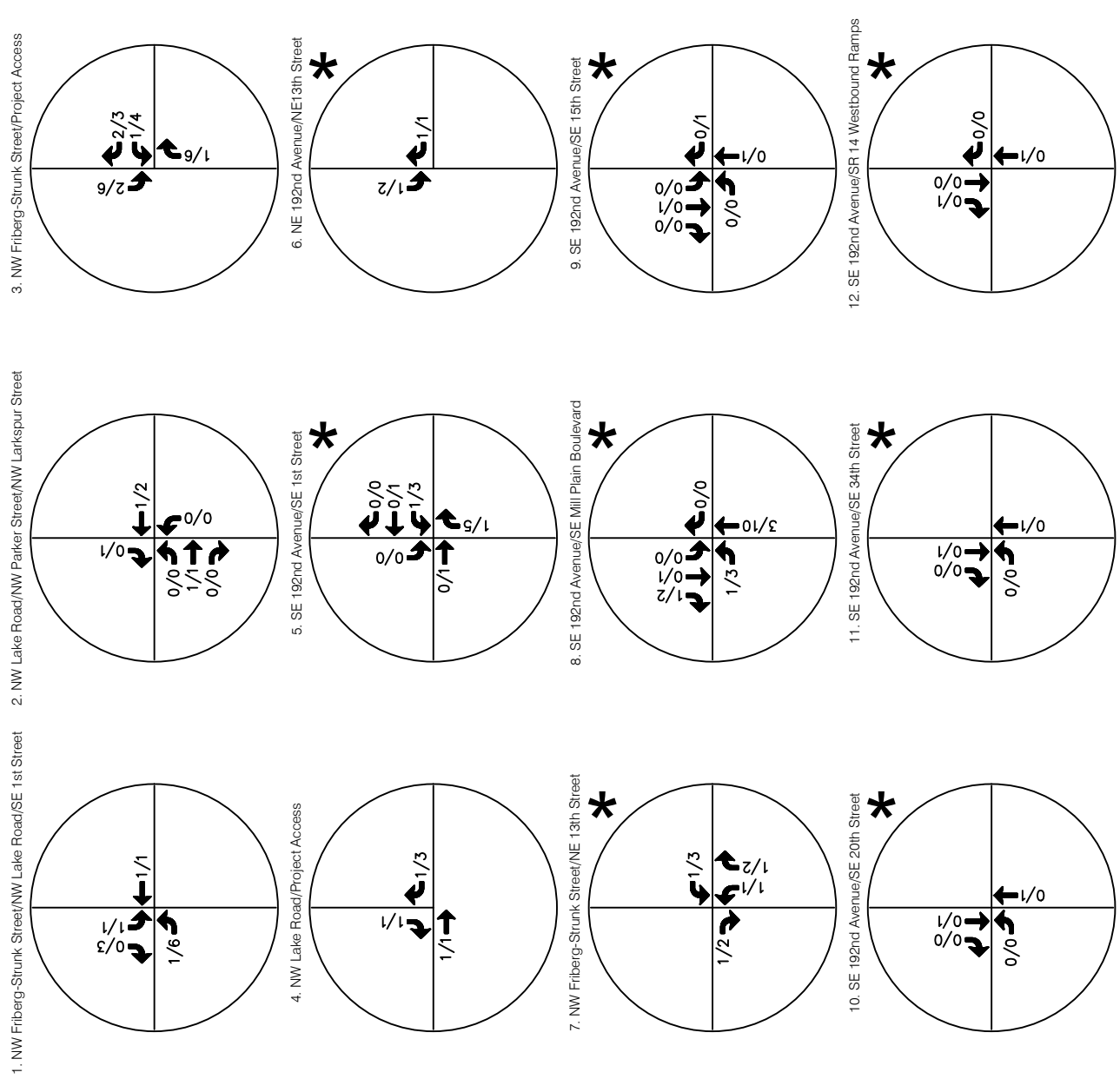
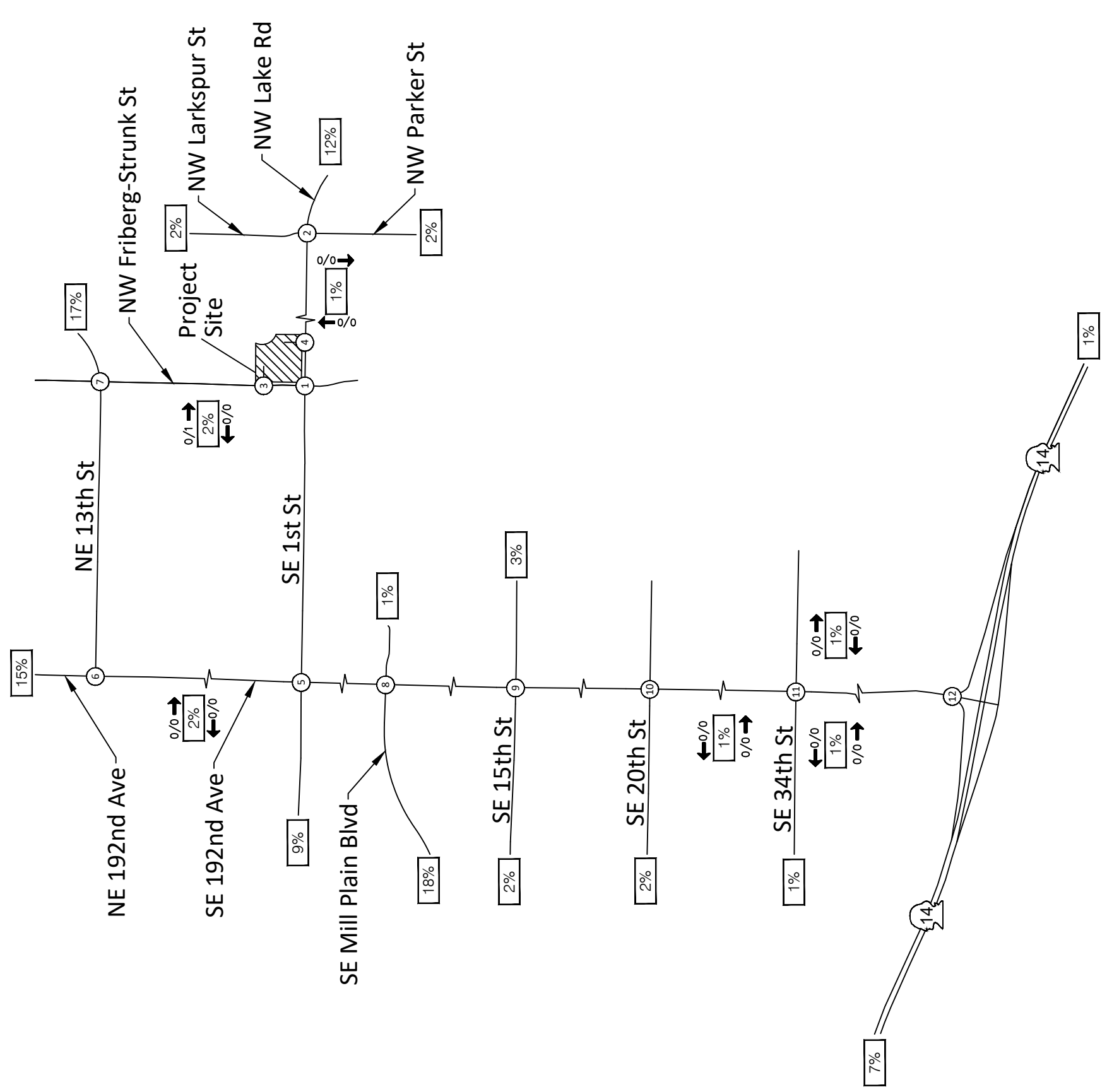
FIGURE 4
Existing A.M. and P.M.
Peak Hour Traffic Volumes



LEGEND
128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 5
2027 "Without Project"
A.M. and P.M. Peak Hour Traffic Volumes

Oak Tree Station TIA
Camas, WA



LEGEND

- A.M./P.M. Peak Hour Traffic Volume
- 10% Peak Hour Trip Distribution
- * Not Study Area Intersections. Shown for Trip Distribution and Assignment Purposes Only

FIGURE 6a
Phase 1
Trip Distribution and Assignment
Net Traffic Volumes
22047_Figures.Dwg

Oak Tree Station TIA
Camas, WA

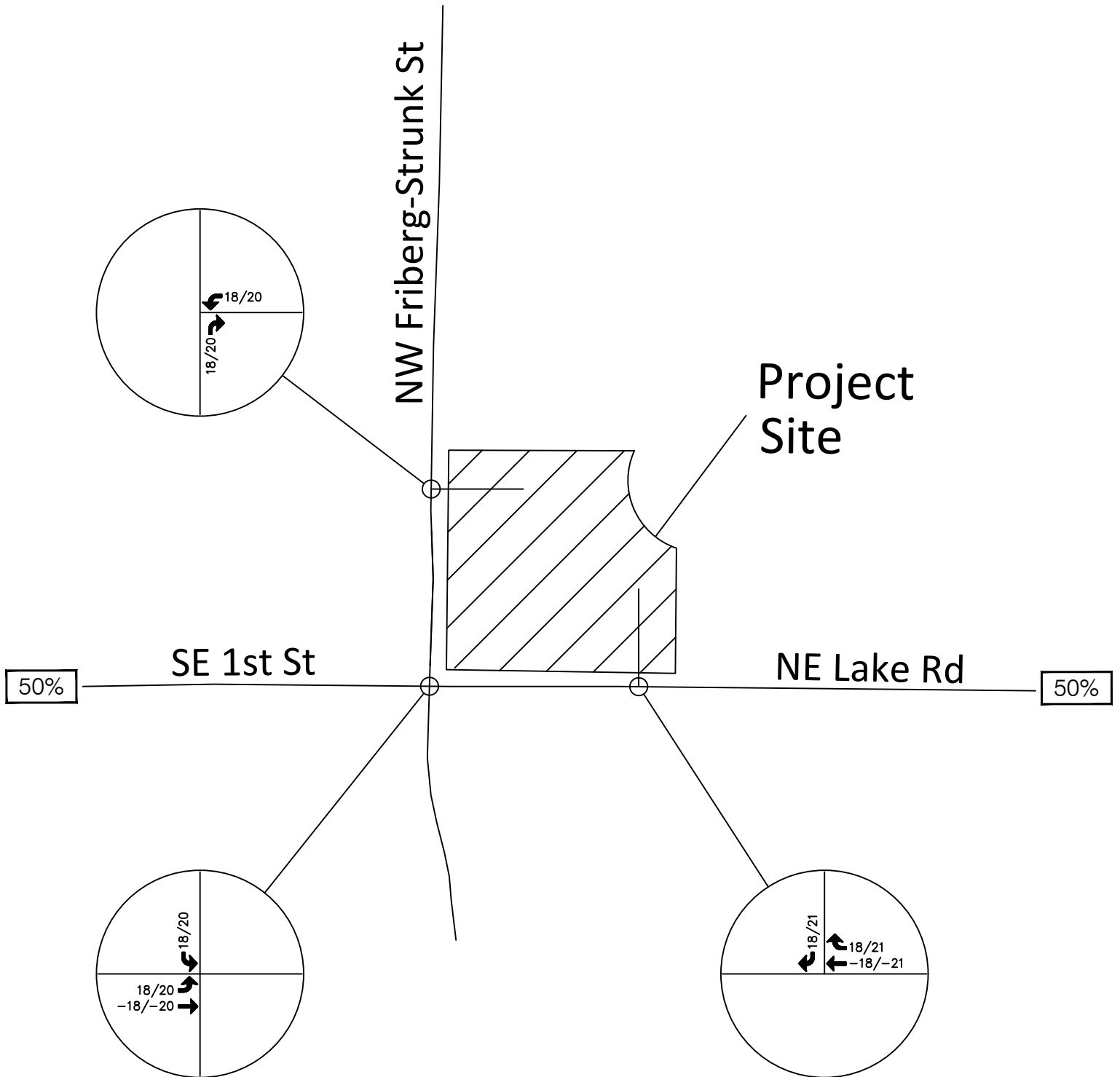


FIGURE 6b
Phase 1 Pass-By/Diverted Trips
Trip Distribution and Assignment
Net Traffic Volumes

Oak Tree Station TIA
Camas, WA

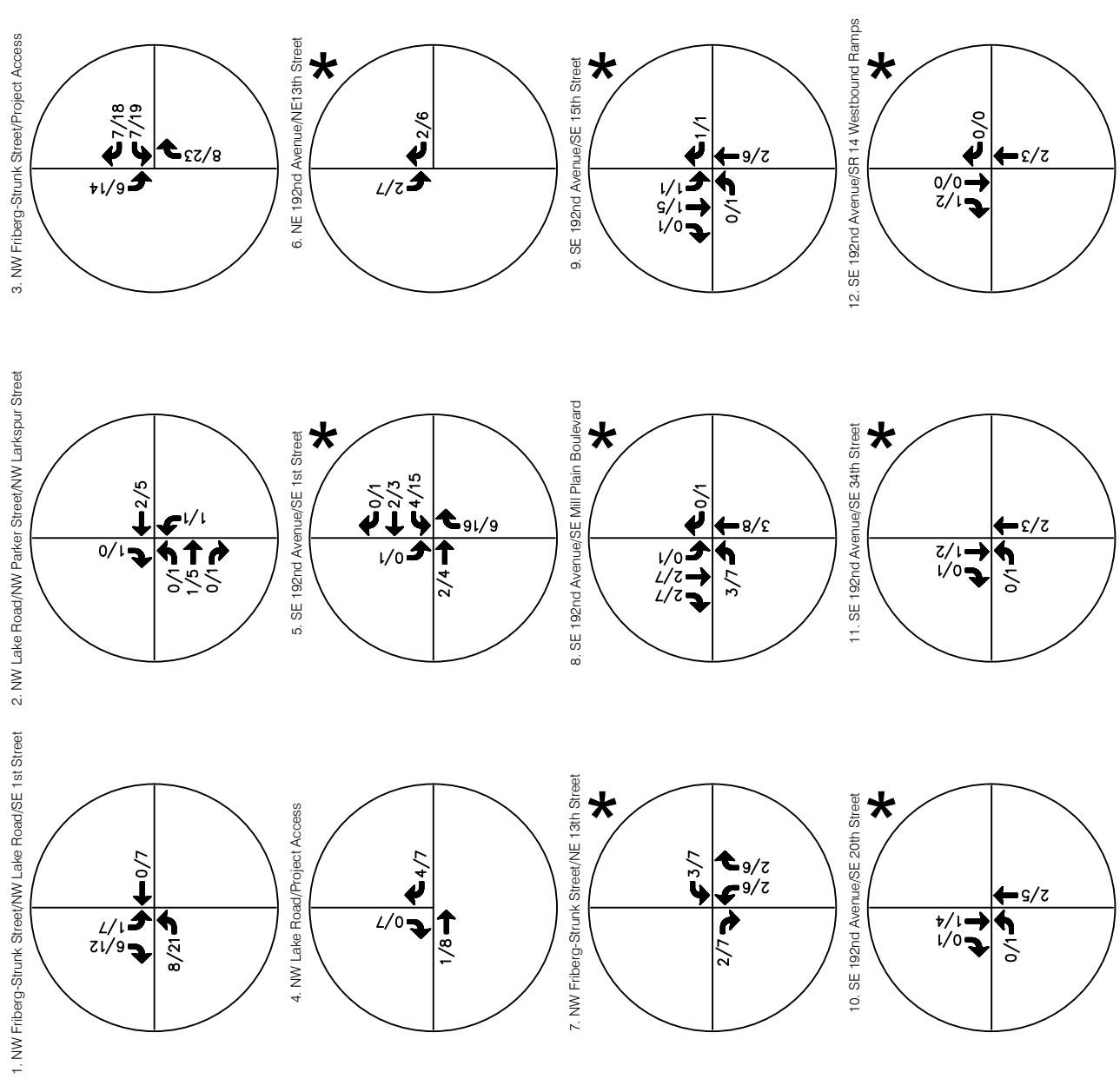
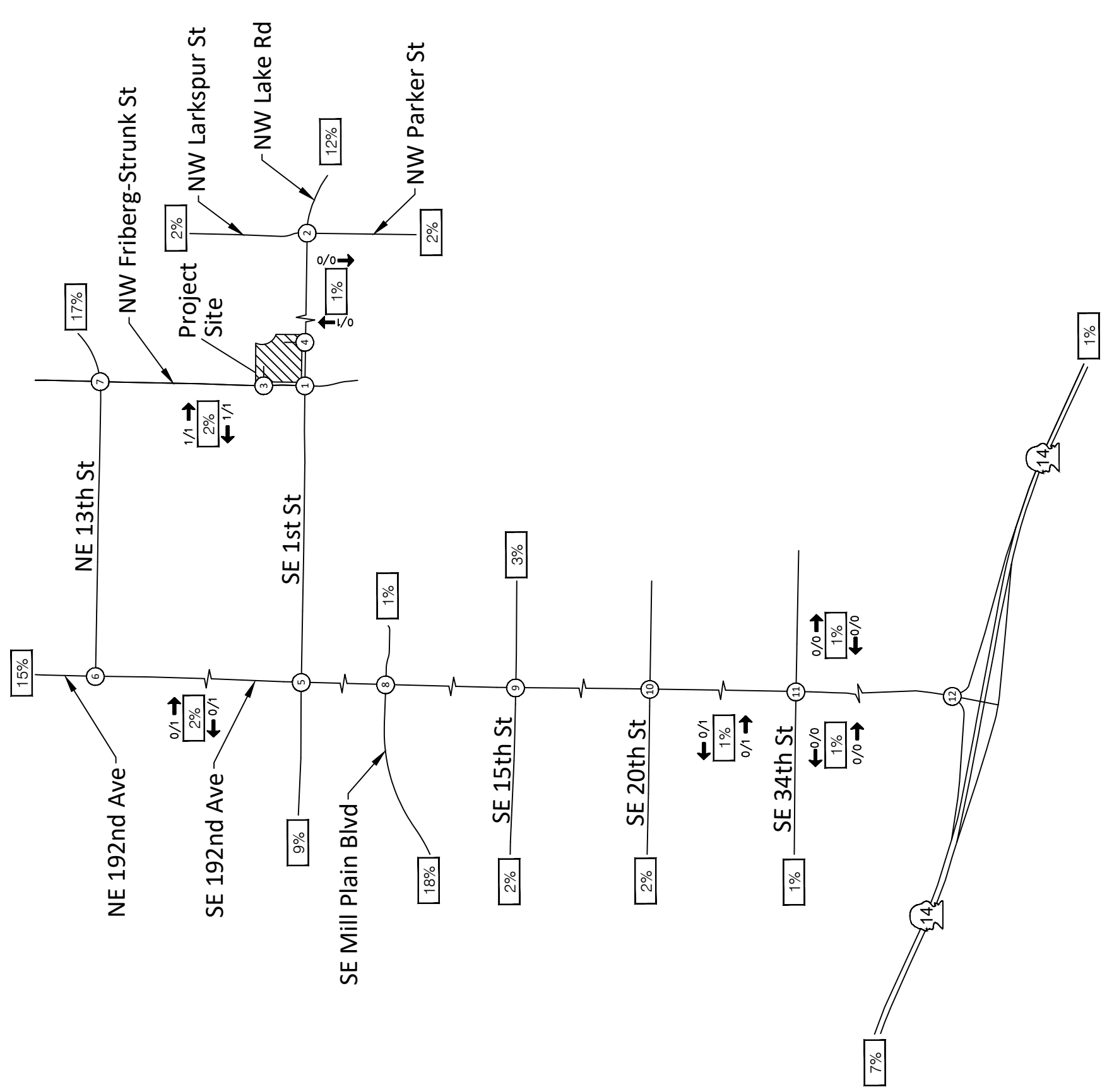


FIGURE 6C
Phase 2
Trip Distribution and Assignment
Traffic Volumes
22047_Figures.Dwg

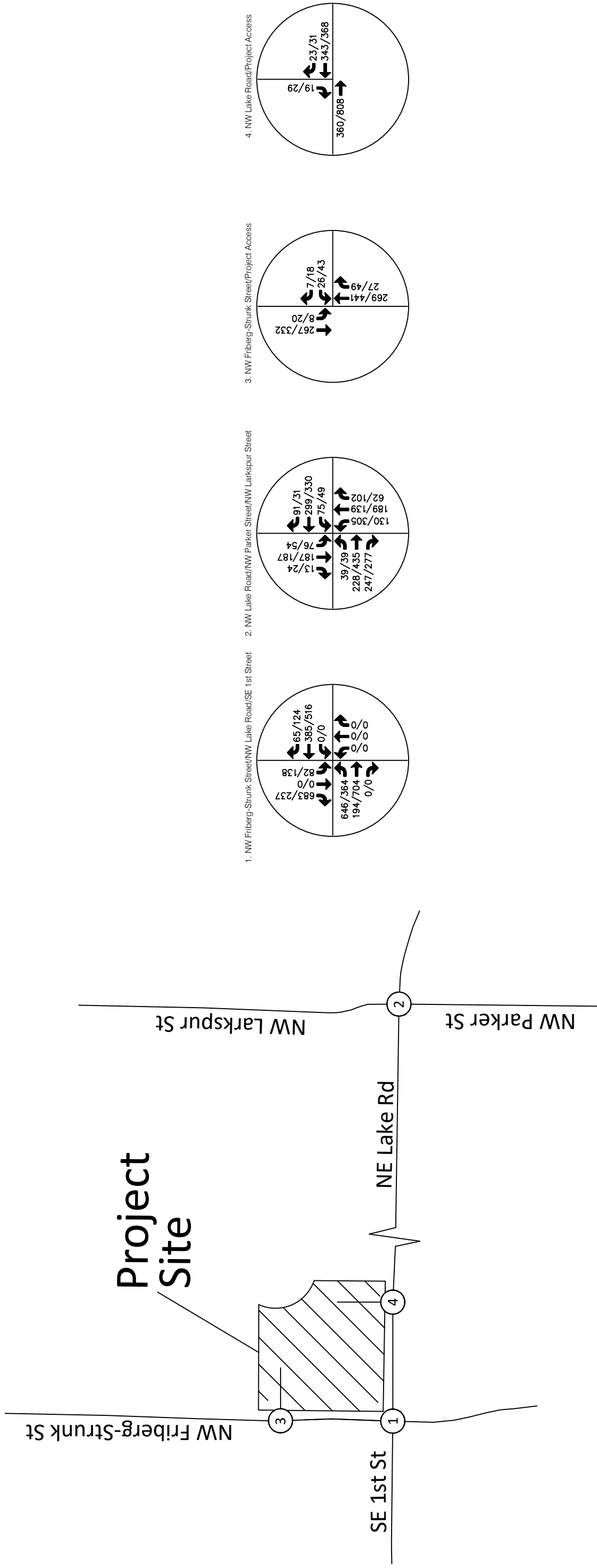
LEGEND

128/200 A.M./P.M. Peak Hour Traffic Volume

10% Peak Hour Trip Distribution

* Not Study Area Intersections. Shown for Trip Distribution and Assignment Purposes Only

NOT TO SCALE



LEGEND
128/200 A.M./P.M. Peak Hour
Traffic Volume



NOT TO SCALE

FIGURE 7
2027 "With Project"
A.M. and P.M. Peak Hour Traffic Volumes

GOODWIN ROAD INDUSTRIAL TRAFFIC IMPACT ANALYSIS

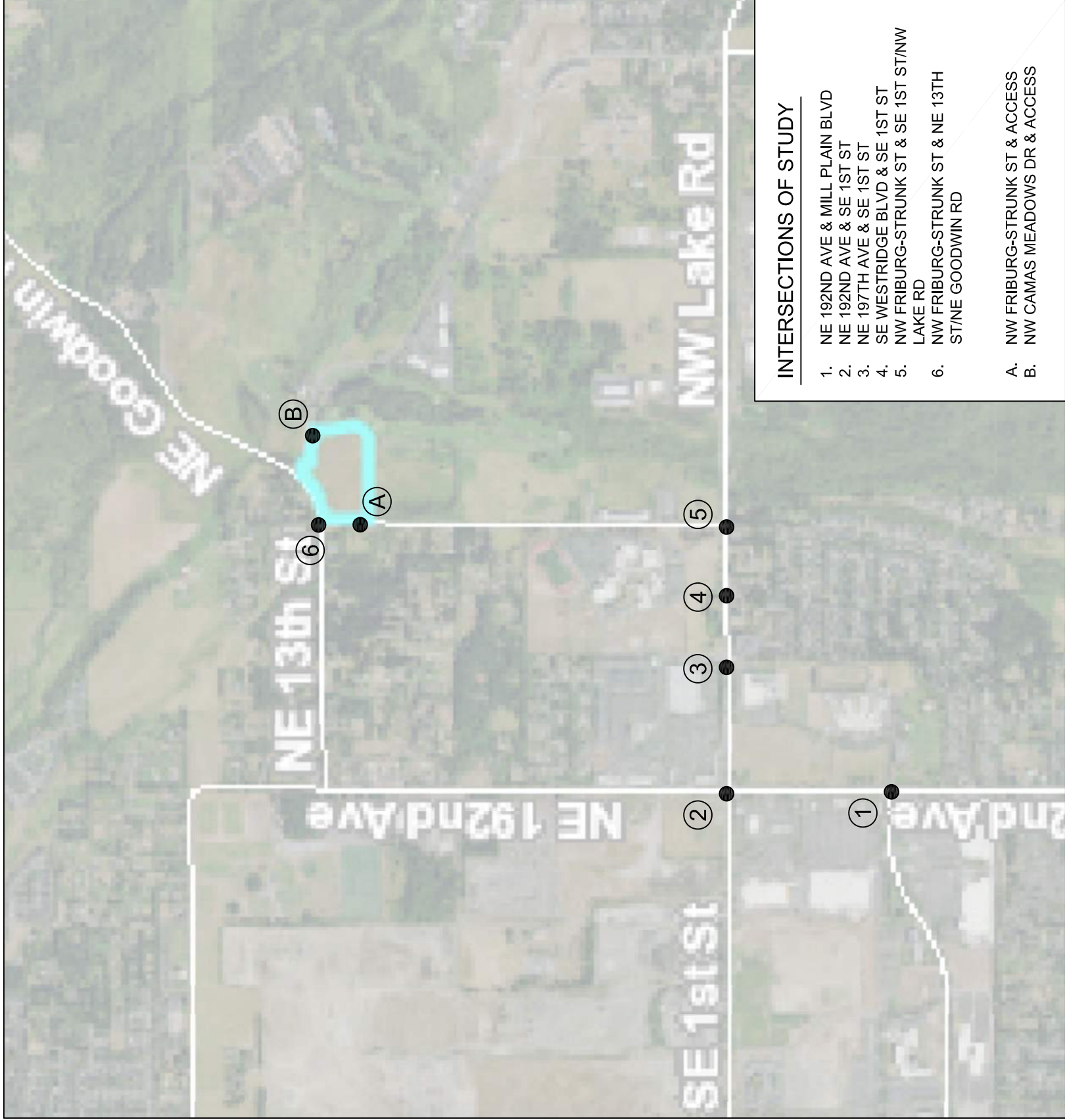
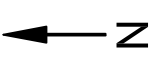
1. INTRODUCTION

The main goals of this study focus on the analysis of existing roadway conditions and forecasts of newly generated project traffic. The first task includes the review of general roadway information on the adjacent street system, baseline vehicular volumes, and entering sight distance data. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. As a final step, appropriate conclusions and mitigation measures are defined.

2. PROJECT DESCRIPTION

The Goodwin Road Industrial project is a proposed warehouse facility comprising up to 185,000 square feet. The subject site, located in the city of Camas, is bordered to the west by NW Friburg-Strunk Street and is located on the southern corner of the NE Goodwin Road & NW Camas Meadows Drive intersection. The site is comprised within 11.14-acre tax parcel #: 172974000. Access to and from the site is proposed via one driveway extending east from NW Friburg-Strunk Street and one driveway extending south from NW Camas Meadows Drive. Figure 1 below shows the vicinity map and adjacent street system. A conceptual site plan illustrating the proposed site layout is presented in Figure 2.

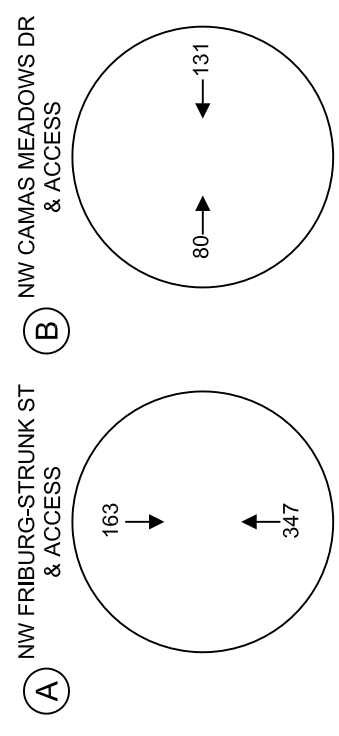
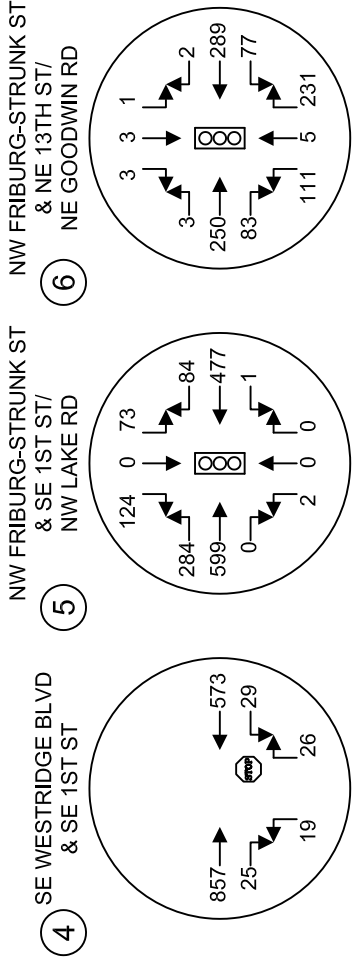
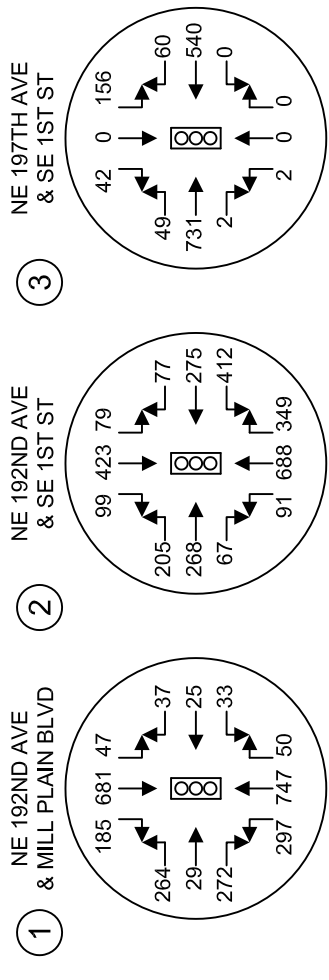


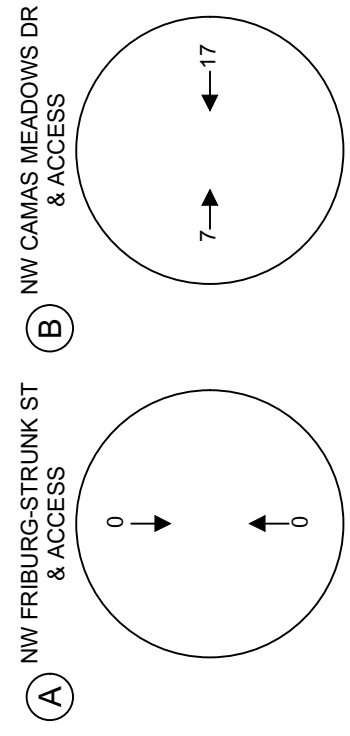
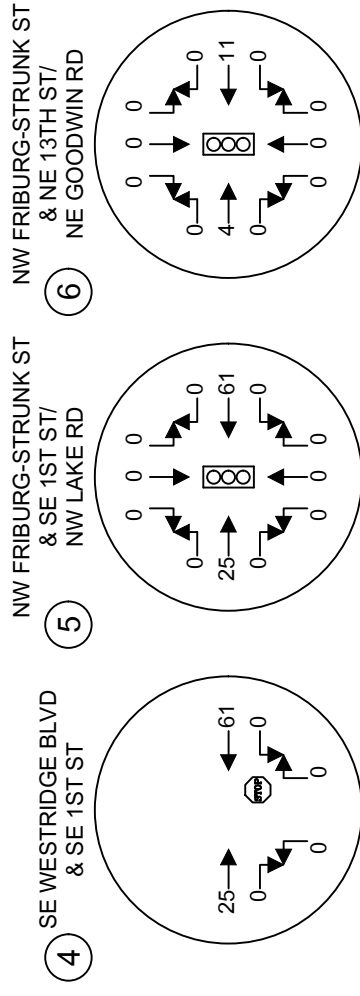
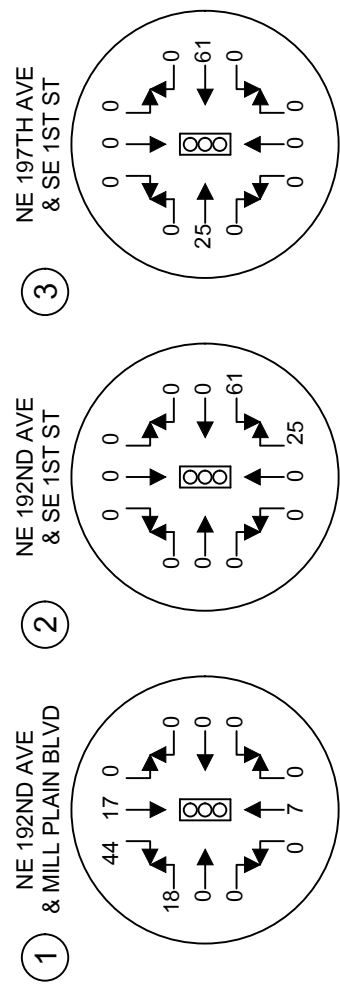
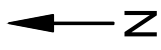


