TRANSPORTATION IMPACT STUDY

FOR

ASA'S VIEW SUBDIVISION

2313 NE LOCKWOOD CREEK ROAD

CITY OF LA CENTER, WASHINGTON

2/21/2022

PREPARED BY

KELLY ENGINEERING

February 2022

TRANSPORTATION IMPACT STUDY

Asa's View Subdivision

City of La Center, Washington

February 21, 2022

Prepared for:

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TRANSPORTATION IMPACT STUDY

ASA'S VIEW SUBDIVISION

February 21, 2022

INTRODUCTION

A transportation impact study (TIS) for the Asa's View Subdivision was conducted to determine the potential traffic related impacts of the development to the surrounding roadway system. The development will consist of 69 single family detached homes. The site is located at 2313 NE Lockwood Creek Road (Tax Lots 39 and 102 of Section 2, T4N R1E WM) in La Center, Washington. The zoning designation for the 16.56 acre site is LDR-7.5.

The site consists of one home that is served by a private road/driveway. The home will be demolished. Land uses within the vicinity of the site consist of undeveloped land and single family homes. The La Center Middle School is adjacent to the site and to the west. The La Center Elementary School, Holley Park, La Center Community Library and a post office are located within one mile of the site on NE Lockwood Creek Road. A vicinity map, aerial photograph and proposed development plan are shown in Figures 1a, 1b and 1c.

Roadway Characteristics

The site will have access onto NE Lockwood Creek Road through a public street that will align with NE 24th Avenue to the north. NE Lockwood Creek Road along the site frontage is a two lane paved roadway with no shoulders. Double yellow striping is along the centerline of the roadway indicating that passing is prohibited. The posted speed limit is 25 mph. The roadway is classified as a Minor Arterial.

Half street improvements will be constructed along the site frontage of NE Lockwood Creek Road for a plat per the Minor Arterial "A" Standard Detail. The streets within the development will be either a Neighborhood or Local Street Standard per the Engineering Standards depending on the average daily traffic (ADT) of the roadways.

The study area intersections in this report are controlled by stop signs on the minor street approaches and a roundabout at the Pacific Highway/W 4th Street intersection. The lane configurations for the intersections are shown in Figure 2.

Traffic Volumes

The traffic counts in this report were conducted from 7:00 to 9:00 am and 4:00 to 6:00 pm during September 2018, July 2021 and February 2022. The traffic counts were conducted to determine the peak hours. The peak hour at an intersection is the one hour time period when traffic on the adjacent streets are the highest and congestion is most likely to occur. The traffic counts conducted during September 2018 were factored by a rate of 3.9% per year to current year 2022 volumes as based on annual population growth. The existing traffic volumes are shown in Figures 3a and 3b. The adjusted existing traffic volumes are shown in Figures 4a and 4b. The raw traffic count data is included in Appendix A.

Trip Generation/Distribution

The Asa's View Subdivision will generate approximately 642 new trips per day. A trip is a one directional vehicle movement. 50 trips will occur during the weekday AM peak hour and 67 trips will occur during the PM peak hour, ITE Trip Generation Manual, 10th edition. Credits were given for the existing home to be demolished. The trip generation rates are shown in Table 1.

Table 1
Site Traffic Generation
Asa's View Subdivision

Land Use	ITE code	Dwelling Units	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips
Proposed Single Family Detached Housing	210	69	651	51 (in-13, out-38)	68 (in-43, out-25)
Existing Single Family Detached Housing	210	1	9	1 (in-0, out-1)	1 (in-1, out-0)
Net New Trips			642	50 (in-13, out-37)	67 (in-42, out-25)

The directional distribution of traffic generated by the development was assigned to the study area intersections. The distribution was based on the existing traffic volumes and previous traffic studies conducted in the area. The site traffic distribution and assignment diagrams are shown in Figures 7a and 7b.

Year 2025 Traffic Volumes

The year 2025 traffic volumes included a 3.0 percent per year compounded growth factor over the adjusted existing traffic volumes and in-process traffic. In-process traffic is traffic from developments that have been approved, but are not generating full build out traffic volumes. The in-process traffic was obtained from the City of La Center and is shown in Figures 5a, 5b and Appendix C. The in-process traffic from the La Center Middle School, Heritage Bldg. 'B' and Minit Management sites were added to the existing traffic counts that were conducted prior to 2022. In-process traffic from the Lockwood Meadows Subdivision was added to all of the existing traffic counts. The year 2025 traffic volumes without the project are shown in Figures 6a and 6b. The year 2025 traffic volumes with the project are shown in Figures 8a and 8b.

Peak Hour Traffic Operations

The scope of the transportation impact study was based on discussions with representatives from the City of La Center. Based on the discussions an analysis was conducted at the following intersections during the weekday AM and PM peak hours:

(1) NE Lockwood Creek Road & NE 24th Avenue/site access
(2) NE Lockwood Creek Road & E Spruce Avenue
(3) NE Lockwood Creek Road & John Storm Avenue
(4) NE Lockwood Creek Road & Highland Avenue
(5) Aspen Avenue & E 4th Street
(6) NW Pacific Hwy. & W 4th Street
(7) NW La Center Road & NW Timmen Road

The study area intersections were analyzed to determine existing, year 2025 without project and year 2025 with project conditions. The assumption was made that the Asa's View Subdivision will be built out and occupied within a three year time period.

The intersection operational analysis was conducted using the procedures in the 2010 Highway Capacity Manual. These procedures describe the operation of an intersection in terms of its level of service (LOS). The LOS criteria ranges from "A", which indicates little, if any, delay to "F", which indicates that vehicles experience very long delays. The LOS criteria with the corresponding delay in seconds per vehicle is shown in Table 2 on page 4. The capacity analysis summary is shown in Table 3a on page 4 and Table 3b on page 5.

Table 2
Level of Service Criteria

Level of Service (LOS)	A	B	C	D	E	F
Roundabouts Control Delay (seconds per vehicle)	≤10	>10 - 15	>15 - 25	>25 - 35	>35 - 50	>50
Unsignalized intersections Average Delay (seconds per vehicle)	≤10	>10 - 15	>15 - 25	>25 - 35	>35 - 50	>50

Table 3a
Capacity Analysis Summary

	AM Peak Hour		PM Peak Hour	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
NE Lockwood Creek Road & NE 24th Avenue/site access				
Existing	A	9.5	B	10.6
Year 2025 w/o Project	A	9.9	B	10.6
Year 2025 with Project	B	11.3	B	10.7
NE Lockwood Creek Road & E Spruce Avenue				
Existing	A	9.2	A	9.4
Year 2025 w/o Project	B	10.9	B	10.1
Year 2025 with Project	B	11.4	B	10.3
NE lockwood Creek Road & John Storm Avenue				
Existing	B	10.8	B	11.0
Year 2025 w/o Project	B	14.9	B	12.5
Year 2025 with Project	C	15.7	B	13.2
Highland Avenue & E 4th Street				
Existing	F	83.7	C	20.7
Year 2025 w/o Project	F	>83.7	D	26.2
Year 2025 with Project	F	>83.7	D	28.6
Aspen Avenue & E 4th Street				
Existing	C	16.7	B	11.5
Year 2025 w/o Project	C	19.3	B	12.7
Year 2025 with Project	C	20.6	B	13.5
NW Pacific Avenue & W 4th Street				
Existing	A	6.4	A	4.0
Year 2025 w/o Project	A	7.6	A	4.4
Year 2025 with Project	A	8.2	A	4.5

Table 3b
Capacity Analysis Summary (cont.)

	AM Peak Hour		PM Peak Hour	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
NW La Center Road & NW Timmen Road				
Existing	B	12.4	C	18.4
Year 2025 w/o Project	B	13.5	C	20.3
Year 2025 with Project	B	13.8	C	21.4

The City of La Center has adopted LOS "E" as the minimum acceptable performance at city intersections for stop controlled intersections. Based on the results of the capacity analysis this LOS will be met with build out of the Asa's View Subdivision with the exception of the NE Lockwood Creek Road/Highland Avenue intersection. This intersection is operating at LOS "F" during the AM peak hour. The LOS is attributed to vehicles on the northbound approach. The LOS computer printouts are included in Appendix E.

Pedestrian/Bicycle/Transit Considerations

Sidewalks will be provided for along the site frontage of Lockwood Creek Road. There are no existing or planned bike lanes. The site is not served by public transit service.

Sight Distance

Sight distance was measured at the site access onto Lockwood Creek Road. The measured intersection sight distance was over 300 feet when looking towards the east. Based on the criteria in AASHT0, A Policy on Geometric Design of Highways and Streets, 2011 and the posted speed limit of 25 mph on Lockwood Creek Road the recommended intersection sight distance is 280 feet. Therefore, the sight distance requirement is met. The measured intersection sight distance when looking towards the west was 225 feet and is obstructed by vegetation along the site frontage. The removal of the vegetation would improve the sight lines to over 300 feet meeting the criteria in AASHTO. This will occur with development of the site.

Turn Lanes

A left turn lane improves safety and increases the capacity of the roadway by reducing the speed differential between the through and left turning vehicles. Based on the low volume of vehicles entering the site from the east during the AM and PM peak hours a left turn lane is not justified as based on volumes.

Transportation Improvements

The Breeze Creek Culvert Replacement and 4th Street Widening Project is identified in the City of La Center's Capital Facilities Plan. Discussions are ongoing regarding improvements at the Highland Avenue/E 4th Street intersection. This intersection is operating at LOS "F" during the AM peak hour when school is in session. The main discussions involve installing a traffic signal or roundabout. The project is discussed in Appendix D.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis using the tables and charts from the 2009 Manual on Uniform Traffic Control Devices (MUTCD) was conducted at the Highland Avenue/E 4th Street intersection. This intersection is operating at LOS "F" under existing conditions during the AM peak hour for vehicles approaching from the south. The signal warrant analysis was based on the year 2025 traffic conditions with project. Based on the traffic signal warrant analysis a traffic signal is not justified. The signal warrant analysis is shown in Table 4.

Table 4
Traffic Signal Warrant Analysis
Highland Avenue & E 4th Street, Year 2025 with Project Conditions, AM Peak hour

MUTCD Traffic Signal Warrant (1)	Required Volumes (Veh./Hr.)		Projected Volumes (Veh./Hr.)		Warrant Met
	Major Street	Minor Street	Major Street	Minor Street	
1. Condition A – Minimum Vehicular Volume (3)	500	200	350 (2)	179 (2)	NO
2. Condition B – Interruption of Continuous Traffic (3)	750	100	525 (2)	179 (2)	NO
3. Peak Hour	Figure 4C-3. Warrant 3, (MUTCD)				NO

(1) Assumption made that two lanes are on minor street approach prior to traffic signal considerations.
(2) Volumes assumed to be 70% of the AM Peak Hour volumes.
(3) Warrant met if 1A or 1B is met.

Collision Data

Collision data was obtained from the Washington State Department of Transportation (WSDOT) for the most recent three years of available data. Based on the data only two accidents have been reported at the study area intersections. One accident occurred at the NE Lockwood Creek Road/Spruce Avenue intersection and involved a vehicle making an improper passing maneuver. The other accident was at the NW Pacific Avenue/W 4th street intersection and involved a vehicle going in the wrong direction. There were no injuries in either accident. The collision data is included in Appendix B.

CONCLUSIONS AND RECOMMENDATIONS

The Asa's View Subdivision is anticipated to generate 50 trips during the AM peak hour and 67 trips during the PM peak hour. This is based on a development consisting of 69 single family homes.

All of the study area intersections are operating at acceptable levels with the exception of the Highland Avenue/E 4th Street intersection. This intersection is operating at LOS "F" during the AM peak hour for vehicles approaching E 4th Street from the south. The failing condition would be mitigated by installing a traffic signal or roundabout. However, mitigating the failing condition is not proposed with the development of the Asa's View Subdivision for several reasons:

1. The failing approach is the northbound approach and the Asa's View Subdivision will add no traffic to this approach.
2. The issue of installing a roundabout or traffic signal has been identified, however funding is not available. The comments in the PBS report as identified in Appendix D stated that a do nothing alternative should be chosen until funds are available.
3. The Capital Facilities Plan suggested that future street connections in the area will alleviate motor vehicle demand in the area and improve the operation of the intersection.
4. A traffic signal is not warranted at the intersection.

Adequate sight distance should be maintained at the site access onto Lockwood Creek Road. Obstructions by vegetation, signs or other objects should not be allowed.

No additional transportation improvements or traffic control devices were identified to accommodate the development.

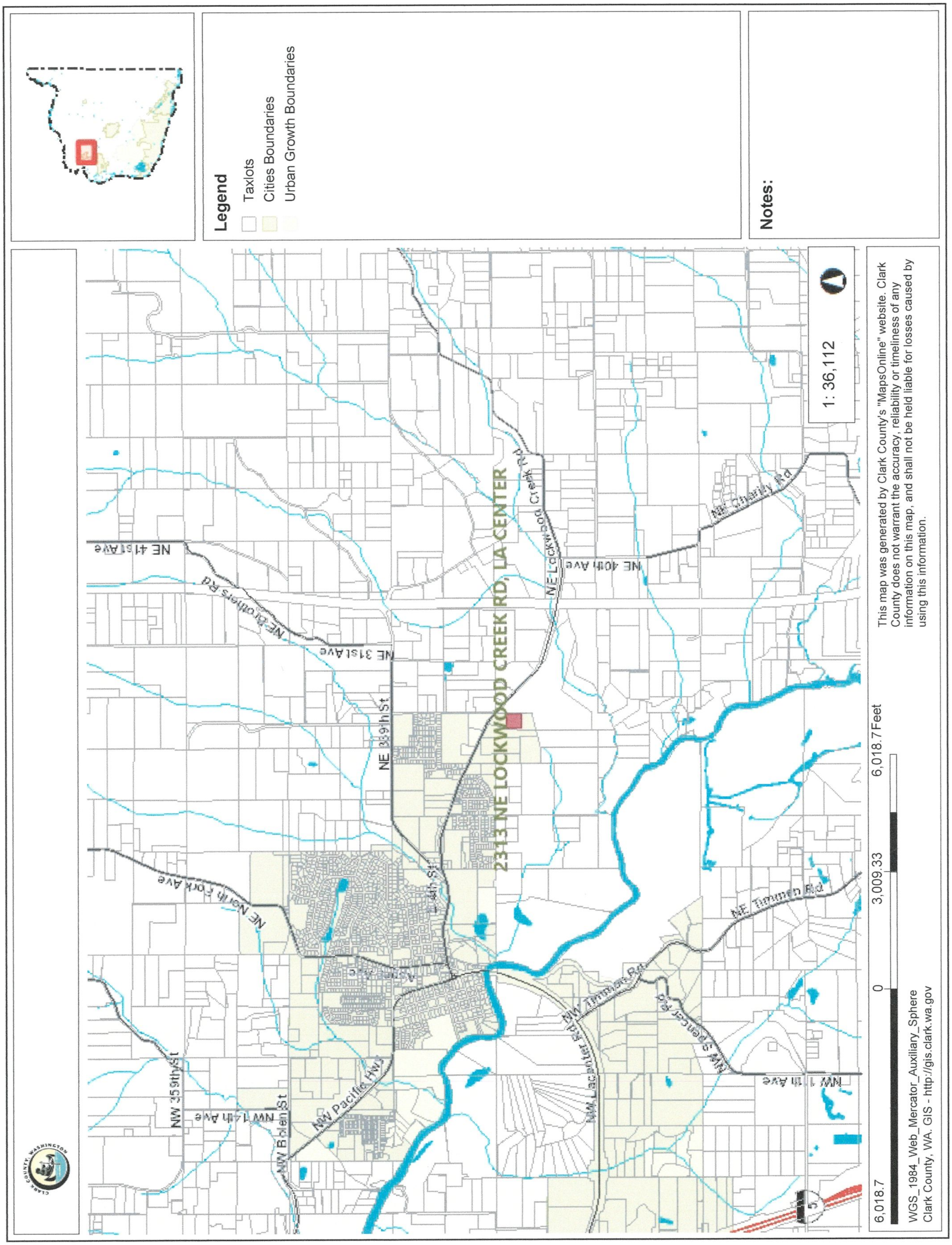

Legend
Taxlots
Cities Boundaries
Urban Growth Boundaries
Notes:
2313 NE LOCKWOOD CREEK RD, LA CENTER
NE 41st Ave
NE Brothers Rd
NE 31st Ave
NE 339th St
NE Lockwood Creek Rd
NE 40th Ave
NE Charity Rd
NE North Fork Ave
E 4th St
Aspen Ave
NW Pacific Hwy
NW 359th St
NW 14th Ave
NW Bolen St
NW Timmen Rd
NE Timmen Rd
NW Lacenter Rd
NW Spencer Rd
NW 11th Ave
1: 36,112
This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.
6,018.7 0 3,009.33 6,018.7Feet
WGS_1984_Web_Mercator_Auxiliary_Sphere
Clark County, WA. GIS - http://gis.clark.wa.gov

FIGURE 1a


Legend
Building Footprints
Taxlots
Cities Boundaries
Urban Growth Boundaries
Notes:
1: 4,514
752.3
0
376.17
752.3 Feet
WGS_1984_Web_Mercator_Auxiliary_Sphere
Clark County, WA. GIS - http://gis.clark.wa.gov
This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.

FIGURE 1b

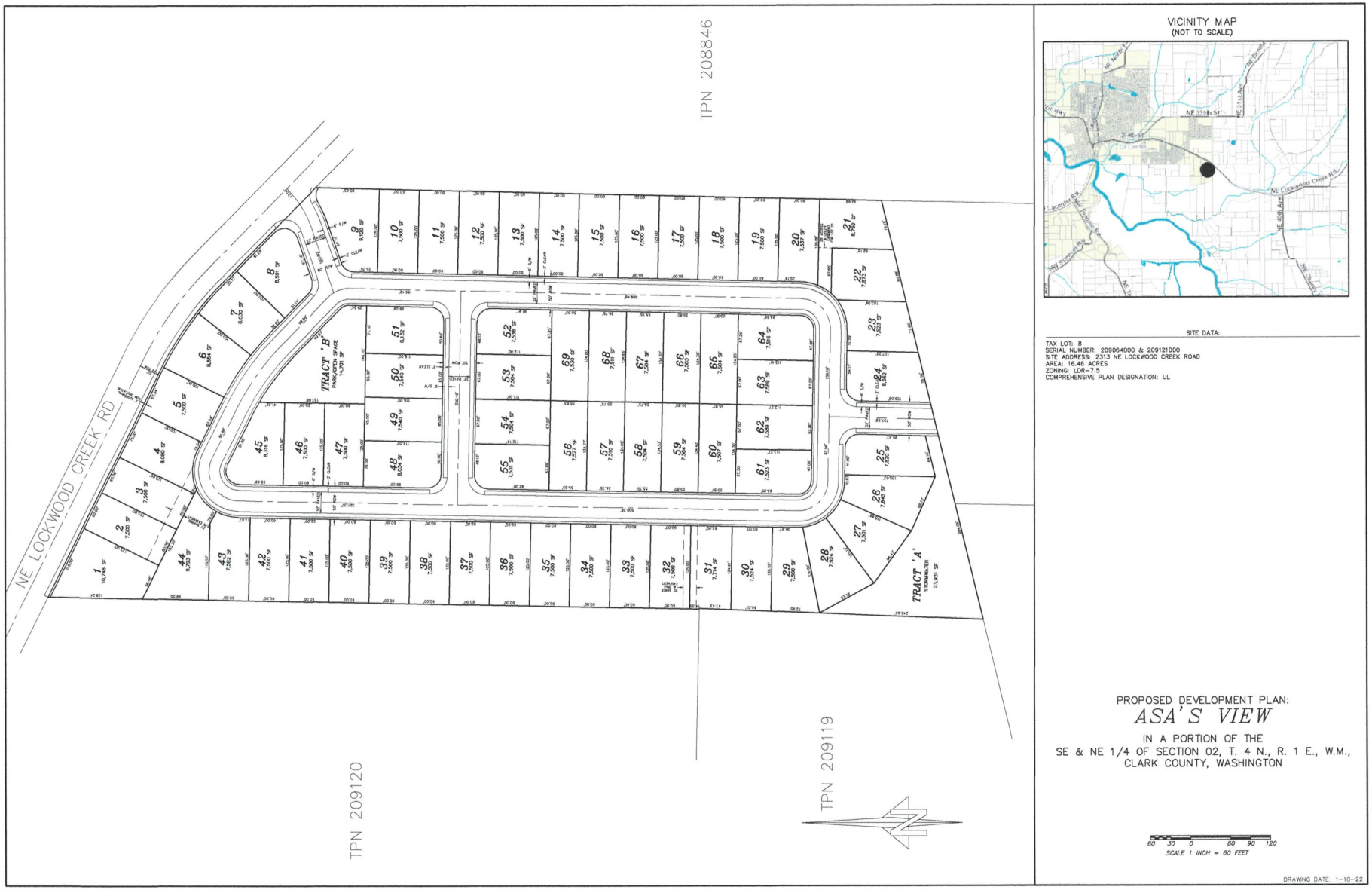
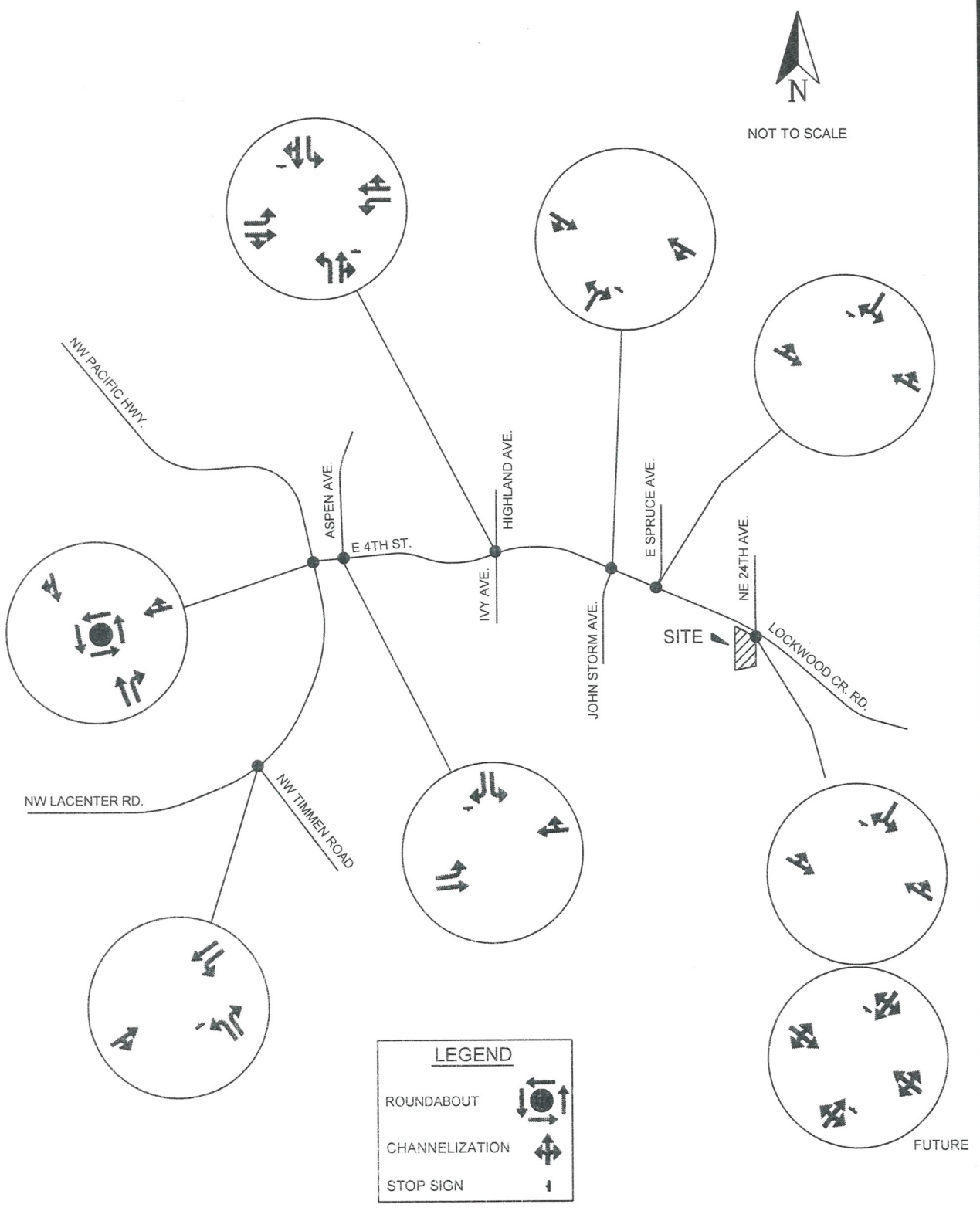