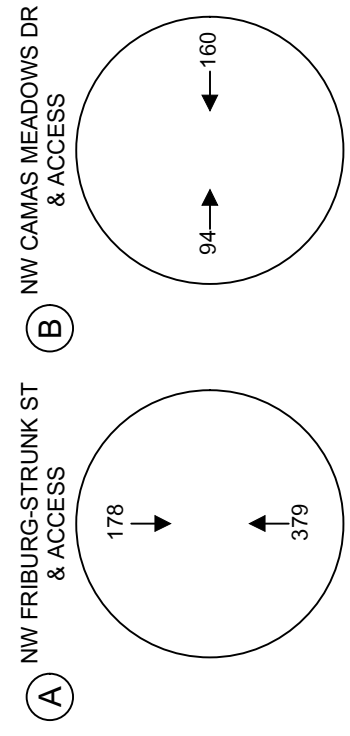
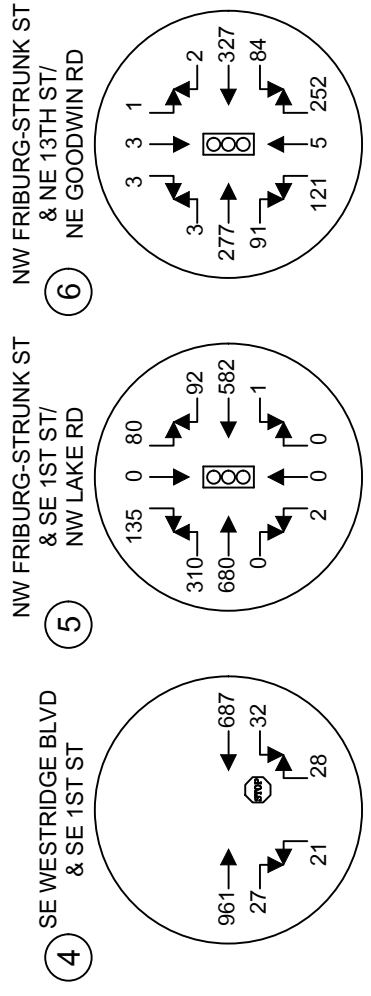
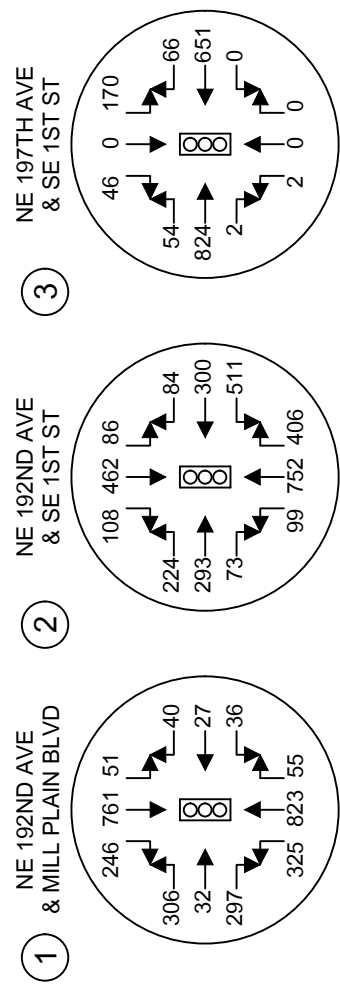
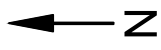
INTERSECTIONS OF STUDY

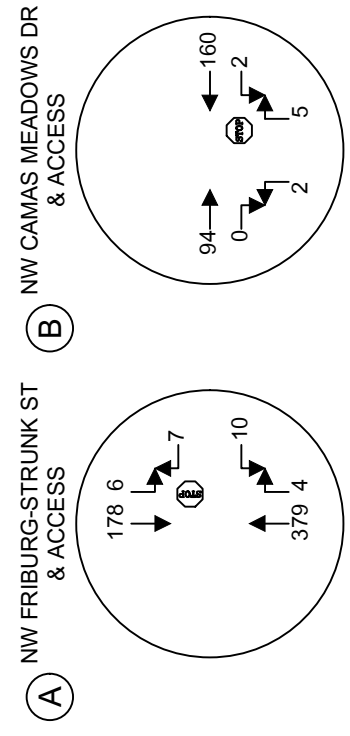
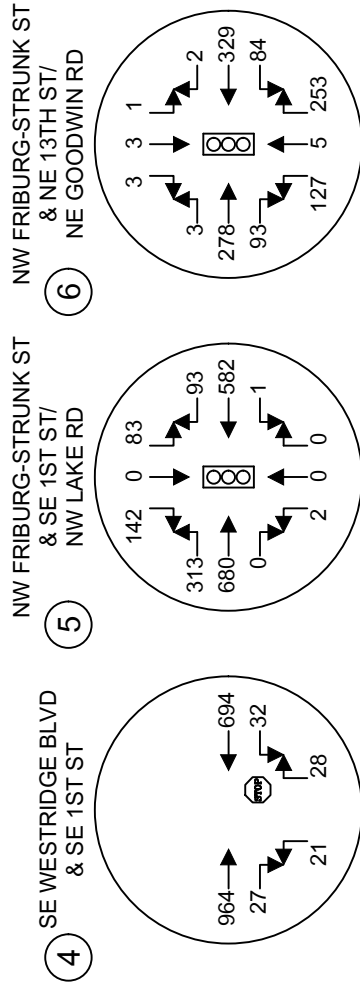
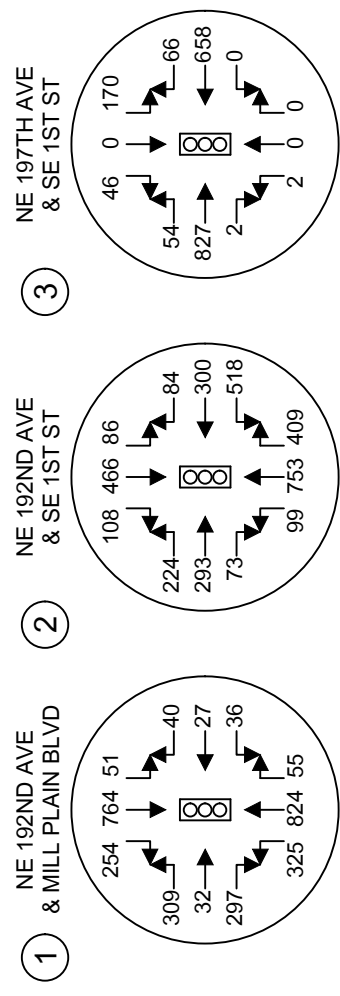
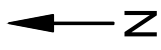
- 1. NE 192ND AVE & MILL PLAIN BLVD
- 2. NE 192ND AVE & SE 1ST ST
- 3. NE 197TH AVE & SE 1ST ST
- 4. SE WESTRIDGE BLVD & SE 1ST ST
- 5. NW FRIBURG-STRUNK ST & SE 1ST ST/NW LAKE RD
- 6. NW FRIBURG-STRUNK ST & NE 13TH ST/NE GOODWIN RD

- A. NW FRIBURG-STRUNK ST & ACCESS
- B. NW CAMAS MEADOWS DR & ACCESS









80% Build-Out 8/24/23

Parklands at Camas Meadows TIA
Camas, WA

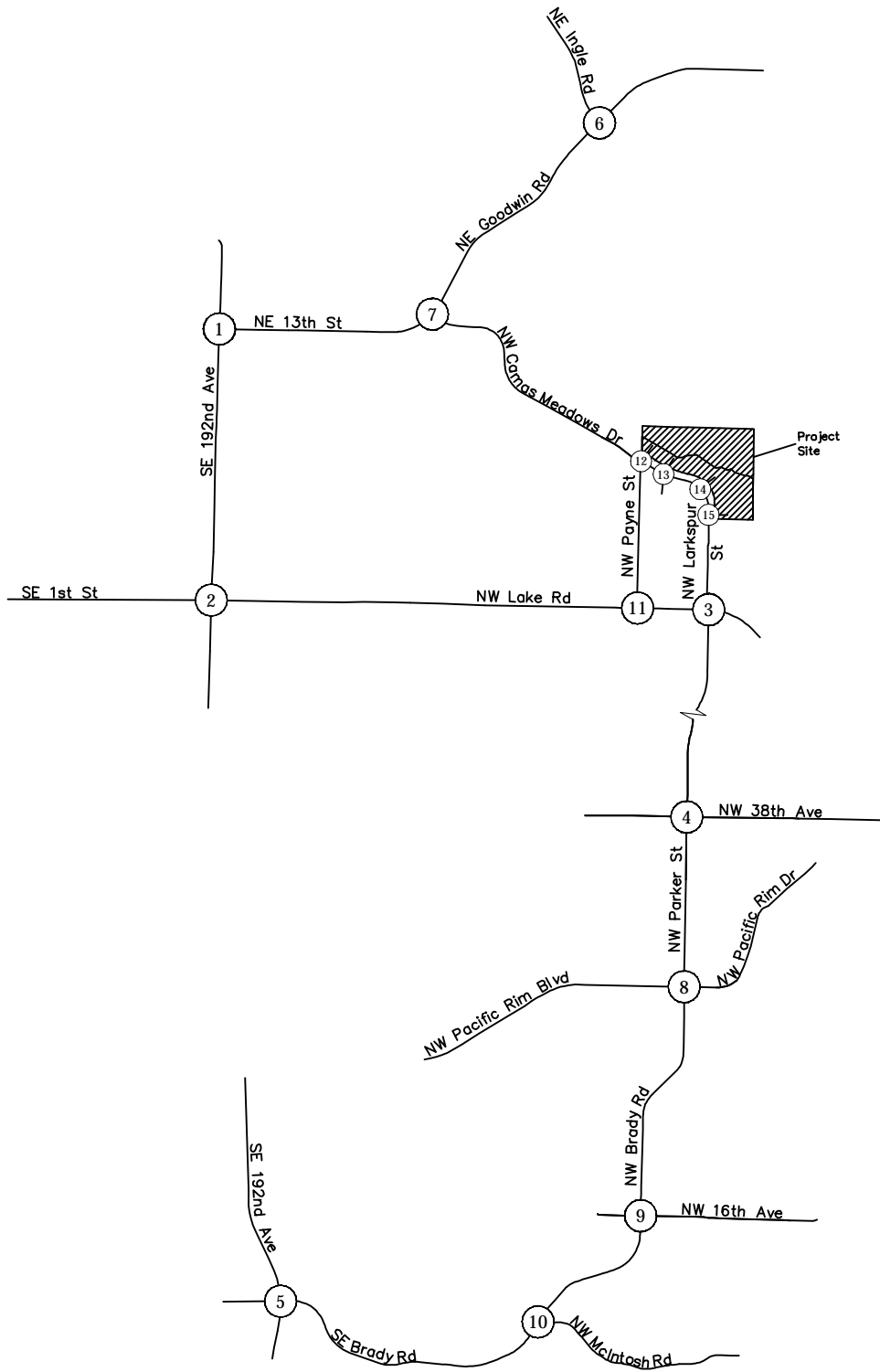


FIGURE 1
Site Vicinity Map

Parklands at Camas Meadows TIA
Camas, WA

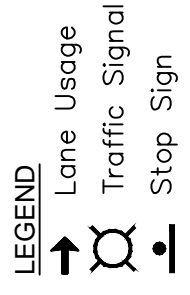
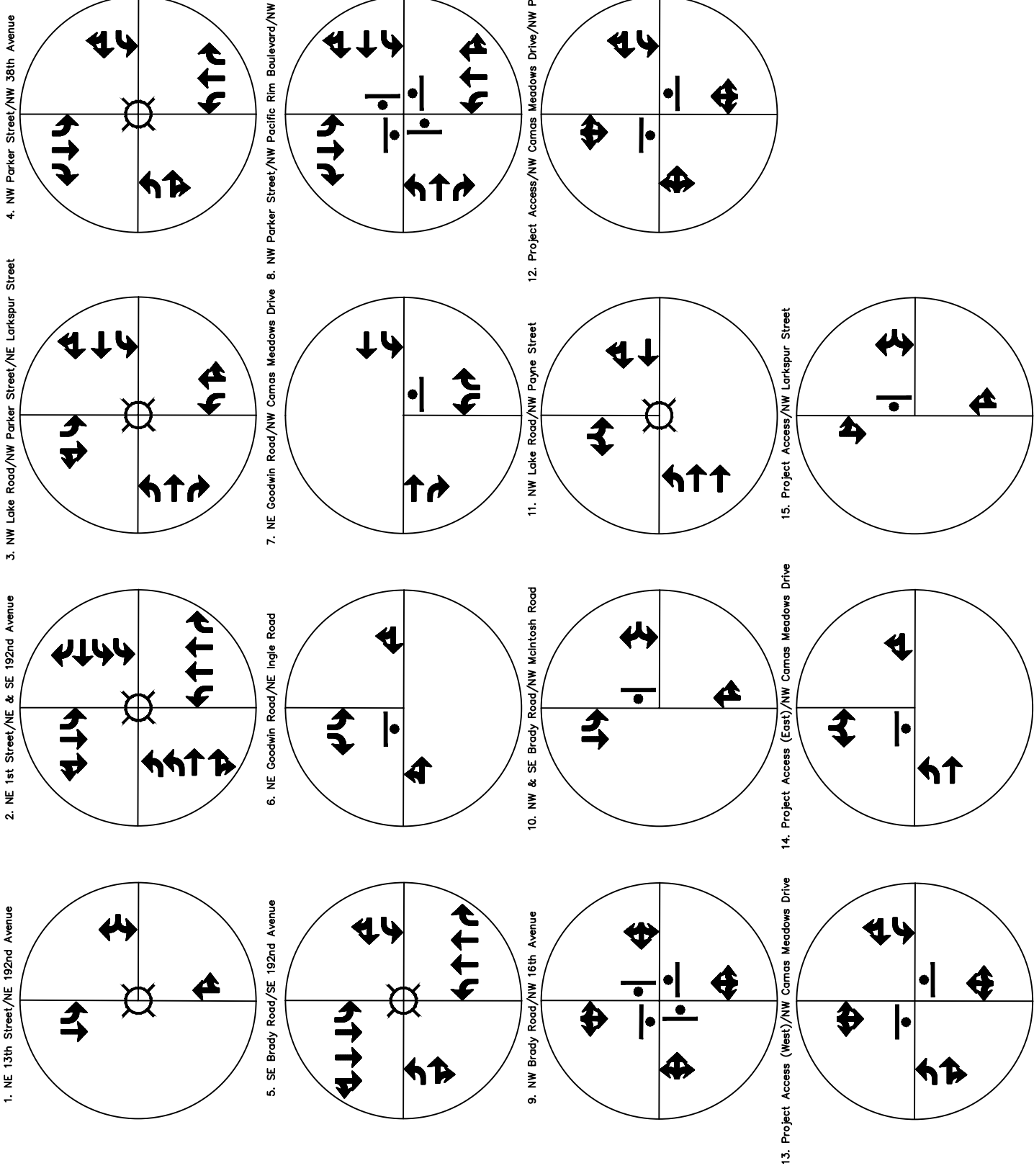
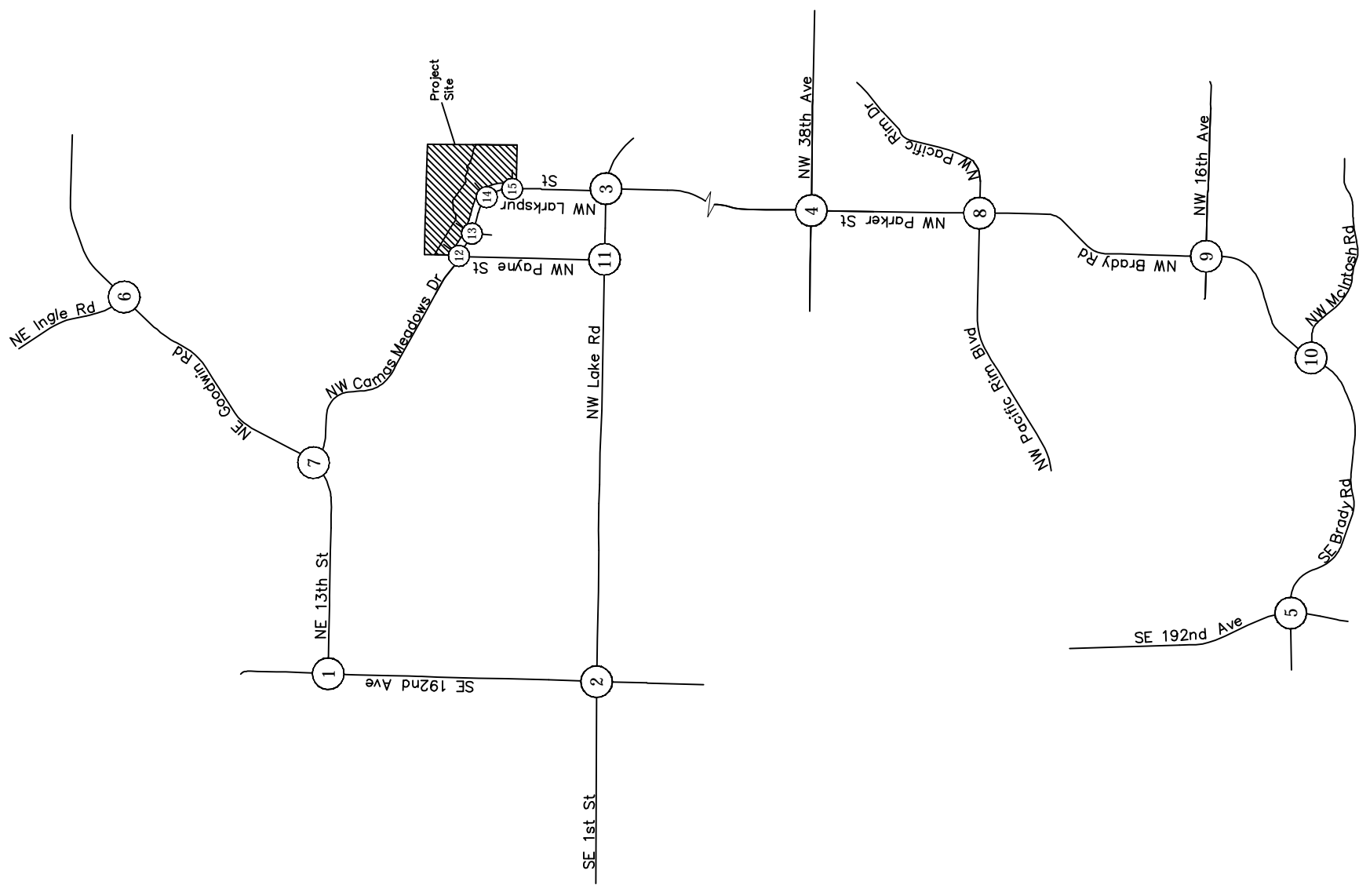
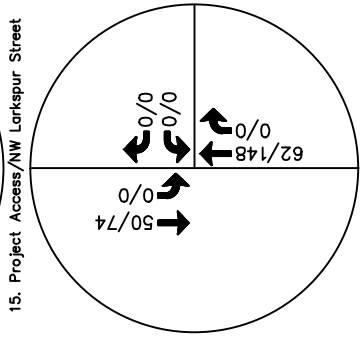
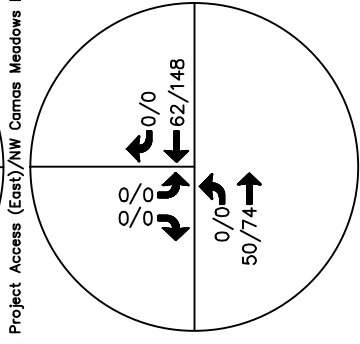
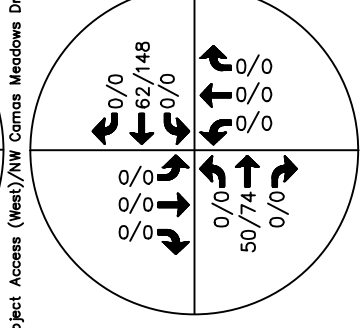
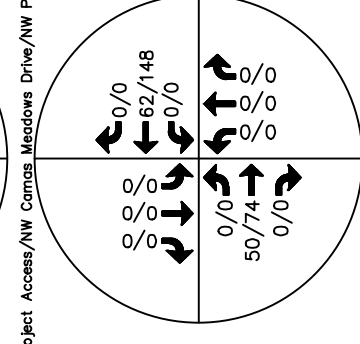
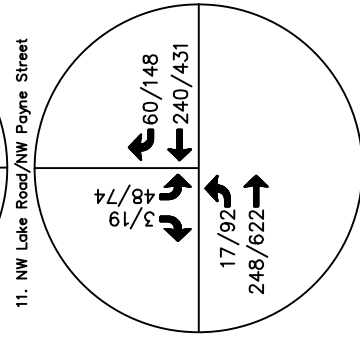
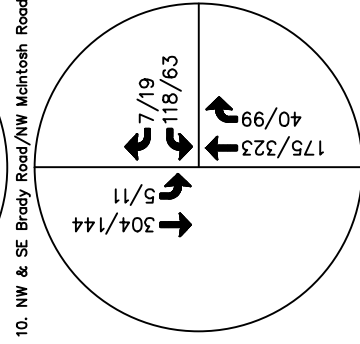
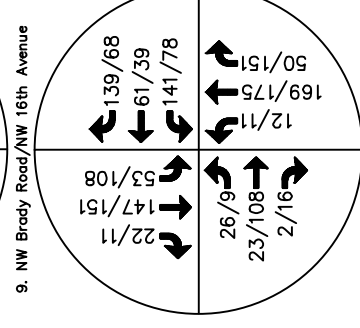
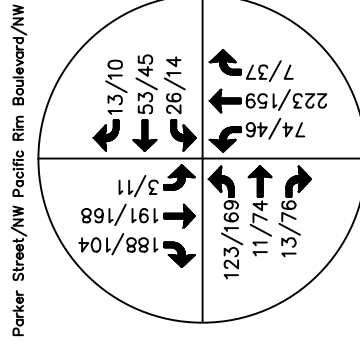
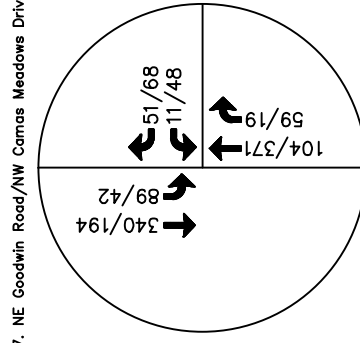
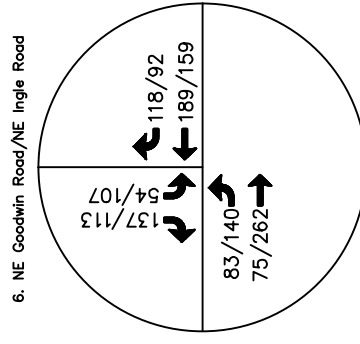
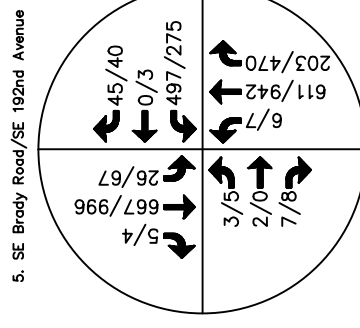
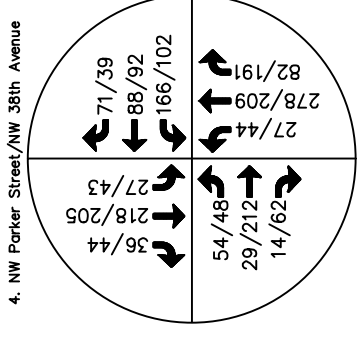
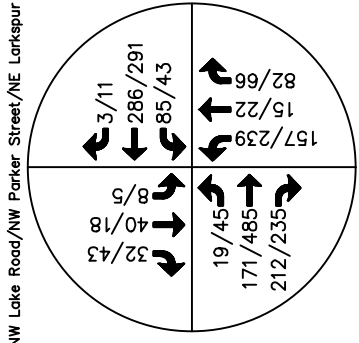
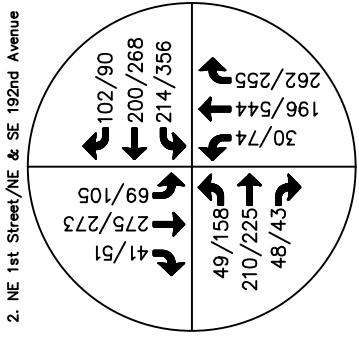
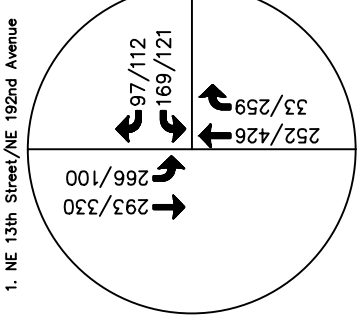
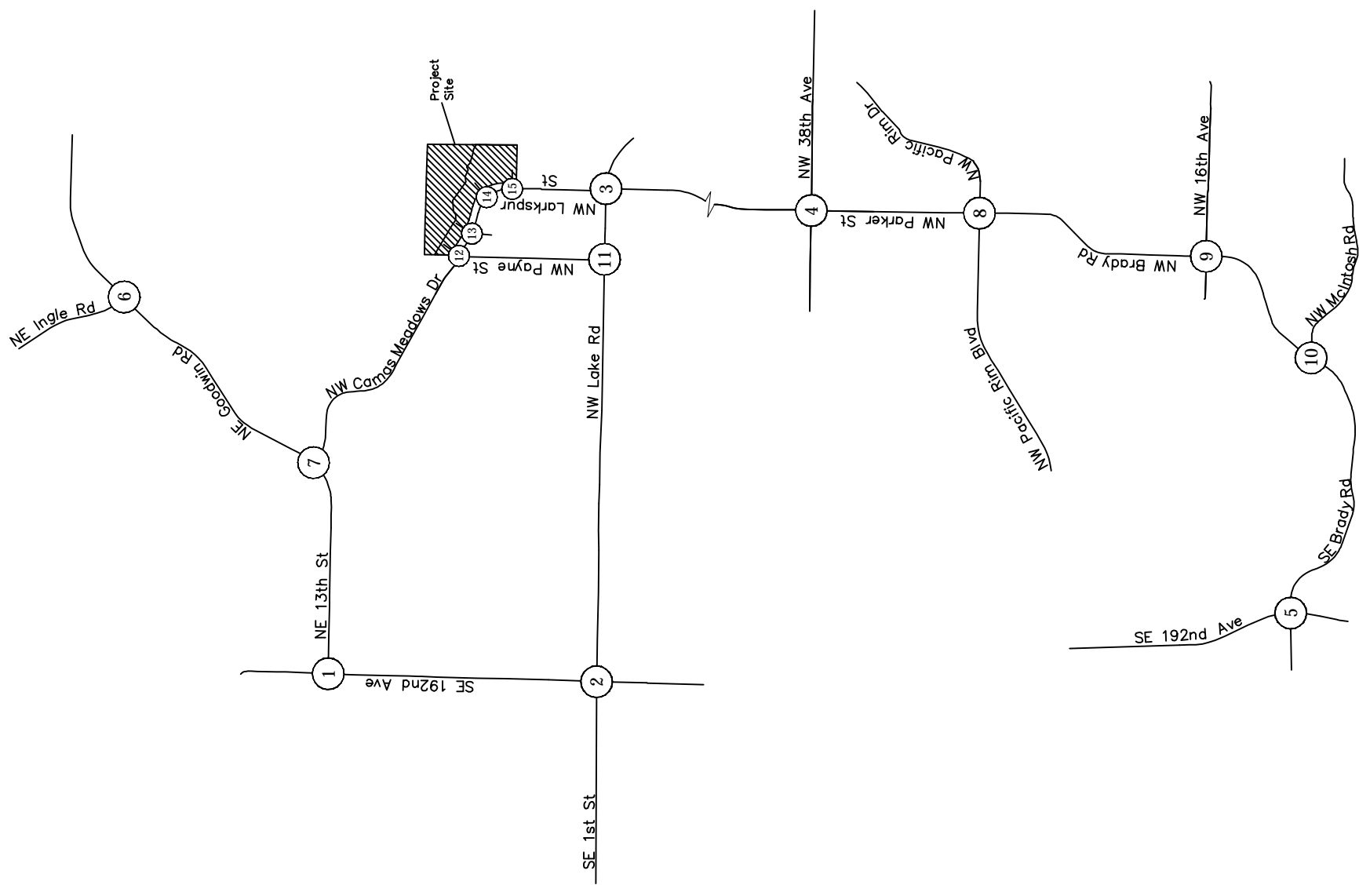


FIGURE 3
Existing Lane Configuration and Traffic Control

Parklands at Camas Meadows TIA
Camas, WA

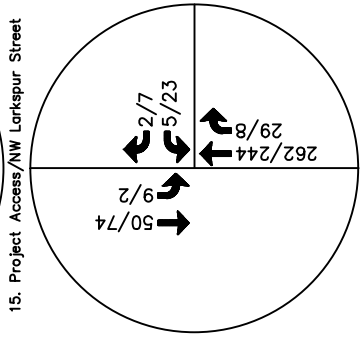
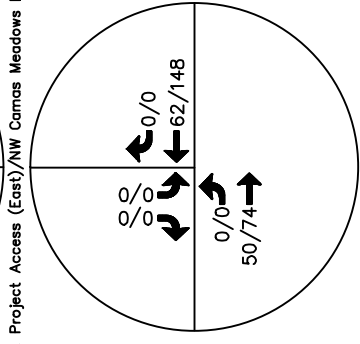
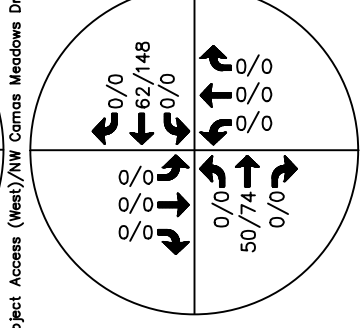
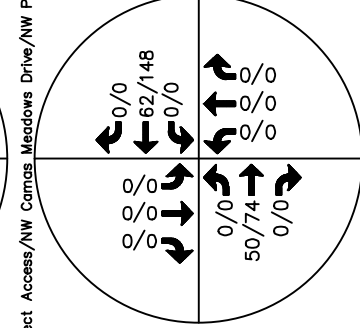
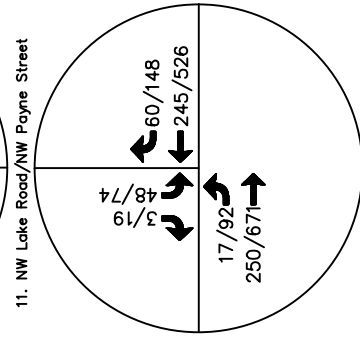
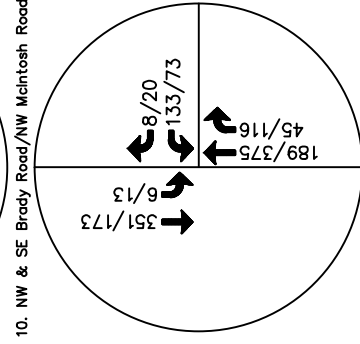
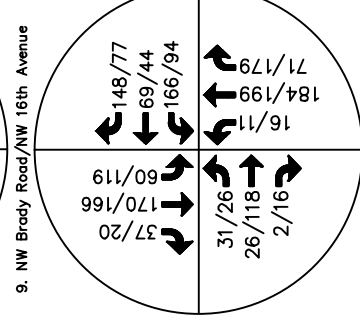
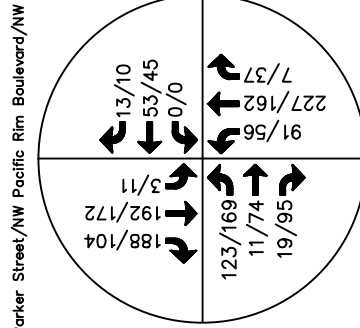
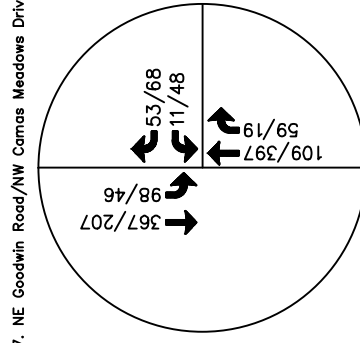
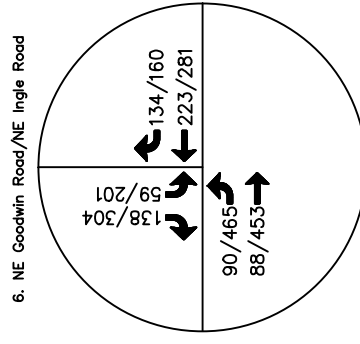
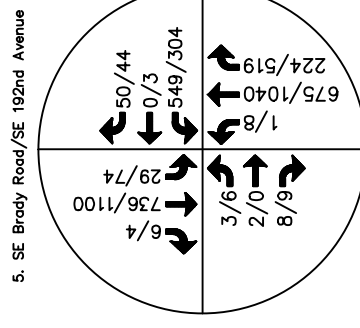
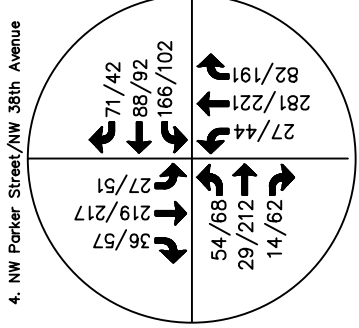
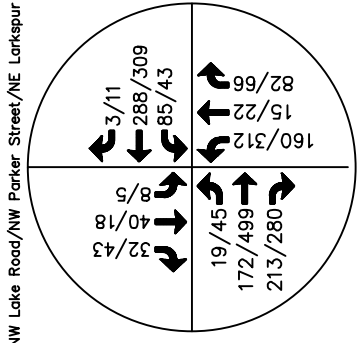
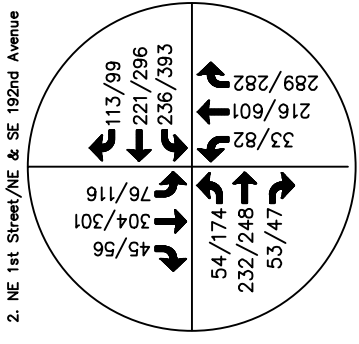
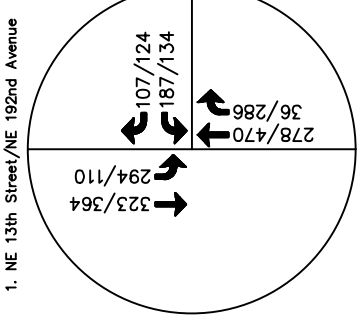
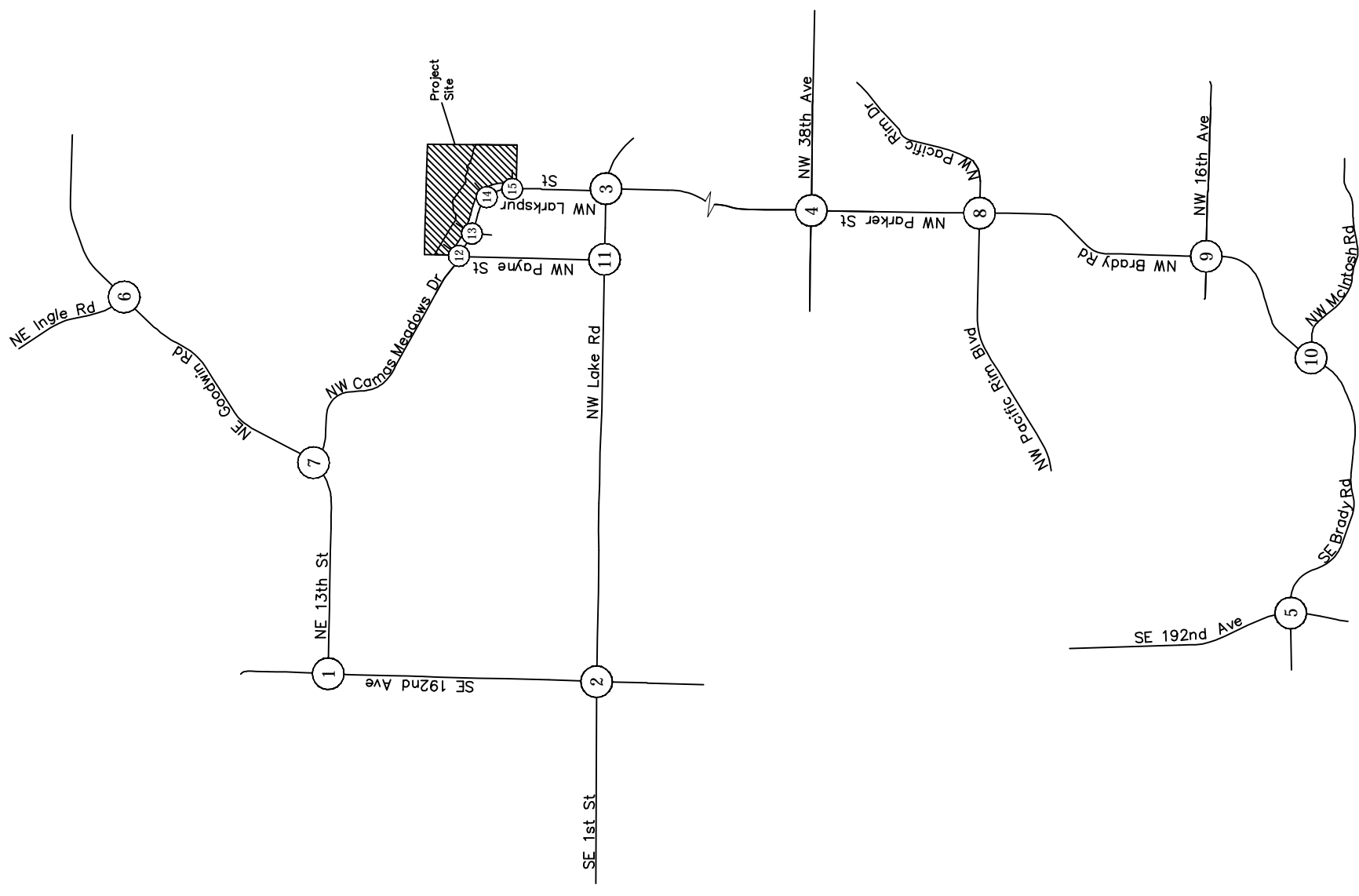


LEGEND
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A.M./P.M. Peak Hour
Traffic Volume

FIGURE 4
2015 Existing A.M. and P.M.
Peak Hour Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA

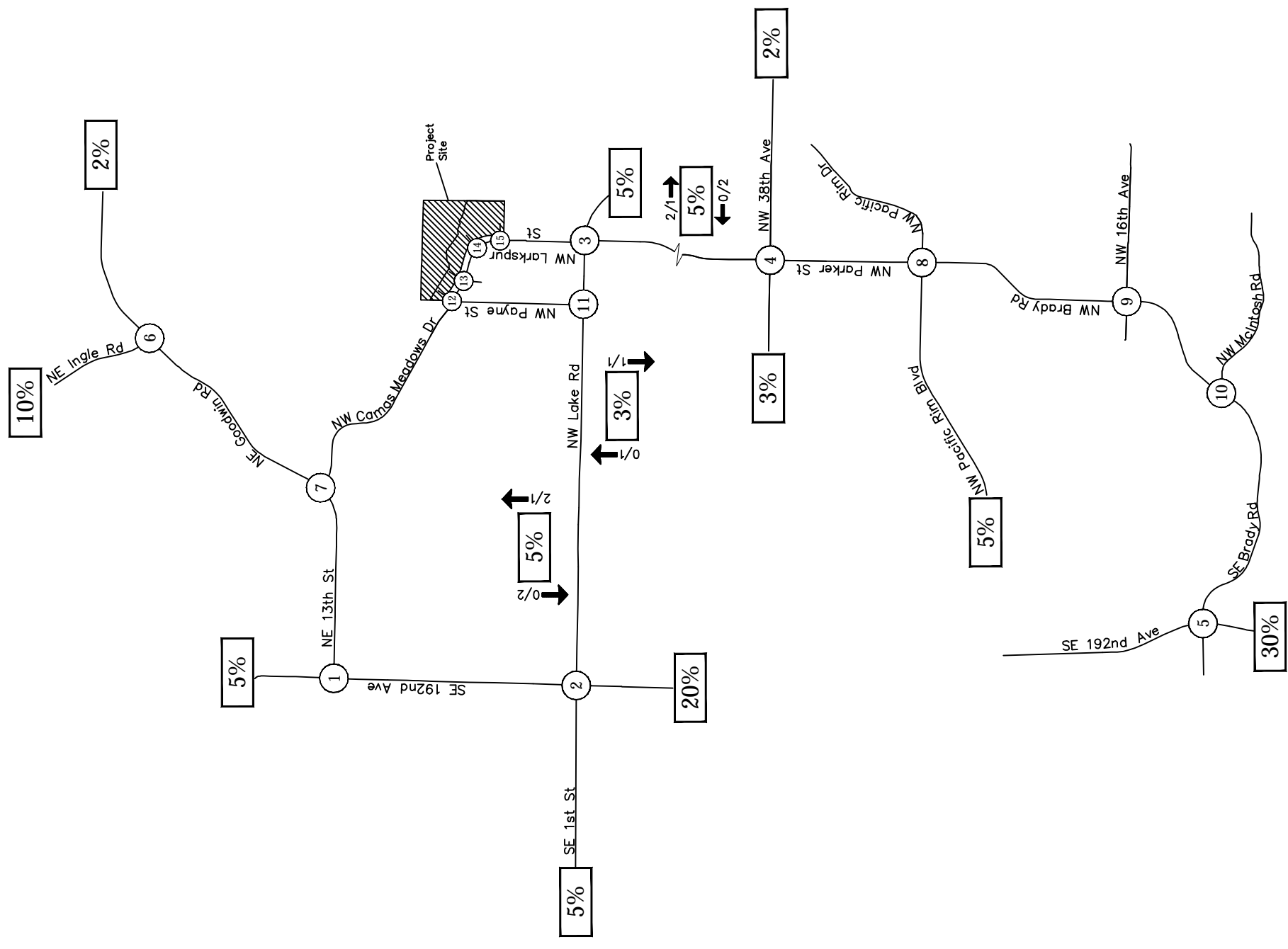
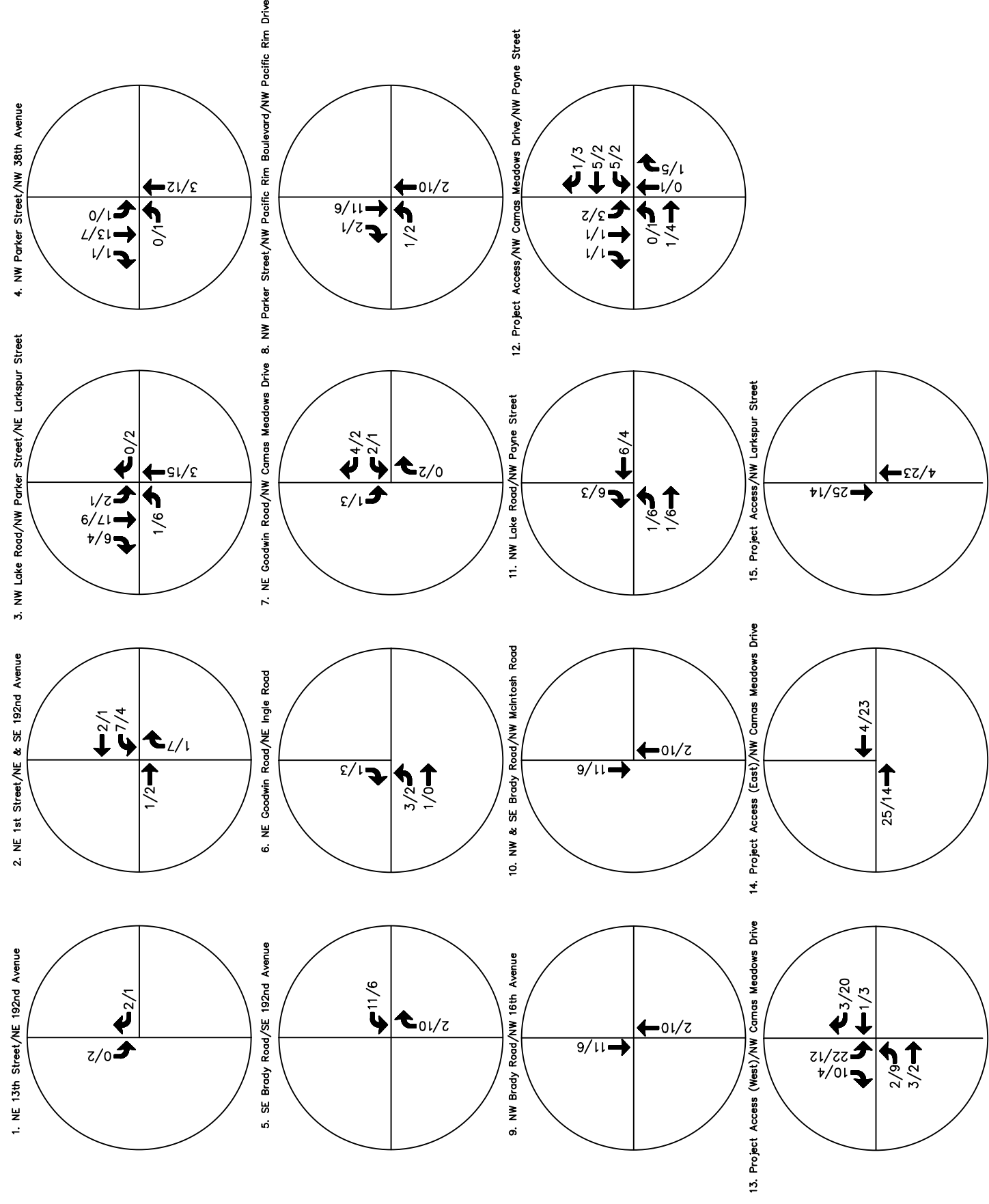


LEGEND
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A.M./P.M. Peak Hour
Traffic Volume



FIGURE 5
2020 "Without Project"
A.M. and P.M. Peak Hour Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA



LEGEND

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A.M./P.M. Peak Hour
Traffic Volume

10%

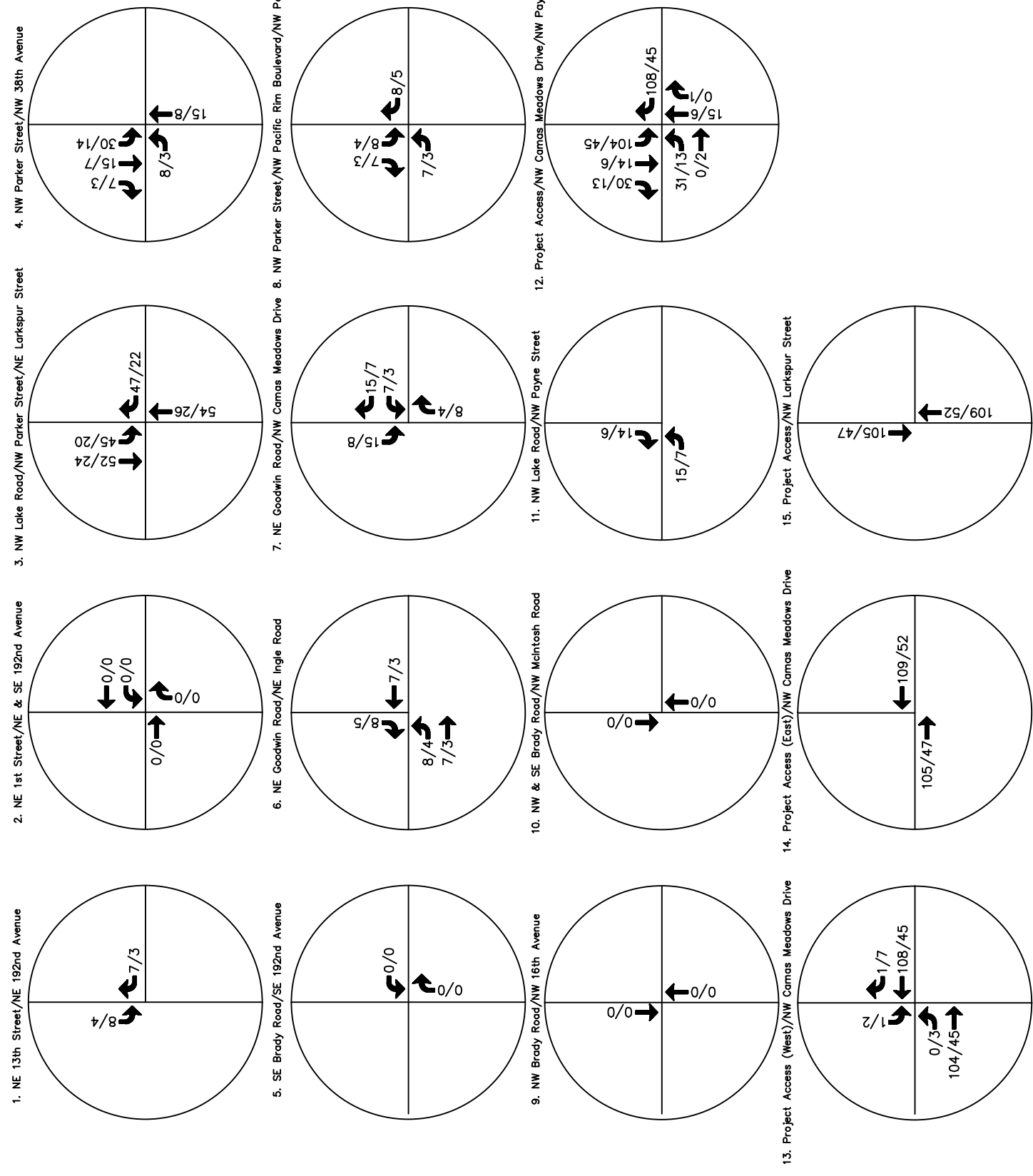
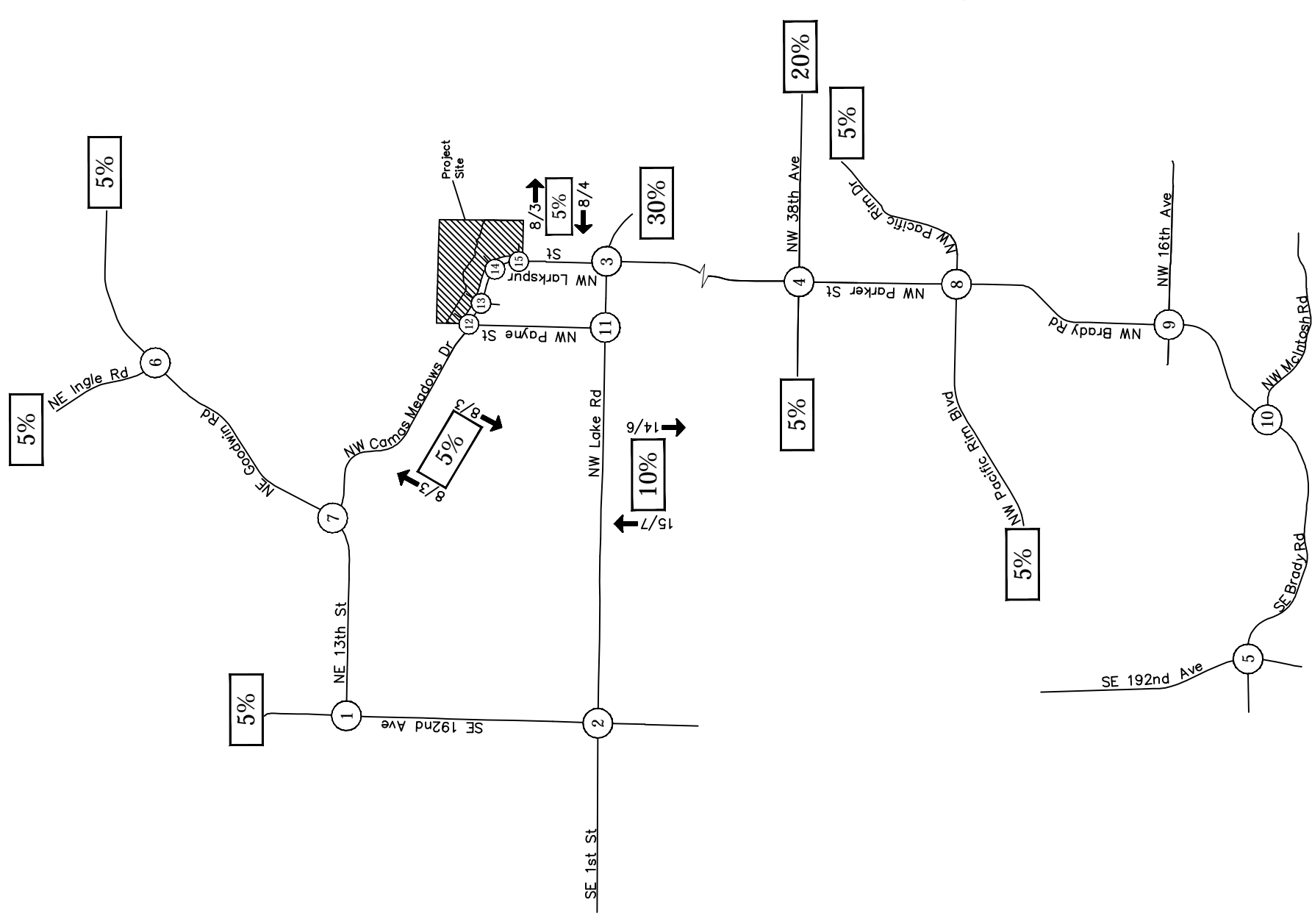
A.M. and P.M. Peak Hour Trip Distribution



NOT TO SCALE

FIGURE 6a
"Residential"
Trip Distribution and Assignment
Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA

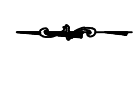


LEGEND

100/128
A.M./P.M. Peak Hour
Traffic Volumes

10%

A.M. and P.M. Peak Hour Trip Distribution



NOT TO SCALE

FIGURE 6b
"Coffee Shop/Quality Restaurant"
Trip Distribution and Assignment
Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA

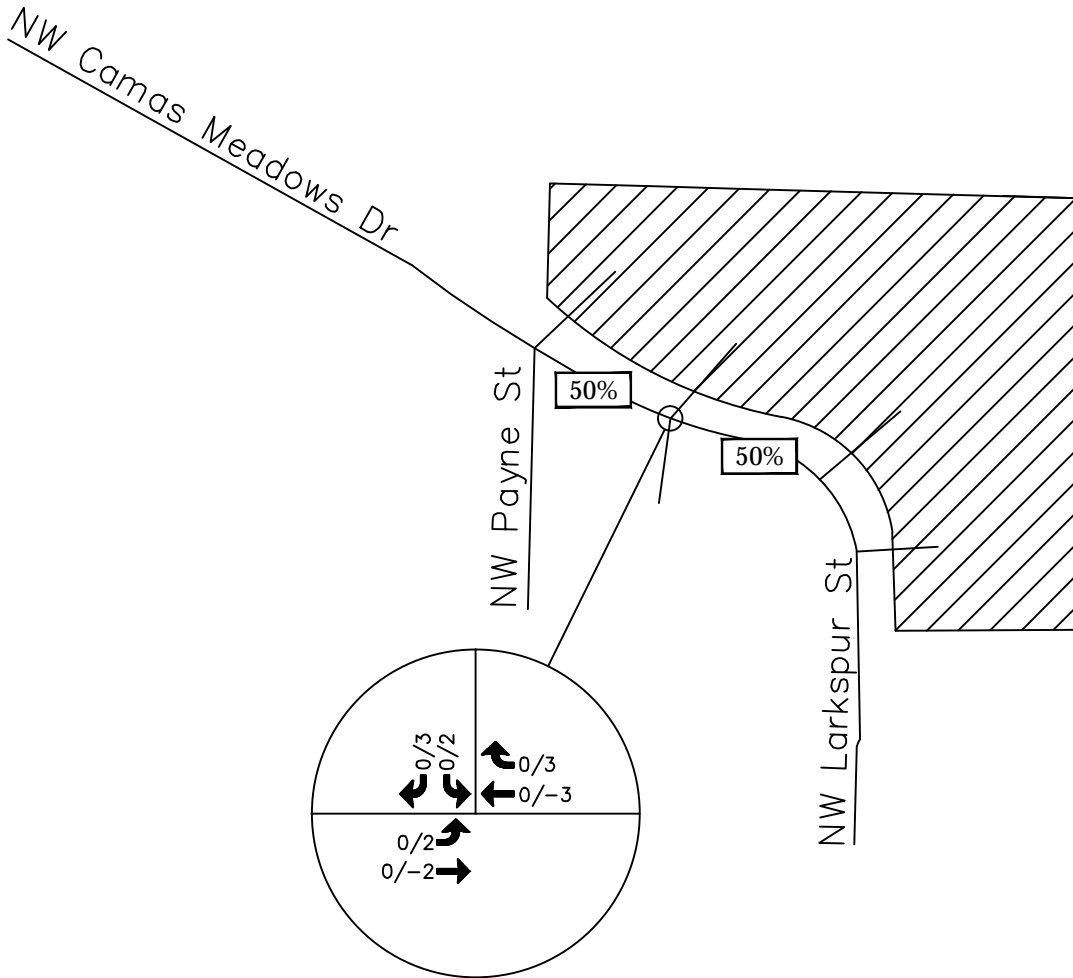
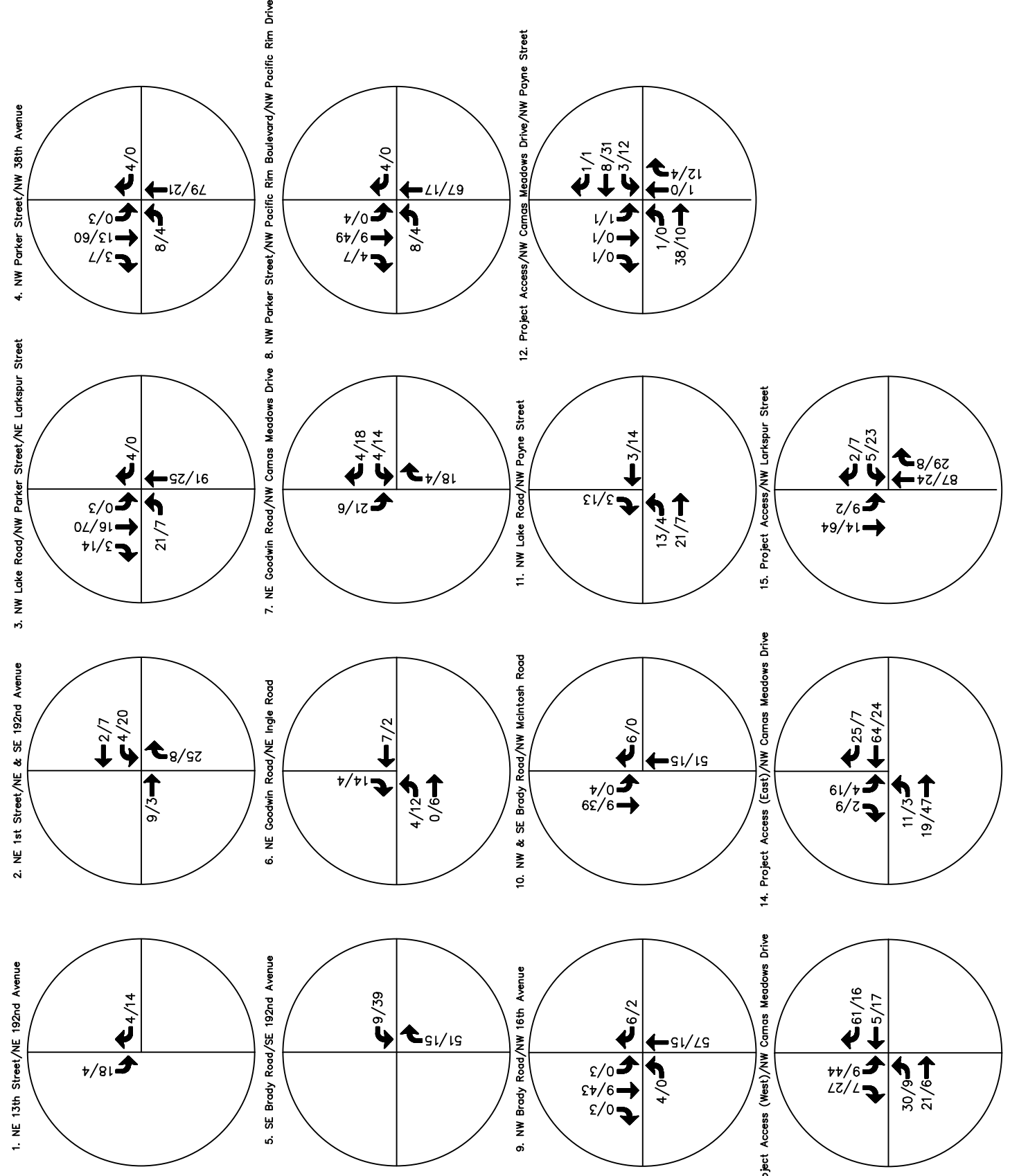
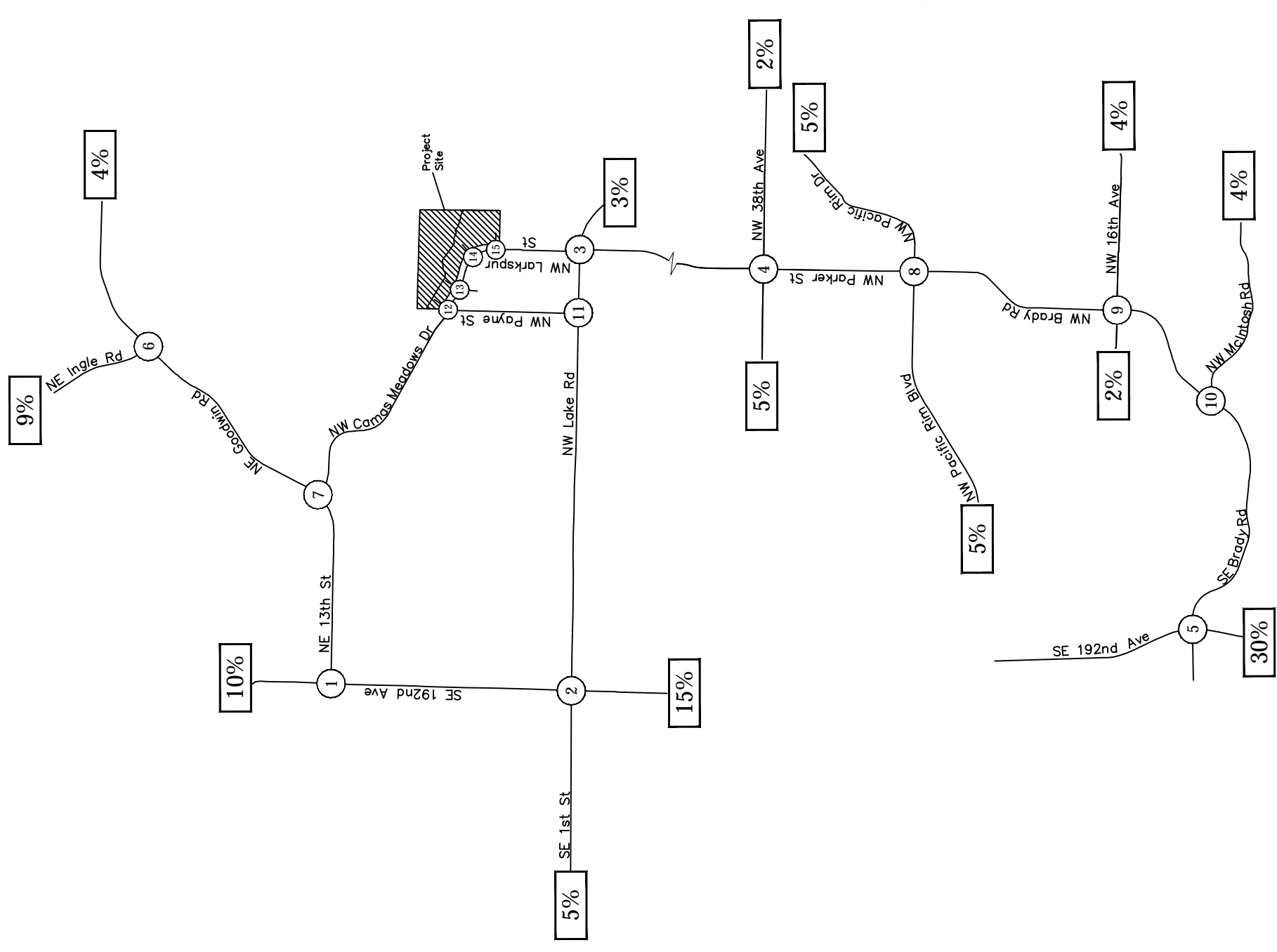