TPN 208846
NE LOCKWOOD CREEK RD
TRACT 'B'
PARK/OPEN SPACE
14,701 SF
TRACT 'A'
STORMWATER
23,831 SF
TPN 209120
TPN 209119
VICINITY MAP
(NOT TO SCALE)
NE 319th St
NE 314th Ave
NE Lockwood Creek Rd
NE 50th Ave
SITE DATA:
TAX LOT: 8
SERIAL NUMBER: 209064000 & 209121000
SITE ADDRESS: 2313 NE LOCKWOOD CREEK ROAD
AREA: 16.46 ACRES
ZONING: LDR-7.5
COMPREHENSIVE PLAN DESIGNATION: UL
PROPOSED DEVELOPMENT PLAN:
ASA'S VIEW
IN A PORTION OF THE
SE & NE 1/4 OF SECTION 02, T. 4 N., R. 1 E., W.M.,
CLARK COUNTY, WASHINGTON
60 30 0 60 90 120
SCALE 1 INCH = 60 FEET
DRAWING DATE: 1-10-22

FIGURE 1c



EXISTING CONDITIONS UNLESS NOTED

ASA'S VIEW SUBDIVISION

FIGURE 2
LANE CONFIGURATIONS

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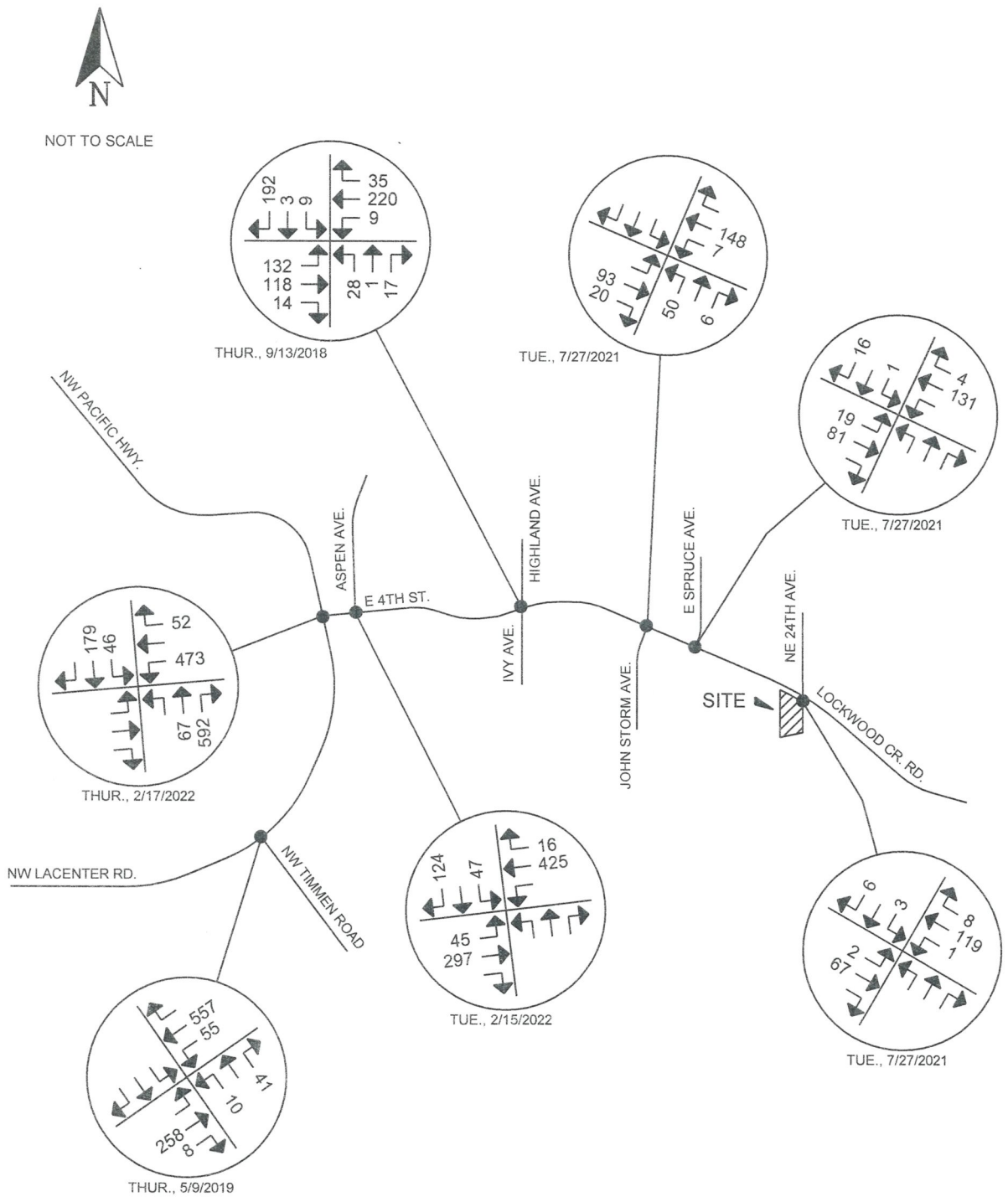

ASA'S VIEW SUBDIVISION

FIGURE 3a
EXISTING TRAFFIC VOLUMES
AM PEAK HOUR

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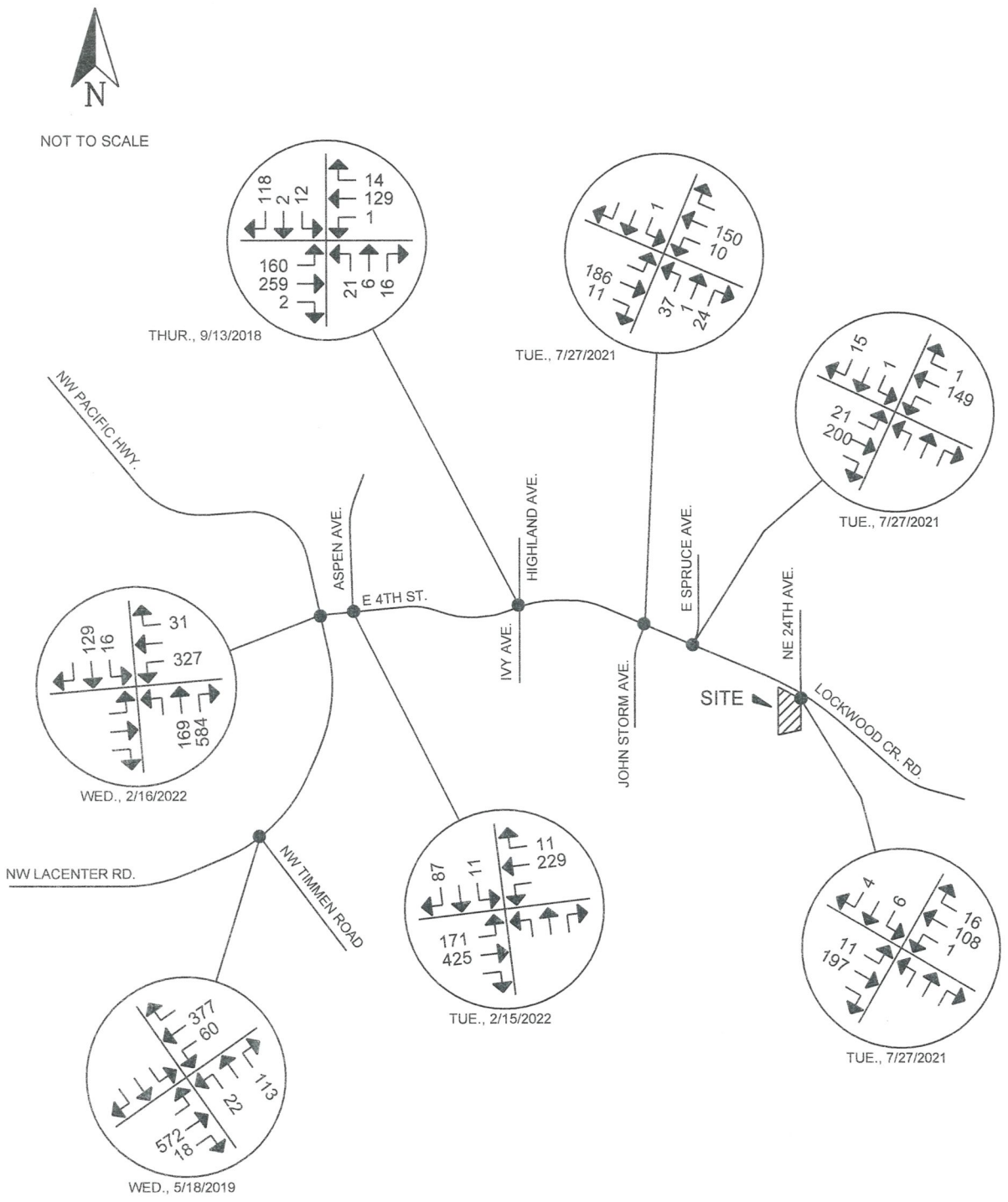
Phone: 360-433-7530



ASA'S VIEW SUBDIVISION

FIGURE 3b
EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

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Phone: 360-433-7530

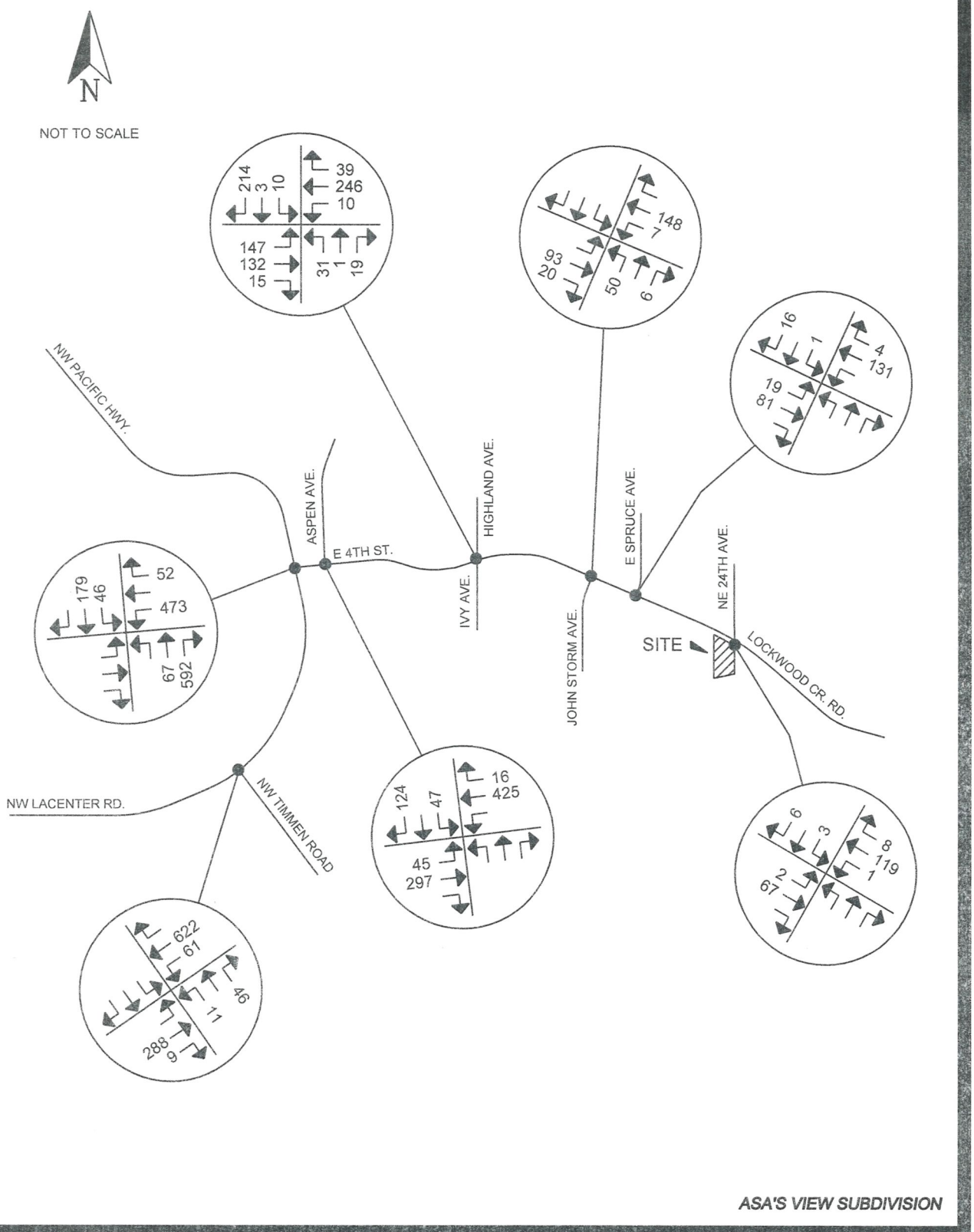
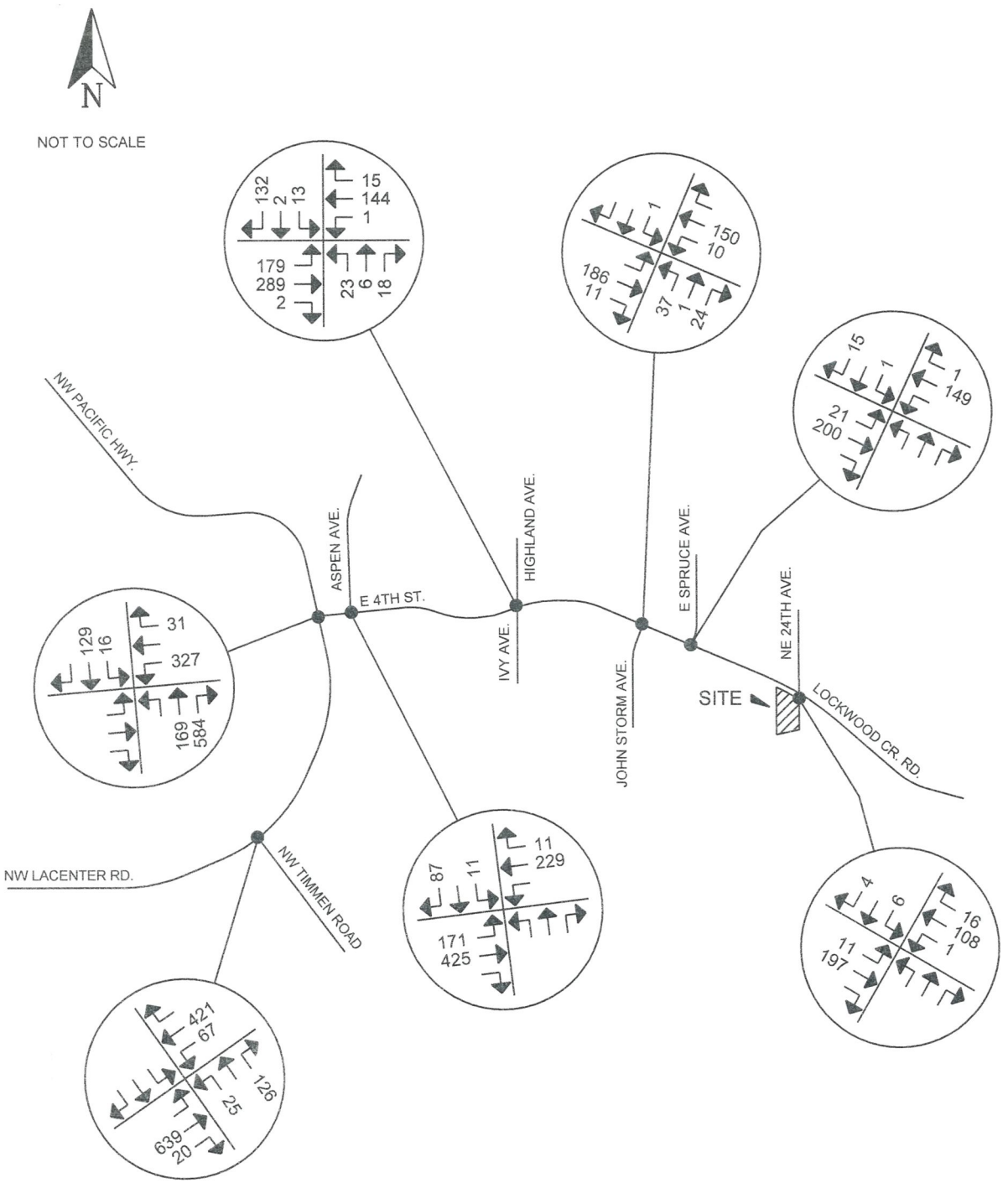


FIGURE 4a
ADJUSTED EXISTING TRAFFIC VOLUMES
AM PEAK HOUR

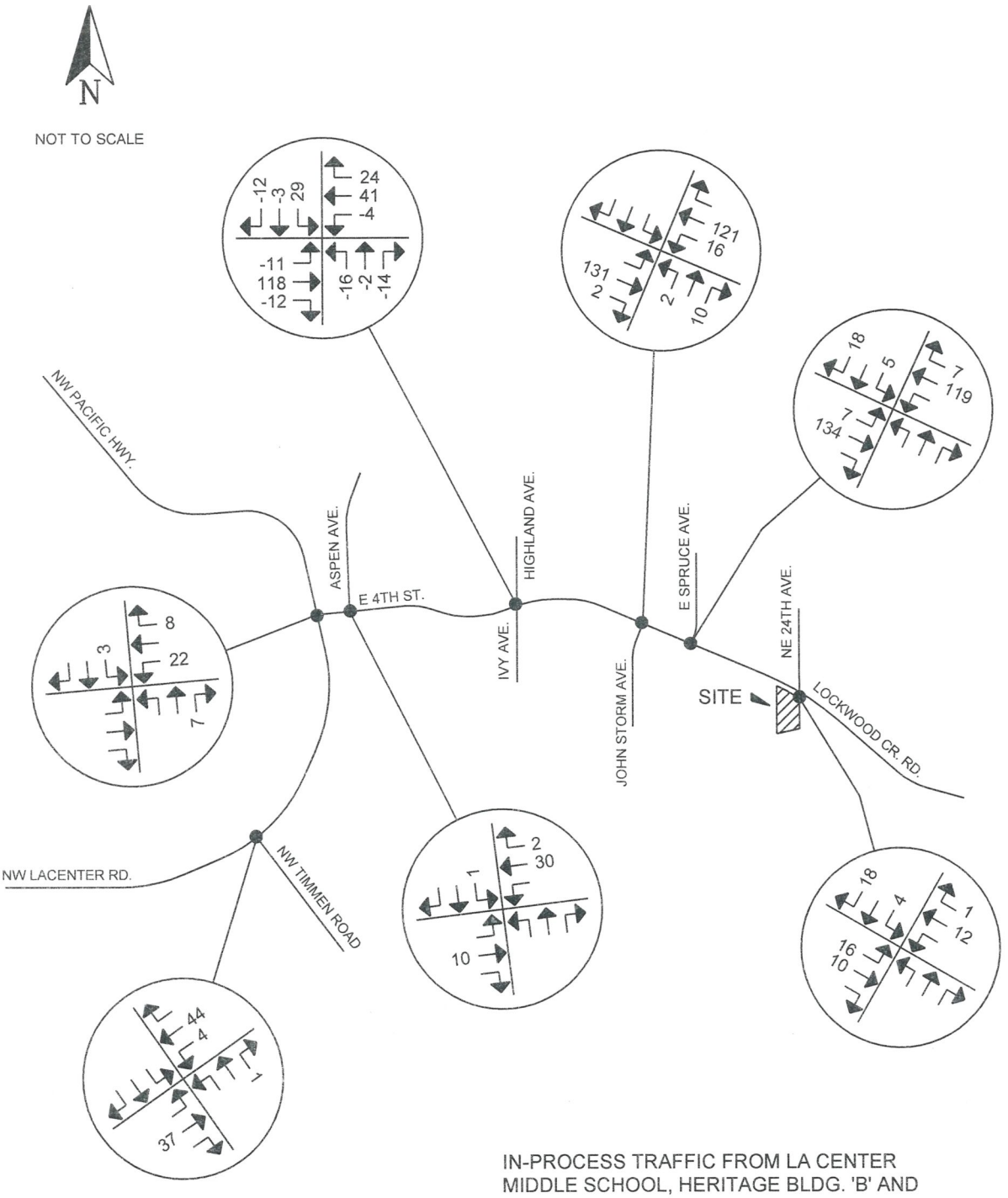
KELLY ENGINEERING
1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530



ASA'S VIEW SUBDIVISION

FIGURE 4b
ADJUSTED EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

KELLY ENGINEERING
1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530



IN-PROCESS TRAFFIC FROM LA CENTER MIDDLE SCHOOL, HERITAGE BLDG. 'B' AND MINIT MANAGEMENT SITES ADDED TO TRAFFIC COUNTS CONDUCTED PRIOR TO 2022.