FIGURE 6c
"Quality Restaurant"
Pass-By Trips
Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA



LEGEND

100/128 A.M./P.M. Peak Hour Traffic Volumes

10%

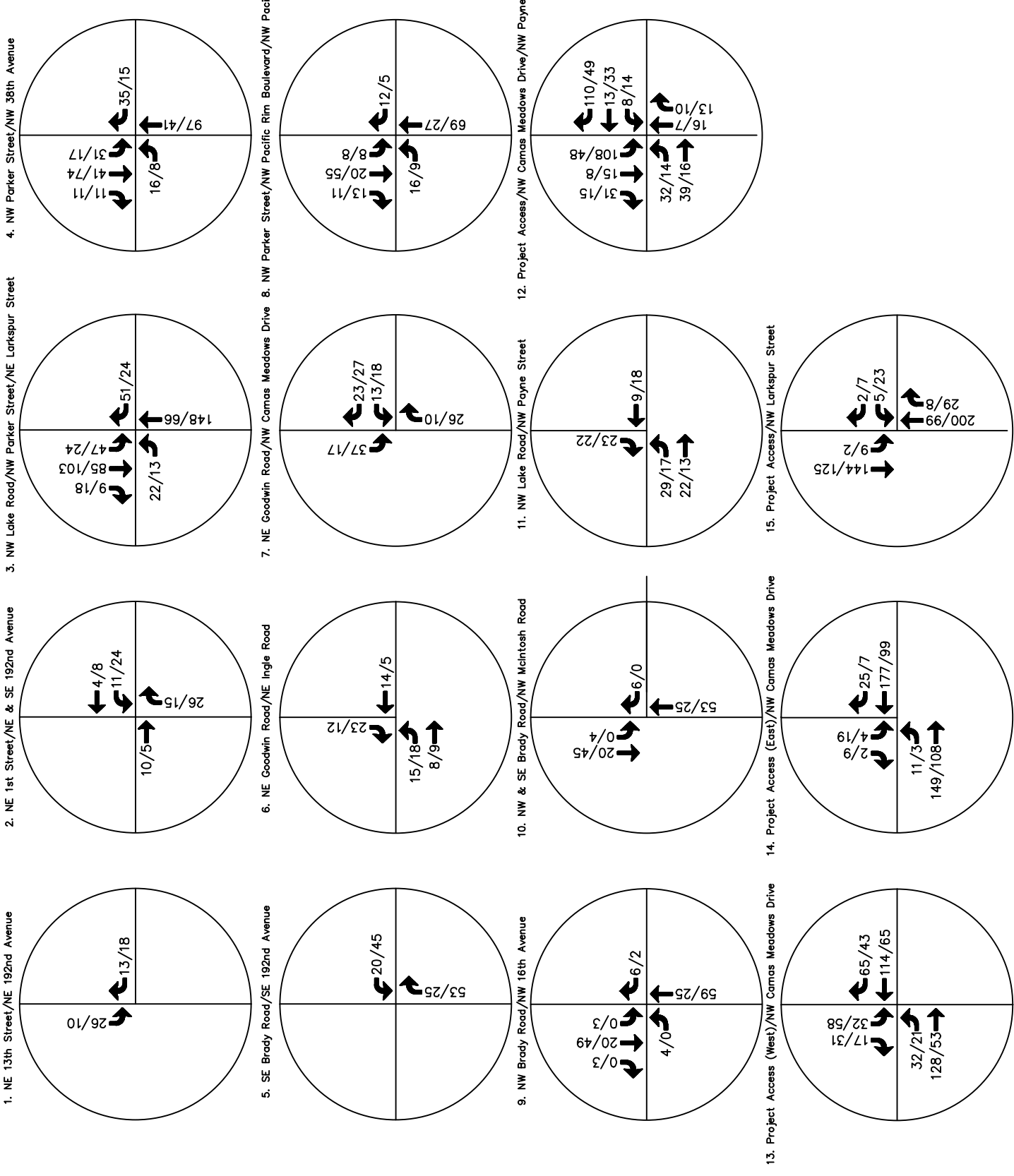
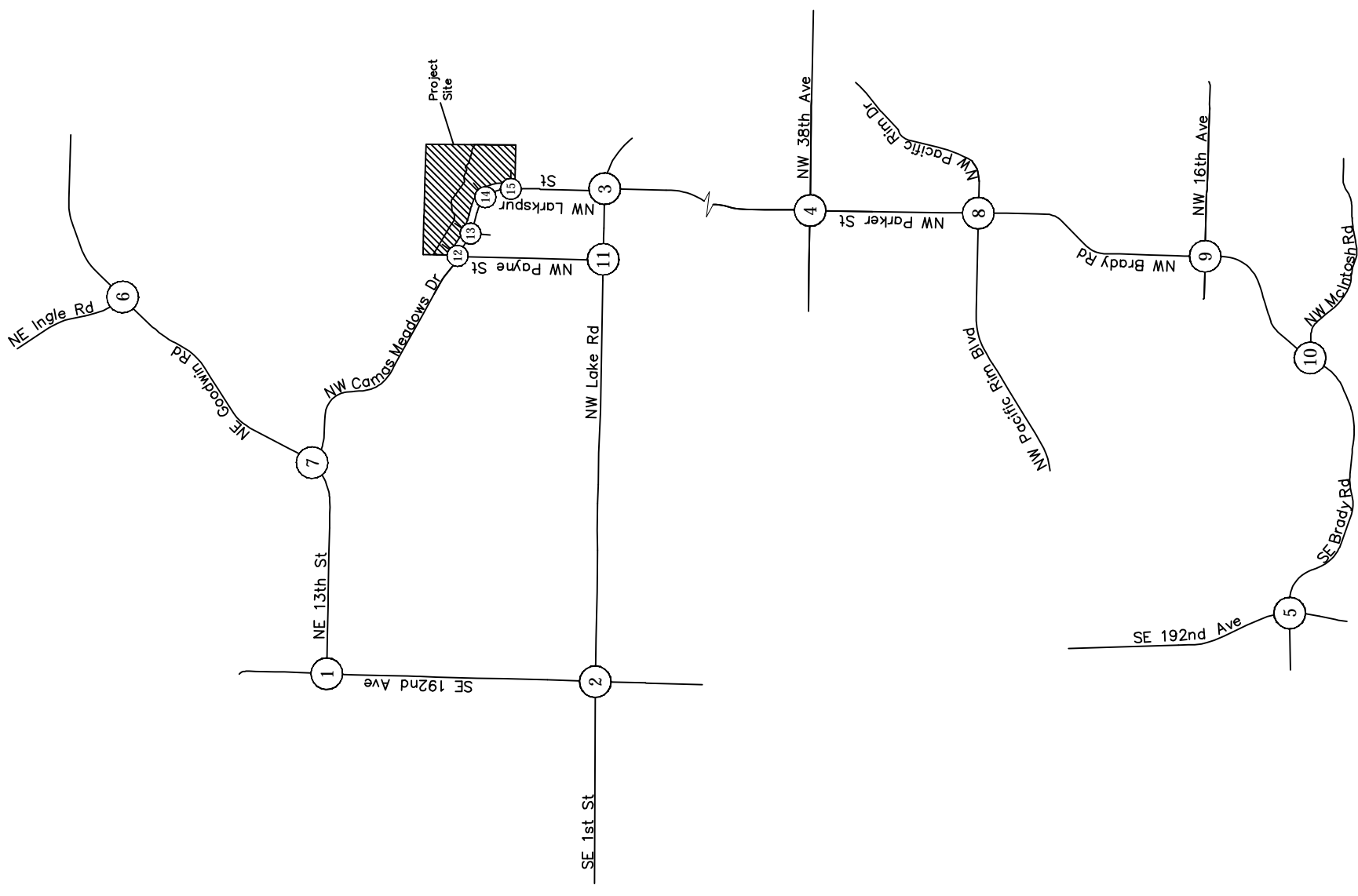
A.M. and P.M. Peak Hour Trip Distribution



NOT TO SCALE

FIGURE 6d
"Business Park"
Trip Distribution and Assignment
Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA



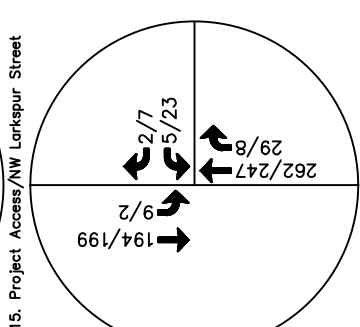
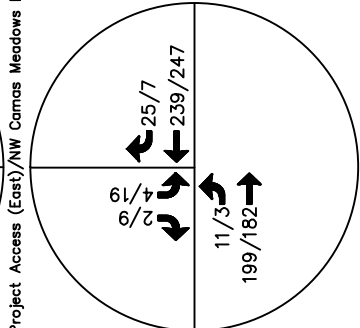
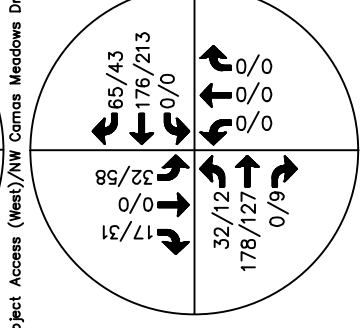
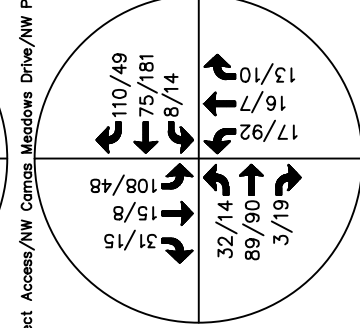
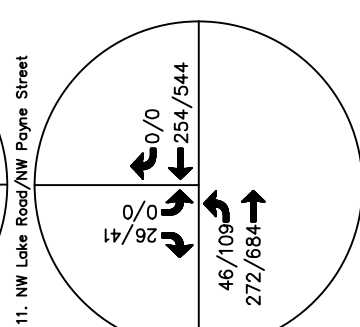
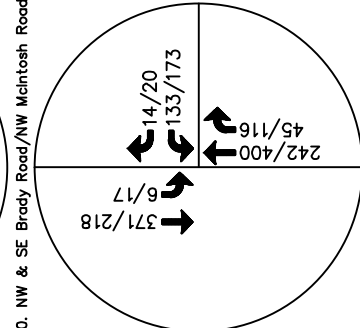
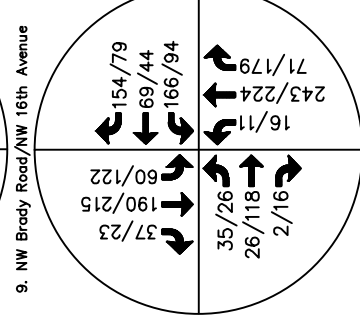
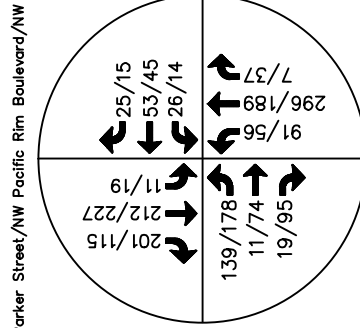
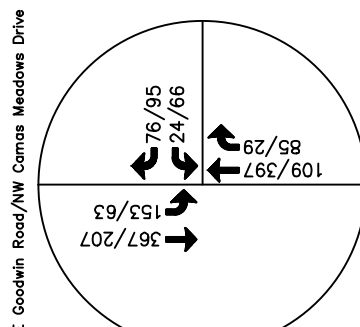
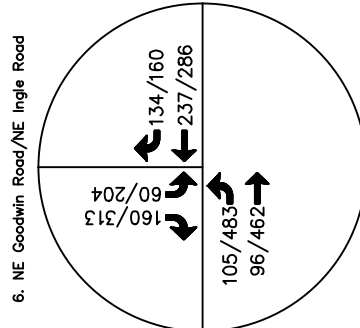
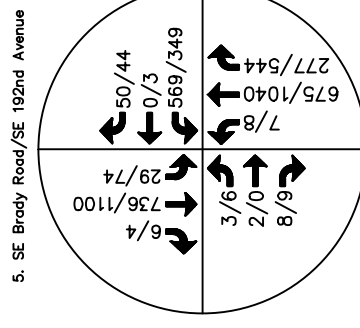
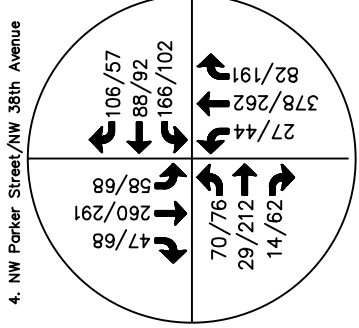
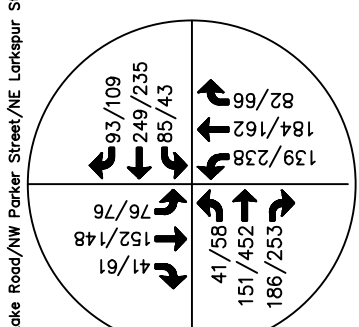
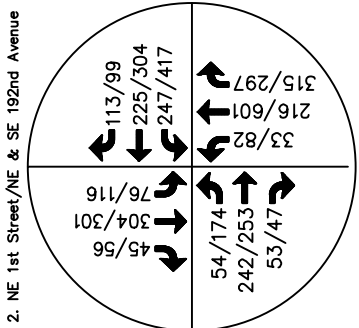
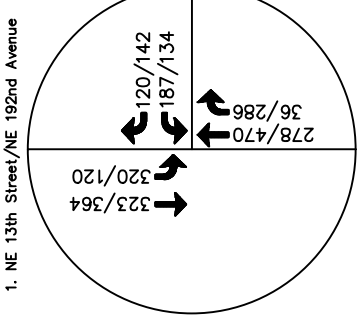
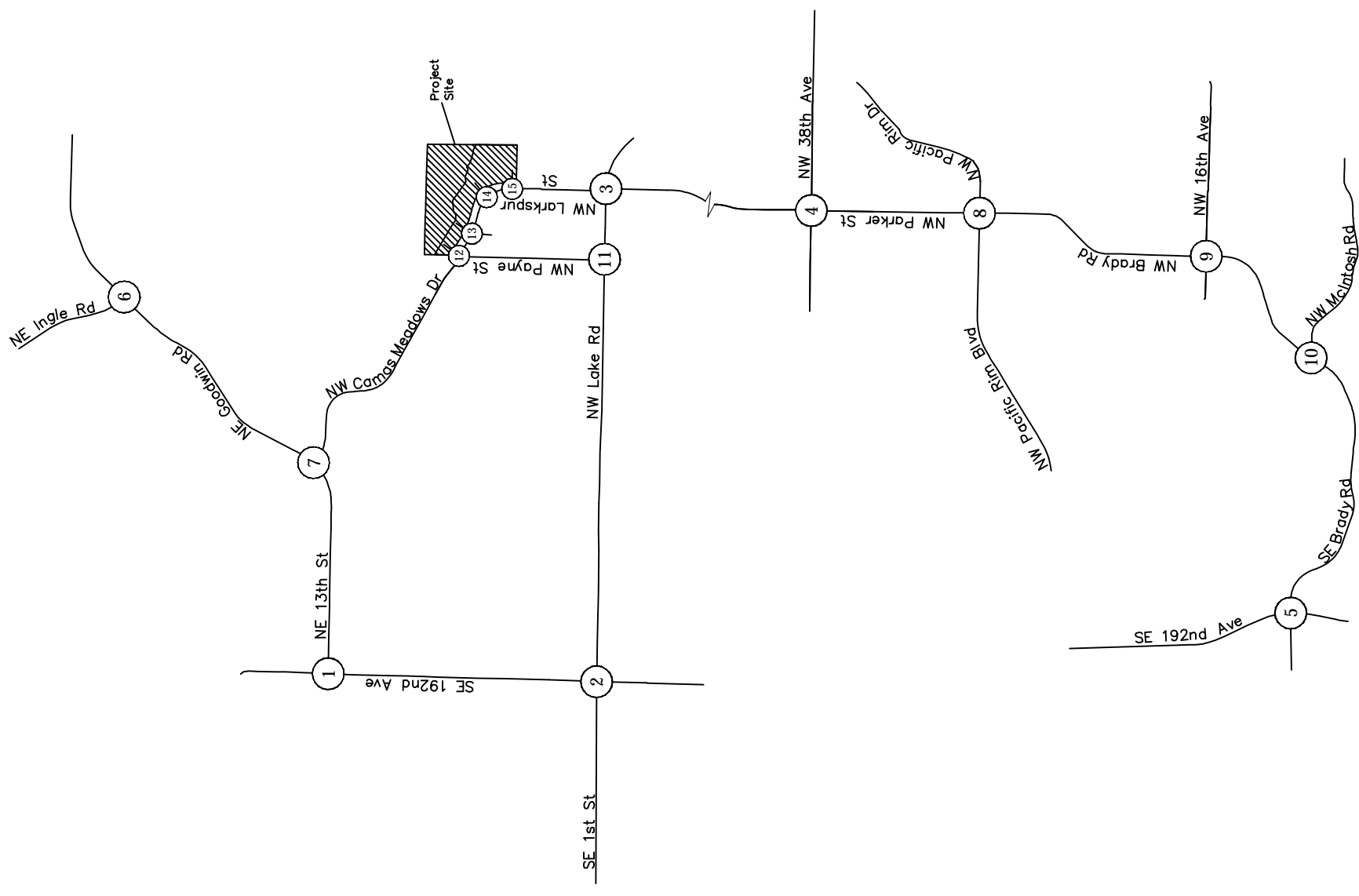
LEGEND
100/128

A.M./P.M. Peak Hour
Traffic Volumes



FIGURE 6e
"Combined Use"
Trip Distribution and Assignment
Traffic Volumes

Parklands at Camas Meadows TIA
Camas, WA

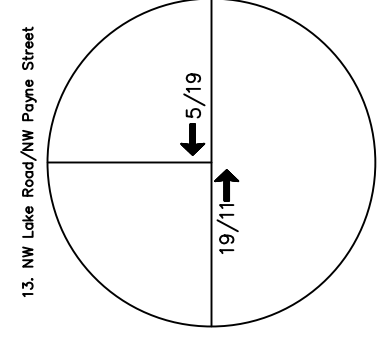
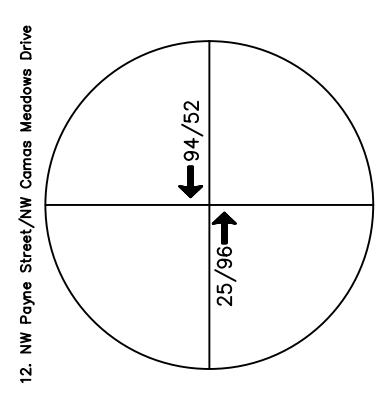
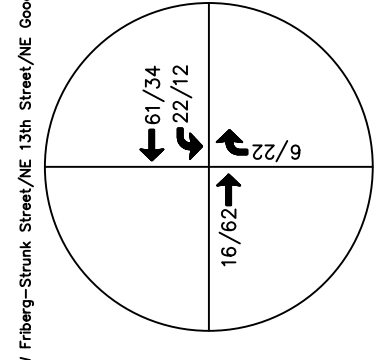
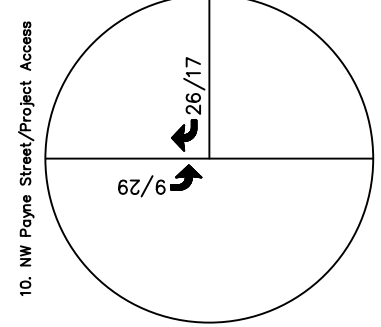
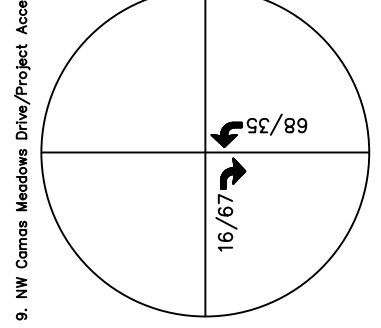
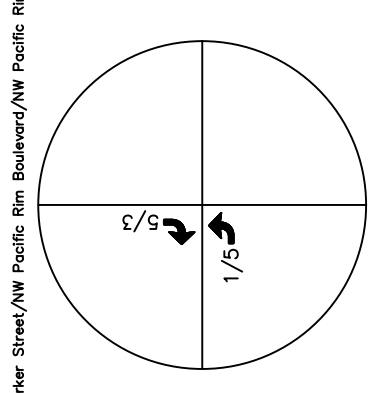
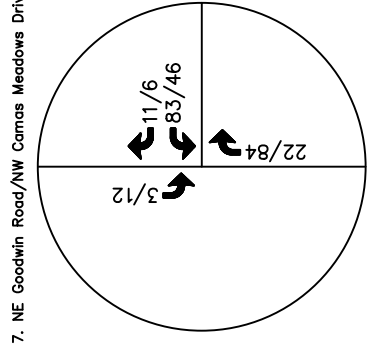
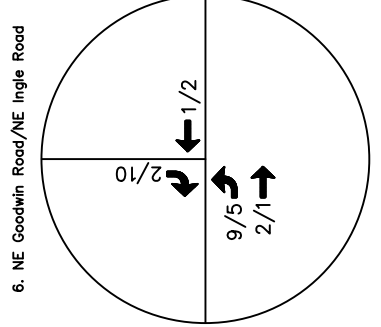
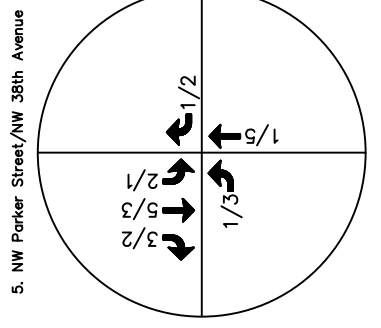
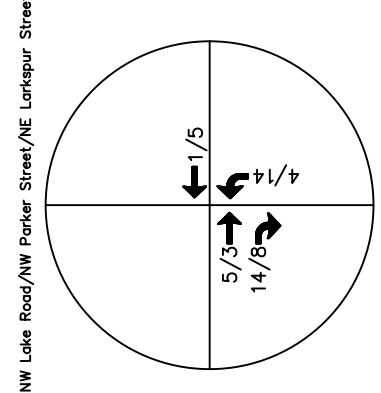
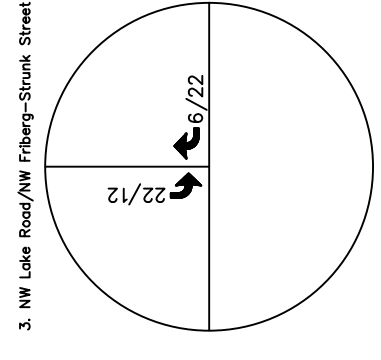
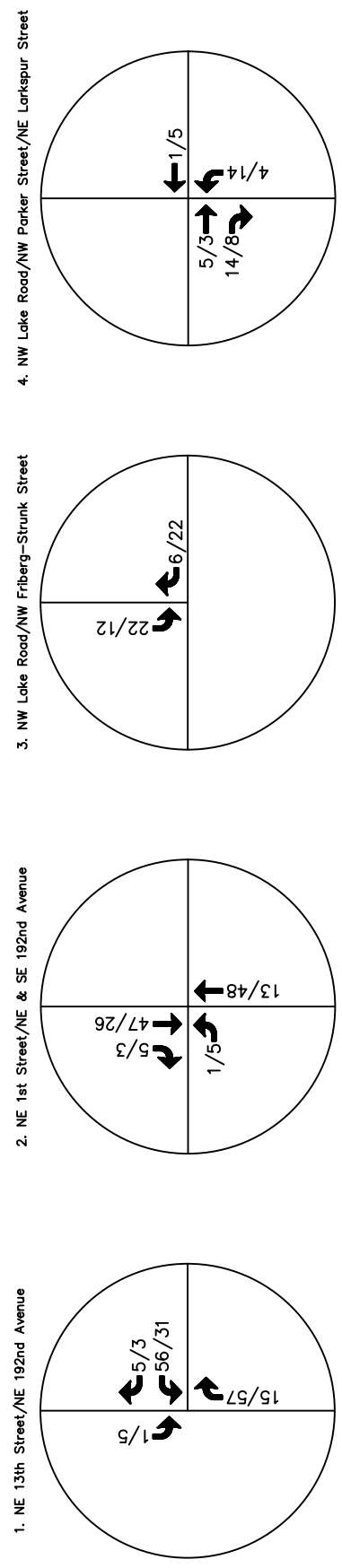
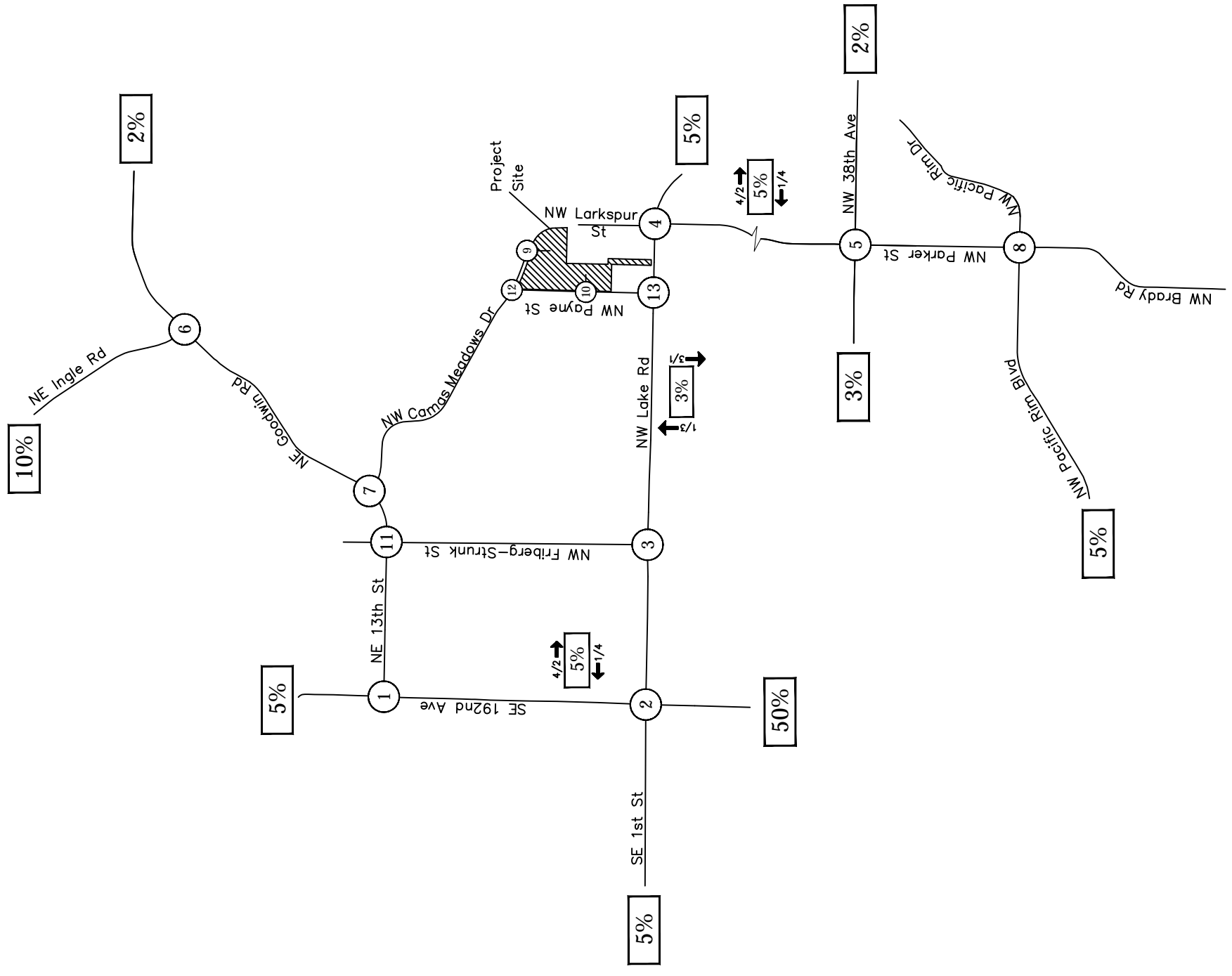


LEGEND
128/200

AM/PM Peak Hour
Traffic Volume

FIGURE 7
2020 "With Project"
A.M. and P.M. Peak Hour Traffic Volumes

Village at Camas Meadows TIA
Camas, WA



LEGEND
128/200
A.M./P.M. Peak Hour
Traffic Volume
10%

5%
5%
5%
5%
3%
3%
5%
5%
5%
2%
2%

FIGURE 6
Trip Distribution and Assignment
Traffic Volumes

CURRENT PROPOSED DEVELOPMENT PLAN

The B1 South Phase consists of 124 attached units and 2 single-family detached homes and is expected to be completed by 2020. It is located in the southwest portion of the overall site, directly south of Phase 1. Access will be provided via the neighborhood collector built with Phase 1, which connects to NE Ingle Road. In the future, this neighborhood collector will connect to Phase 3 of the site.

Trip Generation

Trip generation estimates for the proposed development were generated based on information provided in the standard reference manual *Trip Generation, 9th Edition* published by the Institute of Transportation Engineers (ITE – Reference 2). Table 1 summarizes the daily, weekday AM, and weekday PM peak-hour trips for the B1 South Phase assumed development.

Table 1: Trip Generation Estimate – B1 South Phase

Land Use	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Residential Condominium/ Townhouse	230	124 units	720	55	9	46	65	43	22
Single-Family Detached Housing	210	2 units	20	2	1	1	2	1	1
Total Residential (126 units)			740	57	10	47	67	44	23

Table 2 summarizes the overall master plan trip generation and then deducts for the cumulative Phase 1¹, Phase 2¹ Phase 3, and B1 South Phase trips to summarize the number of net new trips that will remain vested.

¹ While previous traffic analysis assumed 215 units in Phase 1, Phase 1 as platted consists of 201 units. While previous traffic analysis assumed 230 units in Phase 2, Phase 2 is now platted for 228 units. The updated trip totals are shown in Table 2.

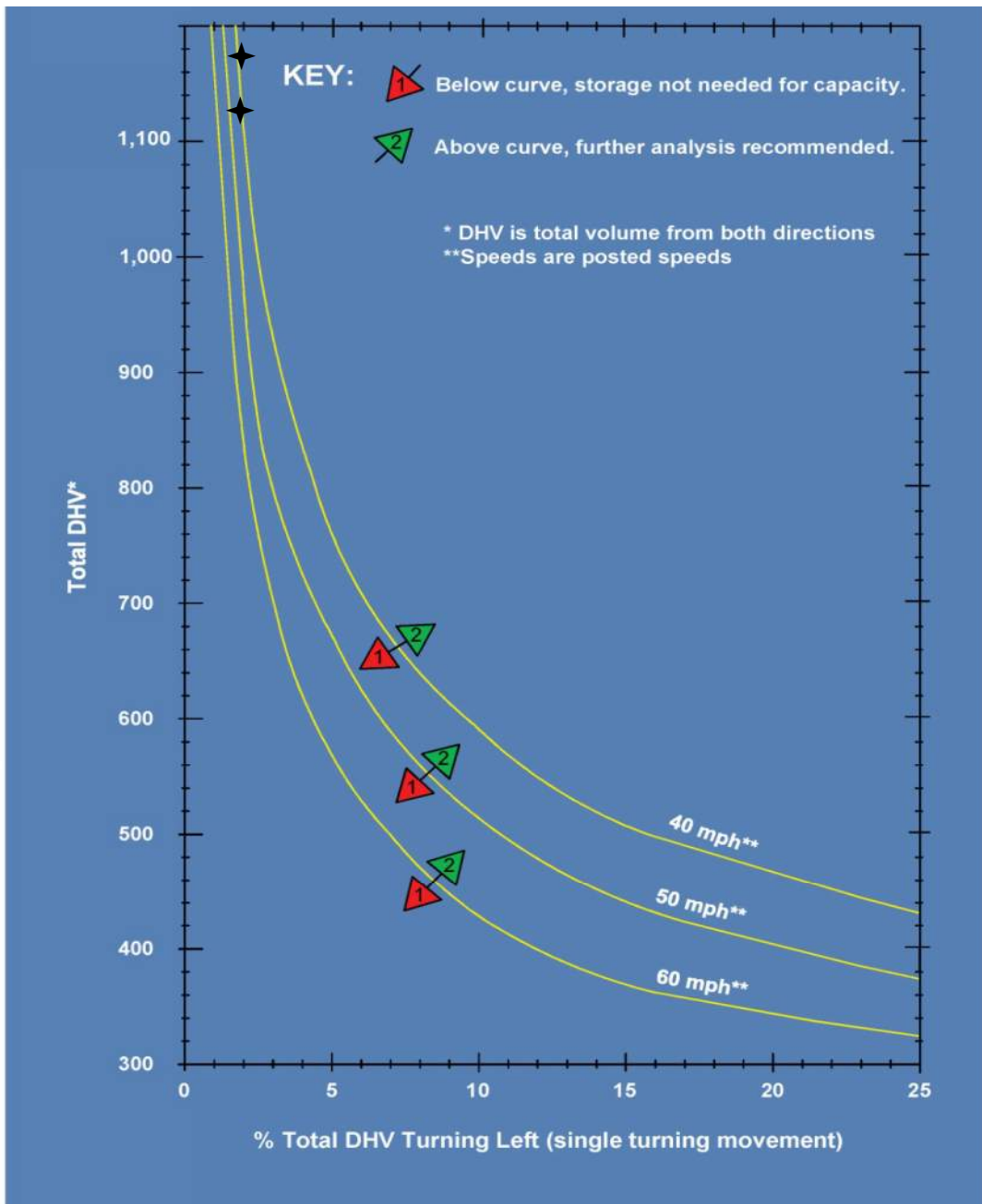


Exhibit 1310-7a. Left-turn Storage Guidelines-: Two-Lane, Unsignalized.