ASA'S VIEW SUBDIVISION

FIGURE 5a
IN-PROCESS TRAFFIC
AM PEAK HOUR

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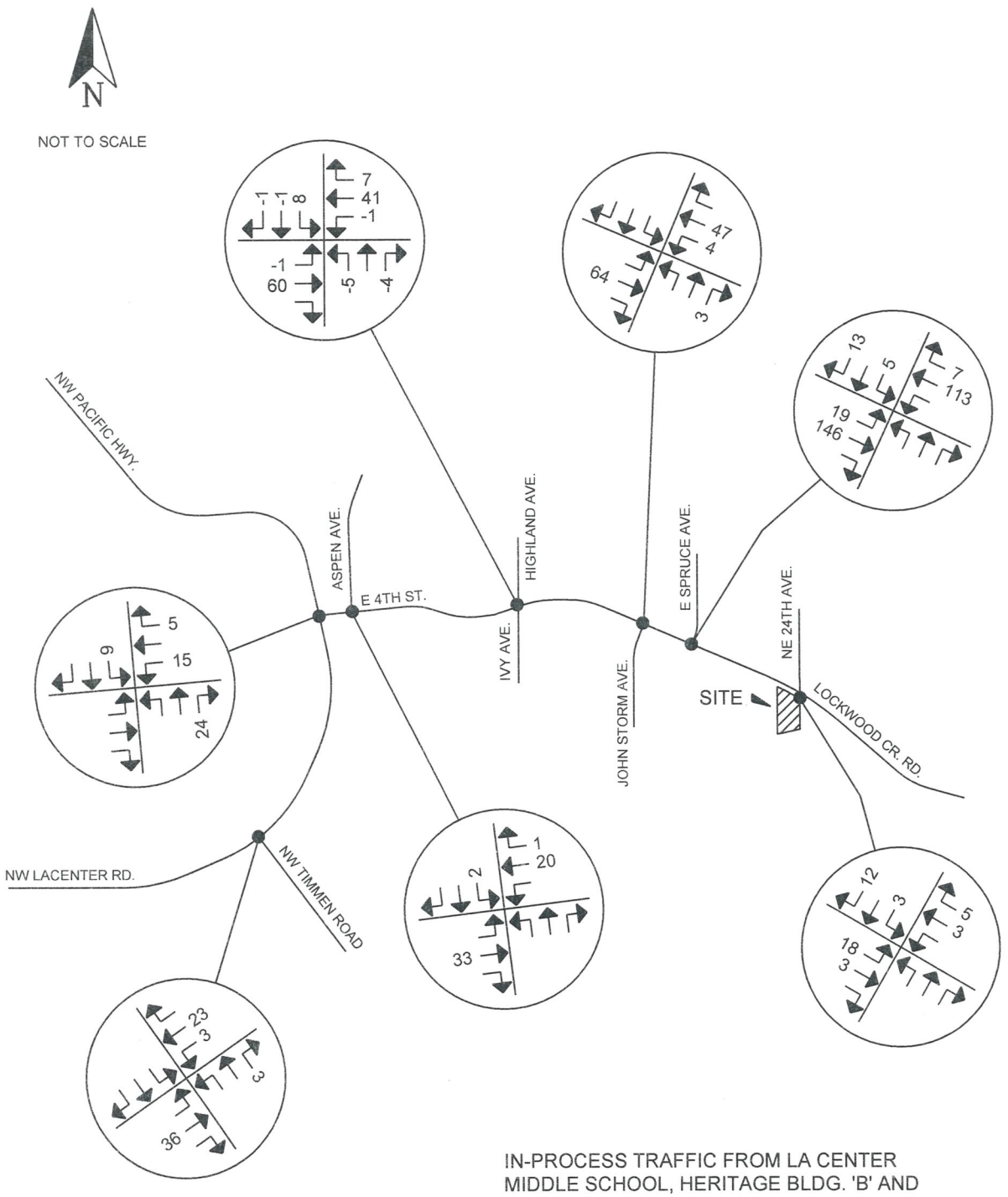

IN-PROCESS TRAFFIC FROM LA CENTER MIDDLE SCHOOL, HERITAGE BLDG. 'B' AND MINIT MANAGEMENT SITES ADDED TO TRAFFIC COUNTS CONDUCTED PRIOR TO 2022.

ASA'S VIEW SUBDIVISION

FIGURE 5b
IN-PROCESS TRAFFIC
PM PEAK HOUR

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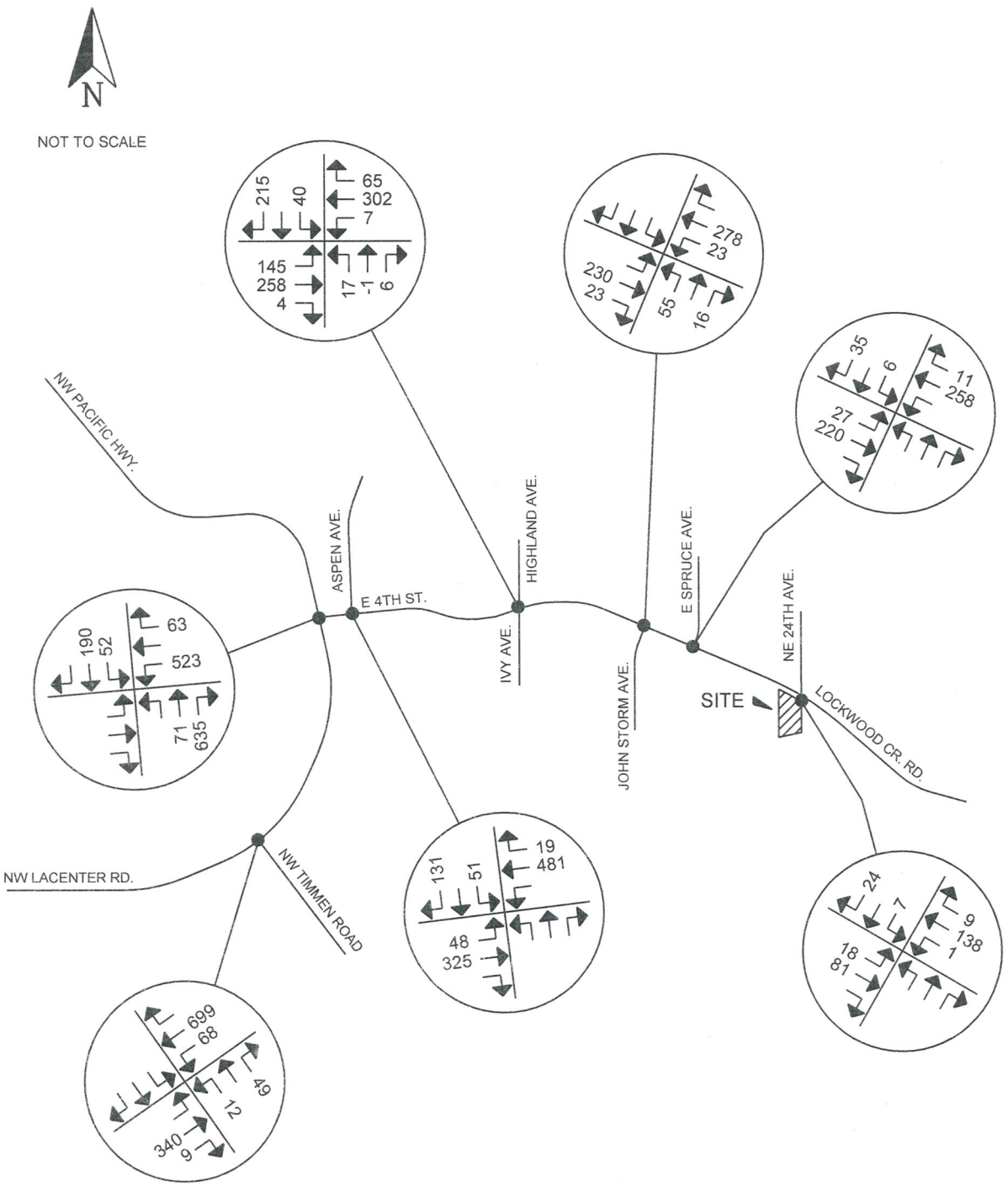
Phone: 360-433-7530



ASA'S VIEW SUBDIVISION

FIGURE 6a
YEAR 2025 TRAFFIC VOLUMES
W/O PROJECT, AM PEAK HOUR

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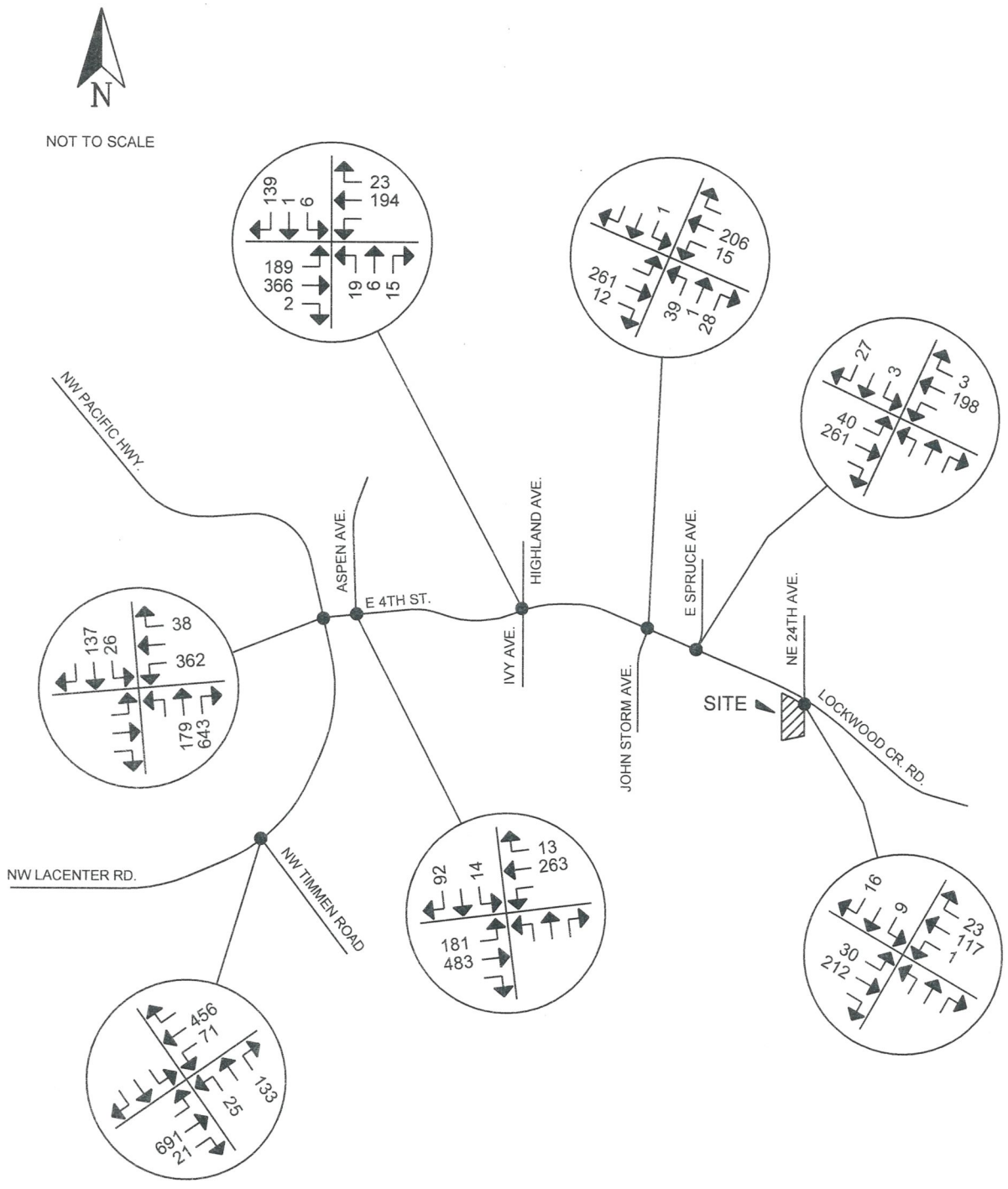
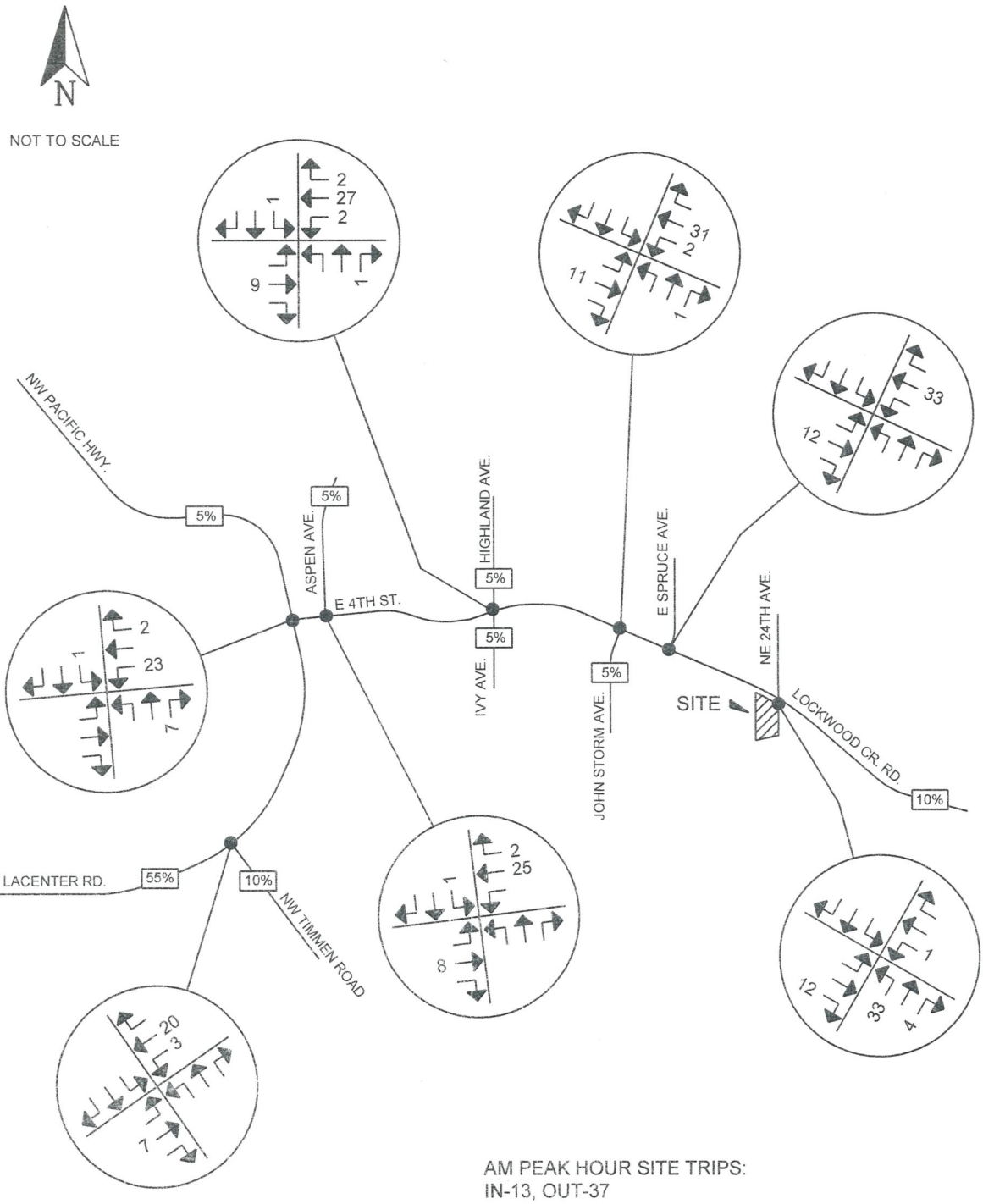


ASA'S VIEW SUBDIVISION

FIGURE 6b
YEAR 2025 TRAFFIC VOLUMES
W/O PROJECT, PM PEAK HOUR

KELLY ENGINEERING
1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530



ASA'S VIEW SUBDIVISION

FIGURE 7a
SITE TRAFFIC DISTRIBUTION/ASSIGNMENT
AM PEAK HOUR

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1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530

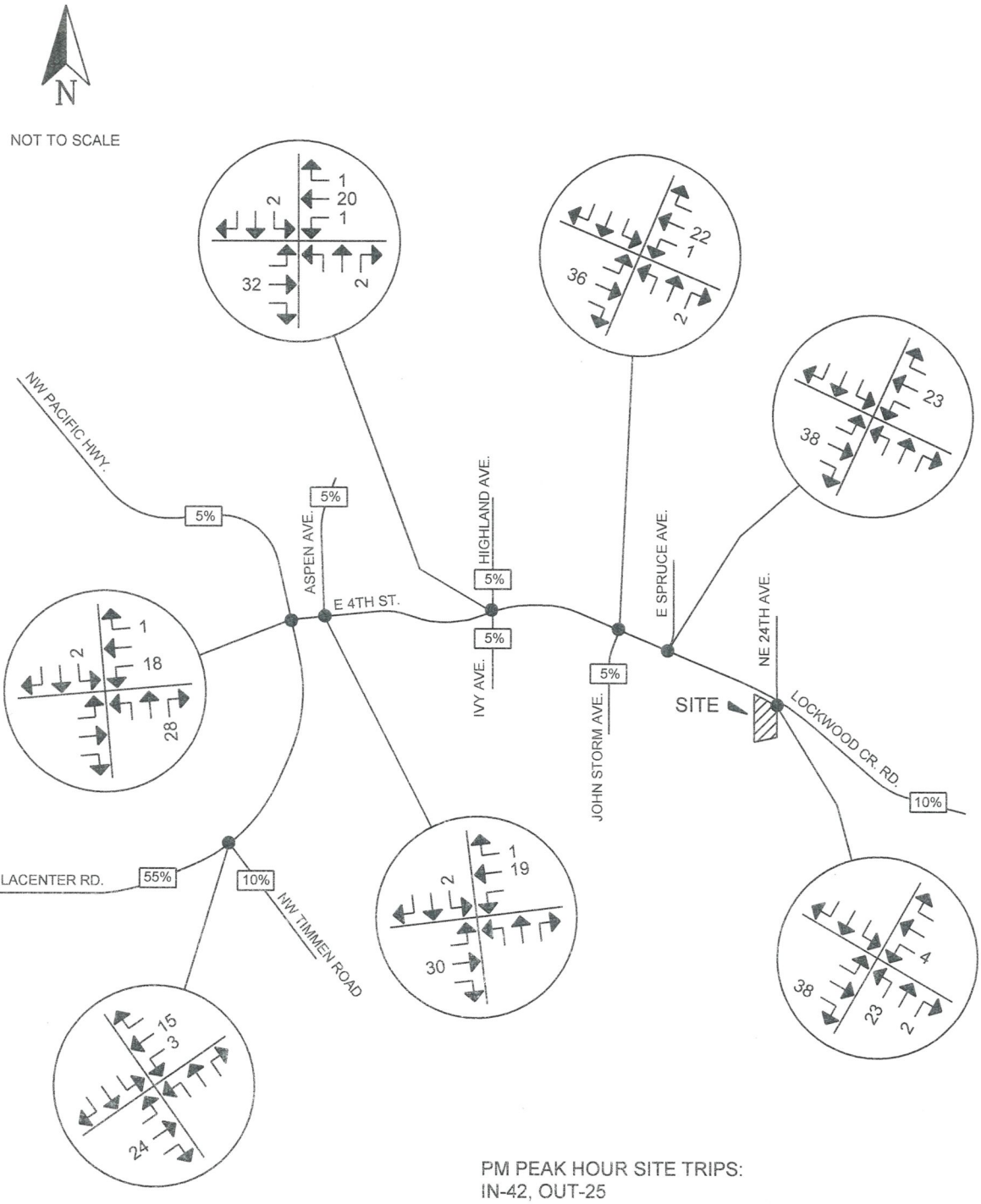

FIGURE 7b
SITE TRAFFIC DISTRIBUTION/ASSIGNMENT
PM PEAK HOUR

KELLY ENGINEERING
1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530

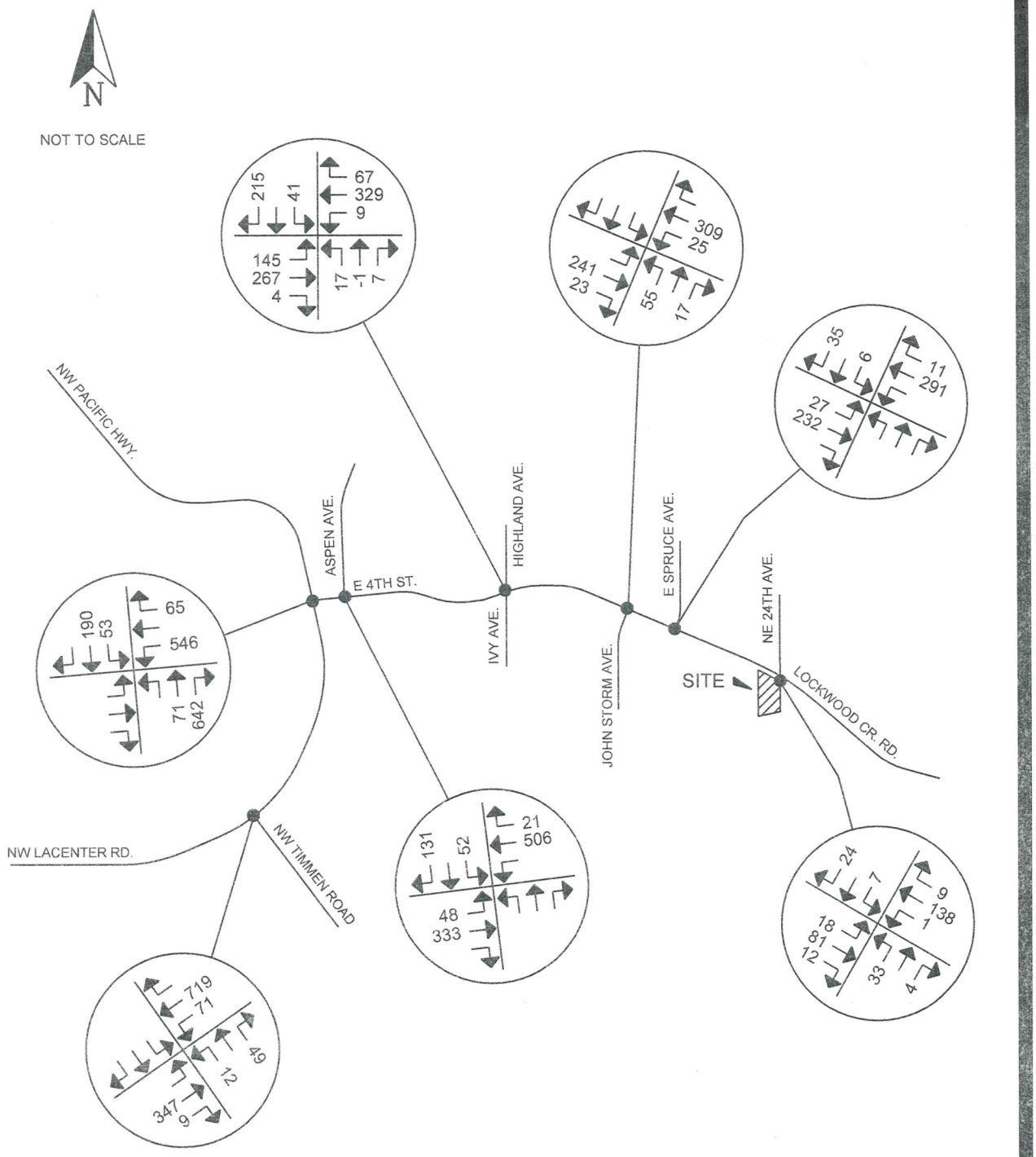

FIGURE 8a
YEAR 2025 TRAFFIC VOLUMES
WITH PROJECT, AM PEAK HOUR

KELLY ENGINEERING
1805 NE 94th St. No. 19, Vancouver, WA 98665
Phone: 360-433-7530