Storage requirements for critical left-turn movements at unsignalized intersections on 2-lane highways.

Intersection	Mov't	Analysis Period	Speed V (mph)	Left Turns in Advancing Volume (vph)	Advancing Volume V_A (vph)	Opposing Volume V_O (vph)	Total DHV	% Left Turns in DHV L	Storage Req'd (ft)
Site Access and NE 13th Street	WB LT	2026 Total Traffic-AM Peak	35	21	615	557	1,172	2%	100 ft
		2026 Total Traffic-PM Peak		24	515	614	1,129	2%	None

Source: WSDOT Design Guide, February 2019.

Exhibit 1310-8a Left-Turn Storage Length: Two-Lane, Unsignalized (40mph)

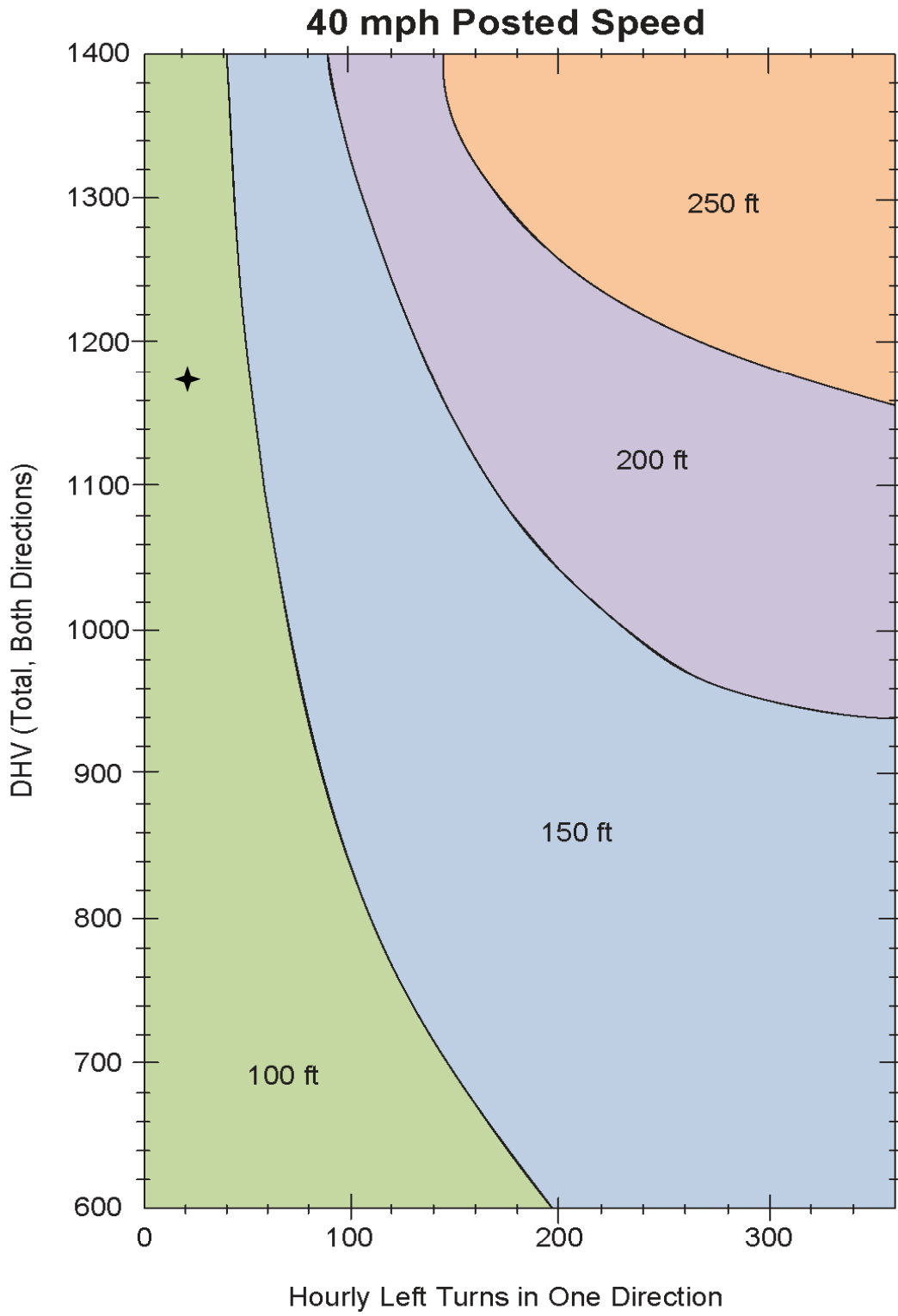
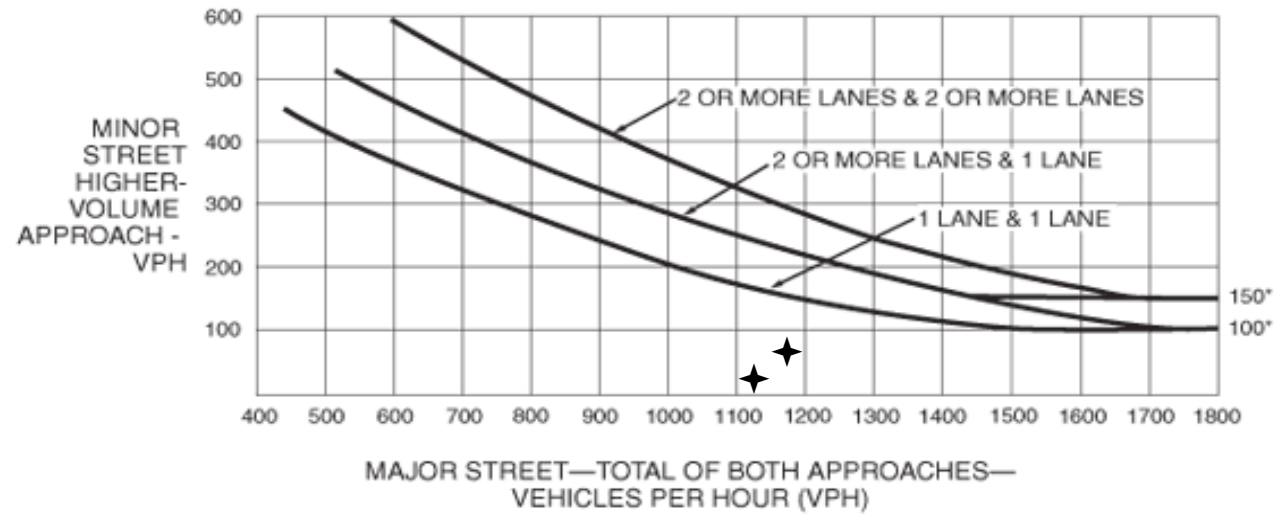


Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Table for Figure 4C-3

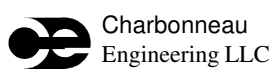
One lane and one lane		Two or more lanes and one lane		Two or more lanes and two or more lanes	
VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)	VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)	VPH on the major street (Total of both approaches)	VPH on the minor street (Higher volume approach)
1800	100	1800	100 or 150*	1800	150
1700	100	1700	100 or 150*	1700	150
1600	100	1600	120 or 150*	1600	170
1500	100	1500	145 or 150*	1500	180
1400	120	1400	155	1400	220
1300	130	1300	190	1300	250
1200	150	1200	220	1200	285
1100	175	1100	250	1100	340
1000	200	1000	285	1000	370
900	245	900	325	900	425
800	285	800	360	800	475
700	325	700	420	700	540
600	360	600	460	600	590
500	420	500	Not available	500	Not available

* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Peak hour volume warrant for signalization data.

Intersection	Analysis Period	Major Street Speed (mph)	Major Street		Minor Street High Volume Approach		Signal Warranted?
			Volume (vph)	Lanes (#)	Volume (vph)	Lanes (#)	
Site Access and NE 13th Street	2026 Total Traffic - AM Peak	35	1,172	1	70	1	No
	2026 Total Traffic - PM Peak		1,129		81		No

Source: Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition.



**OFFICER REPORTED CRASHES THAT OCCURRED at OR in the vicinity of MULTIPLE INTERSECTIONS IN THE CITIES OF CAMAS & VANCOUVER
01/01/2018 - Avail 2023 (04/04/23) See 2nd tab below for road info**

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Indexed Primary Trafficway	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	REPORT NUMBER	DATE	# I N J	# F A T	# V E H	# P E D	# B I K	VEH 1 COMPASS DIR FROM	VEH 1 COMPASS DIR TO	VEH 2 COMPASS DIR FROM	VEH 2 COMPASS DIR TO
NE GOODWIN RD	7801	NW FRIBERG STRUNK ST			NE 13TH ST	EC42777	05/02/2022	0	0	1	0	0	East	West		
NE GOODWIN RD	7800		108	F	NE 13TH ST	E853679	10/20/2018	0	0	1	0	0	West	East		
NW FRIBERG STRUNK ST	0	NE 13TH ST				E914095	04/23/2019	0	0	1	0	0	South	Northwest		
NE 13TH ST	0	NE 192ND AVE				EA33917	05/09/2020	0	0	1	0	0	West	North		
NE 13TH ST	19409	NE 192ND AVE				EC40931	04/20/2022	1	0	2	0	0	East	West	Stopped	Stopped
NE 13TH ST	19200		75	F	NE 192ND AVE	E891662	02/09/2019	1	0	2	0	0	East	West	Stopped	Stopped
NE 13TH ST	19200		33	F	NE 192ND AVE	EC66129	07/18/2022	0	0	2	0	0	South	East	Stopped	Stopped
NE 192ND AVE	1190	NE 13TH ST				EC64739	07/14/2022	0	0	2	0	0	North	East	Stopped	Stopped
NE 192ND AVE	1168	NE 13TH ST				EB73778	09/24/2021	0	0	2	0	0	North	East	South	North
NE 192ND AVE	0	NE 13TH ST				E974878	10/18/2019	0	0	2	0	0	East	North	South	North
NE 192ND AVE	1200		181	F	NE 13TH ST	EC53185	06/06/2022	1	0	3	0	0	South	North	Stopped	Stopped
NE 192ND AVE	1200		50	F	NE 13TH ST	EC31583	03/24/2022	0	0	3	0	0	South	North	Stopped	Stopped
NW FRIBERG STRUNK ST	200		112	F	NW LAKE RD	E869653	12/06/2018	2	0	4	0	0	North	South	Stopped	Stopped
NW LAKE RD	9900	NW FRIBERG STRUNK ST				E774352	02/20/2018	0	0	2	0	0	East	East	West	East
SE 1ST ST	0	NW FRIBERG STRUNK ST				EA42305	06/22/2020	1	0	2	0	0	East	West	West	North
SE 1ST ST	20199	NW FRIBERG STRUNK ST				ED49006	04/04/2023	0	0	2	0	0	West	East	West	East
SE 1ST ST	0	NW FRIBERG STRUNK ST				E846435	10/08/2018	0	0	2	0	0	West	North	East	West

Exhibit 1A. Trip Distribution for Corridor Intersections.

<u>Corridor:</u> Andresen Road		<u>Limits:</u> Mill Plain Boulevard to SR-500										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
E. 18th Street/N.E. 18th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 25th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fourth Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SR-500	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> Andresen Road		<u>Limits:</u> SR-500 to NE 78th Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SR-500	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 40th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vancouver Mall Drive	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 58th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Minnehaha/NE 63rd Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 78th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> Fourth Plain Boulevard		<u>Limits:</u> Mill Plain Boulevard to I-5										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fruit Valley Road/Kotobuki Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Kauffman Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Main Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
I-5 southbound off-/on-ramps	0%	----	0%	0%	0%	----	----	----	----	----	0%	0%
I-5 northbound off-/on-ramps	----	----	----	0%	0%	----	0%	0%	0%	----	0%	0%

<u>Corridor:</u> Fourth Plain Boulevard		<u>Limits:</u> I-5 to Andresen Road										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-5 northbound off-/on-ramps	----	----	----	0%	0%	----	0%	0%	0%	----	0%	0%
St. Johns Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fort Vancouver Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grand Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Falk Road	0%	----	0%	0%	0%	----	----	----	----	----	0%	0%
Stapleton Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Andresen Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Exhibit 1A. Trip Distribution for Corridor Intersections. (continued)

<u>Corridor:</u> Fourth Plain Boulevard				<u>Limits:</u> Andresen Road to I-205								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Andresen Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 86th Avenue	----	----	----	----	0%	0%	0%	----	0%	0%	0%	----
Thurston Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
I-205 SB on-ramp/Oak View Drive	----	----	----	0%	0%	0%	0%	0%	0%	0%	0%	0%
I-205 SB off-ramp/Van Mall Drive	0%	0%	0%	0%	0%	----	0%	0%	0%	----	0%	0%
I-205 NB on-ramp/NE 54th Street	0%	0%	0%	0%	0%	0%	----	----	----	0%	0%	0%

<u>Corridor:</u> Fourth Plain Boulevard (SR-500)				<u>Limits:</u> I-205 to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-205 NB on-ramp/NE 54th Street	0%	0%	0%	0%	0%	0%	----	----	----	0%	0%	0%
Covington Road/Gher Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 112th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 117th Avenue (SR 503/500)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 121st Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 137th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ward Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 162nd Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> Mill Plain Boulevard				<u>Limits:</u> Fourth Plain Boulevard to I-5								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Fourth Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Kauffman Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Main Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
I-5 southbound on-/off-ramps	0%	0%	0%	----	0%	0%	----	----	----	0%	0%	----
I-5 northbound on-/off-ramps	----	----	----	0%	0%	----	0%	0%	0%	----	0%	0%

<u>Corridor:</u> Mill Plain Boulevard				<u>Limits:</u> I-5 to Andresen Road								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-5 northbound on-/off-ramps	----	----	----	0%	0%	----	0%	0%	0%	----	0%	0%
Fort Vancouver Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grand Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MacArthur Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Andresen Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Exhibit 1A. Trip Distribution for Corridor Intersections. (continued)

Corridor: Mill Plain Boulevard		Limits: Andresen Road to I-205										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Andresen Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lieser Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 97th/98th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
I-205 southbound on-/off-ramps	0%	----	0%	0%	0%	----	----	----	----	0%	0%	----
I-205 northbound on-/off-ramps	0%	----	----	0%	0%	----	0%	----	----	----	0%	0%

Corridor: Mill Plain Boulevard		Limits: I-205 to NE 136th Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-205 northbound on-/off-ramps	0%	----	----	0%	0%	----	0%	----	----	----	0%	0%
Chkalov Drive	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE/SE 117th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE/SE 120th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SE 123rd/NE 124th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SE 126th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Park Plaza Dr/SE 131st Av	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE/SE 136th Avenue	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%

Corridor: Mill Plain Boulevard		Limits: NE 136th Avenue to NE 164th Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE/SE 136th Avenue	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
SE 139th Avenue	----	----	----	----	5%	0%	0%	----	0%	0%	5%	----
Olympia Drive	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
Hearthwood Blvd/Park Crest Av	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
SE 148th Avenue	0%	----	0%	0%	5%	----	----	----	----	----	5%	0%
SE 155th Avenue	0%	----	0%	0%	5%	----	----	----	----	----	5%	0%
SE 157th Avenue	0%	----	0%	0%	5%	----	----	----	----	----	5%	0%
SE 160th Avenue	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
SE 164th Avenue	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%

Corridor: Mill Plain Boulevard		Limits: NE 164th Avenue to NE 192nd Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SE 164th Avenue	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%
SE 168th Avenue	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
SE 172nd Av/Tech Center Dr	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
SE 177th Avenue	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
SE 192nd Avenue	10%	15%	0%	0%	0%	0%	0%	15%	0%	0%	0%	10%

Exhibit 1A. Trip Distribution for Corridor Intersections. (continued)

<u>Corridor:</u> NE 18th Street				<u>Limits:</u> NE 112th Avenue to NE 138th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 112th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 125th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 138th Avenue	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%

<u>Corridor:</u> NE 18th Street				<u>Limits:</u> NE 138th Avenue to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 138th Avenue	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
NE 148th Court/Place	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%
NE 155th Avenue	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%
NE 162nd Avenue	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%

<u>Corridor:</u> Burton Road/NE 28th Street				<u>Limits:</u> NE 18th Street to NE 112th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 18th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 86th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 98th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 112th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> Burton Road/NE 28th Street				<u>Limits:</u> NE 112th Avenue and NE 138th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 112th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 119th Avenue/Four Seasons	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 124th Avenue (South)	----	----	----	----	0%	0%	0%	----	----	0%	0%	----
NE 124th Avenue (North)	0%	----	0%	0%	0%	----	----	----	----	0%	0%	0%
NE 129th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 138th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> NE 28th Street				<u>Limits:</u> NE 138th Avenue to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 136th/138th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 148th Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 152nd Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 162nd Avenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Exhibit 1A. Trip Distribution for Corridor Intersections. (continued)

<u>Corridor:</u> Ft. Vancouver Way/St. Johns Boulevard		<u>Limits:</u> Mill Plain Boulevard to NE 63rd Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
McLoughlin Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fourth Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
St. Johns Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
E 33rd Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SR 500	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 44th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Minnehaha/NE 63rd Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> NE 112th Avenue (also Chkalov Drive)		<u>Limits:</u> Mill Plain Boulevard to Burton Road/NE 28th Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 9th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 18th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Burton Road/NE 28th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> NE 112th Avenue		<u>Limits:</u> Burton Road/NE 28th Street to NE 51st Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Burton Road/NE 28th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 49th Street	----	0%	0%	0%	----	0%	0%	----	----	----	----	----
NE 51st Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> NE 136th/138th Avenue		<u>Limits:</u> Mill Plain Boulevard to NE 28th Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
NE 4th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 18th Street	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	0%
NE 28th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

<u>Corridor:</u> NE 137th/138th Avenue		<u>Limits:</u> NE 28th Street to Fourth Plain Boulevard										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 28th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 39th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 49th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fourth Plain Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Exhibit 1A. Trip Distribution for Corridor Intersections. (continued)

Corridor: SE 164th Avenue			Limits: SR-14 to SE 1st Street									
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SR-14 eastbound ramps	----	0%	0%	----	----	----	0%	0%	----	0%	----	0%
SR-14 westbound ramps	0%	0%	----	0%	----	0%	----	0%	0%	----	----	----
Cascade Park Dr/SE 34th St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Village Loop/SE 29th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
McGillivray Boulevard	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Village Loop/SE 20th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SE 15th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SE 12th Court/Tech Center Drive	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mill Plain Boulevard	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%
SE 1st Street	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	15%	0%

Corridor: NE 162nd/SE 164th Avenue			Limits: SE 1st Street to Fourth Plain Road									
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SE 1st Street	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	15%	0%
NE 11th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 18th Street	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	10%	0%
NE 28th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 34th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 39th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Poplar Street/NE 45th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE 65th Street	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fourth Plain Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Corridor: NE/SE 192nd Avenue			Limits: SR-14 to NE 18th Street									
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SR-14 eastbound ramps	----	0%	15%	----	----	----	0%	0%	----	0%	----	0%
SR-14 westbound ramps	0%	15%	----	15%	----	0%	----	0%	0%	----	----	----
Brady Road	----	15%	0%	0%	----	0%	0%	15%	----	----	----	----
SE 34th Street/Pacific Rim Blvd	0%	15%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
SE 31st Street	----	15%	0%	0%	----	0%	0%	15%	----	----	----	----
SE 20th Street	0%	15%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
SE 15th Street	0%	15%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
SE 12th Way	0%	15%	----	----	----	----	----	15%	0%	0%	----	0%
Westridge Boulevard	----	15%	0%	0%	----	0%	0%	15%	----	----	----	----
Mill Plain Boulevard	10%	15%	0%	0%	0%	0%	0%	15%	0%	0%	0%	10%
SE 1st Street	15%	25%	0%	0%	0%	0%	0%	25%	0%	0%	0%	15%
NE 6th Street	----	40%	0%	0%	----	0%	0%	40%	----	----	----	----
NE 9th Street	0%	40%	----	----	----	----	----	40%	0%	0%	----	0%
NE 11th Street	----	40%	0%	0%	----	0%	0%	40%	----	----	----	----
NE 13th Street	----	0%	30%	30%	----	40%	40%	0%	----	----	----	----
NE 18th Street	----	----	----	----	0%	0%	0%	----	30%	30%	0%	----

Exhibit 1B. Trip Assignment for Corridor Intersections.

<u>Corridor:</u> Andresen Road		<u>Limits:</u> Mill Plain Boulevard to SR-500											
Intersecting Roadway	Traffic Movement												
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
Mill Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
E. 18th Street/N.E. 18th Street	0	0	0	0	0	0	0	0	0	0	0	0	
NE 25th Street	0	0	0	0	0	0	0	0	0	0	0	0	
Fourth Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
SR-500	0	0	0	0	0	0	0	0	0	0	0	0	

<u>Corridor:</u> Andresen Road		<u>Limits:</u> SR-500 to NE 78th Street											
Intersecting Roadway	Traffic Movement												
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
SR-500	0	0	0	0	0	0	0	0	0	0	0	0	
NE 40th Street	0	0	0	0	0	0	0	0	0	0	0	0	
Vancouver Mall Drive	0	0	0	0	0	0	0	0	0	0	0	0	
NE 58th Street	0	0	0	0	0	0	0	0	0	0	0	0	
Minnehaha/NE 63rd Street	0	0	0	0	0	0	0	0	0	0	0	0	
NE 78th Street	0	0	0	0	0	0	0	0	0	0	0	0	

<u>Corridor:</u> Fourth Plain Boulevard		<u>Limits:</u> Mill Plain Boulevard to I-5											
Intersecting Roadway	Traffic Movement												
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
Mill Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
Fruit Valley Road/Kotobuki Way	0	0	0	0	0	0	0	0	0	0	0	0	
Kauffman Avenue	0	0	0	0	0	0	0	0	0	0	0	0	
Main Street	0	0	0	0	0	0	0	0	0	0	0	0	
I-5 southbound off-/on-ramps	0	----	0	0	0	----	----	----	----	----	0	0	
I-5 northbound off-/on-ramps	----	----	----	0	0	----	0	0	0	----	0	0	

<u>Corridor:</u> Fourth Plain Boulevard		<u>Limits:</u> I-5 to Andresen Road											
Intersecting Roadway	Traffic Movement												
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
I-5 northbound off-/on-ramps	----	----	----	0	0	----	0	0	0	----	0	0	
St. Johns Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
Fort Vancouver Way	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
Falk Road	0	----	0	0	0	----	----	----	----	----	0	0	
Stapleton Road	0	0	0	0	0	0	0	0	0	0	0	0	
Andresen Road	0	0	0	0	0	0	0	0	0	0	0	0	

Exhibit 1B. Trip Assignment for Corridor Intersections. (continued)

<u>Corridor:</u> Fourth Plain Boulevard				<u>Limits:</u> Andresen Road to I-205								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Andresen Road	0	0	0	0	0	0	0	0	0	0	0	0
NE 86th Avenue	----	----	----	----	0	0	0	----	0	0	0	----
Thurston Way	0	0	0	0	0	0	0	0	0	0	0	0
I-205 SB on-ramp/Oak View Drive	----	----	----	0	0	0	0	0	0	0	0	0
I-205 SB off-ramp/Van Mall Drive	0	0	0	0	0	----	0	0	0	----	0	0
I-205 NB on-ramp/NE 54th Street	0	0	0	0	0	0	----	----	----	0	0	0

<u>Corridor:</u> Fourth Plain Boulevard (SR-500)				<u>Limits:</u> I-205 to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-205 NB on-ramp/NE 54th Street	0	0	0	0	0	0	----	----	----	0	0	0
Covington Road/Gher Road	0	0	0	0	0	0	0	0	0	0	0	0
NE 112th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 117th Avenue (SR 503/500)	0	0	0	0	0	0	0	0	0	0	0	0
NE 121st Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 137th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
Ward Road/NE 147th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 162nd Avenue	0	0	0	0	0	0	0	0	0	0	0	0

<u>Corridor:</u> Mill Plain Boulevard				<u>Limits:</u> Fourth Plain Boulevard to I-5								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Fourth Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Kauffman Avenue	0	0	0	0	0	0	0	0	0	0	0	0
Main Street	0	0	0	0	0	0	0	0	0	0	0	0
I-5 southbound on-/off-ramps	0	0	0	----	0	0	----	----	----	0	0	----
I-5 northbound on-/off-ramps	----	----	----	0	0	----	0	0	0	----	0	0

<u>Corridor:</u> Mill Plain Boulevard				<u>Limits:</u> I-5 to Andresen Road								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-5 northbound on-/off-ramps	----	----	----	0	0	----	0	0	0	----	0	0
Fort Vancouver Way	0	0	0	0	0	0	0	0	0	0	0	0
Grand Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
MacArthur Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Andresen Road	0	0	0	0	0	0	0	0	0	0	0	0

Exhibit 1B. Trip Assignment for Corridor Intersections. (continued)

Corridor: Mill Plain Boulevard		Limits: Andresen Road to I-205										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Andresen Road	0	0	0	0	0	0	0	0	0	0	0	0
Lieser Road	0	0	0	0	0	0	0	0	0	0	0	0
NE 97th/98th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
I-205 southbound on-/off-ramps	0	----	0	0	0	----	----	----	----	0	0	----
I-205 northbound on-/off-ramps	0	----	----	0	0	----	0	----	----	----	0	0

Corridor: Mill Plain Boulevard		Limits: I-205 to NE 136th Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
I-205 northbound on-/off-ramps	0	----	----	0	0	----	0	----	----	----	0	0
Chkalov Drive	0	0	0	0	0	0	0	0	0	0	0	0
NE/SE 117th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE/SE 120th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
SE 123rd/NE 124th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
SE 126th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
Park Plaza Dr/SE 131st Av	0	0	0	0	0	0	0	0	0	0	0	0
NE/SE 136th Avenue	0	0	0	0	2	0	0	0	0	0	2	0

Corridor: Mill Plain Boulevard		Limits: NE 136th Avenue to NE 164th Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE/SE 136th Avenue	0	0	0	0	2	0	0	0	0	0	2	0
SE 139th Avenue	----	----	----	----	2	0	0	----	0	0	2	----
Olympia Drive	0	0	0	0	2	0	0	0	0	0	2	0
Hearthwood Blvd/Park Crest Av	0	0	0	0	2	0	0	0	0	0	2	0
SE 148th Avenue	0	----	0	0	2	----	----	----	----	----	2	0
SE 155th Avenue	0	----	0	0	2	----	----	----	----	----	2	0
SE 157th Avenue	0	----	0	0	2	----	----	----	----	----	2	0
SE 160th Avenue	0	0	0	0	2	0	0	0	0	0	2	0
SE 164th Avenue	0	0	0	0	4	0	0	0	0	0	4	0

Corridor: Mill Plain Boulevard		Limits: NE 164th Avenue to NE 192nd Avenue										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SE 164th Avenue	0	0	0	0	4	0	0	0	0	0	4	0
SE 168th Avenue	0	0	0	0	4	0	0	0	0	0	4	0
SE 172nd Av/Tech Center Dr	0	0	0	0	4	0	0	0	0	0	4	0
SE 177th Avenue	0	0	0	0	4	0	0	0	0	0	4	0
SE 192nd Avenue	4	6	0	0	0	0	0	7	0	0	0	4

Exhibit 1B. Trip Assignment for Corridor Intersections. (continued)

Corridor: NE 18th Street				Limits: NE 112th Avenue to NE 138th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 112th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 125th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 138th Avenue	0	0	0	0	2	0	0	0	0	0	2	0

Corridor: NE 18th Street				Limits: NE 138th Avenue to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 138th Avenue	0	0	0	0	2	0	0	0	0	0	2	0
NE 148th Court/Place	0	0	0	0	4	0	0	0	0	0	4	0
NE 155th Avenue	0	0	0	0	4	0	0	0	0	0	4	0
NE 162nd Avenue	0	0	0	0	4	0	0	0	0	0	4	0

Corridor: Burton Road/NE 28th Street				Limits: NE 18th Street to NE 112th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 18th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 86th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 98th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 112th Avenue	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: Burton Road/NE 28th Street				Limits: NE 112th Avenue and NE 138th Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 112th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 119th Avenue/Four Seasons	0	0	0	0	0	0	0	0	0	0	0	0
NE 124th Avenue (South)	----	----	----	----	0	0	0	----	0	0	0	----
NE 124th Avenue (North)	0	----	0	0	0	----	----	----	----	0	0	0
NE 129th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 138th Avenue	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE 28th Street				Limits: NE 138th Avenue to NE 162nd Avenue								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 136th/138th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 148th Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 152nd Avenue	0	0	0	0	0	0	0	0	0	0	0	0
NE 162nd Avenue	0	0	0	0	0	0	0	0	0	0	0	0

Exhibit 1B. Trip Assignment for Corridor Intersections. (continued)

Corridor: Ft. Vancouver Way/St. Johns Boulevard		Limits: Mill Plain Boulevard to NE 63rd Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
McLoughlin Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Fourth Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
St. Johns Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
E 33rd Street	0	0	0	0	0	0	0	0	0	0	0	0
SR 500	0	0	0	0	0	0	0	0	0	0	0	0
NE 44th Street	0	0	0	0	0	0	0	0	0	0	0	0
Minnehaha/NE 63rd Street	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE 112th Avenue (also Chkalov Drive)		Limits: Mill Plain Boulevard to Burton Road/NE 28th Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
NE 9th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 18th Street	0	0	0	0	0	0	0	0	0	0	0	0
Burton Road/NE 28th Street	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE 112th Avenue		Limits: Burton Road/NE 28th Street to NE 51st Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Burton Road/NE 28th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 49th Street	----	0	0	0	----	0	0	0	----	----	----	----
NE 51st Street	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE 136th/138th Avenue		Limits: Mill Plain Boulevard to NE 28th Street										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Mill Plain Boulevard	0	0	0	0	2	0	0	0	0	0	2	0
NE 4th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 18th Street	0	0	0	0	2	0	0	0	0	0	2	0
NE 28th Street	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE 137th/138th Avenue		Limits: NE 28th Street to Fourth Plain Boulevard										
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
NE 28th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 39th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 49th Street	0	0	0	0	0	0	0	0	0	0	0	0
Fourth Plain Road	0	0	0	0	0	0	0	0	0	0	0	0

Exhibit 1B. Trip Assignment for Corridor Intersections. (continued)

Corridor: SE 164th Avenue				Limits: SR-14 to SE 1st Street								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SR-14 eastbound ramps	----	0	0	----	----	----	0	0	----	0	---	0
SR-14 westbound ramps	0	0	----	0	---	0	----	0	0	----	----	----
Cascade Park Dr/SE 34th St	0	0	0	0	0	0	0	0	0	0	0	0
Village Loop/SE 29th Street	0	0	0	0	0	0	0	0	0	0	0	0
McGillivray Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Village Loop/SE 20th Street	0	0	0	0	0	0	0	0	0	0	0	0
SE 15th Street	0	0	0	0	0	0	0	0	0	0	0	0
SE 12th Court/Tech Center Drive	0	0	0	0	0	0	0	0	0	0	0	0
Mill Plain Boulevard	0	0	0	0	4	0	0	0	0	0	4	0
SE 1st Street	0	0	0	0	6	0	0	0	0	0	6	0

Corridor: NE 162nd/SE 164th Avenue				Limits: SE 1st Street to Fourth Plain Road								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SE 1st Street	0	0	0	0	6	0	0	0	0	0	6	0
NE 11th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 18th Street	0	0	0	0	4	0	0	0	0	0	4	0
NE 28th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 34th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 39th Street	0	0	0	0	0	0	0	0	0	0	0	0
Poplar Street/NE 45th Street	0	0	0	0	0	0	0	0	0	0	0	0
NE 65th Street	0	0	0	0	0	0	0	0	0	0	0	0
Fourth Plain Road	0	0	0	0	0	0	0	0	0	0	0	0