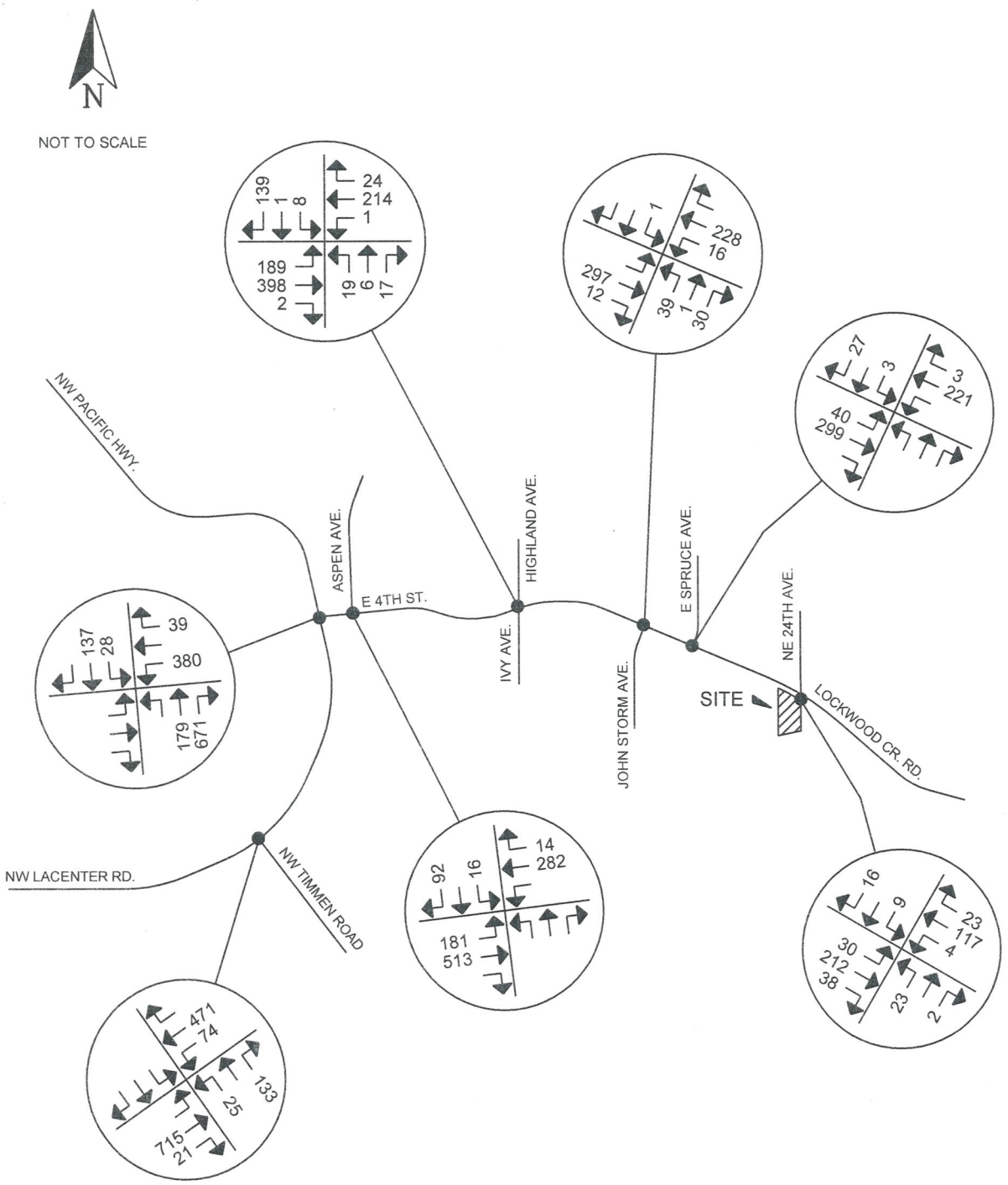

FIGURE 8b
YEAR 2025 TRAFFIC VOLUMES
WITH PROJECT, PM PEAK HOUR

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Phone: 360-433-7530

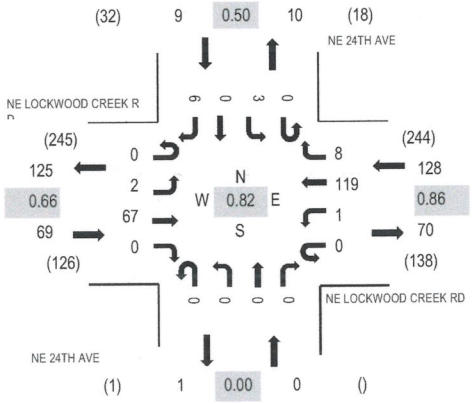
APPENDIX A
RAW TRAFFIC COUNT DATA

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

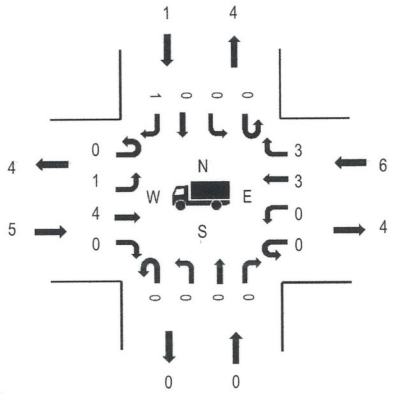
Location: 3 NE 24TH AVE & NE LOCKWOOD CREEK RD AM
Date: Tuesday, July 27, 2021
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:35 AM - 08:50 AM

Peak Hour

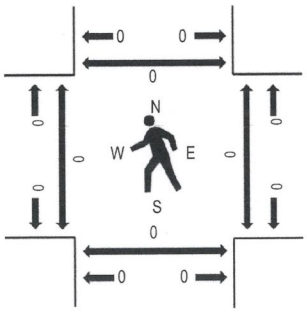
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	7.2%	0.66
WB	4.7%	0.86
NB	0.0%	0.00
SB	11.1%	0.50
All	5.8%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE 24TH AVE Northbound				NE 24TH AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	4	0	0	0	6	0	0	0	0	0	0	1	0	0	11	196
7:05 AM	0	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	9	200
7:10 AM	0	0	1	0	0	0	13	0	0	0	0	0	0	0	0	0	14	202
7:15 AM	0	1	6	0	0	0	6	0	0	0	0	0	0	0	0	1	14	202
7:20 AM	0	1	4	0	0	0	20	0	0	0	0	0	0	1	0	0	26	199
7:25 AM	0	1	6	0	0	0	7	0	0	0	0	0	0	1	0	1	16	197
7:30 AM	0	0	2	0	0	0	9	1	0	0	0	0	0	3	0	2	17	203
7:35 AM	0	0	12	0	0	0	11	0	0	0	0	0	0	3	0	1	27	197
7:40 AM	0	0	2	0	0	0	8	0	0	0	0	0	0	2	0	1	13	190
7:45 AM	0	1	4	0	0	0	10	1	0	0	0	0	0	3	0	0	19	195
7:50 AM	0	0	3	0	0	0	10	0	0	0	0	0	0	0	0	1	14	201
7:55 AM	0	1	5	0	0	0	7	1	0	0	0	0	0	2	0	0	16	202
8:00 AM	0	0	5	0	0	0	9	0	0	0	0	0	0	0	0	1	15	206
8:05 AM	0	0	3	0	0	0	7	1	0	0	0	0	0	0	0	0	11	
8:10 AM	0	0	3	0	0	0	10	1	0	0	0	0	0	0	0	0	14	
8:15 AM	0	0	2	0	0	1	6	0	0	0	0	0	0	0	0	2	11	
8:20 AM	0	1	6	0	0	0	16	1	0	0	0	0	0	0	0	0	24	
8:25 AM	0	0	7	0	0	0	12	1	0	0	0	0	0	0	0	2	22	
8:30 AM	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0	11	
8:35 AM	0	0	10	0	0	0	9	1	0	0	0	0	0	0	0	0	20	
8:40 AM	0	1	6	0	0	0	11	0	0	0	0	0	0	0	0	0	18	
8:45 AM	0	0	9	0	0	0	13	1	0	0	0	0	0	2	0	0	25	
8:50 AM	0	0	4	0	0	0	9	1	0	0	0	0	0	1	0	0	15	
8:55 AM	0	0	7	0	0	0	11	1	0	0	0	0	0	0	0	1	20	
Count Total	0	7	119	0	0	1	232	11	0	0	0	0	0	19	0	13	402	
Peak Hour	0	2	67	0	0	1	119	8	0	0	0	0	0	3	0	6	206	

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

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	2	0	2	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	1	0	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	1	0	0	0	1	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	1	0	1	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	1	0	1	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	1	0	0	0	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	2	0	2	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	1	0	1	0	2	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	1	0	0	0	1	8:40 AM	1	0	0	0	1	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	1	0	2	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	7	0	9	1	17	Count Total	1	0	0	0	1	Count Total	0	0	0	0	0
Peak Hour	5	0	6	1	12	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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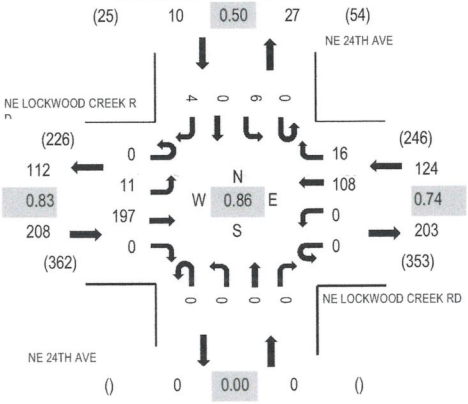
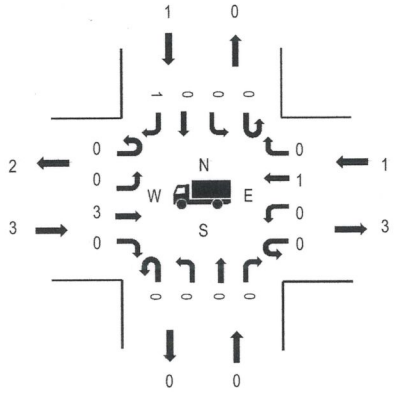
Location: 3 NE 24TH AVE & NE LOCKWOOD CREEK RD PM
Date: Tuesday, July 27, 2021
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour

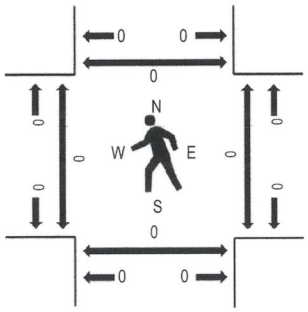
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.83
WB	0.8%	0.74
NB	0.0%	0.00
SB	10.0%	0.50
All	1.5%	0.86

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE 24TH AVE Northbound				NE 24TH AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	14	0	0	0	11	1	0	0	0	0	0	0	0	0	28	313
4:05 PM	0	2	10	0	0	0	10	1	0	0	0	0	0	1	0	0	24	316
4:10 PM	0	0	11	0	0	0	15	1	0	0	0	0	0	0	0	0	27	316
4:15 PM	0	0	12	0	0	0	4	0	0	0	0	0	0	1	0	0	17	308
4:20 PM	0	1	11	0	0	0	9	1	0	0	0	0	0	0	0	0	22	322
4:25 PM	0	0	12	0	0	0	6	2	0	0	0	0	0	0	0	0	20	334
4:30 PM	0	0	22	0	0	0	5	1	0	0	0	0	0	0	0	1	29	342
4:35 PM	0	0	19	0	0	0	15	2	0	0	0	0	0	1	0	0	37	335
4:40 PM	0	0	15	0	0	0	12	3	0	0	0	0	0	0	0	1	31	329
4:45 PM	0	0	19	0	0	0	9	2	0	0	0	0	0	0	0	1	31	328
4:50 PM	0	1	17	0	0	0	8	2	0	0	0	0	0	1	0	0	29	319
4:55 PM	0	3	6	0	0	0	6	1	0	0	0	0	0	1	0	1	18	317
5:00 PM	0	0	19	0	0	0	9	2	0	0	0	0	0	1	0	0	31	320
5:05 PM	0	0	12	0	0	0	11	0	0	0	0	0	0	1	0	0	24	
5:10 PM	0	1	11	0	0	0	6	0	0	0	0	0	0	1	0	0	19	
5:15 PM	0	3	20	0	0	0	8	0	0	0	0	0	0	0	0	0	31	
5:20 PM	0	1	20	0	0	0	10	3	0	0	0	0	0	0	0	0	34	
5:25 PM	0	2	17	0	0	0	9	0	0	0	0	0	0	0	0	0	28	
5:30 PM	0	1	11	0	0	0	6	1	0	0	0	0	0	2	0	1	22	
5:35 PM	0	2	15	0	0	0	14	0	0	0	0	0	0	0	0	0	31	
5:40 PM	0	1	12	0	0	0	10	2	0	0	0	0	0	1	0	4	30	
5:45 PM	0	3	9	0	0	0	5	1	0	0	0	0	0	4	0	0	22	
5:50 PM	0	1	13	0	0	0	11	2	0	0	0	0	0	0	0	0	27	
5:55 PM	0	0	11	0	0	0	7	2	0	0	0	0	0	0	0	1	21	
Count Total	0	24	338	0	0	0	216	30	0	0	0	0	0	15	0	10	633	
Peak Hour	0	11	197	0	0	0	108	16	0	0	0	0	0	6	0	4	342	

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

Interval	Heavy Vehicles					Interval	Bicycles on Roadway					Interval	Pedestrians/Bicycles on Crosswalk				
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	0	0	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	4	0	1	1	6	Count Total	1	0	0	0	1	Count Total	0	0	0	0	0
Peak Hour	3	0	1	1	5	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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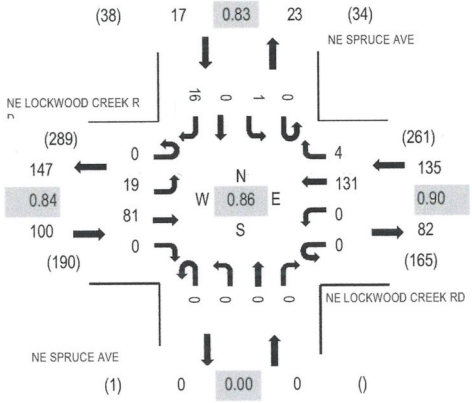
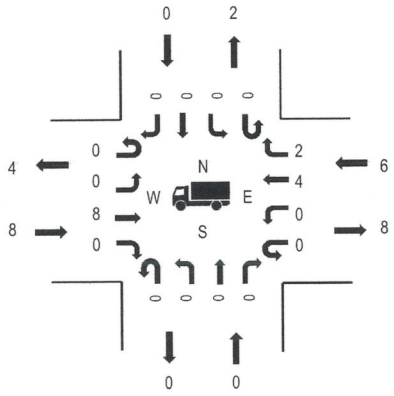
Location: 2 NE SPRUCE AVE & NE LOCKWOOD CREEK RD AM
Date: Tuesday, July 27, 2021
Peak Hour: 07:10 AM - 08:10 AM
Peak 15-Minutes: 07:50 AM - 08:05 AM

Peak Hour

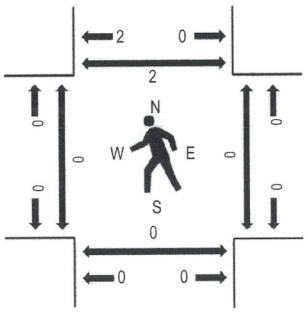
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	8.0%	0.84
WB	4.4%	0.90
NB	0.0%	0.00
SB	0.0%	0.83
All	5.6%	0.86

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE SPRUCE AVE Northbound				NE SPRUCE AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	3	11	0	0	0	7	0	0	0	0	0	0	0	0	3	24	249
7:05 AM	0	1	6	0	0	1	3	0	0	0	0	0	0	0	0	2	13	251
7:10 AM	0	4	4	0	0	0	11	0	0	0	0	0	0	0	0	1	20	252
7:15 AM	0	0	6	0	0	0	10	0	0	0	0	0	0	0	0	2	18	250
7:20 AM	0	2	5	0	0	0	13	0	0	0	0	0	0	0	0	1	21	247
7:25 AM	0	0	4	0	0	0	18	0	0	0	0	0	0	0	0	1	23	244
7:30 AM	0	0	8	0	0	0	7	0	0	0	0	0	0	1	0	2	18	246
7:35 AM	0	2	13	0	0	0	13	0	0	0	0	0	0	0	0	1	29	249
7:40 AM	0	1	6	0	0	0	10	0	0	0	0	0	0	0	0	1	18	238
7:45 AM	0	3	4	0	0	0	9	0	0	0	0	0	0	0	0	2	18	241
7:50 AM	0	2	6	0	0	0	12	2	0	0	0	0	0	0	0	1	23	243
7:55 AM	0	2	11	0	0	0	7	2	0	0	0	0	0	0	0	2	24	241
8:00 AM	0	2	8	0	0	0	15	0	0	0	0	0	0	0	0	1	26	240
8:05 AM	0	1	6	0	0	0	6	0	0	0	0	0	0	0	0	1	14	
8:10 AM	0	2	3	0	0	0	11	0	0	0	0	0	0	0	0	2	18	
8:15 AM	0	1	2	0	0	0	11	1	0	0	0	0	0	0	0	0	15	
8:20 AM	0	0	6	0	0	0	10	0	0	0	0	0	0	0	0	2	18	
8:25 AM	0	0	8	0	0	0	13	0	0	0	0	0	0	1	0	3	25	
8:30 AM	0	0	8	0	0	0	13	0	0	0	0	0	0	0	0	0	21	
8:35 AM	0	1	9	0	0	0	7	0	0	0	0	0	0	0	0	1	18	
8:40 AM	0	0	8	0	0	0	12	0	0	0	0	0	0	0	0	1	21	
8:45 AM	0	0	9	0	0	0	10	0	0	0	0	0	0	0	0	1	20	
8:50 AM	0	0	5	0	0	0	14	0	0	0	0	0	0	0	0	2	21	
8:55 AM	0	0	7	0	0	0	11	2	0	0	0	0	0	0	0	3	23	
Count Total	0	27	163	0	0	1	253	7	0	0	0	0	0	2	0	36	489	
Peak Hour	0	19	81	0	0	0	131	4	0	0	0	0	0	1	0	16	252	

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

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	1	0	1
7:05 AM	0	0	1	0	1	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	0	1	0	2	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	0	0	1	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	1	0	1	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	0	1	0	2	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	2	0	0	0	2	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	1	0	1	0	2	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	1	0	1	0	2	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	2	2
8:00 AM	1	0	1	0	2	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	1	0	1	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	2	0	2	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	1	0	0	0	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	1	0	1	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	2	0	1	0	3	8:35 AM	0	0	0	0	0	8:35 AM	2	0	0	2	4
8:40 AM	2	0	1	0	3	8:40 AM	1	0	0	0	1	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	1	1	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	15	0	13	1	29	Count Total	1	0	0	0	1	Count Total	2	0	1	4	7
Peak Hour	8	0	6	0	14	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	2	2

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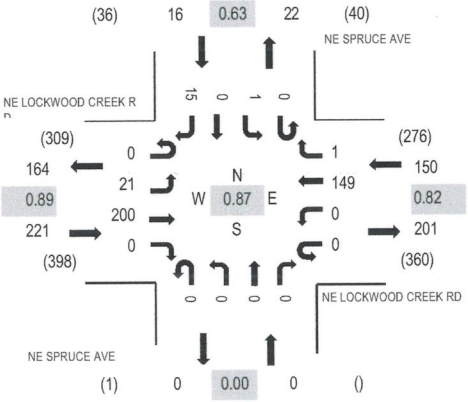
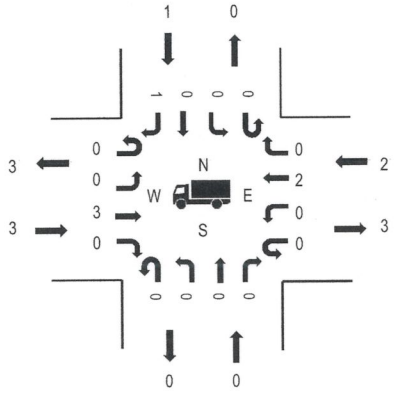
Location: 2 NE SPRUCE AVE & NE LOCKWOOD CREEK RD PM
Date: Tuesday, July 27, 2021
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour

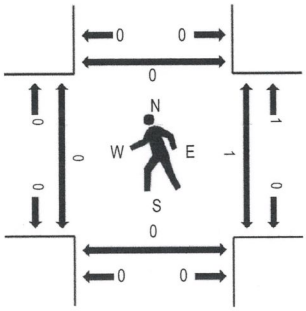
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.89
WB	1.3%	0.82
NB	0.0%	0.00
SB	6.3%	0.63
All	1.6%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE SPRUCE AVE Northbound				NE SPRUCE AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	3	14	0	0	0	10	0	0	0	0	0	0	0	0	0	27	355
4:05 PM	0	2	10	0	0	0	8	0	0	0	0	0	0	0	0	3	23	361
4:10 PM	0	1	15	0	0	0	18	0	0	0	0	0	0	0	0	0	34	369
4:15 PM	0	0	15	0	0	0	8	0	0	0	0	0	0	0	0	3	26	360
4:20 PM	0	1	13	0	0	0	8	0	0	0	0	0	0	0	0	3	25	367
4:25 PM	0	1	7	0	0	0	11	0	0	0	0	0	0	0	0	4	23	380
4:30 PM	0	2	22	0	0	0	10	0	0	0	0	0	0	0	0	1	35	387
4:35 PM	0	1	18	0	0	0	25	0	0	0	0	0	0	0	0	2	46	380
4:40 PM	0	0	16	0	0	0	10	1	0	0	0	0	0	0	0	3	30	363
4:45 PM	0	3	13	0	0	0	10	0	0	0	0	0	0	0	0	3	29	359
4:50 PM	0	3	21	0	0	0	13	0	0	0	0	0	0	0	0	1	38	360
4:55 PM	0	1	10	0	0	0	8	0	0	0	0	0	0	0	0	0	19	350
5:00 PM	0	3	19	0	0	0	9	0	0	0	0	0	0	0	0	2	33	355
5:05 PM	0	2	11	0	0	0	17	0	0	0	0	0	0	1	0	0	31	
5:10 PM	0	3	11	0	0	0	10	0	0	0	0	0	0	0	0	1	25	
5:15 PM	0	1	21	0	0	0	11	0	0	0	0	0	0	0	0	0	33	
5:20 PM	0	2	24	0	0	0	11	0	0	0	0	0	0	0	0	1	38	
5:25 PM	0	0	14	0	0	0	15	0	0	0	0	0	0	0	0	1	30	
5:30 PM	0	0	18	0	0	0	7	0	0	0	0	0	0	0	0	3	28	
5:35 PM	0	0	16	1	0	0	11	0	0	0	0	0	0	0	0	1	29	
5:40 PM	0	0	10	0	0	0	15	0	0	0	0	0	0	1	0	0	26	
5:45 PM	0	5	11	0	0	0	13	0	0	0	0	0	0	0	0	1	30	
5:50 PM	0	3	15	0	0	0	10	0	0	0	0	0	0	0	0	0	28	
5:55 PM	0	2	14	0	0	0	7	0	0	0	0	0	0	0	0	1	24	
Count Total	0	39	358	1	0	0	275	1	0	0	0	0	0	2	0	34	710	
Peak Hour	0	21	200	0	0	0	149	1	0	0	0	0	0	1	0	15	387	

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

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0	4:10 PM	1	0	0	0	1
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	2	2	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	0	1
4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	4	0	2	3	9	Count Total	1	0	0	0	1	Count Total	1	0	1	0	2
Peak Hour	3	0	2	1	6	Peak Hour	1	0	0	0	1	Peak Hour	0	0	1	0	1

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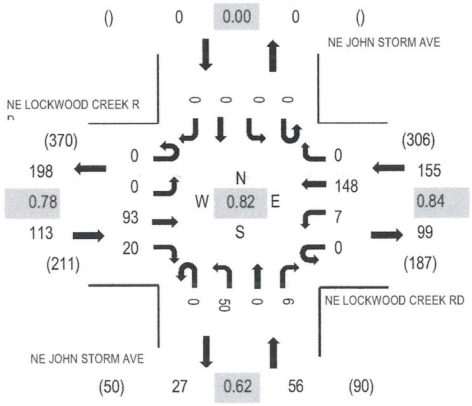
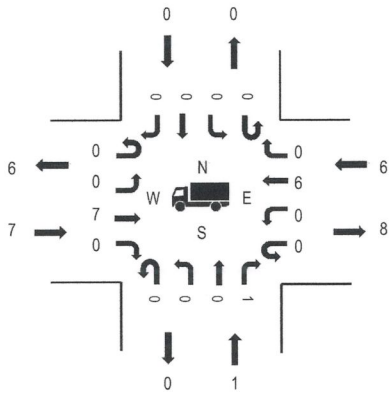
Location: 1 NE JOHN STORM AVE & NE LOCKWOOD CREEK RD AM
Date: Tuesday, July 27, 2021
Peak Hour: 07:10 AM - 08:10 AM
Peak 15-Minutes: 07:25 AM - 07:40 AM