Corridor: NE/SE 192nd Avenue				Limits: SR-14 to NE 18th Street								
Intersecting Roadway	Traffic Movement											
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
SR-14 eastbound ramps	----	0	6	----	----	----	0	0	----	0	----	0
SR-14 westbound ramps	0	6	----	7	----	0	----	0	0	----	----	----
Brady Road	----	6	0	0	----	0	0	7	----	----	----	----
SE 34th Street/Pacific Rim Blvd	0	6	0	0	0	0	0	7	0	0	0	0
SE 31st Street	----	6	0	0	----	0	0	7	----	----	----	----
SE 20th Street	0	6	0	0	0	0	0	7	0	0	0	0
SE 15th Street	0	6	0	0	0	0	0	7	0	0	0	0
SE 12th Way	0	6	----	----	----	----	----	7	0	0	----	0
Westridge Boulevard	----	6	0	0	----	0	0	7	----	----	----	----
Mill Plain Boulevard	4	6	0	0	0	0	0	7	0	0	0	4
SE 1st Street	6	10	0	0	0	0	0	11	0	0	0	6
NE 6th Street	----	16	0	0	----	0	0	17	----	----	----	----
NE 9th Street	0	16	----	----	----	----	----	17	0	0	----	0
NE 11th Street	----	16	0	0	----	0	0	17	----	----	----	----
NE 13th Street	----	0	12	12	----	16	17	0	----	----	----	----
NE 18th Street	----	----	----	----	0	0	0	----	12	12	0	----

Table 6: 2035 PM Peak Hour Mitigated Intersection Level of Service

Roadway	Limits	Description	Benefits
Goodwin Road	192 nd Avenue to Friberg Street	<p>An improvement is needed to provide additional capacity between Vancouver and Camas. No specific project has been identified, but could include:</p> <ul style="list-style-type: none"> widening of 13th Street constructing an 18th Street connection or a combination of the two 	<ul style="list-style-type: none"> Modeling shows there will be a high travel demand in the future between Vancouver and northern Camas. Either two three-lane corridors or one five-lane corridor will be needed to connect 192nd and Goodwin/28th.
Goodwin Road	Friberg Street to Ingle Road	High travel demand along this corridor will require a five-lane section to provide capacity between Vancouver and northeastern Camas.	<ul style="list-style-type: none"> Capacity improvement for key corridor Safety improvement for key corridor
Goodwin Road	Ingle Road to 242 nd Avenue	Traffic forecasts indicate a three-lane section, in combination with the proposed 242 nd Extension/East-West Arterial Roadway will provide sufficient capacity in this corridor	<ul style="list-style-type: none"> Lower cost than originally anticipated (3-lane vs. 5-lane section) Improved capacity and safety
Camas Meadows Drive	Payne to Lake Road	Extend Camas Meadows Drive from Payne Street to Lake Road along Larkspur alignment as a three-lane collector	<ul style="list-style-type: none"> Improved capacity and safety Improves operation of Lake/Parker intersection Eliminates the need to widen 1st/Lake to accommodate eastbound through traffic
Ingle Street Extension (New East-West Connector)	Extend Ingle Street south and east between Goodwin/28 th and 232 nd Street	Provides an alternative route into north portion of Camas, eliminating the need for a five-lane section on Goodwin between Ingle and 242 nd Avenue	<ul style="list-style-type: none"> Provides additional capacity Provides access to new development area

Roadway	Limits	Description	Benefits
23 rd Street Realignment	283 rd Avenue to 23 rd Street	Construct connection between 23 rd Street Extension terminus on 283 rd Avenue south of 23 rd Street to 23 rd Street	<ul style="list-style-type: none"> Provide a direct connection between the new 23rd Street Extension (at 283rd Avenue) and the existing 23rd Street, providing access east toward Washougal
Friberg Street	1 st Street to 13 th Street	Widen to 3 lanes	<ul style="list-style-type: none"> Provide turn lane capacity for adjacent development and growth in through traffic
38 th Avenue Extension	192 nd to Bybee	Construct new 3 lane roadway	<ul style="list-style-type: none"> Provide a direct connection to 192nd with adequate capacity rather than a residentially fronted two lane street
38 th Avenue (West)	Bybee to Parker	Widen to 3 lanes	<ul style="list-style-type: none"> Provide turn lane capacity for adjacent development and growth in through traffic
38 th Avenue (East)	Parker to 650 feet west of Dahlia	Widen to 3 lanes	<ul style="list-style-type: none"> Provide turn lanes and increased capacity for development
Bybee Realignment	199 th Avenue to 20 th Street	Realign to meet new signalized intersection	<ul style="list-style-type: none"> Current alignment of Bybee would not be access spacing standards between the new signal planned west of 202nd Avenue

Notes:

- **13th Street/18th Street Corridor:** It is recognized that additional capacity (five lanes total) is needed between NE 192nd Avenue (in Vancouver) and NE Goodwin Road (in Camas). The area between these two points is located within Clark County and, while there are multiple alignment options, there are issues related to each. The most desirable option, in terms of vehicular demand and connectivity, would be a new route along the 18th Street alignment. However, there are known environmental issues with this alignment which would make development of a project very difficult. Another alternative would be to widen NE 13th Street between 192nd Avenue and Goodwin Road, however, this alignment goes through a neighborhood, and would require acquisition of residential property to build a five-lane section. A third alternative would provide two three-lane roadways, however, both environmental and neighborhood issues would need to be addressed. This analysis assumes that some sort of connection is provided (to be determined at a later date), that would provide capacity for the equivalent of a five lane roadway.
- Previous analysis has indicated that a five-lane section would be required along the Goodwin/28th corridor. Current analysis indicates that with the planned improvements in the North UGA area, including a parallel collector route, a three-lane section will work between Ingle and 242nd Avenue. Right-of-way should be reserved for a five-lane section, as ultimately, it may be required.
- In the 2007 Framework Plan, it was recommended that Camas Meadows Drive be realigned to intersect with 1st Street/Lake Road at Larkspur/Parker Street. A key purpose of this realignment was to consolidate access and the need for additional traffic signals along 1st Street/Lake Road. Alternatives to this realignment were considered, such as improving the existing Payne Street alignment. However, the Larkspur alignment significantly improves operations at the Lake Road/1st Street/Parker intersection and preserves pedestrian access on all intersection approaches. Pedestrian access may have been at risk on the west approach to the intersection due to the high number of eastbound right turns/northbound left turns that can be reduced by extending Parker north to align with Camas Meadows Drive. Camas Meadows Drive will be improved between Payne Street and Lake Road as a three-lane collector.
- The previous TIF Update recommended improvements to Crown Road. However, current analysis reflects changing development patterns with an increased traffic shed to the north. Current modeling indicates that the current capacity of Crown Road should be adequate to accommodate future growth in Camas.

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, AM Peak Hour

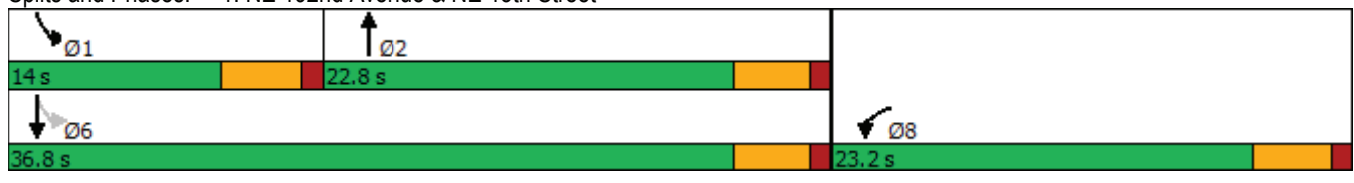
09/09/2023

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	240	175	74	362	270
Future Volume (vph)	186	240	175	74	362	270
Confl. Peds. (#/hr)	1	2		1	2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	4%	7%	7%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	23.2		22.8		14.0	36.8
Total Split (%)	38.7%		38.0%		23.3%	61.3%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	16.5		18.5		32.4	32.4
Actuated g/C Ratio	0.28		0.32		0.56	0.56
v/c Ratio	0.86		0.48		0.72	0.30
Control Delay	32.1		17.7		17.8	8.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	32.1		17.7		17.8	8.4
LOS	C		B		B	A
Approach Delay	32.1		17.7			13.8
Approach LOS	C		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 57.9
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 20.5
 Intersection LOS: C
 Intersection Capacity Utilization 70.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, AM Peak Hour

09/09/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	186	240	175	74	362	270
Future Volume (veh/h)	186	240	175	74	362	270
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1796	1796
Adj Flow Rate, veh/h	207	267	194	82	402	300
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	4	4	7	7
Cap, veh/h	225	290	375	159	578	969
Arrive On Green	0.31	0.31	0.31	0.31	0.16	0.54
Sat Flow, veh/h	724	934	1227	519	1711	1796
Grp Volume(v), veh/h	475	0	0	276	402	300
Grp Sat Flow(s),veh/h/ln	1662	0	0	1746	1711	1796
Q Serve(g_s), s	16.5	0.0	0.0	7.8	9.2	5.5
Cycle Q Clear(g_c), s	16.5	0.0	0.0	7.8	9.2	5.5
Prop In Lane	0.44	0.56		0.30	1.00	
Lane Grp Cap(c), veh/h	515	0	0	534	578	969
V/C Ratio(X)	0.92	0.00	0.00	0.52	0.70	0.31
Avail Cap(c_a), veh/h	519	0	0	534	578	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	0.0	17.1	11.2	7.6
Incr Delay (d2), s/veh	21.9	0.0	0.0	3.5	3.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	0.0	3.2	3.2	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.9	0.0	0.0	20.7	14.8	8.4
LnGrp LOS	D	A	A	C	B	A
Approach Vol, veh/h	475		276		702	
Approach Delay, s/veh	41.9		20.7		12.1	
Approach LOS	D		C		B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.0	22.8			36.8	23.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	9.5	18.3			32.3	18.7
Max Q Clear Time (g_c+11), s	11.2	9.8			7.5	18.5
Green Ext Time (p_c), s	0.0	0.9			1.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			23.5			
HCM 6th LOS			C			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2023 Adjusted Existing Traffic, AM Peak Hour
 09/09/2023

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Volume (vph)	443	0	0	431	1	0
Future Volume (vph)	443	0	0	431	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized
 Intersection Capacity Utilization 33.3% ICU Level of Service A
 Analysis Period (min) 15

HCM 6th TWSC
2: Site Access & NE 13th Street

2023 Adjusted Existing Traffic, AM Peak Hour

09/09/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	443	0	0	431	1	0
Future Vol, veh/h	443	0	0	431	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	2	2	2	2
Mvmt Flow	492	0	0	479	1	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	492	0	971
Stage 1	-	-	-	-	492
Stage 2	-	-	-	-	479
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1071	-	280
Stage 1	-	-	-	-	615
Stage 2	-	-	-	-	623
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1071	-	280
Mov Cap-2 Maneuver	-	-	-	-	280
Stage 1	-	-	-	-	615
Stage 2	-	-	-	-	623

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	280	-	-	1071	-
HCM Lane V/C Ratio	0.004	-	-	-	-
HCM Control Delay (s)	17.9	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lanes, Volumes, Timings

2023 Adjusted Existing Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023

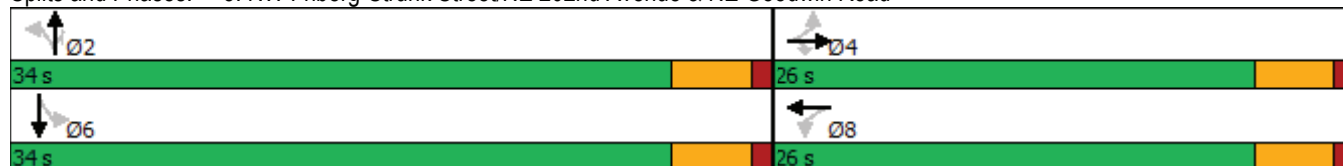


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (vph)	1	134	308	101	289	5	139	4	66	2	10	3
Future Volume (vph)	1	134	308	101	289	5	139	4	66	2	10	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	26.0	26.0	26.0	26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)		15.1	15.1	15.1	15.1			29.7	29.7			29.7
Actuated g/C Ratio		0.28	0.28	0.28	0.28			0.55	0.55			0.55
v/c Ratio		0.31	0.52	0.35	0.67			0.22	0.09			0.02
Control Delay		16.5	5.0	18.0	23.5			8.4	2.7			6.5
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay		16.5	5.0	18.0	23.5			8.4	2.7			6.5
LOS		B	A	B	C			A	A			A
Approach Delay		8.5			22.1			6.6				6.5
Approach LOS		A			C			A				A

Intersection Summary

Cycle Length: 60	
Actuated Cycle Length: 53.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 50.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary 2023 Adjusted Existing Traffic, AM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/09/2023



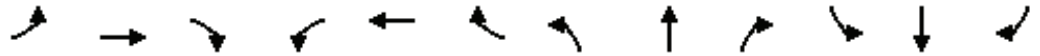
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	1	134	308	101	289	5	139	4	66	2	10	3
Future Volume (veh/h)	1	134	308	101	289	5	139	4	66	2	10	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1870	1870	1870	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	158	362	119	340	6	164	5	78	2	12	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	2	2	2	3	3	3	0	0	0
Cap, veh/h	68	515	437	323	517	9	877	25	865	134	704	218
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	2	1822	1547	882	1832	32	1355	45	1572	107	1280	396
Grp Volume(v), veh/h	159	0	362	119	0	346	169	0	78	18	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1547	882	0	1865	1400	0	1572	1783	0	0
Q Serve(g_s), s	0.0	0.0	11.8	6.6	0.0	8.8	3.0	0.0	1.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	11.8	10.3	0.0	8.8	3.2	0.0	1.3	0.2	0.0	0.0
Prop In Lane	0.01		1.00	1.00		0.02	0.97		1.00	0.11		0.22
Lane Grp Cap(c), veh/h	583	0	437	323	0	527	902	0	865	1055	0	0
V/C Ratio(X)	0.27	0.00	0.83	0.37	0.00	0.66	0.19	0.00	0.09	0.02	0.00	0.00
Avail Cap(c_a), veh/h	798	0	620	427	0	747	902	0	865	1055	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.1	0.0	18.0	19.2	0.0	17.0	6.2	0.0	5.7	5.5	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	6.4	0.7	0.0	1.4	0.5	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	4.4	1.2	0.0	3.4	0.8	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	24.4	19.9	0.0	18.4	6.6	0.0	5.9	5.5	0.0	0.0
LnGrp LOS	B	A	C	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		521			465			247				18
Approach Delay, s/veh		21.7			18.7			6.4				5.5
Approach LOS		C			B			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		19.7		34.0		19.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		21.5		29.5		21.5				
Max Q Clear Time (g_c+11), s		5.2		13.8		2.2		12.3				
Green Ext Time (p_c), s		1.1		1.4		0.0		1.8				
Intersection Summary												
HCM 6th Ctrl Delay				17.3								
HCM 6th LOS				B								

Lanes, Volumes, Timings

2023 Adjusted Existing Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023

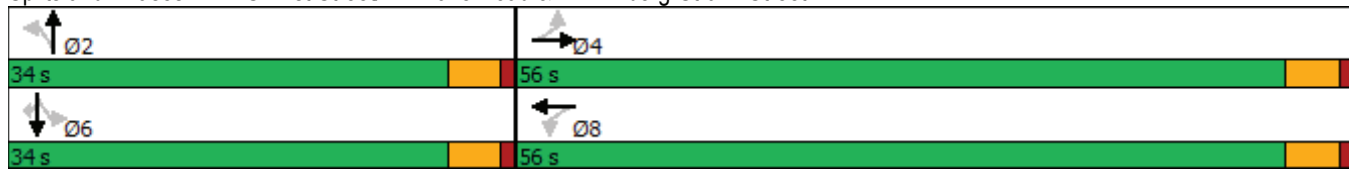


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	↗
Traffic Volume (vph)	345	247	0	0	267	163	0	0	0	131	0	185
Future Volume (vph)	345	247	0	0	267	163	0	0	0	131	0	185
Confl. Peds. (#/hr)	9		2	1		8	2		1	8		9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	0%	0%	0%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effct Green (s)	51.5	51.5		51.5	51.5					29.5	29.5	29.5
Actuated g/C Ratio	0.57	0.57		0.57	0.57					0.33	0.33	0.33
v/c Ratio	1.03	0.16		0.28	0.28					0.37	0.36	0.36
Control Delay	72.7	9.3		6.2	6.2					26.2	4.8	4.8
Queue Delay	0.0	0.0		0.0	0.0					0.0	0.0	0.0
Total Delay	72.7	9.3		6.2	6.2					26.2	4.8	4.8
LOS	E	A		A	A					C	A	A
Approach Delay		46.3		6.2	6.2					13.7		
Approach LOS		D		A	A					B		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 25.7
 Intersection LOS: C
 Intersection Capacity Utilization 68.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street



HCM 6th Signalized Intersection Summary 2023 Adjusted Existing Traffic, AM Peak Hour
 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street 09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↕			↖	↖↗
Traffic Volume (veh/h)	345	247	0	0	267	163	0	0	0	131	0	185
Future Volume (veh/h)	345	247	0	0	267	163	0	0	0	131	0	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1885	1885	1885	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	448	321	0	0	347	212	0	0	0	170	0	240
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	1	1	1	0	0	0	3	3	3
Cap, veh/h	491	2017	0	80	1229	736	0	623	0	540	0	511
Arrive On Green	0.57	0.57	0.00	0.00	0.57	0.57	0.00	0.00	0.00	0.33	0.00	0.33
Sat Flow, veh/h	842	3618	0	1067	2147	1286	0	1900	0	1404	0	1560
Grp Volume(v), veh/h	448	321	0	0	288	271	0	0	0	170	0	240
Grp Sat Flow(s),veh/h/ln	842	1763	0	1067	1791	1643	0	1900	0	1404	0	1560
Q Serve(g_s), s	43.9	3.9	0.0	0.0	7.4	7.6	0.0	0.0	0.0	8.3	0.0	11.0
Cycle Q Clear(g_c), s	51.5	3.9	0.0	0.0	7.4	7.6	0.0	0.0	0.0	8.3	0.0	11.0
Prop In Lane	1.00		0.00	1.00		0.78	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	491	2017	0	80	1025	940	0	623	0	540	0	511
V/C Ratio(X)	0.91	0.16	0.00	0.00	0.28	0.29	0.00	0.00	0.00	0.31	0.00	0.47
Avail Cap(c_a), veh/h	491	2017	0	80	1025	940	0	623	0	540	0	511
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	9.1	0.0	0.0	9.8	9.9	0.0	0.0	0.0	23.1	0.0	24.0
Incr Delay (d2), s/veh	21.4	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	1.5	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	1.3	0.0	0.0	2.6	2.4	0.0	0.0	0.0	2.8	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	9.1	0.0	0.0	10.0	10.0	0.0	0.0	0.0	24.7	0.0	27.1
LnGrp LOS	D	A	A	A	A	B	A	A	A	C	A	C
Approach Vol, veh/h		769			559			0			410	
Approach Delay, s/veh		30.8			10.0			0.0			26.1	
Approach LOS		C			A						C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		56.0		34.0		56.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		51.5		29.5		51.5				
Max Q Clear Time (g_c+1), s		0.0		53.5		13.0		9.6				
Green Ext Time (p_c), s		0.0		0.0		1.5		3.6				

Intersection Summary

HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, PM Peak Hour

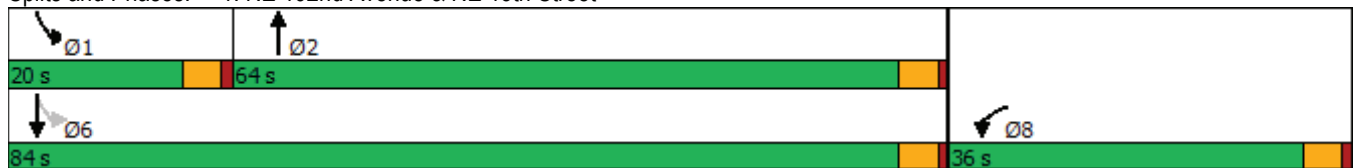
09/09/2023

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	141	249	540	183	228	409
Future Volume (vph)	141	249	540	183	228	409
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	36.0		64.0		20.0	84.0
Total Split (%)	30.0%		53.3%		16.7%	70.0%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	28.9		61.4		79.6	79.6
Actuated g/C Ratio	0.25		0.52		0.68	0.68
v/c Ratio	0.92		0.84		0.77	0.36
Control Delay	62.7		34.0		33.6	9.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	62.7		34.0		33.6	9.4
LOS	E		C		C	A
Approach Delay	62.7		34.0			18.1
Approach LOS	E		C			B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 117.5
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 34.6
 Intersection LOS: C
 Intersection Capacity Utilization 86.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street













HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, PM Peak Hour

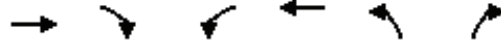
09/09/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	141	249	540	183	228	409
Future Volume (veh/h)	141	249	540	183	228	409
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	157	277	600	203	253	454
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	158	278	736	249	326	1249
Arrive On Green	0.26	0.26	0.55	0.55	0.08	0.66
Sat Flow, veh/h	601	1060	1347	456	1795	1885
Grp Volume(v), veh/h	435	0	0	803	253	454
Grp Sat Flow(s),veh/h/ln	1664	0	0	1803	1795	1885
Q Serve(g_s), s	31.3	0.0	0.0	43.7	7.1	12.8
Cycle Q Clear(g_c), s	31.3	0.0	0.0	43.7	7.1	12.8
Prop In Lane	0.36	0.64		0.25	1.00	
Lane Grp Cap(c), veh/h	437	0	0	985	326	1249
V/C Ratio(X)	1.00	0.00	0.00	0.82	0.78	0.36
Avail Cap(c_a), veh/h	437	0	0	985	416	1249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	0.0	22.3	22.6	9.0
Incr Delay (d2), s/veh	41.9	0.0	0.0	7.4	6.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.7	0.0	0.0	19.1	4.4	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	86.0	0.0	0.0	29.7	29.5	9.8
LnGrp LOS	F	A	A	C	C	A
Approach Vol, veh/h	435		803			707
Approach Delay, s/veh	86.0		29.7			16.9
Approach LOS	F		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.9	70.1			84.0	36.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	59.5			79.5	31.5
Max Q Clear Time (g_c+11), s	9.1	45.7			14.8	33.3
Green Ext Time (p_c), s	0.4	4.8			2.9	0.0
Intersection Summary						
HCM 6th Ctrl Delay			37.6			
HCM 6th LOS			D			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2023 Adjusted Existing Traffic, PM Peak Hour

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Volume (vph)	390	1	0	383	0	0
Future Volume (vph)	390	1	0	383	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	1%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 30.2% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC
2: Site Access & NE 13th Street

2023 Adjusted Existing Traffic, PM Peak Hour

09/09/2023

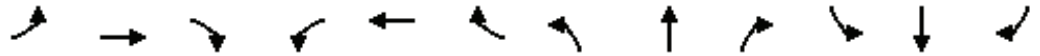
Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	390	1	0	383	0	0
Future Vol, veh/h	390	1	0	383	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	433	1	0	426	0	0
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	434	0	859	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	426	-
Critical Hdwy	-	-	4.11	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.209	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1131	-	327	623
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1131	-	327	623
Mov Cap-2 Maneuver	-	-	-	-	327	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	659	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	0			
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1131	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Lanes, Volumes, Timings

2023 Adjusted Existing Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023

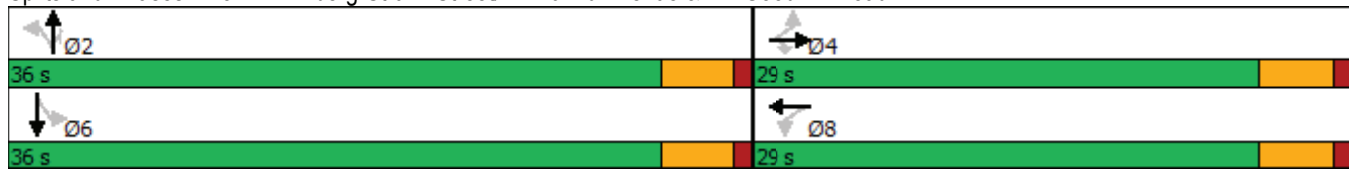


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (vph)	9	280	101	109	265	2	115	12	227	0	6	3
Future Volume (vph)	9	280	101	109	265	2	115	12	227	0	6	3
Confl. Peds. (#/hr)	5		5	7		7	5		7	7		5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm		NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	29.0	29.0	29.0	29.0	29.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	44.6%	44.6%	44.6%	44.6%	44.6%		55.4%	55.4%	55.4%	55.4%	55.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)		15.1	15.1	15.1	15.1			31.7	31.7		31.7	
Actuated g/C Ratio		0.27	0.27	0.27	0.27			0.57	0.57		0.57	
v/c Ratio		0.64	0.22	0.61	0.59			0.17	0.26		0.01	
Control Delay		24.0	4.8	31.3	22.4			7.8	2.1		6.3	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		24.0	4.8	31.3	22.4			7.8	2.1		6.3	
LOS		C	A	C	C			A	A		A	
Approach Delay		19.0			25.0			4.2			6.3	
Approach LOS		B			C			A			A	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 55.9
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 16.3
 Intersection LOS: B
 Intersection Capacity Utilization 61.5%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary 2023 Adjusted Existing Traffic, PM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/09/2023



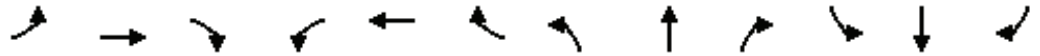
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	9	280	101	109	265	2	115	12	227	0	6	3
Future Volume (veh/h)	9	280	101	109	265	2	115	12	227	0	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1885	1885	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	10	315	113	122	298	2	129	13	255	0	7	3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	0	0	0
Cap, veh/h	68	591	506	291	592	4	807	76	844	0	669	287
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.53	0.53	0.53	0.00	0.53	0.53
Sat Flow, veh/h	18	1868	1597	964	1870	13	1300	143	1587	0	1259	540
Grp Volume(v), veh/h	325	0	113	122	0	300	142	0	255	0	0	10
Grp Sat Flow(s),veh/h/ln	1886	0	1597	964	0	1883	1443	0	1587	0	0	1799
Q Serve(g_s), s	0.0	0.0	3.1	7.1	0.0	7.7	2.8	0.0	5.3	0.0	0.0	0.2
Cycle Q Clear(g_c), s	8.4	0.0	3.1	15.4	0.0	7.7	3.0	0.0	5.3	0.0	0.0	0.2
Prop In Lane	0.03		1.00	1.00		0.01	0.91		1.00	0.00		0.30
Lane Grp Cap(c), veh/h	660	0	506	291	0	596	883	0	844	0	0	956
V/C Ratio(X)	0.49	0.00	0.22	0.42	0.00	0.50	0.16	0.00	0.30	0.00	0.00	0.01
Avail Cap(c_a), veh/h	840	0	660	384	0	778	883	0	844	0	0	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	14.9	23.1	0.0	16.5	7.2	0.0	7.7	0.0	0.0	6.5
Incr Delay (d2), s/veh	0.6	0.0	0.2	1.0	0.0	0.7	0.4	0.0	0.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	1.0	1.5	0.0	3.0	0.8	0.0	1.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	15.1	24.0	0.0	17.1	7.6	0.0	8.7	0.0	0.0	6.6
LnGrp LOS	B	A	B	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		438			422			397				10
Approach Delay, s/veh		16.7			19.1			8.3				6.6
Approach LOS		B			B			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		23.3		36.0		23.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.5		24.5		31.5		24.5				
Max Q Clear Time (g_c+11), s		7.3		10.4		2.2		17.4				
Green Ext Time (p_c), s		1.6		1.9		0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				14.8								
HCM 6th LOS				B								

Lanes, Volumes, Timings

2023 Adjusted Existing Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023

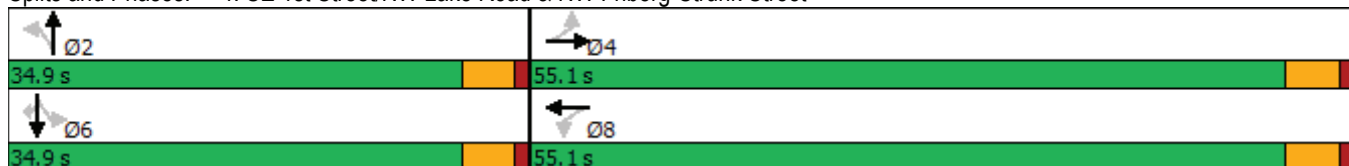


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	↗
Traffic Volume (vph)	250	567	2	0	402	116	2	0	0	101	0	141
Future Volume (vph)	250	567	2	0	402	116	2	0	0	101	0	141
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	55.1	55.1		55.1	55.1		34.9	34.9		34.9	34.9	34.9
Total Split (%)	61.2%	61.2%		61.2%	61.2%		38.8%	38.8%		38.8%	38.8%	38.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effct Green (s)	30.1	30.1		30.1	30.1		31.3	31.3		31.3	31.3	31.3
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.44	0.44		0.44	0.44	0.44
v/c Ratio	0.84	0.40		0.37	0.37		0.00	0.00		0.17	0.17	0.19
Control Delay	40.8	13.8		11.7	11.7		17.5	17.5		17.2	17.2	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	40.8	13.8		11.7	11.7		17.5	17.5		17.2	17.2	4.3
LOS	D	B		B	B		B	B		B	B	A
Approach Delay		22.0		11.7	11.7		17.5	17.5		9.7	9.7	
Approach LOS		C		B	B		B	B		A	A	




















Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.7
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 16.7
 Intersection LOS: B
 Intersection Capacity Utilization 45.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street



HCM 6th Signalized Intersection Summary 2023 Adjusted Existing Traffic, PM Peak Hour
 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street 09/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	567	2	0	402	116	2	0	0	101	0	141
Future Volume (veh/h)	250	567	2	0	402	116	2	0	0	101	0	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	269	610	2	0	432	125	2	0	0	109	0	152
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	422	1751	6	96	1313	377	557	0	0	695	0	653
Arrive On Green	0.47	0.47	0.47	0.00	0.47	0.47	0.41	0.00	0.00	0.41	0.00	0.41
Sat Flow, veh/h	866	3691	12	823	2768	794	1137	0	0	1476	0	1610
Grp Volume(v), veh/h	269	298	314	0	280	277	2	0	0	109	0	152
Grp Sat Flow(s),veh/h/ln	866	1805	1898	823	1805	1757	1137	0	0	1476	0	1610
Q Serve(g_s), s	21.1	7.8	7.8	0.0	7.2	7.4	0.1	0.0	0.0	0.0	0.0	4.6
Cycle Q Clear(g_c), s	28.5	7.8	7.8	0.0	7.2	7.4	2.9	0.0	0.0	2.9	0.0	4.6
Prop In Lane	1.00		0.01	1.00		0.45	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	422	856	900	96	856	833	557	0	0	695	0	653
V/C Ratio(X)	0.64	0.35	0.35	0.00	0.33	0.33	0.00	0.00	0.00	0.16	0.00	0.23
Avail Cap(c_a), veh/h	595	1218	1281	261	1218	1186	557	0	0	695	0	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.2	12.4	12.4	0.0	12.3	12.3	15.0	0.0	0.0	14.1	0.0	14.6
Incr Delay (d2), s/veh	1.6	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.5	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	2.8	2.9	0.0	2.6	2.5	0.0	0.0	0.0	1.1	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	12.6	12.6	0.0	12.5	12.5	15.0	0.0	0.0	14.6	0.0	15.5
LnGrp LOS	C	B	B	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		881			557			2				261
Approach Delay, s/veh		15.7			12.5			15.0				15.1
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.9		40.1		34.9		40.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		30.4		50.6		30.4		50.6				
Max Q Clear Time (g_c+I1), s		4.9		30.5		6.6		9.4				
Green Ext Time (p_c), s		0.0		5.1		1.0		3.5				
Intersection Summary												
HCM 6th Ctrl Delay				14.6								
HCM 6th LOS				B								

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic, AM Peak Hour

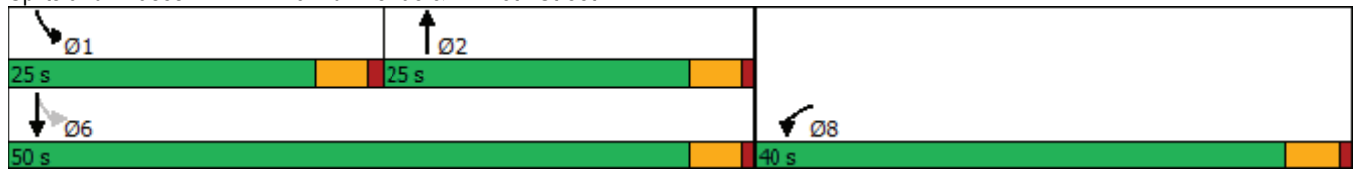
09/10/2023

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	302	297	186	107	403	286
Future Volume (vph)	302	297	186	107	403	286
Confl. Peds. (#/hr)	1	2		1	2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	4%	7%	7%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	40.0		25.0		25.0	50.0
Total Split (%)	44.4%		27.8%		27.8%	55.6%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	34.6		21.3		45.5	45.5
Actuated g/C Ratio	0.39		0.24		0.51	0.51
v/c Ratio	0.97		0.75		0.91	0.35
Control Delay	52.7		41.8		42.1	14.6
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	52.7		41.8		42.1	14.6
LOS	D		D		D	B
Approach Delay	52.7		41.8			30.7
Approach LOS	D		D			C

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 89.1
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 41.1
 Intersection LOS: D
 Intersection Capacity Utilization 85.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street













HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

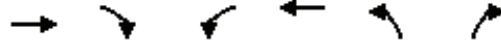
2026 Background Traffic, AM Peak Hour

09/10/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	302	297	186	107	403	286
Future Volume (veh/h)	302	297	186	107	403	286
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1796	1796
Adj Flow Rate, veh/h	336	330	207	119	448	318
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	4	4	7	7
Cap, veh/h	333	327	268	154	510	908
Arrive On Green	0.39	0.39	0.24	0.24	0.21	0.51
Sat Flow, veh/h	844	829	1096	630	1711	1796
Grp Volume(v), veh/h	667	0	0	326	448	318
Grp Sat Flow(s),veh/h/ln	1676	0	0	1726	1711	1796
Q Serve(g_s), s	35.5	0.0	0.0	15.8	16.7	9.6
Cycle Q Clear(g_c), s	35.5	0.0	0.0	15.8	16.7	9.6
Prop In Lane	0.50	0.49		0.37	1.00	
Lane Grp Cap(c), veh/h	661	0	0	422	510	908
V/C Ratio(X)	1.01	0.00	0.00	0.77	0.88	0.35
Avail Cap(c_a), veh/h	661	0	0	422	539	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	31.7	19.4	13.4
Incr Delay (d2), s/veh	37.2	0.0	0.0	12.8	14.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	0.0	0.0	7.8	8.0	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.4	0.0	0.0	44.5	34.0	14.4
LnGrp LOS	F	A	A	D	C	B
Approach Vol, veh/h	667		326			766
Approach Delay, s/veh	64.4		44.5			25.9
Approach LOS	E		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	23.5	26.5			50.0	40.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	20.5	20.5			45.5	35.5
Max Q Clear Time (g_c+11), s	18.7	17.8			11.6	37.5
Green Ext Time (p_c), s	0.3	0.5			1.9	0.0
Intersection Summary						
HCM 6th Ctrl Delay			44.0			
HCM 6th LOS			D			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2026 Background Traffic, AM Peak Hour
 09/10/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Volume (vph)	518	0	0	606	1	0
Future Volume (vph)	518	0	0	606	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized
 Intersection Capacity Utilization 41.9% ICU Level of Service A
 Analysis Period (min) 15

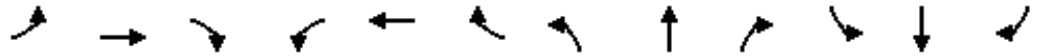
HCM 6th TWSC
2: Site Access & NE 13th Street

2026 Background Traffic, AM Peak Hour

09/10/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	518	0	0	606	1	0
Future Vol, veh/h	518	0	0	606	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	2	2	2	2
Mvmt Flow	576	0	0	673	1	0
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	576	0	1249	576
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	673	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	997	-	191	517
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	997	-	191	517
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	507	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	24			
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	191	-	-	997	-	
HCM Lane V/C Ratio	0.006	-	-	-	-	
HCM Control Delay (s)	24	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

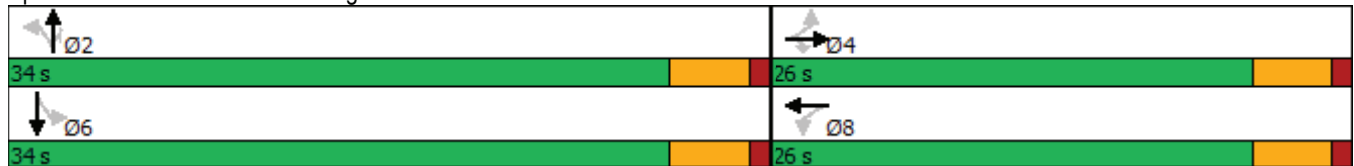
Lanes, Volumes, Timings 2026 Background Traffic, AM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/10/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷	↶	↷			↶	↷		↶↷	
Traffic Volume (vph)	1	187	329	171	446	5	156	4	93	2	11	3
Future Volume (vph)	1	187	329	171	446	5	156	4	93	2	11	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	26.0	26.0	26.0	26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)		19.7	19.7	19.7	19.7			29.6	29.6		29.6	
Actuated g/C Ratio		0.34	0.34	0.34	0.34			0.51	0.51		0.51	
v/c Ratio		0.36	0.50	0.54	0.85			0.28	0.13		0.02	
Control Delay		16.4	4.4	21.8	32.6			10.3	2.5		7.1	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		16.4	4.4	21.8	32.6			10.3	2.5		7.1	
LOS		B	A	C	C			B	A		A	
Approach Delay		8.7			29.6			7.4			7.1	
Approach LOS		A			C			A			A	

Intersection Summary
 Cycle Length: 60
 Actuated Cycle Length: 58.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 17.7 Intersection LOS: B
 Intersection Capacity Utilization 60.4% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary 2026 Background Traffic, AM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	1	187	329	171	446	5	156	4	93	2	11	3
Future Volume (veh/h)	1	187	329	171	446	5	156	4	93	2	11	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1870	1870	1870	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	220	387	201	525	6	184	5	109	2	13	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	2	2	2	3	3	3	0	0	0
Cap, veh/h	61	653	554	340	661	8	786	20	773	115	645	185
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1	1823	1547	813	1845	21	1358	40	1572	99	1312	376
Grp Volume(v), veh/h	221	0	387	201	0	531	189	0	109	19	0	0
Grp Sat Flow(s),veh/h/ln	1825	0	1547	813	0	1867	1398	0	1572	1787	0	0
Q Serve(g_s), s	0.0	0.0	12.8	14.4	0.0	15.3	4.4	0.0	2.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	12.8	19.7	0.0	15.3	4.7	0.0	2.3	0.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.01	0.97		1.00	0.11		0.21
Lane Grp Cap(c), veh/h	714	0	554	340	0	669	806	0	773	945	0	0
V/C Ratio(X)	0.31	0.00	0.70	0.59	0.00	0.79	0.23	0.00	0.14	0.02	0.00	0.00
Avail Cap(c_a), veh/h	714	0	554	340	0	669	806	0	773	945	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.1	0.0	16.5	21.2	0.0	17.3	8.9	0.0	8.3	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	3.8	2.7	0.0	6.6	0.7	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.5	2.7	0.0	6.8	1.3	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	20.3	24.0	0.0	23.8	9.6	0.0	8.7	7.9	0.0	0.0
LnGrp LOS	B	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		608			732			298				19
Approach Delay, s/veh		18.1			23.9			9.3				7.9
Approach LOS		B			C			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		26.0		34.0		26.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		21.5		29.5		21.5				
Max Q Clear Time (g_c+I1), s		6.7		14.8		2.3		21.7				
Green Ext Time (p_c), s		1.3		1.6		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				18.9								
HCM 6th LOS				B								

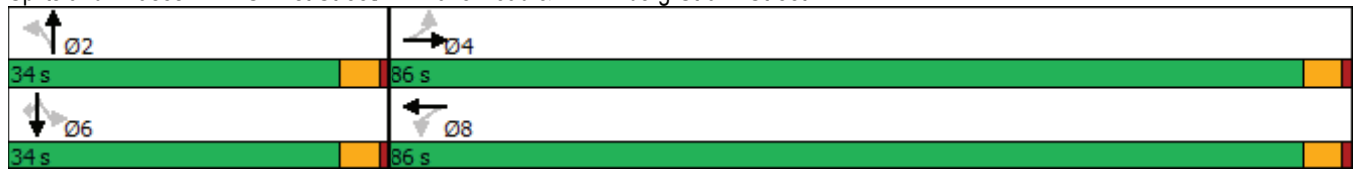
Lanes, Volumes, Timings 2026 Background Traffic, AM Peak Hour
 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street 09/10/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	376	269	0	0	287	186	0	0	0	184	0	232
Future Volume (vph)	376	269	0	0	287	186	0	0	0	184	0	232
Confl. Peds. (#/hr)	9		2	1		8	2		1	8		9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	0%	0%	0%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	86.0	86.0		86.0	86.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	71.7%	71.7%		71.7%	71.7%		28.3%	28.3%		28.3%	28.3%	28.3%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effct Green (s)	81.1	81.1			81.1						29.5	29.5
Actuated g/C Ratio	0.68	0.68			0.68						0.25	0.25
v/c Ratio	0.99	0.15			0.27						0.70	0.50
Control Delay	58.3	7.1			4.6						53.7	7.2
Queue Delay	0.0	0.0			0.0						0.0	0.0
Total Delay	58.3	7.1			4.6						53.7	7.2
LOS	E	A			A						D	A
Approach Delay		36.9			4.6						27.7	
Approach LOS		D			A						C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119.6
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 24.5 Intersection LOS: C
 Intersection Capacity Utilization 71.0% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street



HCM 6th Signalized Intersection Summary

2026 Background Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street











09/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕			↕			↖	↗
Traffic Volume (veh/h)	376	269	0	0	287	186	0	0	0	184	0	232
Future Volume (veh/h)	376	269	0	0	287	186	0	0	0	184	0	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1885	1885	1885	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	488	349	0	0	373	242	0	0	0	239	0	301
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	1	1	1	0	0	0	3	3	3
Cap, veh/h	547	2394	0	60	1420	907	0	467	0	405	0	382
Arrive On Green	0.68	0.68	0.00	0.00	0.68	0.68	0.00	0.00	0.00	0.25	0.00	0.25
Sat Flow, veh/h	800	3618	0	1040	2091	1336	0	1900	0	1403	0	1555
Grp Volume(v), veh/h	488	349	0	0	319	296	0	0	0	239	0	301
Grp Sat Flow(s),veh/h/ln	800	1763	0	1040	1791	1635	0	1900	0	1403	0	1555
Q Serve(g_s), s	73.0	4.2	0.0	0.0	8.3	8.5	0.0	0.0	0.0	18.6	0.0	21.7
Cycle Q Clear(g_c), s	81.5	4.2	0.0	0.0	8.3	8.5	0.0	0.0	0.0	18.6	0.0	21.7
Prop In Lane	1.00		0.00	1.00		0.82	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	547	2394	0	60	1216	1111	0	467	0	405	0	382
V/C Ratio(X)	0.89	0.15	0.00	0.00	0.26	0.27	0.00	0.00	0.00	0.59	0.00	0.79
Avail Cap(c_a), veh/h	547	2394	0	60	1216	1111	0	467	0	405	0	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.6	6.9	0.0	0.0	7.5	7.5	0.0	0.0	0.0	41.1	0.0	42.3
Incr Delay (d2), s/veh	16.9	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.2	0.0	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	1.4	0.0	0.0	2.9	2.7	0.0	0.0	0.0	7.0	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	6.9	0.0	0.0	7.6	7.7	0.0	0.0	0.0	47.3	0.0	57.4
LnGrp LOS	D	A	A	A	A	A	A	A	A	D	A	E
Approach Vol, veh/h		837			615			0			540	
Approach Delay, s/veh		26.5			7.6			0.0			52.9	
Approach LOS		C			A						D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		86.0		34.0		86.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		81.5		29.5		81.5				
Max Q Clear Time (g_c+11), s		0.0		83.5		23.7		10.5				
Green Ext Time (p_c), s		0.0		0.0		1.2		4.1				
Intersection Summary												
HCM 6th Ctrl Delay				27.8								
HCM 6th LOS				C								

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic, PM Peak Hour
09/09/2023

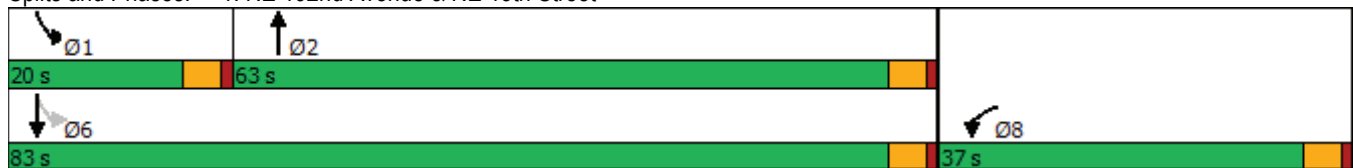
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	212	296	572	299	287	434
Future Volume (vph)	212	296	572	299	287	434
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	37.0		63.0		20.0	83.0
Total Split (%)	30.8%		52.5%		16.7%	69.2%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	32.5		58.5		78.5	78.5
Actuated g/C Ratio	0.27		0.49		0.65	0.65
v/c Ratio	1.13		1.09		1.09	0.39
Control Delay	116.9		86.6		112.6	10.8
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	116.9		86.6		112.6	10.8
LOS	F		F		F	B
Approach Delay	116.9		86.6			51.3
Approach LOS	F		F			D

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 81.8
 Intersection Capacity Utilization 105.4%
 Analysis Period (min) 15

Intersection LOS: F
 ICU Level of Service G

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street













HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic, PM Peak Hour

09/09/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	212	296	572	299	287	434
Future Volume (veh/h)	212	296	572	299	287	434
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	236	329	636	332	319	482
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	189	264	569	297	292	1233
Arrive On Green	0.27	0.27	0.49	0.49	0.13	0.65
Sat Flow, veh/h	698	974	1167	609	1795	1885
Grp Volume(v), veh/h	566	0	0	968	319	482
Grp Sat Flow(s),veh/h/ln	1675	0	0	1776	1795	1885
Q Serve(g_s), s	32.5	0.0	0.0	58.5	15.5	14.3
Cycle Q Clear(g_c), s	32.5	0.0	0.0	58.5	15.5	14.3
Prop In Lane	0.42	0.58		0.34	1.00	
Lane Grp Cap(c), veh/h	454	0	0	866	292	1233
V/C Ratio(X)	1.25	0.00	0.00	1.12	1.09	0.39
Avail Cap(c_a), veh/h	454	0	0	866	292	1233
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	0.0	30.8	41.6	9.6
Incr Delay (d2), s/veh	128.8	0.0	0.0	68.5	79.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.4	0.0	0.0	39.7	10.6	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	172.5	0.0	0.0	99.3	121.4	10.6
LnGrp LOS	F	A	A	F	F	B
Approach Vol, veh/h	566		968			801
Approach Delay, s/veh	172.5		99.3			54.7
Approach LOS	F		F			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	63.0			83.0	37.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	58.5			78.5	32.5
Max Q Clear Time (g_c+1), s	17.5	60.5			16.3	34.5
Green Ext Time (p_c), s	0.0	0.0			3.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			101.7			
HCM 6th LOS			F			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2026 Background Traffic, PM Peak Hour
 09/09/2023

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Volume (vph)	563	1	0	503	0	0
Future Volume (vph)	563	1	0	503	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	1%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Control Type: Unsignalized						
Intersection Capacity Utilization 36.5%			ICU Level of Service A			
Analysis Period (min) 15						

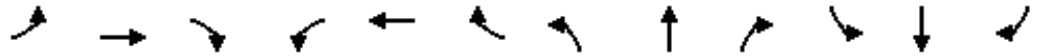
HCM 6th TWSC
2: Site Access & NE 13th Street

2026 Background Traffic, PM Peak Hour

09/09/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	563	1	0	503	0	0
Future Vol, veh/h	563	1	0	503	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	626	1	0	559	0	0
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	627	0	1185	626
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	559	-
Critical Hdwy	-	-	4.11	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.209	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	960	-	209	484
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	572	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	960	-	209	484
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	572	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	0			
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	960	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Lanes, Volumes, Timings 2026 Background Traffic, PM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/09/2023

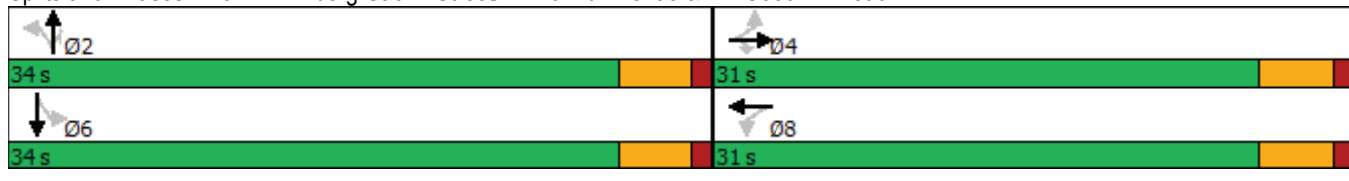


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕	↗		↕	
Traffic Volume (vph)	10	442	112	157	367	2	133	13	310	0	6	3
Future Volume (vph)	10	442	112	157	367	2	133	13	310	0	6	3
Confl. Peds. (#/hr)	5		5	7		7	5		7	7		5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm		NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	47.7%	47.7%	47.7%	47.7%	47.7%		52.3%	52.3%	52.3%	52.3%	52.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effect Green (s)		23.0	23.0	23.0	23.0			29.7	29.7		29.7	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48	0.48		0.48	
v/c Ratio		0.73	0.19	0.99	0.59			0.24	0.41		0.01	
Control Delay		23.2	3.6	91.0	19.2			11.9	6.2		8.7	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		23.2	3.6	91.0	19.2			11.9	6.2		8.7	
LOS		C	A	F	B			B	A		A	
Approach Delay		19.3			40.6			8.0			8.7	
Approach LOS		B			D			A			A	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 61.8
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 23.2 Intersection LOS: C
 Intersection Capacity Utilization 73.4% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary 2026 Background Traffic, PM Peak Hour
 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road 09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	10	442	112	157	367	2	133	13	310	0	6	3
Future Volume (veh/h)	10	442	112	157	367	2	133	13	310	0	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1885	1885	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	11	497	126	176	412	2	149	15	348	0	7	3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	0	0	0
Cap, veh/h	62	765	652	265	764	4	695	65	719	0	571	245
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.45	0.45	0.45	0.00	0.45	0.45
Sat Flow, veh/h	13	1875	1600	807	1874	9	1298	144	1585	0	1259	539
Grp Volume(v), veh/h	508	0	126	176	0	414	164	0	348	0	0	10
Grp Sat Flow(s),veh/h/ln	1888	0	1600	807	0	1883	1442	0	1585	0	0	1798
Q Serve(g_s), s	0.0	0.0	3.3	12.4	0.0	10.8	4.3	0.0	10.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	14.1	0.0	3.3	26.5	0.0	10.8	4.5	0.0	10.0	0.0	0.0	0.2
Prop In Lane	0.02		1.00	1.00		0.00	0.91		1.00	0.00		0.30
Lane Grp Cap(c), veh/h	826	0	652	265	0	768	760	0	719	0	0	816
V/C Ratio(X)	0.61	0.00	0.19	0.66	0.00	0.54	0.22	0.00	0.48	0.00	0.00	0.01
Avail Cap(c_a), veh/h	826	0	652	265	0	768	760	0	719	0	0	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	12.4	27.0	0.0	14.6	10.9	0.0	12.4	0.0	0.0	9.7
Incr Delay (d2), s/veh	1.4	0.0	0.1	6.1	0.0	0.8	0.7	0.0	2.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	1.1	3.0	0.0	4.2	1.3	0.0	3.4	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	12.5	33.1	0.0	15.4	11.6	0.0	14.7	0.0	0.0	9.8
LnGrp LOS	B	A	B	C	A	B	B	A	B	A	A	A
Approach Vol, veh/h		634			590			512				10
Approach Delay, s/veh		16.1			20.7			13.7				9.8
Approach LOS		B			C			B				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		31.0		34.0		31.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		26.5		29.5		26.5				
Max Q Clear Time (g_c+11), s		12.0		16.1		2.2		28.5				
Green Ext Time (p_c), s		1.9		2.7		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				16.9								
HCM 6th LOS				B								

Lanes, Volumes, Timings

2026 Background Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023

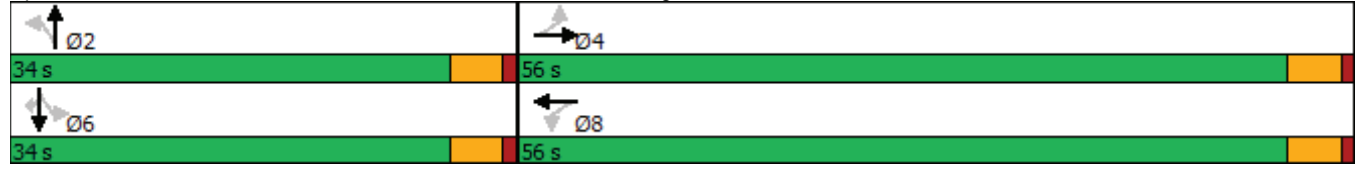


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	↗
Traffic Volume (vph)	296	606	4	0	435	167	8	0	1	134	0	186
Future Volume (vph)	296	606	4	0	435	167	8	0	1	134	0	186
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effect Green (s)	40.3	40.3		40.3	40.3		30.2	30.2		30.2	30.2	30.2
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.38	0.38		0.38	0.38	0.38
v/c Ratio	0.92	0.36		0.36	0.36		0.02	0.02		0.27	0.27	0.27
Control Delay	52.0	11.8		9.7	9.7		6.2	6.2		22.3	22.3	4.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.0	11.8		9.7	9.7		6.2	6.2		22.3	22.3	4.5
LOS	D	B		A	A		A	A		C	C	A
Approach Delay		24.9		9.7	9.7		6.2	6.2		12.0	12.0	
Approach LOS		C		A	A		A	A		B	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 79.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 52.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

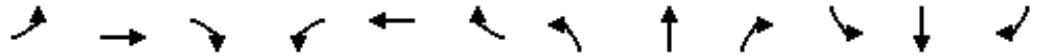


HCM 6th Signalized Intersection Summary

2026 Background Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	606	4	0	435	167	8	0	1	134	0	186
Future Volume (veh/h)	296	606	4	0	435	167	8	0	1	134	0	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	318	652	4	0	468	180	9	0	1	144	0	200
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	437	2006	12	85	1393	532	404	4	36	607	0	561
Arrive On Green	0.55	0.55	0.55	0.00	0.55	0.55	0.35	0.00	0.35	0.35	0.00	0.35
Sat Flow, veh/h	796	3678	23	790	2554	975	927	13	104	1497	0	1610
Grp Volume(v), veh/h	318	320	336	0	330	318	10	0	0	144	0	200
Grp Sat Flow(s),veh/h/ln	796	1805	1896	790	1805	1724	1044	0	0	1497	0	1610
Q Serve(g_s), s	31.4	8.3	8.3	0.0	8.6	8.7	0.2	0.0	0.0	0.0	0.0	7.8
Cycle Q Clear(g_c), s	40.2	8.3	8.3	0.0	8.6	8.7	5.0	0.0	0.0	4.8	0.0	7.8
Prop In Lane	1.00		0.01	1.00		0.57	0.90		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	437	984	1034	85	984	940	444	0	0	607	0	561
V/C Ratio(X)	0.73	0.32	0.33	0.00	0.33	0.34	0.02	0.00	0.00	0.24	0.00	0.36
Avail Cap(c_a), veh/h	487	1098	1153	135	1098	1049	444	0	0	607	0	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	10.6	10.6	0.0	10.7	10.7	19.0	0.0	0.0	19.6	0.0	20.5
Incr Delay (d2), s/veh	4.8	0.2	0.2	0.0	0.2	0.2	0.1	0.0	0.0	0.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	2.9	3.1	0.0	3.0	2.9	0.1	0.0	0.0	2.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	10.8	10.8	0.0	10.9	10.9	19.1	0.0	0.0	20.5	0.0	22.3
LnGrp LOS	C	B	B	A	B	B	B	A	A	C	A	C
Approach Vol, veh/h		974			648			10				344
Approach Delay, s/veh		16.0			10.9			19.1				21.5
Approach LOS		B			B			B				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		50.7		34.0		50.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		51.5		29.5		51.5				
Max Q Clear Time (g_c+11), s		7.0		42.2		9.8		10.7				
Green Ext Time (p_c), s		0.0		4.0		1.3		4.2				
Intersection Summary												
HCM 6th Ctrl Delay				15.3								
HCM 6th LOS				B								

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic, AM Peak Hour

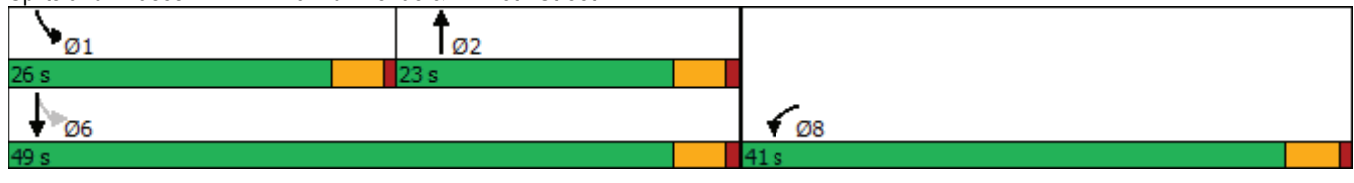
09/09/2023

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	321	317	175	130	419	279
Future Volume (vph)	321	317	175	130	419	279
Confl. Peds. (#/hr)	1	2		1	2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	4%	7%	7%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	41.0		23.0		26.0	49.0
Total Split (%)	45.6%		25.6%		28.9%	54.4%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	36.5		18.5		44.5	44.5
Actuated g/C Ratio	0.41		0.21		0.49	0.49
v/c Ratio	0.99		0.89		0.97	0.35
Control Delay	56.6		58.3		58.6	15.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	56.6		58.3		58.6	15.4
LOS	E		E		E	B
Approach Delay	56.6		58.3			41.3
Approach LOS	E		E			D

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 50.4
 Intersection LOS: D
 Intersection Capacity Utilization 89.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street













HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic, AM Peak Hour

09/09/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	321	317	175	130	419	279
Future Volume (veh/h)	321	317	175	130	419	279
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1796	1796
Adj Flow Rate, veh/h	357	352	194	144	466	310
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	4	4	7	7
Cap, veh/h	342	337	207	154	495	888
Arrive On Green	0.41	0.41	0.21	0.21	0.23	0.49
Sat Flow, veh/h	843	831	980	728	1711	1796
Grp Volume(v), veh/h	710	0	0	338	466	310
Grp Sat Flow(s),veh/h/ln	1676	0	0	1708	1711	1796
Q Serve(g_s), s	36.5	0.0	0.0	17.5	18.8	9.5
Cycle Q Clear(g_c), s	36.5	0.0	0.0	17.5	18.8	9.5
Prop In Lane	0.50	0.50		0.43	1.00	
Lane Grp Cap(c), veh/h	680	0	0	361	495	888
V/C Ratio(X)	1.04	0.00	0.00	0.94	0.94	0.35
Avail Cap(c_a), veh/h	680	0	0	361	506	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	34.9	21.7	13.9
Incr Delay (d2), s/veh	46.7	0.0	0.0	33.5	25.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.2	0.0	0.0	10.3	10.4	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	73.4	0.0	0.0	68.4	47.4	15.0
LnGrp LOS	F	A	A	E	D	B
Approach Vol, veh/h	710		338		776	
Approach Delay, s/veh	73.4		68.4		34.5	
Approach LOS	E		E		C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	25.5	23.5			49.0	41.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	21.5	18.5			44.5	36.5
Max Q Clear Time (g_c+11), s	20.8	19.5			11.5	38.5
Green Ext Time (p_c), s	0.1	0.0			1.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			55.9			
HCM 6th LOS			E			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2026 Total Traffic, AM Peak Hour

09/09/2023

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	↗
Traffic Volume (vph)	508	49	21	594	52	18
Future Volume (vph)	508	49	21	594	52	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Control Type: Unsignalized						
Intersection Capacity Utilization 58.9%			ICU Level of Service B			
Analysis Period (min) 15						

HCM 6th TWSC
2: Site Access & NE 13th Street

2026 Total Traffic, AM Peak Hour
09/09/2023

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	508	49	21	594	52	18
Future Vol, veh/h	508	49	21	594	52	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	2	2	2	2
Mvmt Flow	564	54	23	660	58	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	618	0	1270
Stage 1	-	-	-	-	564
Stage 2	-	-	-	-	706
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	962	-	186
Stage 1	-	-	-	-	569
Stage 2	-	-	-	-	489
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	962	-	179
Mov Cap-2 Maneuver	-	-	-	-	179
Stage 1	-	-	-	-	569
Stage 2	-	-	-	-	470

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	30.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	216	-	-	962	-
HCM Lane V/C Ratio	0.36	-	-	0.024	-
HCM Control Delay (s)	30.8	-	-	8.8	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Lanes, Volumes, Timings

2026 Total Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (vph)	1	188	337	171	447	5	164	4	93	2	11	3
Future Volume (vph)	1	188	337	171	447	5	164	4	93	2	11	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	26.0	26.0	26.0	26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%	43.3%	43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)		19.7	19.7	19.7	19.7			29.6	29.6			29.6
Actuated g/C Ratio		0.34	0.34	0.34	0.34			0.51	0.51			0.51
v/c Ratio		0.36	0.51	0.54	0.85			0.29	0.13			0.02
Control Delay		16.4	4.4	21.8	32.7			10.4	2.5			7.1
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay		16.4	4.4	21.8	32.7			10.4	2.5			7.1
LOS		B	A	C	C			B	A			A
Approach Delay		8.7			29.7			7.6				7.1
Approach LOS		A			C			A				A

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 58.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 17.7
 Intersection LOS: B
 Intersection Capacity Utilization 61.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary

2026 Total Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	1	188	337	171	447	5	164	4	93	2	11	3
Future Volume (veh/h)	1	188	337	171	447	5	164	4	93	2	11	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1870	1870	1870	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	221	396	201	526	6	193	5	109	2	13	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	5	5	2	2	2	3	3	3	0	0	0
Cap, veh/h	61	653	554	337	661	8	787	19	773	115	645	185
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1	1823	1547	806	1846	21	1360	38	1572	99	1312	376
Grp Volume(v), veh/h	222	0	396	201	0	532	198	0	109	19	0	0
Grp Sat Flow(s),veh/h/ln	1825	0	1547	806	0	1867	1398	0	1572	1787	0	0
Q Serve(g_s), s	0.0	0.0	13.2	14.6	0.0	15.3	4.6	0.0	2.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	13.2	19.9	0.0	15.3	4.9	0.0	2.3	0.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.01	0.97		1.00	0.11		0.21
Lane Grp Cap(c), veh/h	714	0	554	337	0	669	806	0	773	945	0	0
V/C Ratio(X)	0.31	0.00	0.71	0.60	0.00	0.80	0.25	0.00	0.14	0.02	0.00	0.00
Avail Cap(c_a), veh/h	714	0	554	337	0	669	806	0	773	945	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.1	0.0	16.6	21.3	0.0	17.3	9.0	0.0	8.3	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	4.3	2.8	0.0	6.6	0.7	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.7	2.7	0.0	6.9	1.3	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	20.9	24.2	0.0	23.9	9.7	0.0	8.7	7.9	0.0	0.0
LnGrp LOS	B	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		618			733			307				19
Approach Delay, s/veh		18.6			24.0			9.4				7.9
Approach LOS		B			C			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		26.0		34.0		26.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		21.5		29.5		21.5				
Max Q Clear Time (g_c+1), s		6.9		15.2		2.3		21.9				
Green Ext Time (p_c), s		1.4		1.5		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				19.1								
HCM 6th LOS				B								

Lanes, Volumes, Timings

2026 Total Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023

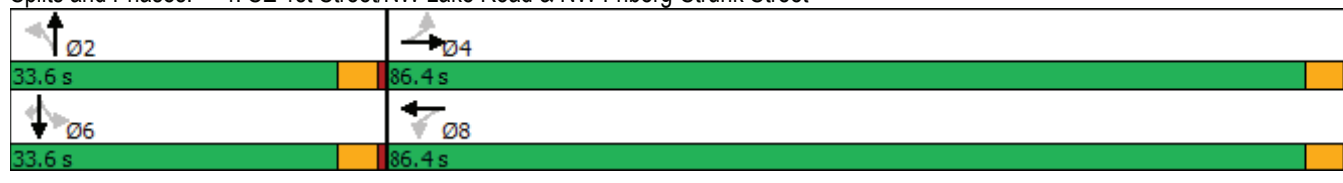


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	↗
Traffic Volume (vph)	376	269	0	0	287	192	0	0	0	190	0	232
Future Volume (vph)	376	269	0	0	287	192	0	0	0	190	0	232
Confl. Peds. (#/hr)	9		2	1		8	2		1	8		9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	0%	0%	0%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	86.4	86.4		86.4	86.4		33.6	33.6		33.6	33.6	33.6
Total Split (%)	72.0%	72.0%		72.0%	72.0%		28.0%	28.0%		28.0%	28.0%	28.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effct Green (s)	81.9	81.9			81.9						29.1	29.1
Actuated g/C Ratio	0.68	0.68			0.68						0.24	0.24
v/c Ratio	0.99	0.15			0.27						0.74	0.50
Control Delay	58.7	6.9			4.5						56.4	7.3
Queue Delay	0.0	0.0			0.0						0.0	0.0
Total Delay	58.7	6.9			4.5						56.4	7.3
LOS	E	A			A						E	A
Approach Delay		37.1			4.5						29.4	
Approach LOS		D			A						C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 24.9
 Intersection Capacity Utilization 71.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street