Peak Hour

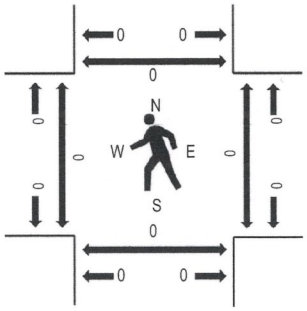
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	6.2%	0.78
WB	3.9%	0.84
NB	1.8%	0.62
SB	0.0%	0.00
All	4.3%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE JOHN STORM AVE Northbound				NE JOHN STORM AVE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	12	4	0	0	8	0	0	1	0	1	0	0	0	0	26	319
7:05 AM	0	0	6	0	0	0	8	0	0	2	0	0	0	0	0	0	16	314
7:10 AM	0	0	6	2	0	1	12	0	0	1	0	0	0	0	0	0	22	324
7:15 AM	0	0	8	5	0	0	10	0	0	3	0	0	0	0	0	0	26	324
7:20 AM	0	0	4	0	0	0	21	0	0	3	0	1	0	0	0	0	29	315
7:25 AM	0	0	7	3	0	0	11	0	0	4	0	1	0	0	0	0	26	314
7:30 AM	0	0	8	1	0	1	17	0	0	6	0	0	0	0	0	0	33	319
7:35 AM	0	0	15	4	0	1	13	0	0	7	0	0	0	0	0	0	40	304
7:40 AM	0	0	3	0	0	1	10	0	0	10	0	0	0	0	0	0	24	290
7:45 AM	0	0	10	0	0	1	10	0	0	3	0	2	0	0	0	0	26	290
7:50 AM	0	0	9	1	0	0	10	0	0	2	0	0	0	0	0	0	22	289
7:55 AM	0	0	8	2	0	0	14	0	0	3	0	2	0	0	0	0	29	288
8:00 AM	0	0	7	0	0	2	8	0	0	4	0	0	0	0	0	0	21	288
8:05 AM	0	0	8	2	0	0	12	0	0	4	0	0	0	0	0	0	26	
8:10 AM	0	0	5	2	0	0	13	0	0	2	0	0	0	0	0	0	22	
8:15 AM	0	0	2	0	0	0	12	0	0	3	0	0	0	0	0	0	17	
8:20 AM	0	0	8	1	0	0	17	0	0	1	0	1	0	0	0	0	28	
8:25 AM	0	0	7	1	0	1	18	0	0	4	0	0	0	0	0	0	31	
8:30 AM	0	0	6	2	0	0	8	0	0	2	0	0	0	0	0	0	18	
8:35 AM	0	0	13	0	0	2	10	0	0	0	0	1	0	0	0	0	26	
8:40 AM	0	0	2	0	0	0	14	0	0	5	0	3	0	0	0	0	24	
8:45 AM	0	0	5	2	0	1	15	0	0	2	0	0	0	0	0	0	25	
8:50 AM	0	0	8	2	0	0	10	0	0	0	0	1	0	0	0	0	21	
8:55 AM	0	0	6	4	0	1	13	0	0	4	0	1	0	0	0	0	29	
Count Total	0	0	173	38	0	12	294	0	0	76	0	14	0	0	0	0	607	
Peak Hour	0	0	93	20	0	7	148	0	0	50	0	6	0	0	0	0	324	

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

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:05 AM	1	0	2	0	3	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	1	0	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	0	1	0	2	7:30 AM	0	0	0	0	0	7:30 AM	0	1	0	0	1
7:35 AM	2	0	1	0	3	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	1	0	0	1
7:45 AM	0	1	0	0	1	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	2	0	0	0	2	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	1	0	1	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	1	0	1	0	2	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	1	0	1	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	1	0	1	0	2	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	1	0	0	0	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	2	0	2	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	2	1	1	0	4	8:35 AM	1	0	0	0	1	8:35 AM	0	2	0	0	2
8:40 AM	0	0	1	0	1	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	1	0	0	1
Count Total	14	2	13	0	29	Count Total	1	0	0	0	1	Count Total	0	6	0	0	6
Peak Hour	7	1	6	0	14	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	0	2

ALL TRAFFIC DATA SERVICES
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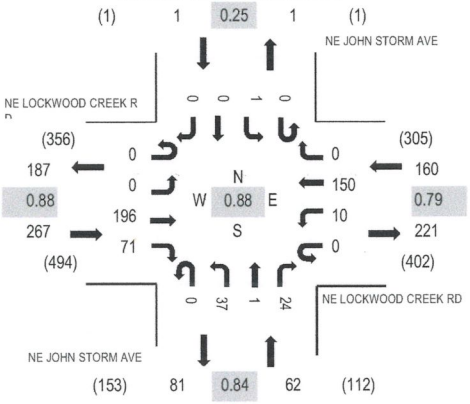
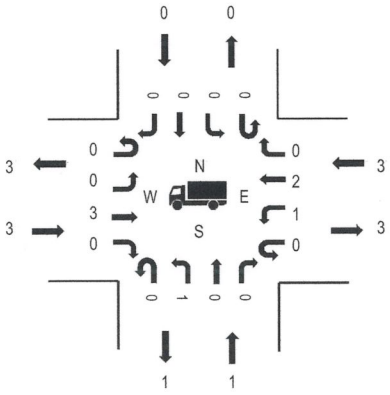
Location: 1 NE JOHN STORM AVE & NE LOCKWOOD CREEK RD PM
Date: Tuesday, July 27, 2021
Peak Hour: 04:25 PM - 05:25 PM
Peak 15-Minutes: 04:25 PM - 04:40 PM

Peak Hour

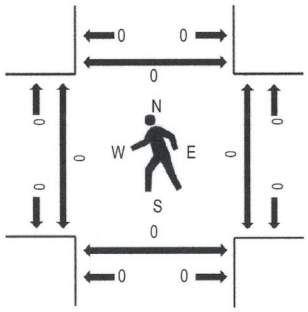
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.1%	0.88
WB	1.9%	0.79
NB	1.6%	0.84
SB	0.0%	0.25
All	1.4%	0.88

Traffic Counts - Motorized Vehicles

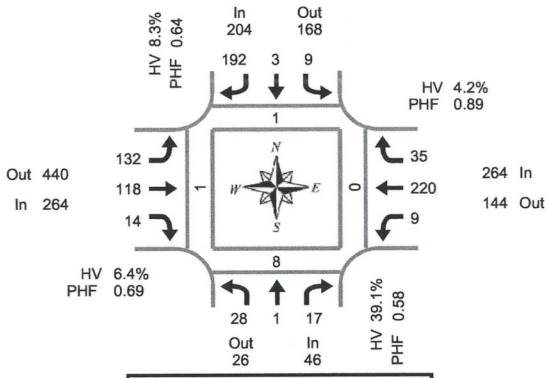
Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE JOHN STORM AVE Northbound				NE JOHN STORM AVE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	13	5	0	0	9	0	0	5	0	2	0	0	0	0	34	474
4:05 PM	0	0	11	4	0	1	16	0	0	2	0	2	0	0	0	0	36	474
4:10 PM	0	0	14	10	0	2	15	0	0	4	0	1	0	0	0	0	46	477
4:15 PM	0	0	13	5	0	0	7	0	0	4	0	1	0	0	0	0	30	467
4:20 PM	0	0	10	7	0	0	12	0	0	3	0	0	0	0	0	0	32	480
4:25 PM	0	0	12	9	0	1	11	0	0	5	0	4	0	0	0	0	42	490
4:30 PM	0	0	19	5	0	0	16	0	0	4	0	1	0	0	0	0	45	485
4:35 PM	0	0	18	6	0	3	18	0	0	3	0	4	0	0	0	0	52	474
4:40 PM	0	0	13	5	0	1	13	0	0	8	0	2	0	0	0	0	42	458
4:45 PM	0	0	19	5	0	2	13	0	0	1	0	2	0	0	0	0	42	456
4:50 PM	0	0	16	7	0	0	8	0	0	3	0	1	0	0	0	0	35	452
4:55 PM	0	0	12	6	0	0	8	0	0	6	0	6	0	0	0	0	38	448
5:00 PM	0	0	17	5	0	2	10	0	0	0	0	0	0	0	0	0	34	438
5:05 PM	0	0	12	5	0	1	18	0	0	1	0	2	0	0	0	0	39	
5:10 PM	0	0	18	6	0	0	8	0	0	2	1	1	0	0	0	0	36	
5:15 PM	0	0	23	6	0	0	9	0	0	3	0	1	0	1	0	0	43	
5:20 PM	0	0	17	6	0	0	18	0	0	1	0	0	0	0	0	0	42	
5:25 PM	0	0	16	3	0	0	14	0	0	3	0	1	0	0	0	0	37	
5:30 PM	0	0	14	8	0	1	9	0	0	1	0	1	0	0	0	0	34	
5:35 PM	0	0	10	3	0	2	14	0	0	5	0	2	0	0	0	0	36	
5:40 PM	0	0	15	6	0	1	16	0	0	1	0	1	0	0	0	0	40	
5:45 PM	0	0	21	4	0	0	8	0	0	2	0	3	0	0	0	0	38	
5:50 PM	0	0	14	3	0	2	9	0	0	0	0	3	0	0	0	0	31	
5:55 PM	0	0	13	5	0	0	7	0	0	3	0	0	0	0	0	0	28	
Count Total	0	0	360	134	0	19	286	0	0	70	1	41	0	1	0	0	912	
Peak Hour	0	0	196	71	0	10	150	0	0	37	1	24	0	1	0	0	490	

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

Interval	Heavy Vehicles					Interval	Bicycles on Roadway					Interval	Pedestrians/Bicycles on Crosswalk				
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	0	0	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	1	0	0	1
4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	0	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	4	1	4	0	9	Count Total	1	0	0	0	1	Count Total	0	2	0	0	2
Peak Hour	3	1	3	0	7	Peak Hour	1	0	0	0	1	Peak Hour	0	1	0	0	1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



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

E Ivy St & E 4th St

Thursday, September 13, 2018
7:00 AM to 9:00 AM

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

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
7:00 AM	0	0	0	0	0	0	33	0	8	21	2	1	0	45	0	0	109
7:15 AM	1	1	0	0	1	0	27	0	21	23	0	0	1	48	4	0	127
7:30 AM	0	0	0	0	0	0	36	0	23	20	0	0	0	55	2	0	136
7:45 AM	2	1	3	0	1	0	47	0	41	23	2	0	3	52	12	0	187
8:00 AM	13	0	7	0	8	3	69	0	51	36	9	0	4	53	17	0	270
8:15 AM	13	0	7	0	0	0	40	0	17	39	3	0	2	60	4	0	185
8:30 AM	3	0	2	0	1	0	23	0	10	20	2	0	0	32	2	0	95
8:45 AM	1	1	1	0	0	0	18	0	12	27	0	0	1	34	0	0	95
Total Survey	33	3	20	0	11	3	293	0	183	209	18	1	11	379	41	0	1,204

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	4	0	0
0	2	0	1
0	4	0	0
1	2	0	0
0	0	0	0
0	3	0	0
0	0	0	0
1	15	0	1

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

By Approach	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	46	26	72	0	204	168	372	0	264	440	704	0	264	144	408	0	778
%HV	39.1%				8.3%				6.4%				4.2%				8.1%
PHF	0.58				0.64				0.69				0.89				0.72

Pedestrians Crosswalk			
North	South	East	West
1	8	0	1

By Movement	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	28	1	17	46	9	3	192	204	132	118	14	264	9	220	35	264	778
%HV	60.7%	0.0%	5.9%	39.1%	11.1%	0.0%	8.3%	8.3%	6.1%	7.6%	0.0%	6.4%	0.0%	3.6%	8.6%	4.2%	8.1%
PHF	0.54	0.25	0.61	0.58	0.28	0.25	0.70	0.64	0.65	0.76	0.39	0.69	0.56	0.92	0.51	0.89	0.72

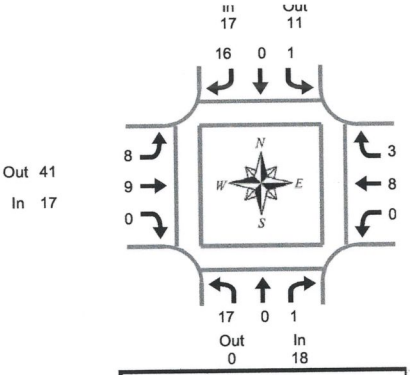
Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
7:00 AM	3	2	3	0	2	0	143	0	93	87	4	1	4	200	18	0	559
7:15 AM	16	2	10	0	10	3	179	0	136	102	11	0	8	208	35	0	720
7:30 AM	28	1	17	0	9	3	192	0	132	118	14	0	9	220	35	0	778
7:45 AM	31	1	19	0	10	3	179	0	119	118	16	0	9	197	35	0	737
8:00 AM	30	1	17	0	9	3	150	0	90	122	14	0	7	179	23	0	645

Pedestrians Crosswalk			
North	South	East	West
0	10	0	1
1	12	0	1
1	8	0	1
1	9	0	0
1	5	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



E Ivy St & E 4th St

Thursday, September 13, 2018
7:00 AM to 9:00 AM

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

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

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	0	0	0	0	0	1	1	1	8	0	9	0	1	0	1	11
7:15 AM	0	0	0	0	0	0	0	0	1	6	0	7	0	0	0	0	7
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
7:45 AM	0	0	1	1	0	0	2	2	3	2	0	5	0	4	0	4	12
8:00 AM	12	0	0	12	1	0	14	15	4	3	0	7	0	2	2	4	38
8:15 AM	5	0	0	5	0	0	0	0	1	3	0	4	0	1	1	2	11
8:30 AM	0	0	0	0	0	0	0	0	1	2	0	3	0	2	0	2	5
8:45 AM	0	0	0	0	0	0	1	1	0	1	0	1	0	4	0	4	6
Total Survey	17	0	1	18	1	0	18	19	11	26	0	37	0	15	3	18	92

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

By Approach	Northbound E Ivy St			Southbound E Ivy St			Eastbound E 4th St			Westbound E 4th St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	18	0	18	17	11	28	17	41	58	11	11	22	63
PHF	0.25			0.25			0.25			0.28			0.26

By Movement	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	17	0	1	18	1	0	16	17	8	9	0	17	0	8	3	11	63
PHF	0.25	0.00	0.25	0.25	0.25	0.00	0.25	0.25	0.25	0.15	0.00	0.25	0.00	0.29	0.25	0.28	0.26

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

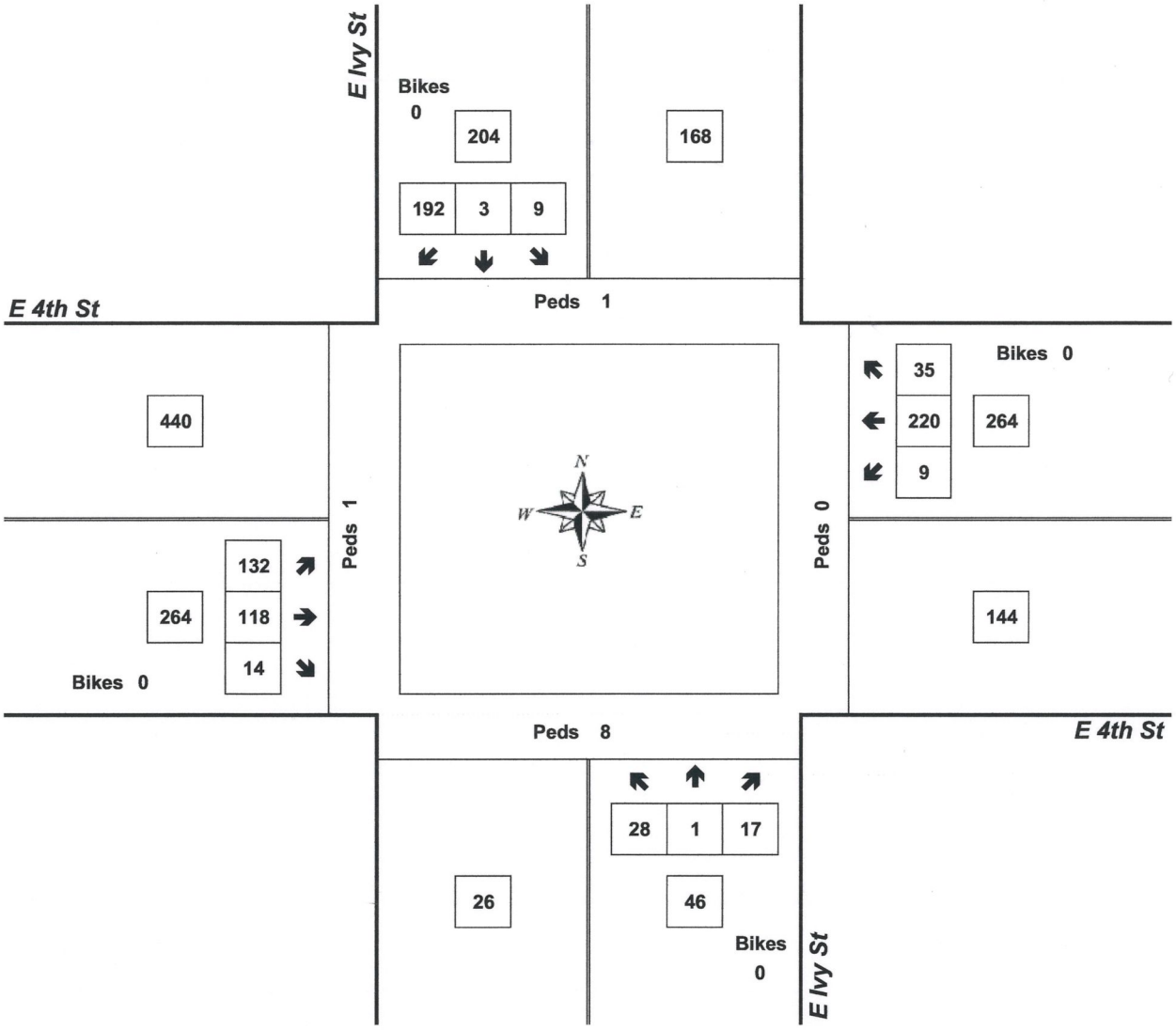
Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	0	1	1	0	0	3	3	5	17	0	22	0	6	0	6	32
7:15 AM	12	0	1	13	1	0	16	17	8	12	0	20	0	7	2	9	59
7:30 AM	17	0	1	18	1	0	16	17	8	9	0	17	0	8	3	11	63
7:45 AM	17	0	1	18	1	0	16	17	9	10	0	19	0	9	3	12	66
8:00 AM	17	0	0	17	1	0	15	16	6	9	0	15	0	9	3	12	60

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

E Ivy St & E 4th St

7:30 AM to 8:30 AM
Thursday, September 13, 2018

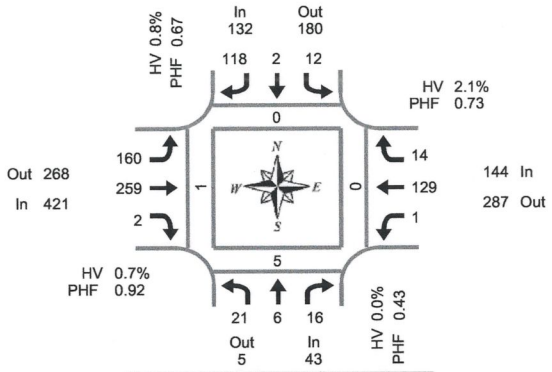


Approach	PHF	HV%	Volume
EB	0.69	6.4%	264
WB	0.89	4.2%	264
NB	0.58	39.1%	46
SB	0.64	8.3%	204
Intersection	0.72	8.1%	778

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

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



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

E Ivy St & E 4th St

Thursday, September 13, 2018
4:00 PM to 6:00 PM

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

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
4:00 PM	2	0	1	0	2	0	31	0	24	46	2	0	0	39	1	0	148
4:15 PM	5	0	3	0	2	1	20	0	39	64	4	0	0	46	1	0	185
4:30 PM	6	1	4	0	0	0	17	0	39	57	1	0	0	44	3	0	172
4:45 PM	0	0	0	0	3	1	18	0	49	76	2	0	1	45	5	0	200
5:00 PM	1	0	0	0	5	1	22	0	46	59	0	0	0	28	7	0	169
5:15 PM	1	1	0	0	1	0	22	0	30	61	0	0	0	46	3	0	165
5:30 PM	14	4	7	0	0	0	32	0	45	68	2	0	0	30	3	0	205
5:45 PM	5	1	9	0	6	1	42	0	39	71	0	0	1	25	1	0	201
Total Survey	34	7	24	0	19	4	204	0	311	502	11	0	2	303	24	0	1,445

Pedestrians Crosswalk			
North	South	East	West
0	21	0	0
0	20	0	0
0	32	0	0
0	11	0	0
0	1	0	0
0	0	0	0
0	1	0	0
0	3	0	1
0	89	0	1

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

By Approach	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	43	5	48	0	132	180	312	0	421	268	689	0	144	287	431	0	740
%HV	0.0%				0.8%				0.7%				2.1%				0.9%
PHF	0.43				0.67				0.92				0.73				0.90

Pedestrians Crosswalk			
North	South	East	West
0	5	0	1

By Movement	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	21	6	16	43	12	2	118	132	160	259	2	421	1	129	14	144	740
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.8%	0.6%	0.8%	0.0%	0.7%	0.0%	2.3%	0.0%	2.1%	0.9%
PHF	0.38	0.38	0.44	0.43	0.50	0.50	0.70	0.67	0.87	0.91	0.25	0.92	0.25	0.70	0.50	0.73	0.90

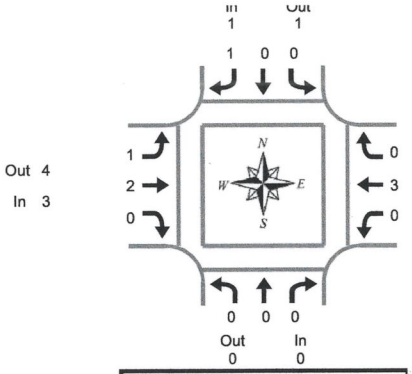
Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
4:00 PM	13	1	8	0	7	2	86	0	151	243	9	0	1	174	10	0	705
4:15 PM	12	1	7	0	10	3	77	0	173	256	7	0	1	163	16	0	726
4:30 PM	8	2	4	0	9	2	79	0	164	253	3	0	1	163	18	0	706
4:45 PM	16	5	7	0	9	2	94	0	170	264	4	0	1	149	18	0	739
5:00 PM	21	6	16	0	12	2	118	0	160	259	2	0	1	129	14	0	740

Pedestrians Crosswalk			
North	South	East	West
0	84	0	0
0	64	0	0
0	44	0	0
0	13	0	0
0	5	0	1

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



E Ivy St & E 4th St

Thursday, September 13, 2018
4:00 PM to 6:00 PM

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

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

Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	1	1	0	2	0	2	0	4	0	4	7
4:15 PM	0	0	0	0	0	0	1	1	0	2	0	2	0	2	0	2	5
4:30 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	1	0	1	3
4:45 PM	0	0	0	0	0	0	2	2	0	2	0	2	0	1	0	1	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
5:45 PM	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	2
Total Survey	0	0	0	0	0	0	6	6	1	9	0	10	0	11	0	11	27

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

By Approach	Northbound E Ivy St			Southbound E Ivy St			Eastbound E 4th St			Westbound E 4th St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	1	1	2	3	4	7	3	2	5	7
PHF	0.00			0.06			0.15			0.11			0.12

By Movement	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	1	1	1	2	0	3	0	3	0	3	7
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.25	0.10	0.00	0.15	0.00	0.11	0.00	0.11	0.12