HCM 6th Signalized Intersection Summary

2026 Total Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	269	0	0	287	192	0	0	0	190	0	232
Future Volume (veh/h)	376	269	0	0	287	192	0	0	0	190	0	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1885	1885	1885	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	488	349	0	0	373	249	0	0	0	247	0	301
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	1	1	1	0	0	0	3	3	3
Cap, veh/h	546	2406	0	60	1409	926	0	461	0	400	0	377
Arrive On Green	0.68	0.68	0.00	0.00	0.68	0.68	0.00	0.00	0.00	0.24	0.00	0.24
Sat Flow, veh/h	795	3618	0	1040	2065	1357	0	1900	0	1403	0	1555
Grp Volume(v), veh/h	488	349	0	0	323	299	0	0	0	247	0	301
Grp Sat Flow(s),veh/h/ln	795	1763	0	1040	1791	1631	0	1900	0	1403	0	1555
Q Serve(g_s), s	73.3	4.2	0.0	0.0	8.4	8.6	0.0	0.0	0.0	19.4	0.0	21.8
Cycle Q Clear(g_c), s	81.9	4.2	0.0	0.0	8.4	8.6	0.0	0.0	0.0	19.4	0.0	21.8
Prop In Lane	1.00		0.00	1.00		0.83	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	546	2406	0	60	1222	1113	0	461	0	400	0	377
V/C Ratio(X)	0.89	0.15	0.00	0.00	0.26	0.27	0.00	0.00	0.00	0.62	0.00	0.80
Avail Cap(c_a), veh/h	546	2406	0	60	1222	1113	0	461	0	400	0	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.5	6.7	0.0	0.0	7.4	7.4	0.0	0.0	0.0	41.8	0.0	42.7
Incr Delay (d2), s/veh	17.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	7.0	0.0	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	1.4	0.0	0.0	2.9	2.7	0.0	0.0	0.0	7.3	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	6.7	0.0	0.0	7.5	7.5	0.0	0.0	0.0	48.8	0.0	58.7
LnGrp LOS	D	A	A	A	A	A	A	A	A	D	A	E
Approach Vol, veh/h		837			622			0			548	
Approach Delay, s/veh		26.5			7.5			0.0			54.2	
Approach LOS		C			A						D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.6		86.4		33.6		86.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.1		81.9		29.1		81.9				
Max Q Clear Time (g_c+11), s		0.0		83.9		23.8		10.6				
Green Ext Time (p_c), s		0.0		0.0		1.2		4.2				
Intersection Summary												
HCM 6th Ctrl Delay				28.2								
HCM 6th LOS				C								

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

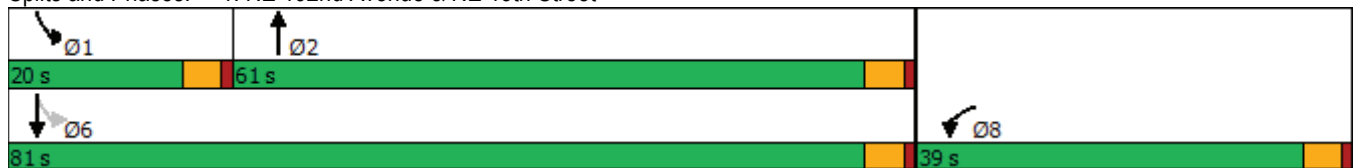
2026 Total Traffic, PM Peak Hour
09/09/2023

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	236	321	559	329	307	426
Future Volume (vph)	236	321	559	329	307	426
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	23.2		22.5		9.5	22.5
Total Split (s)	39.0		61.0		20.0	81.0
Total Split (%)	32.5%		50.8%		16.7%	67.5%
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	34.5		56.5		76.5	76.5
Actuated g/C Ratio	0.29		0.47		0.64	0.64
v/c Ratio	1.17		1.15		1.16	0.39
Control Delay	131.6		111.0		137.5	11.7
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	131.6		111.0		137.5	11.7
LOS	F		F		F	B
Approach Delay	131.6		111.0			64.4
Approach LOS	F		F			E

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 100.6
 Intersection LOS: F
 Intersection Capacity Utilization 110.5%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street













HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic, PM Peak Hour

09/09/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	236	321	559	329	307	426
Future Volume (veh/h)	236	321	559	329	307	426
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	262	357	621	366	341	473
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	204	277	524	309	292	1202
Arrive On Green	0.29	0.29	0.47	0.47	0.13	0.64
Sat Flow, veh/h	708	965	1112	655	1795	1885
Grp Volume(v), veh/h	620	0	0	987	341	473
Grp Sat Flow(s),veh/h/ln	1676	0	0	1767	1795	1885
Q Serve(g_s), s	34.5	0.0	0.0	56.5	15.5	14.6
Cycle Q Clear(g_c), s	34.5	0.0	0.0	56.5	15.5	14.6
Prop In Lane	0.42	0.58		0.37	1.00	
Lane Grp Cap(c), veh/h	482	0	0	832	292	1202
V/C Ratio(X)	1.29	0.00	0.00	1.19	1.17	0.39
Avail Cap(c_a), veh/h	482	0	0	832	292	1202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	0.0	0.0	31.8	41.2	10.5
Incr Delay (d2), s/veh	144.0	0.0	0.0	95.8	106.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.2	0.0	0.0	44.6	12.8	5.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	186.8	0.0	0.0	127.6	147.4	11.5
LnGrp LOS	F	A	A	F	F	B
Approach Vol, veh/h	620		987			814
Approach Delay, s/veh	186.8		127.6			68.4
Approach LOS	F		F			E
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	61.0			81.0	39.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	56.5			76.5	34.5
Max Q Clear Time (g_c+1), s	17.5	58.5			16.6	36.5
Green Ext Time (p_c), s	0.0	0.0			3.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			122.9			
HCM 6th LOS			F			

Lanes, Volumes, Timings
 2: Site Access & NE 13th Street

2026 Total Traffic, PM Peak Hour
 09/09/2023

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Volume (vph)	555	59	24	491	61	20
Future Volume (vph)	555	59	24	491	61	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	1%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Control Type: Unsignalized						
Intersection Capacity Utilization 56.6%			ICU Level of Service B			
Analysis Period (min) 15						

HCM 6th TWSC
2: Site Access & NE 13th Street

2026 Total Traffic, PM Peak Hour
09/09/2023

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	555	59	24	491	61	20
Future Vol, veh/h	555	59	24	491	61	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	20	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	617	66	27	546	68	22

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	683	0	1217
Stage 1	-	-	-	-	617
Stage 2	-	-	-	-	600
Critical Hdwy	-	-	4.11	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.209	-	3.518
Pot Cap-1 Maneuver	-	-	915	-	200
Stage 1	-	-	-	-	538
Stage 2	-	-	-	-	548
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	915	-	192
Mov Cap-2 Maneuver	-	-	-	-	192
Stage 1	-	-	-	-	538
Stage 2	-	-	-	-	525

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	31.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	226	-	-	915	-
HCM Lane V/C Ratio	0.398	-	-	0.029	-
HCM Control Delay (s)	31.1	-	-	9.1	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.8	-	-	0.1	-

Lanes, Volumes, Timings

2026 Total Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔			↔	↔		↔	
Traffic Volume (vph)	10	444	122	157	369	2	143	13	310	0	6	3
Future Volume (vph)	10	444	122	157	369	2	143	13	310	0	6	3
Confl. Peds. (#/hr)	5		5	7		7	5		7	7		5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm		NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	4	4	4	8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.2	25.2	25.2	25.5	25.5		33.2	33.2	33.2	33.2	33.2	
Total Split (s)	31.0	31.0	31.0	31.0	31.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	47.7%	47.7%	47.7%	47.7%	47.7%		52.3%	52.3%	52.3%	52.3%	52.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	
Act Effect Green (s)		23.1	23.1	23.1	23.1			29.7	29.7		29.7	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48	0.48		0.48	
v/c Ratio		0.73	0.20	0.99	0.59			0.26	0.41		0.01	
Control Delay		23.3	3.5	91.8	19.3			12.1	6.3		8.7	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		23.3	3.5	91.8	19.3			12.1	6.3		8.7	
LOS		C	A	F	B			B	A		A	
Approach Delay		19.1			40.8			8.2			8.7	
Approach LOS		B			D			A			A	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 61.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 23.1

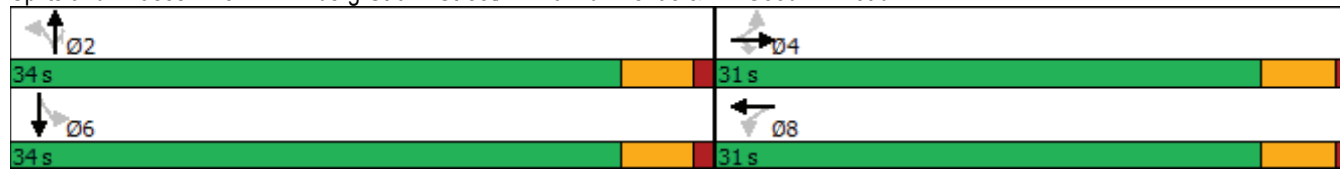
Intersection LOS: C

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road



HCM 6th Signalized Intersection Summary

2026 Total Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



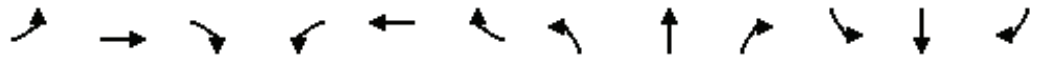
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖	↗		↕	
Traffic Volume (veh/h)	10	444	122	157	369	2	143	13	310	0	6	3
Future Volume (veh/h)	10	444	122	157	369	2	143	13	310	0	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1885	1885	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	11	499	137	176	415	2	161	15	348	0	7	3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	0	0	0
Cap, veh/h	62	765	652	263	764	4	698	61	719	0	571	245
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.45	0.45	0.45	0.00	0.45	0.45
Sat Flow, veh/h	13	1875	1600	797	1874	9	1305	134	1585	0	1259	539
Grp Volume(v), veh/h	510	0	137	176	0	417	176	0	348	0	0	10
Grp Sat Flow(s),veh/h/ln	1888	0	1600	797	0	1883	1439	0	1585	0	0	1798
Q Serve(g_s), s	0.0	0.0	3.6	12.4	0.0	10.9	4.7	0.0	10.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	14.1	0.0	3.6	26.5	0.0	10.9	4.9	0.0	10.0	0.0	0.0	0.2
Prop In Lane	0.02		1.00	1.00		0.00	0.91		1.00	0.00		0.30
Lane Grp Cap(c), veh/h	826	0	652	263	0	768	759	0	719	0	0	816
V/C Ratio(X)	0.62	0.00	0.21	0.67	0.00	0.54	0.23	0.00	0.48	0.00	0.00	0.01
Avail Cap(c_a), veh/h	826	0	652	263	0	768	759	0	719	0	0	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	12.5	27.2	0.0	14.6	11.0	0.0	12.4	0.0	0.0	9.7
Incr Delay (d2), s/veh	1.4	0.0	0.2	6.5	0.0	0.8	0.7	0.0	2.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	1.2	3.1	0.0	4.2	1.5	0.0	3.4	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	0.0	12.6	33.6	0.0	15.4	11.7	0.0	14.7	0.0	0.0	9.8
LnGrp LOS	B	A	B	C	A	B	B	A	B	A	A	A
Approach Vol, veh/h		647			593			524				10
Approach Delay, s/veh		16.1			20.8			13.7				9.8
Approach LOS		B			C			B				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		31.0		34.0		31.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		26.5		29.5		26.5				
Max Q Clear Time (g_c+1), s		12.0		16.1		2.2		28.5				
Green Ext Time (p_c), s		2.0		2.7		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				16.9								
HCM 6th LOS				B								

Lanes, Volumes, Timings

2026 Total Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023

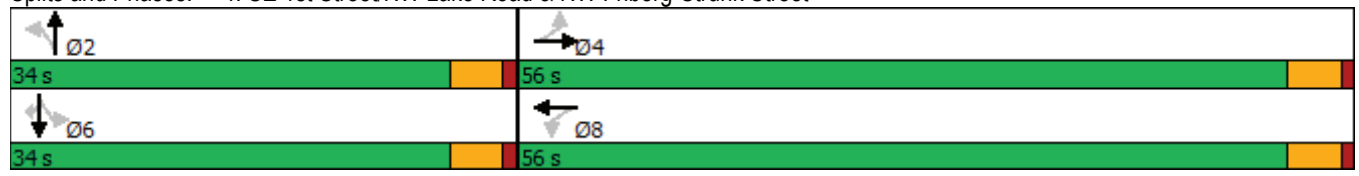


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	↗
Traffic Volume (vph)	296	606	4	0	435	175	8	0	1	142	0	186
Future Volume (vph)	296	606	4	0	435	175	8	0	1	142	0	186
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		25.5	25.5		33.2	33.2		33.2	33.2	33.2
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Act Effct Green (s)	40.8	40.8		40.8	40.8		30.1	30.1		30.1	30.1	30.1
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.38	0.38		0.38	0.38	0.38
v/c Ratio	0.93	0.36		0.36	0.36		0.02	0.02		0.29	0.27	0.27
Control Delay	53.2	11.7		9.6	9.6		6.2	6.2		22.6	4.6	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.2	11.7		9.6	9.6		6.2	6.2		22.6	4.6	4.6
LOS	D	B		A	A		A	A		C	A	A
Approach Delay		25.3		9.6	9.6		6.2	6.2		12.4		
Approach LOS		C		A	A		A	A		B		

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 80.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 17.7
 Intersection LOS: B
 Intersection Capacity Utilization 53.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street



HCM 6th Signalized Intersection Summary

2026 Total Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	606	4	0	435	175	8	0	1	142	0	186
Future Volume (veh/h)	296	606	4	0	435	175	8	0	1	142	0	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	318	652	4	0	468	188	9	0	1	153	0	200
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	435	2015	12	85	1380	550	396	4	36	604	0	558
Arrive On Green	0.55	0.55	0.55	0.00	0.55	0.55	0.35	0.00	0.35	0.35	0.00	0.35
Sat Flow, veh/h	790	3678	23	790	2519	1005	911	13	103	1499	0	1610
Grp Volume(v), veh/h	318	320	336	0	334	322	10	0	0	153	0	200
Grp Sat Flow(s),veh/h/ln	790	1805	1896	790	1805	1719	1026	0	0	1499	0	1610
Q Serve(g_s), s	31.9	8.3	8.3	0.0	8.8	8.9	0.2	0.0	0.0	0.0	0.0	7.9
Cycle Q Clear(g_c), s	40.8	8.3	8.3	0.0	8.8	8.9	5.4	0.0	0.0	5.3	0.0	7.9
Prop In Lane	1.00		0.01	1.00		0.58	0.90		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	435	989	1039	85	989	942	436	0	0	604	0	558
V/C Ratio(X)	0.73	0.32	0.32	0.00	0.34	0.34	0.02	0.00	0.00	0.25	0.00	0.36
Avail Cap(c_a), veh/h	480	1092	1147	130	1092	1040	436	0	0	604	0	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	10.6	10.6	0.0	10.7	10.7	19.3	0.0	0.0	19.9	0.0	20.8
Incr Delay (d2), s/veh	5.1	0.2	0.2	0.0	0.2	0.2	0.1	0.0	0.0	1.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	2.9	3.0	0.0	3.1	3.0	0.2	0.0	0.0	2.2	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	10.8	10.8	0.0	10.9	10.9	19.4	0.0	0.0	20.9	0.0	22.6
LnGrp LOS	C	B	B	A	B	B	B	A	A	C	A	C
Approach Vol, veh/h		974			656			10				353
Approach Delay, s/veh		16.1			10.9			19.4				21.8
Approach LOS		B			B			B				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		51.1		34.0		51.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		51.5		29.5		51.5				
Max Q Clear Time (g_c+11), s		7.4		42.8		9.9		10.9				
Green Ext Time (p_c), s		0.0		3.8		1.4		4.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.4								
HCM 6th LOS				B								

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic-MIT, PM Peak Hour

09/09/2023

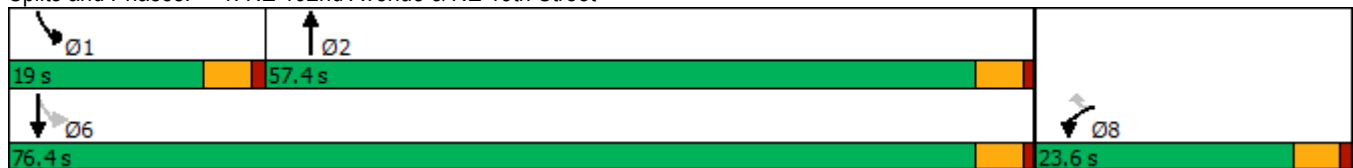


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	212	296	572	299	287	434
Future Volume (vph)	212	296	572	299	287	434
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	23.2	23.2	22.5		9.5	22.5
Total Split (s)	23.6	23.6	57.4		19.0	76.4
Total Split (%)	23.6%	23.6%	57.4%		19.0%	76.4%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max		None	Max
Act Effct Green (s)	16.6	16.6	53.0		72.0	72.0
Actuated g/C Ratio	0.17	0.17	0.54		0.74	0.74
v/c Ratio	0.78	0.60	0.98		0.93	0.35
Control Delay	56.6	9.2	46.1		62.1	5.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	56.6	9.2	46.1		62.1	5.6
LOS	E	A	D		E	A
Approach Delay	29.0		46.1			28.1
Approach LOS	C		D			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 97.6
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 35.8
 Intersection Capacity Utilization 87.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic-MIT, PM Peak Hour












09/09/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	212	296	572	299	287	434
Future Volume (veh/h)	212	296	572	299	287	434
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	236	329	636	332	319	482
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	343	305	617	322	332	1355
Arrive On Green	0.19	0.19	0.53	0.53	0.14	0.72
Sat Flow, veh/h	1795	1598	1167	609	1795	1885
Grp Volume(v), veh/h	236	329	0	968	319	482
Grp Sat Flow(s),veh/h/ln	1795	1598	0	1776	1795	1885
Q Serve(g_s), s	12.2	19.1	0.0	52.9	13.6	9.7
Cycle Q Clear(g_c), s	12.2	19.1	0.0	52.9	13.6	9.7
Prop In Lane	1.00	1.00		0.34	1.00	
Lane Grp Cap(c), veh/h	343	305	0	939	332	1355
V/C Ratio(X)	0.69	1.08	0.00	1.03	0.96	0.36
Avail Cap(c_a), veh/h	343	305	0	939	332	1355
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	40.5	0.0	23.6	33.9	5.3
Incr Delay (d2), s/veh	5.7	73.9	0.0	37.5	38.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	13.6	0.0	29.2	7.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.4	114.4	0.0	61.0	72.6	6.0
LnGrp LOS	D	F	A	F	E	A
Approach Vol, veh/h	565		968			801
Approach Delay, s/veh	84.7		61.0			32.5
Approach LOS	F		E			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.0	57.4			76.4	23.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	14.5	52.9			71.9	19.1
Max Q Clear Time (g_c+11), s	15.6	54.9			11.7	21.1
Green Ext Time (p_c), s	0.0	0.0			3.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			57.0			
HCM 6th LOS			E			

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic-MIT, PM Peak Hour
09/09/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	236	321	559	329	307	426
Future Volume (vph)	236	321	559	329	307	426
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	23.2	23.2	22.5		9.5	22.5
Total Split (s)	23.8	23.8	64.2		22.0	86.2
Total Split (%)	21.6%	21.6%	58.4%		20.0%	78.4%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max		None	Max
Act Effct Green (s)	18.4	18.4	59.7		81.7	81.7
Actuated g/C Ratio	0.17	0.17	0.55		0.75	0.75
v/c Ratio	0.87	0.63	0.99		0.96	0.34
Control Delay	72.3	9.8	50.9		71.8	5.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	72.3	9.8	50.9		71.8	5.5
LOS	E	A	D		E	A
Approach Delay	36.3		50.9			33.3
Approach LOS	D		D			C

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 109.1
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 41.2
 Intersection LOS: D
 Intersection Capacity Utilization 90.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



HCM 6th Signalized Intersection Summary

1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic-MIT, PM Peak Hour

09/09/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	236	321	559	329	307	426
Future Volume (veh/h)	236	321	559	329	307	426
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	262	357	621	366	341	473
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	315	280	603	356	351	1400
Arrive On Green	0.18	0.18	0.54	0.54	0.16	0.74
Sat Flow, veh/h	1795	1598	1112	655	1795	1885
Grp Volume(v), veh/h	262	357	0	987	341	473
Grp Sat Flow(s),veh/h/ln	1795	1598	0	1767	1795	1885
Q Serve(g_s), s	15.5	19.3	0.0	59.7	16.7	9.5
Cycle Q Clear(g_c), s	15.5	19.3	0.0	59.7	16.7	9.5
Prop In Lane	1.00	1.00		0.37	1.00	
Lane Grp Cap(c), veh/h	315	280	0	959	351	1400
V/C Ratio(X)	0.83	1.27	0.00	1.03	0.97	0.34
Avail Cap(c_a), veh/h	315	280	0	959	351	1400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	45.3	0.0	25.2	38.4	4.9
Incr Delay (d2), s/veh	17.0	148.0	0.0	36.7	40.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	19.0	0.0	32.1	12.9	3.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.8	193.3	0.0	61.9	78.7	5.5
LnGrp LOS	E	F	A	F	E	A
Approach Vol, veh/h	619		987			814
Approach Delay, s/veh	137.2		61.9			36.2
Approach LOS	F		E			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.0	64.2			86.2	23.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	17.5	59.7			81.7	19.3
Max Q Clear Time (g_c+11), s	18.7	61.7			11.5	21.3
Green Ext Time (p_c), s	0.0	0.0			3.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			72.5			
HCM 6th LOS			E			

Queues
1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, AM Peak Hour

09/09/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	474	276	402	300
v/c Ratio	0.86	0.48	0.72	0.30
Control Delay	32.1	17.7	17.8	8.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.1	17.7	17.8	8.4
Queue Length 50th (ft)	118	69	79	55
Queue Length 95th (ft)	#265	132	#162	96
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	614	580	562	993
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.48	0.72	0.30

Intersection Summary

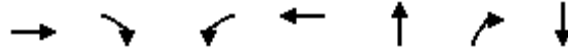
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2023 Adjusted Existing Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	159	362	119	346	169	78	18
v/c Ratio	0.31	0.52	0.35	0.67	0.22	0.09	0.02
Control Delay	16.5	5.0	18.0	23.5	8.4	2.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	5.0	18.0	23.5	8.4	2.7	6.5
Queue Length 50th (ft)	39	0	30	96	24	0	2
Queue Length 95th (ft)	72	38	60	152	61	15	10
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	726	834	491	748	752	900	1002
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.43	0.24	0.46	0.22	0.09	0.02

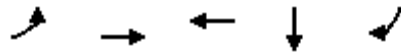
Intersection Summary

Queues

2023 Adjusted Existing Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Lane Group	EBL	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	448	321	559	170	240
v/c Ratio	1.03	0.16	0.28	0.37	0.36
Control Delay	72.7	9.3	6.2	26.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	9.3	6.2	26.2	4.8
Queue Length 50th (ft)	~275	42	46	73	0
Queue Length 95th (ft)	#353	52	55	108	27
Internal Link Dist (ft)		871	1508	817	
Turn Bay Length (ft)	300				135
Base Capacity (vph)	436	2005	1992	454	664
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.03	0.16	0.28	0.37	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
1: NE 192nd Avenue & NE 13th Street

2023 Adjusted Existing Traffic, PM Peak Hour

09/09/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	434	803	253	454
v/c Ratio	0.92	0.84	0.77	0.36
Control Delay	62.7	34.0	33.6	9.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.7	34.0	33.6	9.4
Queue Length 50th (ft)	275	530	91	143
Queue Length 95th (ft)	#460	#793	#201	202
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	505	958	352	1273
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.84	0.72	0.36

Intersection Summary

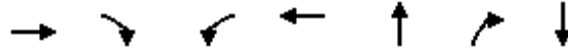
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2023 Adjusted Existing Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	325	113	122	300	142	255	10
v/c Ratio	0.64	0.22	0.61	0.59	0.17	0.26	0.01
Control Delay	24.0	4.8	31.3	22.4	7.8	2.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	4.8	31.3	22.4	7.8	2.1	6.3
Queue Length 50th (ft)	94	0	35	85	19	0	1
Queue Length 95th (ft)	158	27	80	145	57	29	8
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	827	756	327	830	818	989	1027
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.15	0.37	0.36	0.17	0.26	0.01

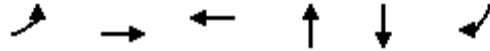
Intersection Summary

Queues

2023 Adjusted Existing Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	269	612	557	2	109	152
v/c Ratio	0.84	0.40	0.37	0.00	0.17	0.19
Control Delay	40.8	13.8	11.7	17.5	17.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	13.8	11.7	17.5	17.2	4.3
Queue Length 50th (ft)	97	90	69	1	27	0
Queue Length 95th (ft)	195	121	99	6	85	40
Internal Link Dist (ft)		871	1508	219	817	
Turn Bay Length (ft)	300					135
Base Capacity (vph)	552	2661	2588	577	636	799
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.23	0.22	0.00	0.17	0.19

Intersection Summary

Queues
1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic, AM Peak Hour

09/10/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	666	326	448	318
v/c Ratio	0.97	0.75	0.91	0.35
Control Delay	52.7	41.8	42.1	14.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.7	41.8	42.1	14.6
Queue Length 50th (ft)	332	160	170	104
Queue Length 95th (ft)	#566	#292	#350	163
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	706	433	505	906
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.94	0.75	0.89	0.35

Intersection Summary

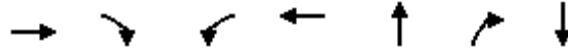
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2026 Background Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/10/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	221	387	201	531	189	109	19
v/c Ratio	0.36	0.50	0.54	0.85	0.28	0.13	0.02
Control Delay	16.4	4.4	21.8	32.6	10.3	2.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.4	21.8	32.6	10.3	2.5	7.1
Queue Length 50th (ft)	57	0	56	167	37	0	3
Queue Length 95th (ft)	98	39	104	#287	68	18	11
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	668	812	408	688	679	849	924
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.48	0.49	0.77	0.28	0.13	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

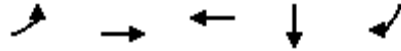
Queue shown is maximum after two cycles.

Queues

2026 Background Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/10/2023



Lane Group	EBL	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	488	349	615	239	301
v/c Ratio	0.99	0.15	0.27	0.70	0.50
Control Delay	58.3	7.1	4.6	53.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	7.1	4.6	53.7	7.2
Queue Length 50th (ft)	333	46	50	170	0
Queue Length 95th (ft)	#454	53	54	216	31
Internal Link Dist (ft)		871	1508	817	
Turn Bay Length (ft)	300				135
Base Capacity (vph)	497	2388	2330	340	604
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.15	0.26	0.70	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
1: NE 192nd Avenue & NE 13th Street

2026 Background Traffic, PM Peak Hour

09/09/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	565	968	319	482
v/c Ratio	1.13	1.09	1.09	0.39
Control Delay	116.9	86.6	112.6	10.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	116.9	86.6	112.6	10.8
Queue Length 50th (ft)	~474	~831	~227	160
Queue Length 95th (ft)	#697	#1085	#412	224
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	501	890	293	1230
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.13	1.09	1.09	0.39

Intersection Summary

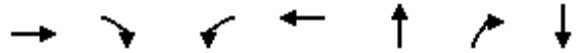
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Queues

2026 Background Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	508	126	176	414	164	348	10
v/c Ratio	0.73	0.19	0.99	0.59	0.24	0.41	0.01
Control Delay	23.2	3.6	91.0	19.2	11.9	6.2	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	3.6	91.0	19.2	11.9	6.2	8.7
Queue Length 50th (ft)	157	0	63	120	38	30	1
Queue Length 95th (ft)	251	26	#173	194	74	78	9
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	811	749	206	811	677	856	870
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.17	0.85	0.51	0.24	0.41	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

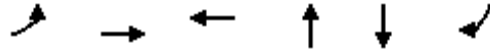
Queue shown is maximum after two cycles.

Queues

2026 Background Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	318	656	648	10	144	200
v/c Ratio	0.92	0.36	0.36	0.02	0.27	0.27
Control Delay	52.0	11.8	9.7	6.2	22.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	11.8	9.7	6.2	22.3	4.5
Queue Length 50th (ft)	135	95	76	0	54	0
Queue Length 95th (ft)	#309	127	108	8	110	46
Internal Link Dist (ft)		871	1508	219	817	
Turn Bay Length (ft)	300					135
Base Capacity (vph)	451	2384	2321	617	540	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.28	0.28	0.02	0.27	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic, AM Peak Hour

09/09/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	709	338	466	310
v/c Ratio	0.99	0.89	0.97	0.35
Control Delay	56.6	58.3	58.6	15.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.6	58.3	58.6	15.4
Queue Length 50th (ft)	363	169	212	103
Queue Length 95th (ft)	#611	#326	#410	162
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	718	379	481	878
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	0.89	0.97	0.35

Intersection Summary

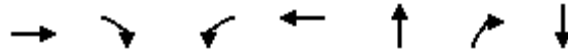
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Queues

2026 Total Traffic, AM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	222	396	201	532	198	109	19
v/c Ratio	0.36	0.51	0.54	0.85	0.29	0.13	0.02
Control Delay	16.4	4.4	21.8	32.7	10.4	2.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.4	21.8	32.7	10.4	2.5	7.1
Queue Length 50th (ft)	57	0	56	168	40	0	3
Queue Length 95th (ft)	98	40	104	#288	72	18	11
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	668	818	406	687	676	849	922
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.48	0.50	0.77	0.29	0.13	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

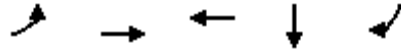
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Queues

2026 Total Traffic, AM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Lane Group	EBL	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	488	349	622	247	301
v/c Ratio	0.99	0.15	0.27	0.74	0.50
Control Delay	58.7	6.9	4.5	56.4	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	6.9	4.5	56.4	7.3
Queue Length 50th (ft)	335	45	49	177	0
Queue Length 95th (ft)	#455	52	53	226	31
Internal Link Dist (ft)		871	1508	817	
Turn Bay Length (ft)	300				135
Base Capacity (vph)	493	2392	2333	335	599
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.99	0.15	0.27	0.74	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: NE 192nd Avenue & NE 13th Street

2026 Total Traffic, PM Peak Hour

09/09/2023



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	619	987	341	473
v/c Ratio	1.17	1.15	1.16	0.39
Control Delay	131.6	111.0	137.5	11.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	131.6	111.0	137.5	11.7
Queue Length 50th (ft)	~540	~888	~262	165
Queue Length 95th (ft)	#770	#1143	#450	231
Internal Link Dist (ft)	2250	872		592
Turn Bay Length (ft)			200	
Base Capacity (vph)	528	858	293	1199
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.17	1.15	1.16	0.39

Intersection Summary

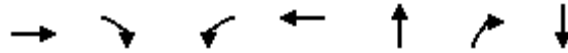
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Queues

2026 Total Traffic, PM Peak Hour

3: NW Friberg-Strunk Street/NE 202nd Avenue & NE Goodwin Road

09/09/2023



Lane Group	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	510	137	176	417	176	348	10
v/c Ratio	0.73	0.20	0.99	0.59	0.26	0.41	0.01
Control Delay	23.3	3.5	91.8	19.3	12.1	6.3	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	3.5	91.8	19.3	12.1	6.3	8.7
Queue Length 50th (ft)	158	0	63	121	41	30	1
Queue Length 95th (ft)	252	27	#173	196	79	79	9
Internal Link Dist (ft)	228			879	635		611
Turn Bay Length (ft)		150	185			200	
Base Capacity (vph)	810	754	204	810	672	854	868
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.18	0.86	0.51	0.26	0.41	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

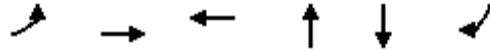
Queue shown is maximum after two cycles.

Queues

2026 Total Traffic, PM Peak Hour

4: SE 1st Street/NW Lake Road & NW Friberg-Strunk Street

09/09/2023



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	318	656	656	10	153	200
v/c Ratio	0.93	0.36	0.36	0.02	0.29	0.27
Control Delay	53.2	11.7	9.6	6.2	22.6	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	11.7	9.6	6.2	22.6	4.6
Queue Length 50th (ft)	136	95	76	0	60	0
Queue Length 95th (ft)	#312	127	108	8	117	46
Internal Link Dist (ft)		871	1508	219	817	
Turn Bay Length (ft)	300					135
Base Capacity (vph)	442	2368	2307	610	536	732
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.28	0.28	0.02	0.29	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.