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

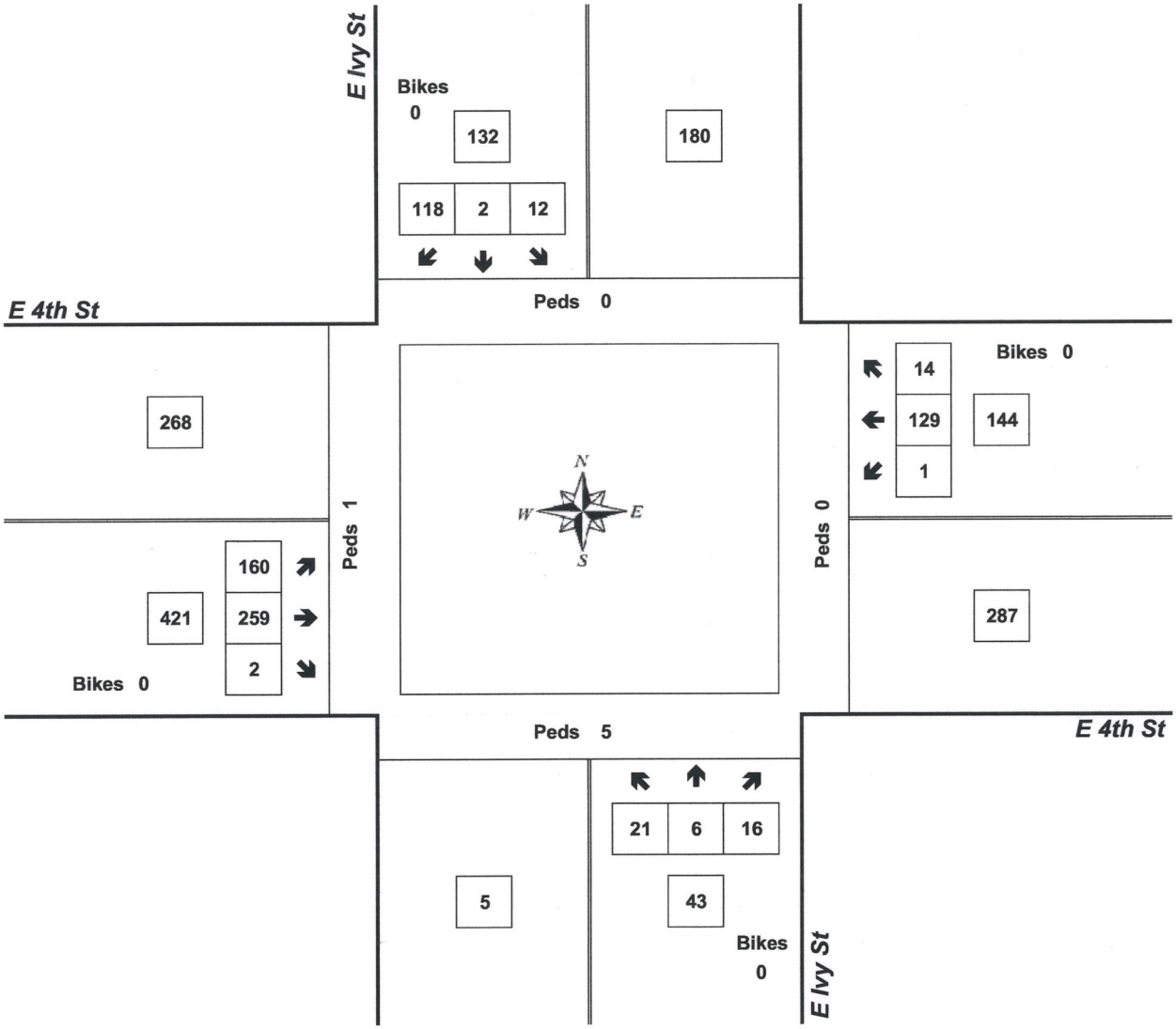
Interval Start Time	Northbound E Ivy St				Southbound E Ivy St				Eastbound E 4th St				Westbound E 4th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	5	5	0	7	0	7	0	8	0	8	20
4:15 PM	0	0	0	0	0	0	4	4	0	5	0	5	0	4	0	4	13
4:30 PM	0	0	0	0	0	0	3	3	0	4	0	4	0	4	0	4	11
4:45 PM	0	0	0	0	0	0	2	2	0	4	0	4	0	4	0	4	10
5:00 PM	0	0	0	0	0	0	1	1	1	2	0	3	0	3	0	3	7

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

E Ivy St & E 4th St

5:00 PM to 6:00 PM
Thursday, September 13, 2018



Approach	PHF	HV%	Volume
EB	0.92	0.7%	421
WB	0.73	2.1%	144
NB	0.43	0.0%	43
SB	0.67	0.8%	132
Intersection	0.90	0.9%	740

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

INTERSECTION TURN MOVEMENT SURVEY
ASPEN AVENUE & E 4TH STREET

DATE OF COUNT: 2/15/2022, 07:00-09:00
DAY OF WEEK: TUE.
WEATHER: CLOUDY
COUNTER: KAK

Time Period From – To	FROM NORTH			FROM EAST			FROM SOUTH			FROM WEST			TOTAL
	L	T	R	L	T	R	L	T	R	L	T	R	
07:00-07:05	1	0	15	0	33	0	0	0	0	2	12	0	63
07:05-07:10	1	0	10	0	23	1	0	0	0	1	10	0	46
07:10-07:15	0	0	9	0	30	0	0	0	0	3	19	0	61
07:15-07:20	0	0	14	0	24	0	0	0	0	2	15	0	55
07:20-07:25	**2**	**0**	**12**	**0**	**20**	**1**	**0**	**0**	**0**	**2**	**14**	**0**	**51**
07:25-07:30	**1**	**0**	**14**	**0**	**41**	**1**	**0**	**0**	**0**	**1**	**23**	**0**	**81**
07:30-07:35	**0**	**0**	**12**	**0**	**21**	**1**	**0**	**0**	**0**	**0**	**18**	**0**	**52**
07:35-07:40	**4**	**0**	**10**	**0**	**16**	**0**	**0**	**0**	**0**	**8**	**17**	**0**	**55**
07:40-07:45	**8**	**0**	**14**	**0**	**35**	**0**	**0**	**0**	**0**	**3**	**29**	**0**	**89**
07:45-07:50	**6**	**0**	**9**	**0**	**33**	**1**	**0**	**0**	**0**	**4**	**42**	**0**	**95**
07:50-07:55	**11**	**0**	**4**	**0**	**36**	**1**	**0**	**0**	**0**	**2**	**41**	**0**	**95**
07:55-08:00	**7**	**0**	**14**	**0**	**35**	**0**	**0**	**0**	**0**	**4**	**42**	**0**	**102**
08:00-08:05	**3**	**0**	**7**	**0**	**55**	**0**	**0**	**0**	**0**	**6**	**27**	**0**	**98**
08:05-08:10	**2**	**0**	**6**	**0**	**61**	**6**	**0**	**0**	**0**	**3**	**14**	**0**	**92**
08:10-08:15	**1**	**0**	**9**	**0**	**43**	**4**	**0**	**0**	**0**	**4**	**13**	**0**	**74**
08:15-08:20	**2**	**0**	**13**	**0**	**29**	**1**	**0**	**0**	**0**	**8**	**17**	**0**	**70**
08:20-08:25	1	0	8	0	20	1	0	0	0	7	13	0	50
08:25-08:30	0	0	13	0	25	1	0	0	0	3	12	0	54
08:30-08:35	1	0	13	0	19	1	0	0	0	2	13	0	49
08:35-08:40	0	0	5	0	13	0	0	0	0	7	8	0	33
08:40-08:45	2	0	7	0	17	1	0	0	0	3	9	0	39
08:45-08:50	0	0	10	0	15	0	0	0	0	4	10	0	39
08:50-08:55	1	0	9	0	20	2	0	0	0	2	7	0	41
08:55-09:00	0	0	8	0	16	0	0	0	0	3	11	0	38
Peak Hour Total	**47**	**0**	**124**	**0**	**425**	**16**	**0**	**0**	**0**	**45**	**297**	**0**	**954**
% Trucks	4	0	0	0	0	6	0	0	0	7	4	0	
Peds	0	0	0	0	0	0	0	0	0	0	0	0	
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	

PEAK HOUR: 07:20-08:20

PHF Intersection: 0.81

KELLY ENGINEERING

INTERSECTION TURN MOVEMENT SURVEY
ASPEN AVENUE & E 4TH STREET

DATE OF COUNT: 2/15/2022, 16:00-18:00
DAY OF WEEK: TUE.
WEATHER: CLOUDY
COUNTER: KAK

Time Period From – To	FROM NORTH			FROM EAST			FROM SOUTH			FROM WEST			TOTAL
	L	T	R	L	T	R	L	T	R	L	T	R	
16:00-16:05	1	0	5	0	26	0	0	0	0	14	29	0	75
16:05-16:10	3	0	6	0	28	3	0	0	0	13	35	0	88
16:15-16:20	2	0	10	0	13	0	0	0	0	13	39	0	77
16:10-16:15	2	0	7	0	14	0	0	0	0	14	36	0	73
16:20-16:25	1	0	4	0	19	1	0	0	0	9	31	0	65
16:25-16:30	1	0	6	0	20	0	0	0	0	9	26	0	62
16:30-16:35	0	0	1	0	11	1	0	0	0	8	40	0	61
16:35-16:40	0	0	5	0	21	0	0	0	0	14	31	0	71
16:40-16:45	**0**	**0**	**4**	**0**	**17**	**3**	**0**	**0**	**0**	**12**	**36**	**0**	**72**
16:45-16:50	**0**	**0**	**7**	**0**	**15**	**1**	**0**	**0**	**0**	**15**	**46**	**0**	**84**
16:50-16:55	**2**	**0**	**5**	**0**	**16**	**0**	**0**	**0**	**0**	**18**	**31**	**0**	**72**
16:55-17:00	**2**	**0**	**8**	**0**	**21**	**3**	**0**	**0**	**0**	**14**	**26**	**0**	**74**
17:00-17:05	**2**	**0**	**8**	**0**	**25**	**0**	**0**	**0**	**0**	**17**	**33**	**0**	**85**
17:05-17:10	**0**	**0**	**5**	**0**	**21**	**0**	**0**	**0**	**0**	**9**	**38**	**0**	**73**
17:10-17:15	**3**	**0**	**11**	**0**	**16**	**0**	**0**	**0**	**0**	**13**	**41**	**0**	**84**
17:15-17:20	**1**	**0**	**7**	**0**	**30**	**1**	**0**	**0**	**0**	**13**	**30**	**0**	**82**
17:20-17:25	**1**	**0**	**7**	**0**	**13**	**0**	**0**	**0**	**0**	**23**	**40**	**0**	**84**
17:25-17:30	**0**	**0**	**8**	**0**	**18**	**0**	**0**	**0**	**0**	**8**	**47**	**0**	**81**
17:30-17:35	**0**	**0**	**12**	**0**	**15**	**0**	**0**	**0**	**0**	**12**	**28**	**0**	**67**
17:35-17:40	**0**	**0**	**5**	**0**	**22**	**3**	**0**	**0**	**0**	**17**	**29**	**0**	**76**
17:40-17:45	1	0	3	0	15	0	0	0	0	10	30	0	59
17:45-17:50	0	0	4	0	14	1	0	0	0	9	27	0	55
17:50-17:55	1	0	2	0	13	0	0	0	0	11	28	0	55
17:55-18:00	0	0	4	0	12	1	0	0	0	10	31	0	58
Peak Hour Total	**11**	**0**	**87**	**0**	**229**	**11**	**0**	**0**	**0**	**171**	**425**	**0**	**934**
% Trucks	0	0	0	0	1	0	0	0	0	0	0	0	
Peds	0	2	0	0	0	0	0	2	0	0	5	0	
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	

PEAK HOUR: 16:40-17:40

PHF Intersection: 0.93

KELLY ENGINEERING

ROUNDABOUT MOVEMENT SURVEY
PACIFIC AVENUE & W 4TH STREET

DATE OF COUNT: 2/17/2022, 07:00-09:00
DAY OF WEEK: THUR.
WEATHER: CLOUDY
COUNTER: KAK

Time Period From – To	FROM NORTH			FROM EAST			FROM SOUTH			FROM WEST			TOTAL
	L	T	R	L	T	R	L	T	R	L	T	R	
07:00-07:05	0	12	0	37	0	0	0	2	43	0	0	0	94
07:05-07:10	0	16	0	26	0	0	0	5	48	0	0	0	95
07:10-07:15	0	17	0	43	0	2	0	7	52	0	0	0	121
07:15-07:20	1	13	0	34	0	1	0	3	48	0	0	0	100
07:20-07:25	0	14	0	35	0	1	0	4	39	0	0	0	93
07:25-07:30	1	15	0	35	0	1	0	7	34	0	0	0	93
07:30-07:35	**0**	**16**	**0**	**43**	**0**	**1**	**0**	**5**	**48**	**0**	**0**	**0**	**113**
07:35-07:40	**1**	**15**	**0**	**38**	**0**	**4**	**0**	**5**	**45**	**0**	**0**	**0**	**108**
07:40-07:45	**0**	**10**	**0**	**40**	**0**	**1**	**0**	**8**	**48**	**0**	**0**	**0**	**107**
07:45-07:50	**6**	**10**	**0**	**29**	**0**	**2**	**0**	**9**	**61**	**0**	**0**	**0**	**117**
07:50-07:55	**10**	**14**	**0**	**31**	**0**	**1**	**0**	**6**	**47**	**0**	**0**	**0**	**109**
07:55-08:00	**12**	**17**	**0**	**20**	**0**	**4**	**0**	**7**	**38**	**0**	**0**	**0**	**98**
08:00-08:05	**8**	**15**	**0**	**34**	**0**	**10**	**0**	**4**	**48**	**0**	**0**	**0**	**119**
08:05-08:10	**3**	**22**	**0**	**55**	**0**	**2**	**0**	**4**	**47**	**0**	**0**	**0**	**133**
08:10-08:15	**3**	**22**	**0**	**44**	**0**	**8**	**0**	**7**	**51**	**0**	**0**	**0**	**135**
08:15-08:20	**0**	**19**	**0**	**66**	**0**	**5**	**0**	**3**	**42**	**0**	**0**	**0**	**135**
08:20-08:25	**2**	**12**	**0**	**46**	**0**	**9**	**0**	**4**	**62**	**0**	**0**	**0**	**135**
08:25-08:30	**1**	**7**	**0**	**27**	**0**	**5**	**0**	**5**	**55**	**0**	**0**	**0**	**100**
08:30-08:35	3	11	0	32	0	0	0	8	40	0	0	0	94
08:35-08:40	2	8	0	24	0	3	0	7	46	0	0	0	90
08:40-08:45	1	9	0	31	0	1	0	4	39	0	0	0	85
08:45-08:50	2	10	0	26	0	2	0	5	46	0	0	0	91
08:50-08:55	2	9	0	25	0	0	0	4	38	0	0	0	78
08:55-09:00	1	11	0	31	0	3	0	6	41	0	0	0	93
Peak Hour Total	**46**	**179**	**0**	**473**	**0**	**52**	**0**	**67**	**592**	**0**	**0**	**0**	**1409**
% Trucks	9	1	0	0	0	4	0	3	4	0	0	0	
Peds	0	1	0	0	1	0	0	0	0	0	1	0	
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	

PEAK HOUR: 07:30-08:30
PHF Intersection: 0.87

KELLY ENGINEERING

ROUNDABOUT TURN MOVEMENT SURVEY
PACIFIC AVENUE & W 4TH STREET

DATE OF COUNT: 2/16/2022, 16:00-18:00
DAY OF WEEK: WED.
WEATHER: CLOUDY
COUNTER: KAK

Time Period From – To	FROM NORTH			FROM EAST			FROM SOUTH			FROM WEST			TOTAL
	L	T	R	L	T	R	L	T	R	L	T	R	
16:00-16:05	2	15	0	29	0	8	0	17	41	0	0	0	112
16:05-16:10	1	19	0	24	0	8	0	9	47	0	0	0	108
16:15-16:20	2	14	0	22	0	2	0	13	50	0	0	0	103
16:10-16:15	1	9	0	29	0	5	0	13	49	0	0	0	106
16:20-16:25	1	12	0	24	0	4	0	13	39	0	0	0	93
16:25-16:30	0	6	0	19	0	3	0	16	35	0	0	0	79
16:30-16:35	**0**	**7**	**0**	**27**	**0**	**3**	**0**	**16**	**48**	**0**	**0**	**0**	**101**
16:35-16:40	**0**	**12**	**0**	**30**	**0**	**2**	**0**	**6**	**45**	**0**	**0**	**0**	**95**
16:40-16:45	**3**	**8**	**0**	**32**	**0**	**2**	**0**	**13**	**45**	**0**	**0**	**0**	**103**
16:45-16:50	**3**	**10**	**0**	**23**	**0**	**1**	**0**	**14**	**56**	**0**	**0**	**0**	**107**
16:50-16:55	**0**	**11**	**0**	**18**	**0**	**1**	**0**	**19**	**49**	**0**	**0**	**0**	**98**
16:55-17:00	**2**	**9**	**0**	**28**	**0**	**4**	**0**	**18**	**38**	**0**	**0**	**0**	**99**
17:00-17:05	**1**	**11**	**0**	**24**	**0**	**5**	**0**	**16**	**49**	**0**	**0**	**0**	**106**
17:05-17:10	**3**	**16**	**0**	**29**	**0**	**4**	**0**	**11**	**43**	**0**	**0**	**0**	**106**
17:10-17:15	**2**	**16**	**0**	**26**	**0**	**4**	**0**	**12**	**52**	**0**	**0**	**0**	**112**
17:15-17:20	**1**	**11**	**0**	**38**	**0**	**3**	**0**	**18**	**42**	**0**	**0**	**0**	**113**
17:20-17:25	**0**	**7**	**0**	**21**	**0**	**1**	**0**	**18**	**63**	**0**	**0**	**0**	**110**
17:25-17:30	**1**	**11**	**0**	**31**	**0**	**1**	**0**	**8**	**54**	**0**	**0**	**0**	**106**
17:30-17:35	0	9	0	17	0	2	0	14	40	0	0	0	82
17:35-17:40	1	8	0	21	0	1	0	13	45	0	0	0	89
17:40-17:45	1	6	0	20	0	1	0	10	39	0	0	0	77
17:45-17:50	2	7	0	19	0	3	0	11	34	0	0	0	76
17:50-17:55	1	9	0	21	0	2	0	9	38	0	0	0	80
17:55-18:00	0	10	0	30	0	4	0	9	41	0	0	0	84
Peak Hour Total	**16**	**129**	**0**	**327**	**0**	**31**	**0**	**169**	**584**	**0**	**0**	**0**	**1256**
% Trucks	0	1	0	1	0	0	0	0	0	0	0	0	
Peds	0	0	0	0	13	0	0	0	0	0	10	0	
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	

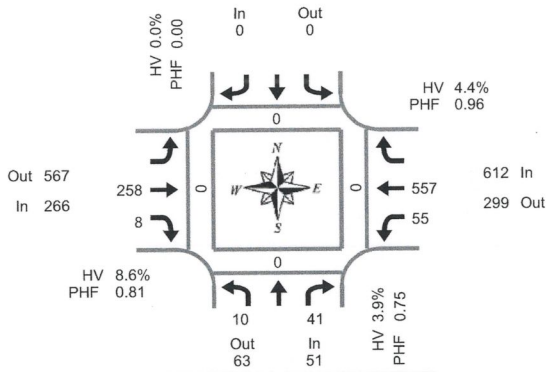
PEAK HOUR: 16:30-17:30

PHF Intersection: 0.94

KELLY ENGINEERING

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:15 AM to 8:15 AM

NW Timmen Rd & NW La Center Rd

Thursday, May 09, 2019
7:00 AM to 9:00 AM

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

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Bikes				Bikes		T	R	Bikes	L	T		Bikes	
7:00 AM	3		7	0				0		44	2	0	13	135		0	204
7:15 AM	3		10	0				0		53	2	0	11	148		0	227
7:30 AM	3		8	0				0		67	1	0	22	130		0	231
7:45 AM	2		15	0				0		79	3	0	13	129		0	241
8:00 AM	2		8	0				0		59	2	0	9	150		0	230
8:15 AM	2		5	0				0		46	4	0	14	134		0	205
8:30 AM	5		9	0				0		59	2	0	17	111		0	203
8:45 AM	3		7	0				0		45	3	0	13	100		0	171
Total Survey	23		69	0				0		452	19	0	112	1,037		0	1,712

Pedestrians Crosswalk			
North	South	East	West
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0

Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	51	63	114	0	0	0	0	0	266	567	833	0	612	299	911	0	929
%HV	3.9%				0.0%				8.6%				4.4%				5.6%
PHF	0.75				0.00				0.81				0.96				0.96

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0

By Movement	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	L		R	Total				Total		T	R	Total	L	T		Total	
Volume	10		41	51				0		258	8	266	55	557		612	929
%HV	10.0%	NA	2.4%	3.9%	NA	NA	NA	0.0%	NA	8.1%	25.0%	8.6%	0.0%	4.8%	NA	4.4%	5.6%
PHF	0.83		0.68	0.75				0.00		0.82	0.67	0.81	0.63	0.93		0.96	0.96

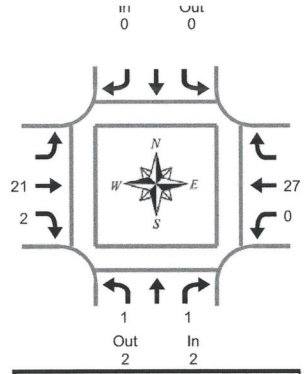
Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Bikes				Bikes		T	R	Bikes	L	T		Bikes	
7:00 AM	11		40	0				0		243	8	0	59	542		0	903
7:15 AM	10		41	0				0		258	8	0	55	557		0	929
7:30 AM	9		36	0				0		251	10	0	58	543		0	907
7:45 AM	11		37	0				0		243	11	0	53	524		0	879
8:00 AM	12		29	0				0		209	11	0	53	495		0	809

Pedestrians Crosswalk			
North	South	East	West
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



NW Timmen Rd & NW La Center Rd

Thursday, May 09, 2019
7:00 AM to 9:00 AM

Peak Hour Summary
7:15 AM to 8:15 AM

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

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Total				Total		T	R	Total	L	T		Total	
7:00 AM	0		0	0				0		11	2	13	1	6		7	20
7:15 AM	0		0	0				0		7	0	7	0	2		2	9
7:30 AM	0		1	1				0		4	0	4	0	3		3	8
7:45 AM	0		0	0				0		4	1	5	0	1		1	6
8:00 AM	1		0	1				0		6	1	7	0	21		21	29
8:15 AM	1		0	1				0		5	0	5	1	7		8	14
8:30 AM	4		1	5				0		5	0	5	0	3		3	13
8:45 AM	0		0	0				0		2	0	2	1	4		5	7
Total Survey	6		2	8				0		44	4	48	3	47		50	106

Heavy Vehicle Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound NW Timmen Rd			Southbound NW Timmen Rd			Eastbound NW La Center Rd			Westbound NW La Center Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	2	4	0	0	0	23	28	51	27	22	49	52
PHF	0.07			0.00			0.24			0.21			0.23

By Movement	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	L		R	Total				Total		T	R	Total	L	T		Total	
Volume	1		1	2				0		21	2	23	0	27		27	52
PHF	0.04		0.25	0.07				0.00		0.24	0.25	0.24	0.00	0.22		0.21	0.23

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

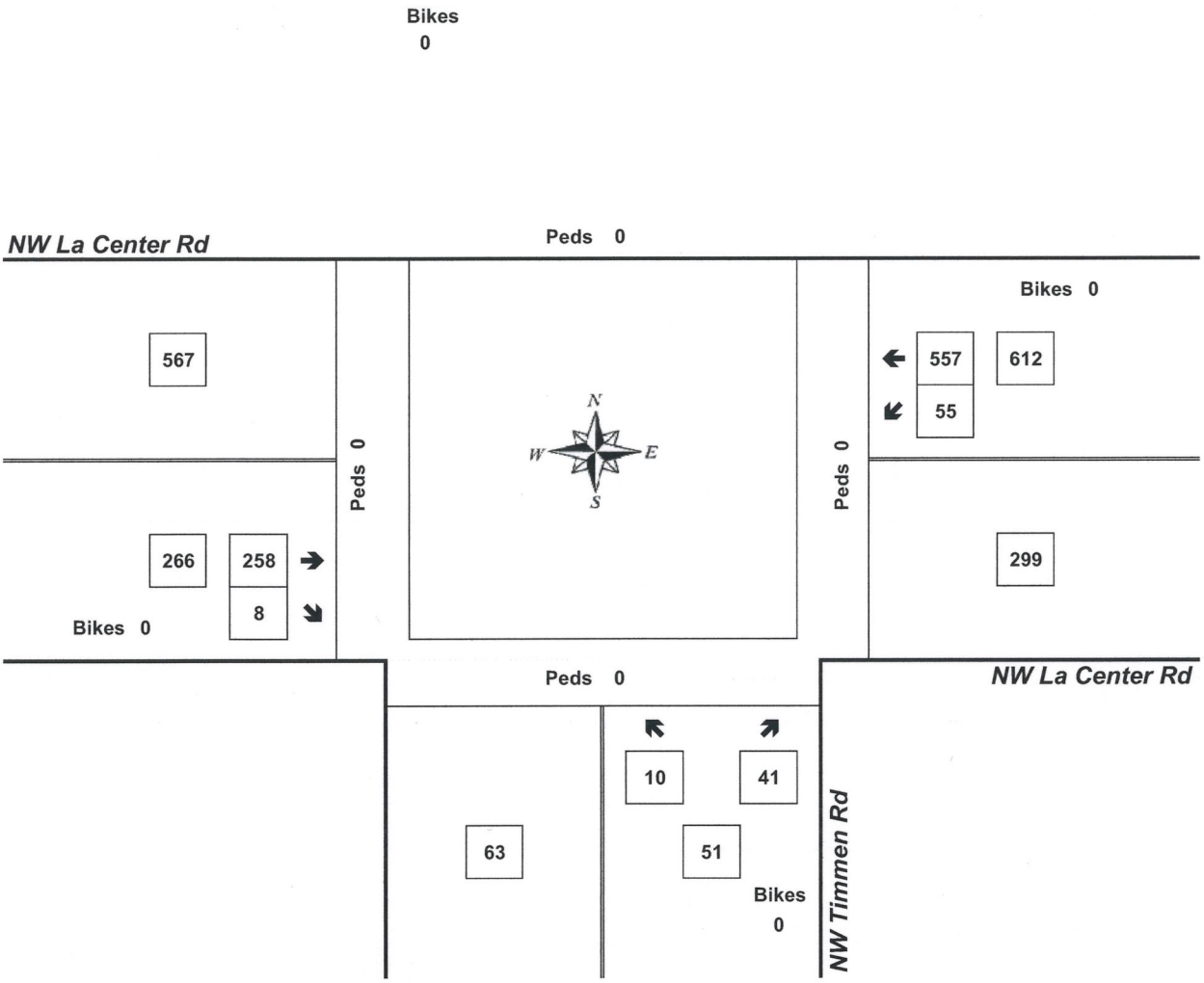
Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Total				Total		T	R	Total	L	T		Total	
7:00 AM	0		1	1				0		26	3	29	1	12		13	43
7:15 AM	1		1	2				0		21	2	23	0	27		27	52
7:30 AM	2		1	3				0		19	2	21	1	32		33	57
7:45 AM	6		1	7				0		20	2	22	1	32		33	62
8:00 AM	6		1	7				0		18	1	19	2	35		37	63

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NW Timmen Rd & NW La Center Rd

7:15 AM to 8:15 AM
Thursday, May 09, 2019

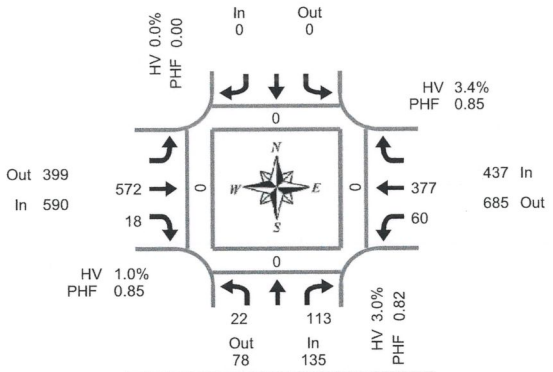


Approach	PHF	HV%	Volume
EB	0.81	8.6%	266
WB	0.96	4.4%	612
NB	0.75	3.9%	51
SB	0.00	0.0%	0
Intersection	0.96	5.6%	929

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

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



NW Timmen Rd & NW La Center Rd

Wednesday, May 08, 2019
4:00 PM to 6:00 PM

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

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Bikes				Bikes		T	R	Bikes	L	T		Bikes	
4:00 PM	4		21	0				0		133	6	0	11	102		0	277
4:15 PM	2		36	0				0		138	8	0	9	97		0	290
4:30 PM	8		33	0				0		139	5	0	11	84		0	280
4:45 PM	4		27	0				0		125	7	0	11	98		0	272
5:00 PM	3		23	0				0		138	3	0	18	111		0	296
5:15 PM	7		30	0				0		170	3	0	20	84		0	314
5:30 PM	5		15	0				0		167	3	0	4	78		0	272
5:45 PM	2		25	1				0		126	2	0	11	58		0	224
Total Survey	35		210	1				0		1,136	37	0	95	712		0	2,225

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

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

By Approach	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	135	78	213	0	0	0	0	0	590	399	989	0	437	685	1,122	0	1,162
%HV	3.0%				0.0%				1.0%				3.4%				2.2%
PHF	0.82				0.00				0.85				0.85				0.93

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0

By Movement	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	L		R	Total				Total		T	R	Total	L	T		Total	
Volume	22		113	135				0		572	18	590	60	377		437	1,162
%HV	9.1%	NA	1.8%	3.0%	NA	NA	NA	0.0%	NA	1.0%	0.0%	1.0%	0.0%	4.0%	NA	3.4%	2.2%
PHF	0.69		0.86	0.82				0.00		0.84	0.64	0.85	0.75	0.85		0.85	0.93

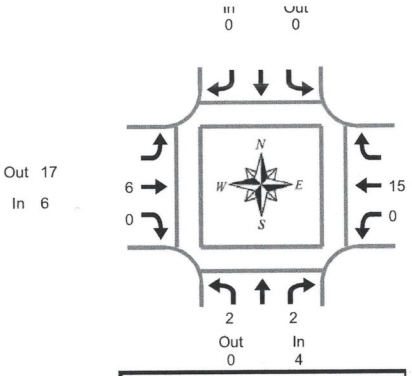
Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Bikes				Bikes		T	R	Bikes	L	T		Bikes	
4:00 PM	18		117	0				0		535	26	0	42	381		0	1,119
4:15 PM	17		119	0				0		540	23	0	49	390		0	1,138
4:30 PM	22		113	0				0		572	18	0	60	377		0	1,162
4:45 PM	19		95	0				0		600	16	0	53	371		0	1,154
5:00 PM	17		93	1				0		601	11	0	53	331		0	1,106

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



NW Timmen Rd & NW La Center Rd

Wednesday, May 08, 2019
4:00 PM to 6:00 PM

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

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

Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Total				Total	T	R	Total		L	T		Total	
4:00 PM	1		0	1				0	4	1	5		0	4		4	10
4:15 PM	0		0	0				0	4	0	4		0	6		6	10
4:30 PM	1		1	2				0	4	0	4		0	4		4	10
4:45 PM	0		0	0				0	2	0	2		0	3		3	5
5:00 PM	0		1	1				0	0	0	0		0	6		6	7
5:15 PM	1		0	1				0	0	0	0		0	2		2	3
5:30 PM	1		0	1				0	1	0	1		0	2		2	4
5:45 PM	0		0	0				0	1	1	2		0	1		1	3
Total Survey	4		2	6				0	16	2	18		0	28		28	52

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

By Approach	Northbound NW Timmen Rd			Southbound NW Timmen Rd			Eastbound NW La Center Rd			Westbound NW La Center Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	4	0	4	0	0	0	6	17	23	15	8	23	25
PHF	0.33			0.00			0.12			0.27			0.21

By Movement	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Total
	L		R	Total				Total	T	R	Total		L	T		Total	
Volume	2		2	4				0	6	0	6		0	15		15	25
PHF	0.25		0.25	0.33				0.00	0.13	0.00	0.12		0.00	0.27		0.27	0.21

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

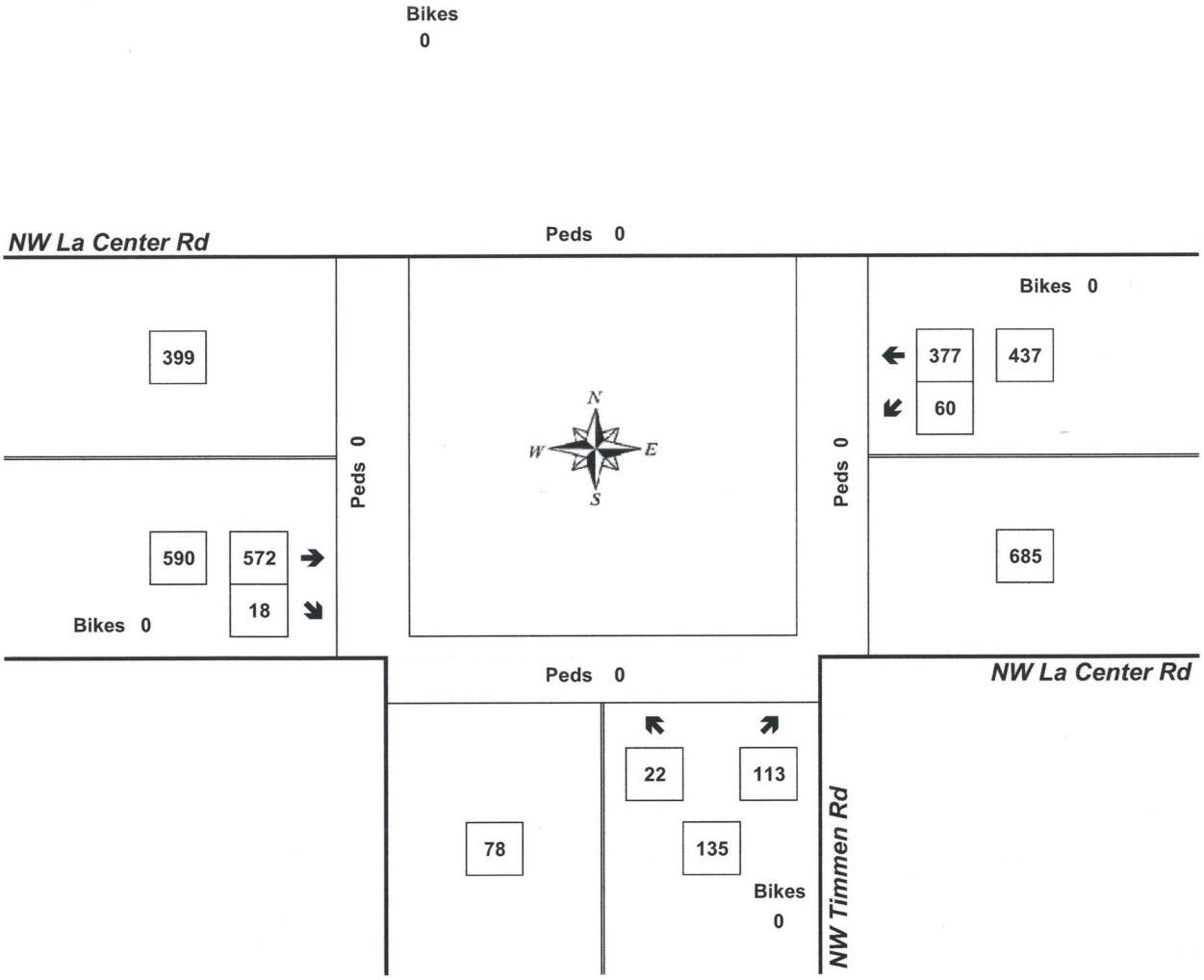
Interval Start Time	Northbound NW Timmen Rd				Southbound NW Timmen Rd				Eastbound NW La Center Rd				Westbound NW La Center Rd				Interval Total
	L		R	Total				Total	T	R	Total		L	T		Total	
4:00 PM	2		1	3				0	14	1	15		0	17		17	35
4:15 PM	1		2	3				0	10	0	10		0	19		19	32
4:30 PM	2		2	4				0	6	0	6		0	15		15	25
4:45 PM	2		1	3				0	3	0	3		0	13		13	19
5:00 PM	2		1	3				0	2	1	3		0	11		11	17

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NW Timmen Rd & NW La Center Rd

4:30 PM to 5:30 PM
Wednesday, May 08, 2019



Approach	PHF	HV%	Volume
EB	0.85	1.0%	590
WB	0.85	3.4%	437
NB	0.82	3.0%	135
SB	0.00	0.0%	0
Intersection	0.93	2.2%	1,162

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

APPENDIX B
COLLISION DATA

CITY STREET INTERSECTIONS

4th St @ Highland Rd - No Reported Crashes

4th St @ Pacific Highway

LaCenter Rd @ Timmen Rd - No Reported Crashes

Lockwood Creek Rd @ Spruce Ave

Lockwood Creek Rd @ John Storm Rd - No Reported Crashes

COUNTY ROAD INTERSECTIONS

Lockwood Creek Rd (Co Rd # 94450, mp 7.360 - 7.380 - East Leg & City St - West Leg) @ 24th Ave (Co Rd # 60430, mp 0.470 - 0.490) - *No Reported Crashes*

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN THE CITY OF LA CENTER

11/04/2018 - 11/04/2021 See 2nd tab below for road info

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, 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.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	BLOCK NUMBER	MILEPOST	A / B	INTERSECTING TRAFFICWAY	CO ONLY INTERSECTING COUNTY ROAD MILEPOST	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME
City Street	Clark	La Center	NE LOCKWOOD CREEK RD	1800			E SPRUCE AVE					
City Street	Clark	La Center	W 4TH ST	0			NW PACIFIC HWY					

SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP
No	EB67457	08/02/2021	12:58	No Apparent Injury	0	0	1	0	0	Passenger Car		At Intersection and Not Related
No	E996098	12/14/2019	18:21	No Apparent Injury	0	0	2	0	0	Passenger Car	Not Stated	Circulating Roundabout

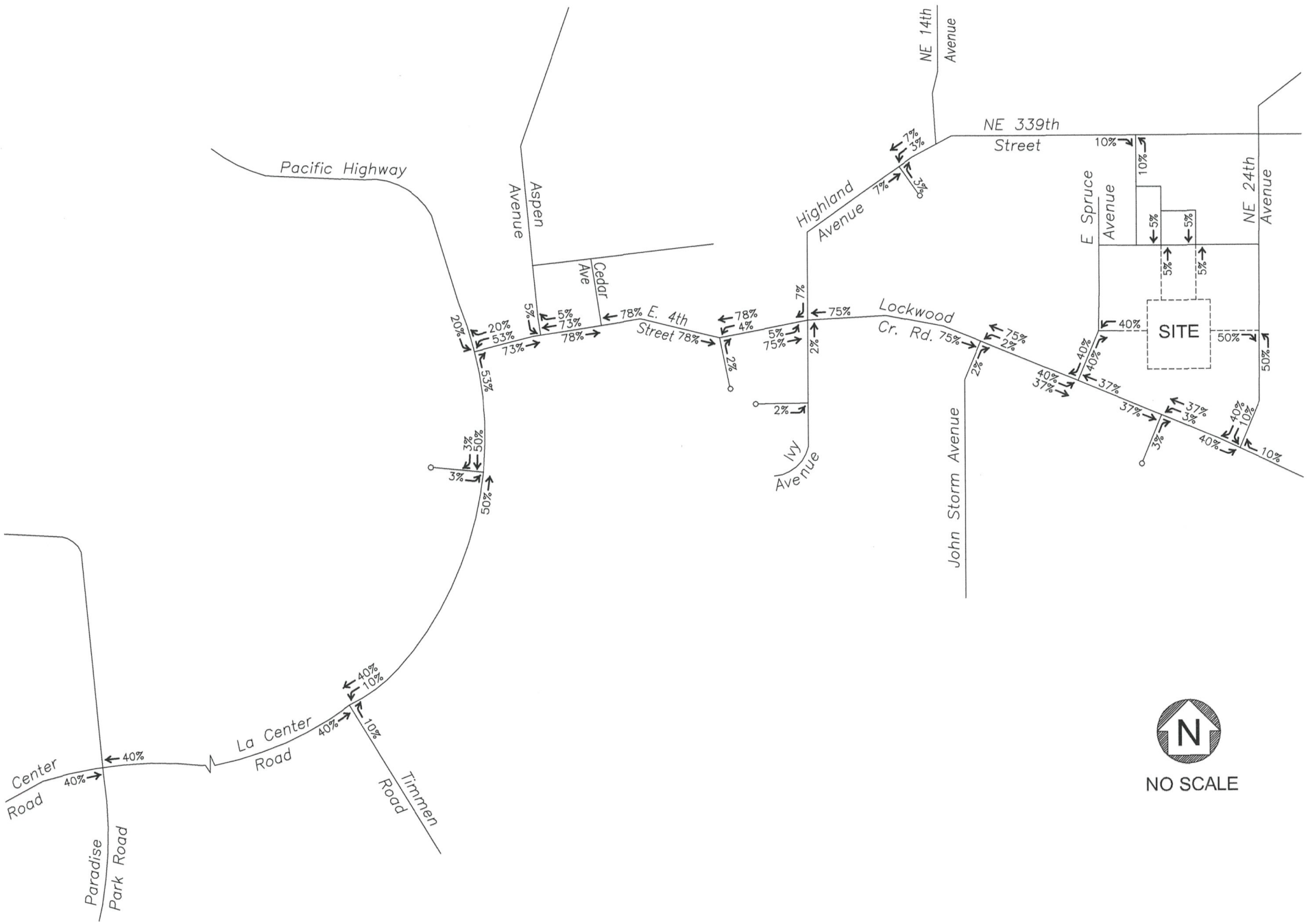
WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
Clear or Partly Cloudy	Dry	Daylight	Fence	Overtaking and Passing
Fog or Smog or Smoke	Wet	Dark-Street Lights On	From opposite direction - all others	Making Right Turn

VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)
	West	East			Improper Passing	
Going Wrong Way on Divided Hwy	South	Northeast			None	Other Contributing Circ Not Listed

FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Past the Outside Shoulder of Primary Trafficway	1092222.94	199937.35
Lane of Primary Trafficway	1087021.99	200383.21

APPENDIX C
IN-PROCESS TRAFFIC

TE: 08.01.21 FILE: 2125flow.dwg



CHARBONNEAU ENGINEERING LLC

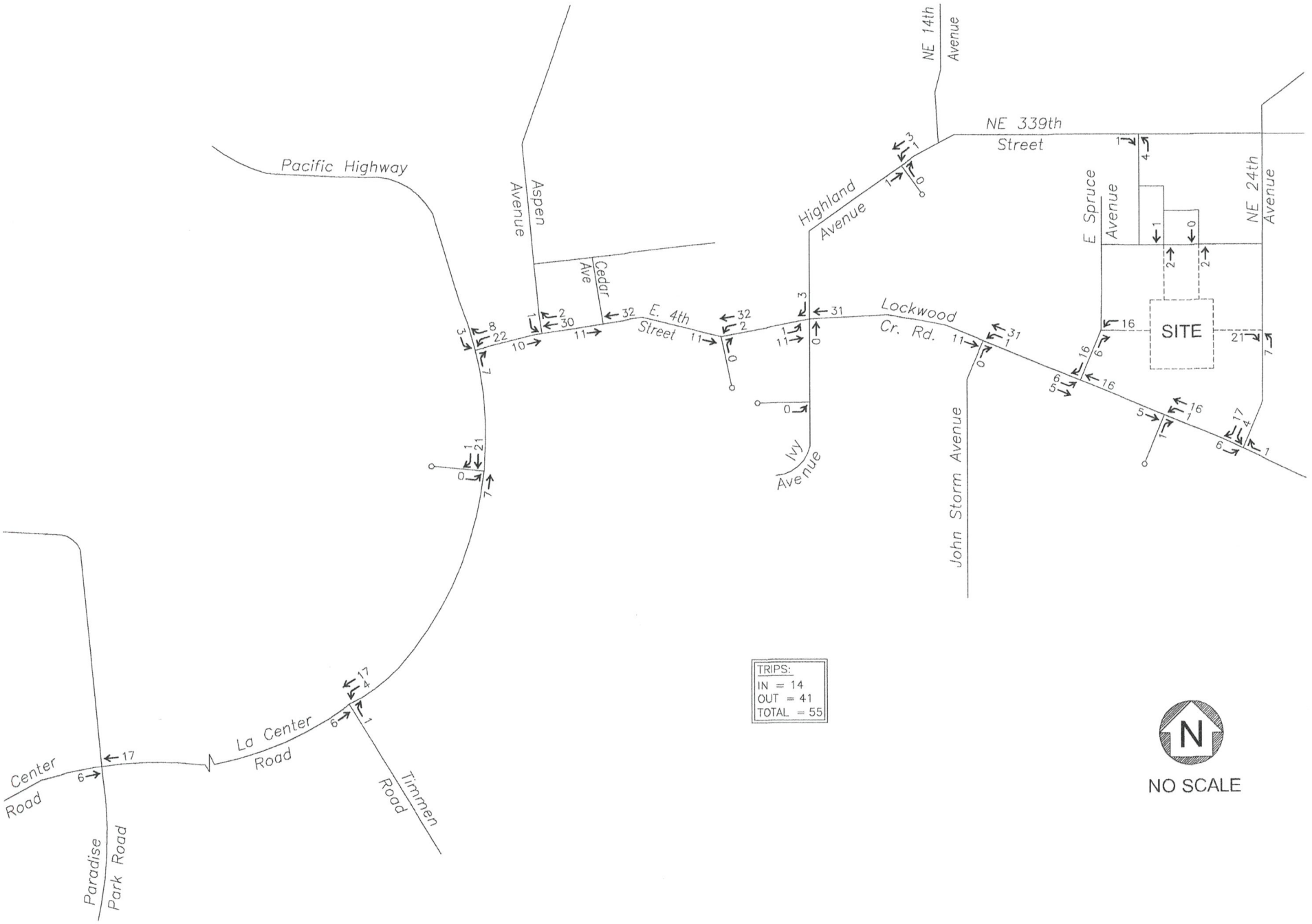
CT: 21-25

NOTES: Trip distribution for the site is based on engineering judgment.

TRIP DISTRIBUTION
AM PEAK HOUR & PM PEAK HOUR
LOCKWOOD MEADOWS

FIGURE 4

TE: 08.01.21 FILE: 2125flow.dwg



CHARBONNEAU ENGINEERING LLC

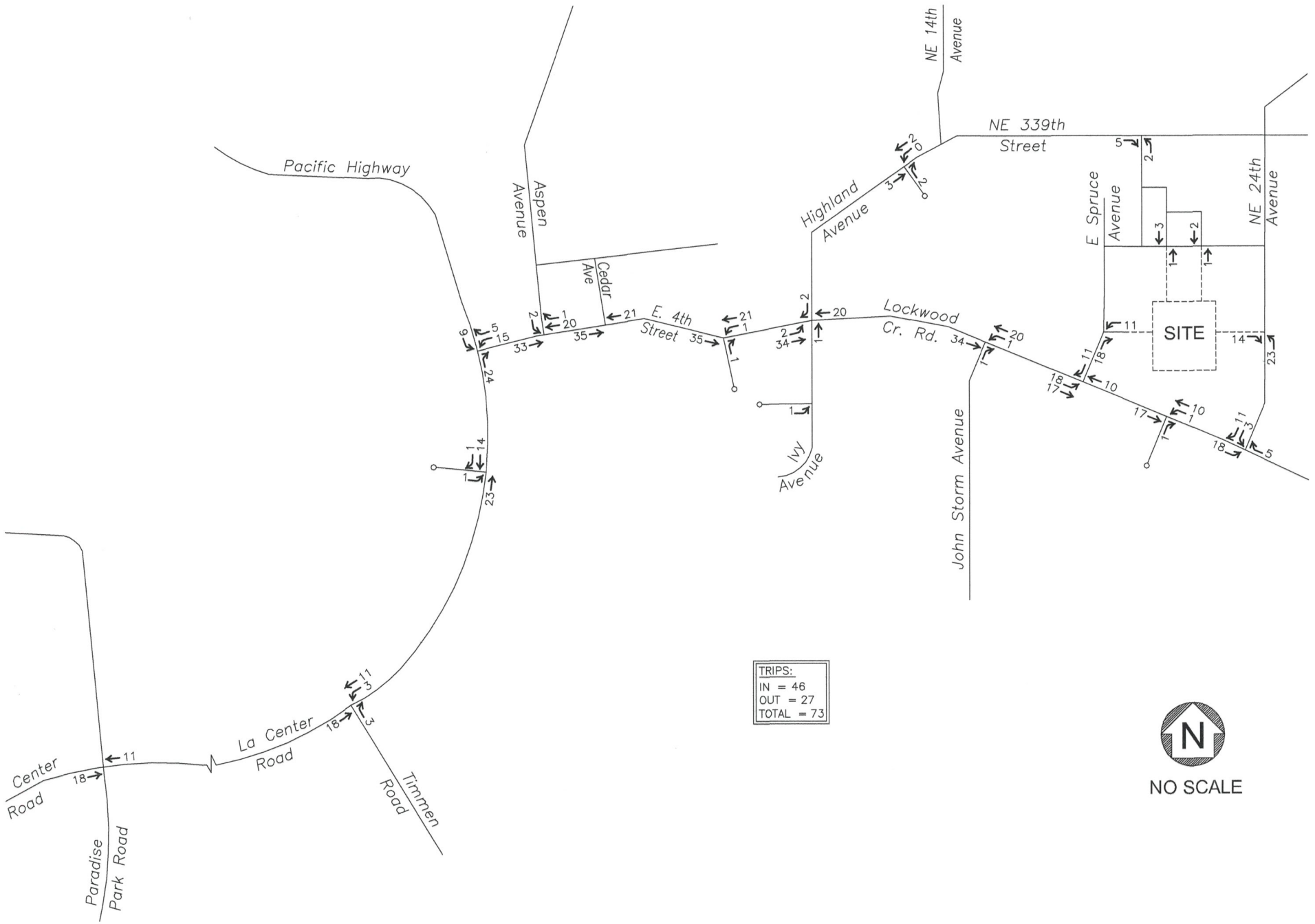
CT: 21-25

NOTES: Trip generation is based on Single-Family Residential (ITE 210) trip rates.

TRIP ASSIGNMENT
AM PEAK HOUR
LOCKWOOD MEADOWS

FIGURE
5a

TE: 08.01.21 FILE: 2125flow.dwg

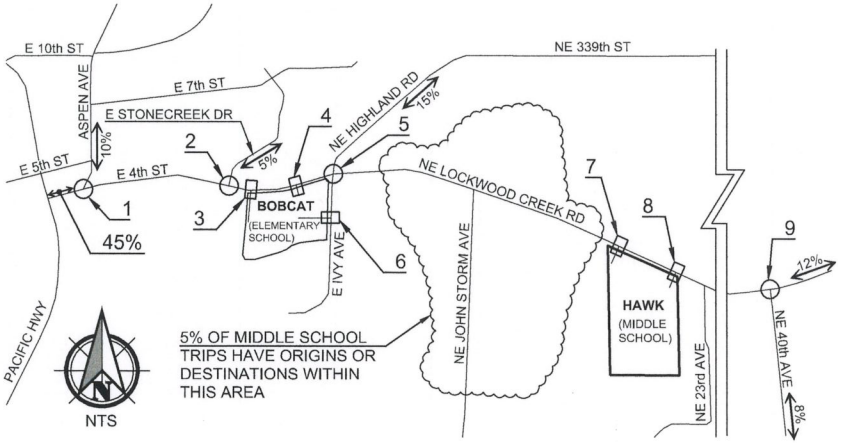


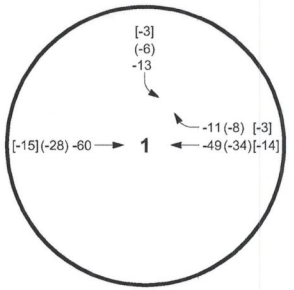
CHARBONNEAU ENGINEERING LLC
CT: 21-25

NOTES: Trip generation is based on Single-Family Residential (ITE 210) trip rates.

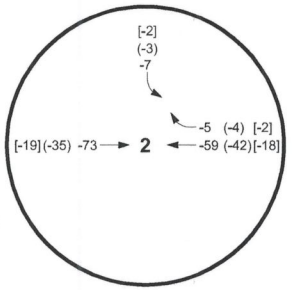
TRIP ASSIGNMENT
PM PEAK HOUR
LOCKWOOD MEADOWS

FIGURE
5b

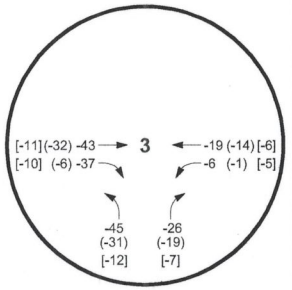




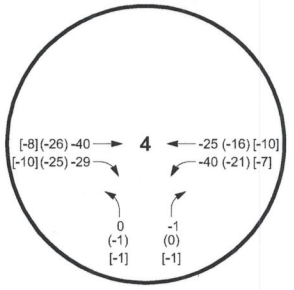
Aspen Avenue / E 4th Street



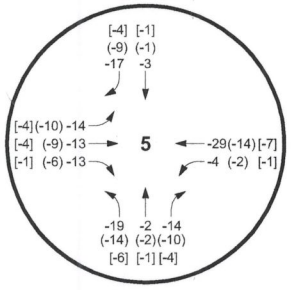
E Stonecreek Drive / E 4th Street



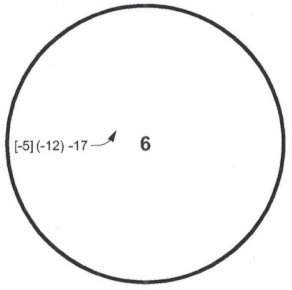
Bobcat West Driveway / E 4th Street



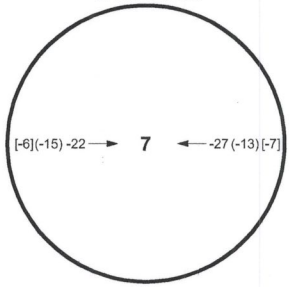
Bobcat East Driveway / E 4th Street



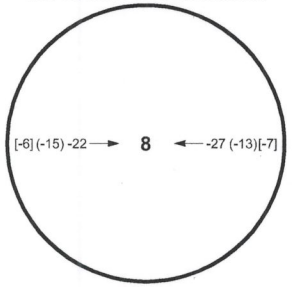
NE Highland Road / E Ivy Avenue / NE Lockwood Creek Road



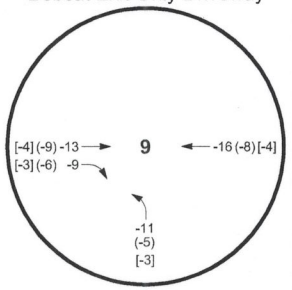
E Ivy Avenue / Bobcat Exit-Only Driveway



Hawk West Driveway / NE Lockwood Creek Road



Hawk East Driveway / NE Lockwood Creek Road



NE 40th Avenue / NE Lockwood Creek Road

LEGEND

▭	DRIVEWAY
○	INTERSECTION
XXX	AM PEAK HOUR (7:30 - 8:30 AM)
(XXX)	MIDDAY PEAK HOUR (2:30 - 3:30 PM)
[XXX]	PM PEAK HOUR (4:45 - 5:45 PM)

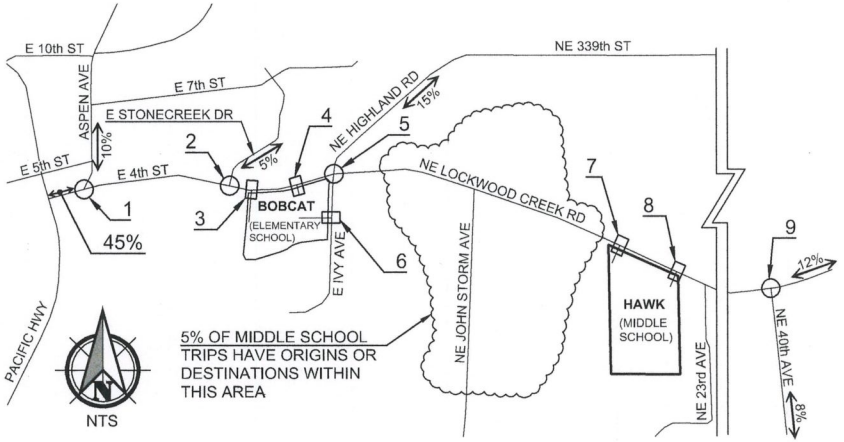
PBS

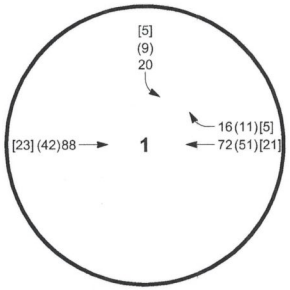
Existing Middle School Trip Distribution and Adjustments

La Center Middle School

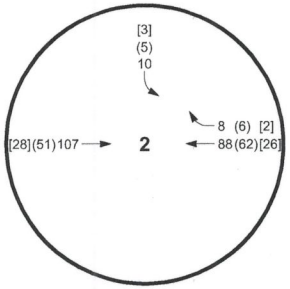
NOV 2018

FIGURE 9

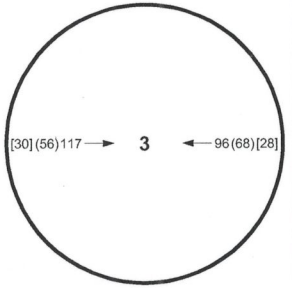




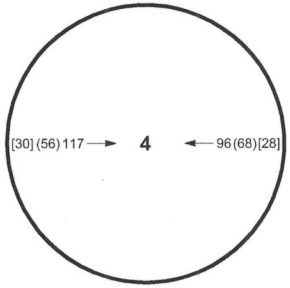
Aspen Avenue / E 4th Street



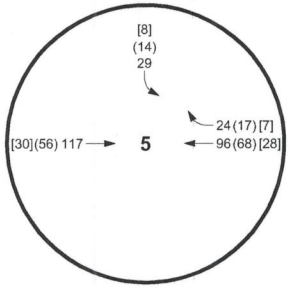
E Stonecreek Drive / E 4th Street



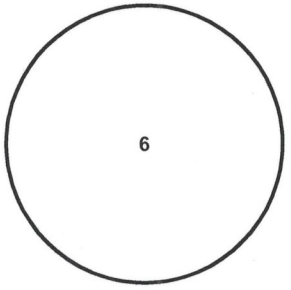
Bobcat West Driveway / E 4th Street



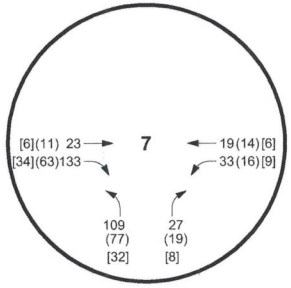
Bobcat East Driveway / E 4th Street



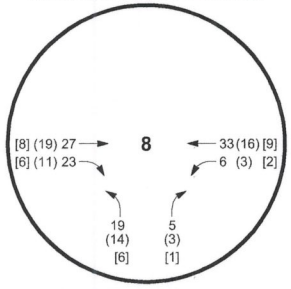
NE Highland Road / E Ivy Avenue / NE Lockwood Creek Road



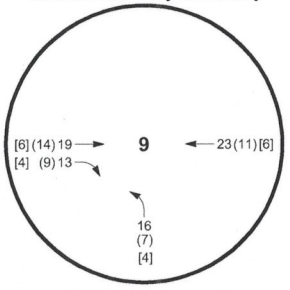
E Ivy Avenue / Bobcat Exit-Only Driveway



Hawk West Driveway / NE Lockwood Creek Road



Hawk East Driveway / NE Lockwood Creek Road



NE 40th Avenue / NE Lockwood Creek Road

LEGEND

▭	DRIVEWAY
○	INTERSECTION
XXX	AM PEAK HOUR (7:30 - 8:30 AM)
(XXX)	MIDDAY PEAK HOUR (2:30 - 3:30 PM)
[XXX]	PM PEAK HOUR (4:45 - 5:45 PM)

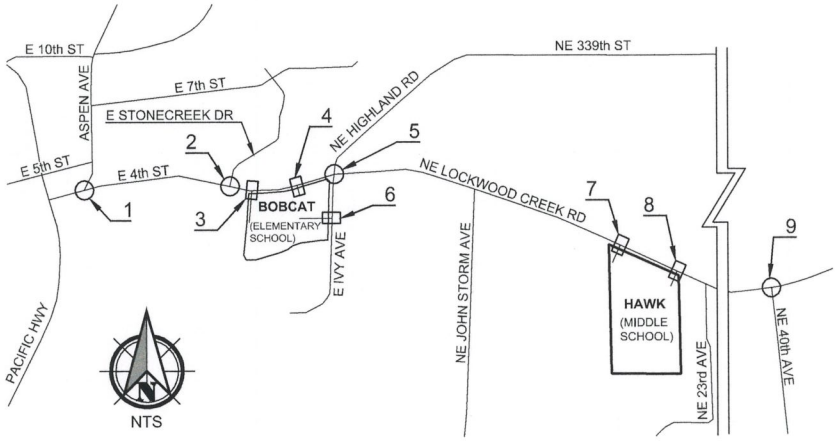
PBS

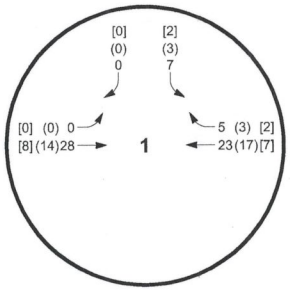
New Middle School Trip Distribution and Trip Assignments

La Center Middle School

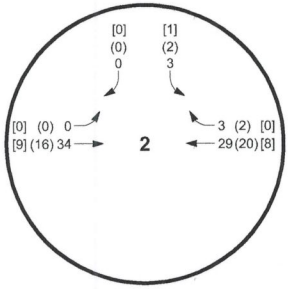
NOV 2018

FIGURE 8

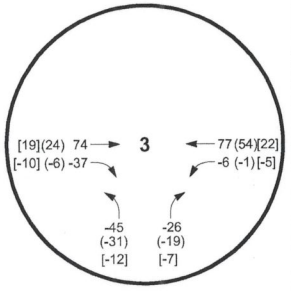




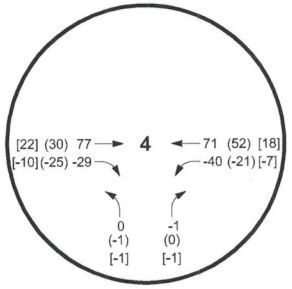
Aspen Avenue /
E 4th Street



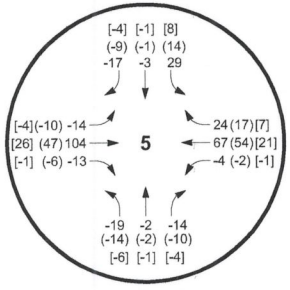
E Stonecreek Drive /
E 4th Street



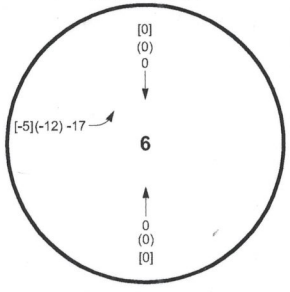
Bobcat West Driveway /
E 4th Street



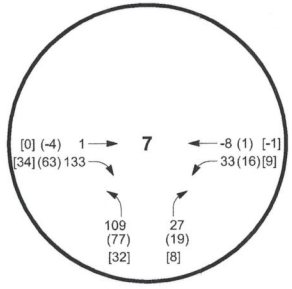
Bobcat East Driveway /
E 4th Street



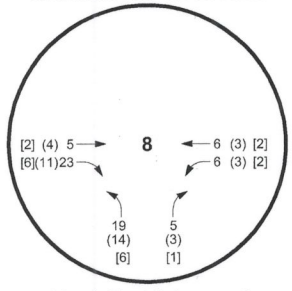
NE Highland Road / E Ivy Avenue /
NE Lockwood Creek Road



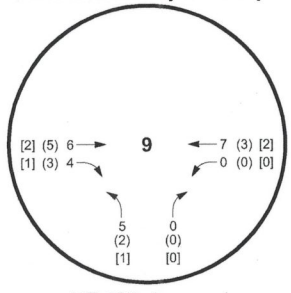
E Ivy Avenue /
Bobcat Exit-Only Driveway



Hawk West Driveway /
NE Lockwood Creek Road



Hawk East Driveway /
NE Lockwood Creek Road



NE 40th Avenue /
NE Lockwood Creek Road

LEGEND

▭	DRIVEWAY
○	INTERSECTION
XXX	AM PEAK HOUR (7:30 - 8:30 AM)
(XXX)	MIDDAY PEAK HOUR (2:30 - 3:30 PM)
[XXX]	PM PEAK HOUR (4:45 - 5:45 PM)

PBS

Net Trip Impacts
La Center Middle School

NOV 2018

FIGURE 10

CHARBONNEAU
ENGINEERING LLC

MEMORANDUM

Date: March 2, 2020

To: Mike Odren, RLA
Associate Principal
Olson Engineering, Inc.
222 East Evergreen Blvd
Vancouver WA 98660

From: Frank Charbonneau, PE, PTOE

Subject: Trip Generation Assessment FL2024
Minit Management Development
NW Paradise Park Road, La Center

This memo will serve as the trip generation assessment documenting the number of vehicular trips that will be produced by the proposed Minit Management development. The four acre site at address #2814 NW 319th Street is located in the northeast quadrant of NW La Center Road and the I-5 northbound on-ramp.

The development project will demolish the existing convenience store and gas station facilities and construct several new buildings consisting of 11,600 square feet of general retail, fast foot restaurant with drive-through totaling 2,800 square feet, convenience market with coffee drive-through totaling 4,510 square feet, and a 101 unit hotel. Parking on the site for 184 spaces will be provided, including eight ADA parking stalls. A copy of the project's site plan is attached to this memo.

The site we be served by three driveway accesses connecting to the perimeter road (NW Paradise Park Road) on the property's north and east sides. The nearest major intersections include NW La Center Road at the I-5 northbound off-ramp which is configured as a round-about and NW Paradise Park Road at NW La Center Road. This intersection is controlled by stop signing on the northbound Paradise Park Road approach and on the southbound Paradise Road approach.

The City of La Center issued a pre-application conference report (2019-018-PAC) dated June 11, 2019 documenting the application's process and requirements. The staff report detailed that the development agreement between the City and Minit Management LLC dated March 2016 vested a total of 199 PM peak hour trips for the site. As a result it was necessary to submit a trip generation assessment to verify the trip projection.

The number of trips were calculated based on the proposed building uses and sizes. Trip credits were applied for the existing facilities that will be demolished including the convenience market and gas station and a cardlock fueling station. The trip calculations were determined for the weekday average daily traffic (ADT) and the weekday AM and PM peak hours.

The analysis used the ITE Trip Generation manual (10th edition, year 2017).

For the proposed site uses several ITE land use categories were applied including #310 (Hotel), #820 (shopping center), #852 (convenience market), #934 (fast food restaurant with drive-through), and #938 (coffee drive-through). For the existing uses ITE code #853 for convenience market was used and historical rates for Pacific Pride Cardlock were applied for the cardlock fueling station.

A summary of the site's trip generation is provided in the following tables. Table 1 provides the trip generation for the site's existing uses. Table 2 provides the trip generation for the proposed site uses. Table 3 lists the net site trips for the development.

Table 1 Existing Land Uses Trip Generation Summary

ITE Land Use	Units	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Convenience Mkt with Gas (#853)								
Generation Rate [1]	6 fueling posiitons	322.50	20.76	50%	50%	23.04	50%	50%
Total Driveway Trips		**1,935**	**125**	63	62	**138**	69	69
Pass-By Trips [2] (AM Peak=63%; PM Peak=66%)			79	40	39	91	46	45
New Site Trips			**46**	23	23	**47**	23	24
Cardlock Fueling Station								
Generation Rate [3]	12 fueling positions		4.44	50%	50%	2.96	50%	50%
Total Driveway Trips		**1445**	**53**	27	26	**36**	18	18
Pass-By Trips [2] (AM Peak=58%; PM Peak=42%)			31	16	15	15	8	7
New Trips			**22**	11	11	**21**	10	11
Total Site Trips			**178**	90	88	**174**	87	87
Pass-by Trips			**110**	56	54	**106**	54	52
New Trips [4]		**3,380**	**68**	34	34	**68**	33	35

[1] Source: *Trip Generation*, 10th Edition, ITE, 2017, average rates.

[2] Pass-by percentage based on *Trip Generation Handbook, 3nd Edition*, ITE, 2017.

[3] Source: Independent surveys at Tarr Inc. Pacific Pride. AM trip rate = 1.5x calculated PM trip rate, ADT = 70% of ITE #944 Gas Station Rate

[4] New Trips = Total Trips - Internal Trips - Pass-by Trips.

Table 2 Proposed Land Uses Trip Generation Summary

ITE Land Use	Units	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Convenience Mkt [Open 15-16 hours] (#852)	4,410 sq. ft.							
Generation Rate [1,2]		345.70	31.02	50%	50%	34.57	49%	51%
Total Driveway Trips		**1,525**	**137**	69	68	**152**	74	78
Internal Trips [3] (AM Peak=16%; PM Peak=36%)			22	11	11	55	27	28
Pass-By Trips [4] (AM Peak=63%; PM Peak=66%)			72	36	36	64	31	33
New Site Trips		**1,525**	**43**	22	21	**33**	16	17
Shopping Center (#820)	11,600 sq. ft.							
Generation Rate [2]		37.75	0.94	62%	38%	3.81	48%	52%
Total Driveway Trips		**438**	**11**	7	4	**44**	21	23
Internal Trips [3] (AM Peak=16%; PM Peak=36%)			2	1	1	16	8	8
Pass-By Trips [4] (AM Peak=N/A; PM Peak=34%)						10	5	5
New Site Trips [4]		**438**	**9**	6	3	**18**	8	10
Hotel (#310)	101 rooms							
Generation Rate [2]		8.36	0.47	59%	41%	0.60	51%	49%
Total Driveway Trips		**844**	**47**	28	19	**61**	31	30
Internal Trips [3] (AM Peak=16%; PM Peak=36%)			8	4	4	22	11	11
New Site Trips			39	24	15	39	20	19
Fast-Food with Drive-Through (#934)	2,800 sq. ft.							
Generation Rate [2]		470.95	40.19	51%	49%	32.67	52%	48%
Total Driveway Trips		**1,319**	**113**	58	55	**91**	48	43
Internal Trips [3] (AM Peak=16%; PM Peak=36%)			19	10	9	33	17	16
Pass-By Trips [4] (AM Peak=49%; PM Peak=50%)			46	24	22	29	15	14
New Trips			**48**	24	24	**29**	16	13
Coffee/Donut Shop with Drive-Through & No Indoor Seating (#938)	100 sq. ft.							
Generation Rate [2]		2000.00	337.04	50%	50%	83.33	50%	50%
Total Driveway Trips		**200**	**34**	17	17	**8**	4	4
Internal Trips [3] (AM Peak=16%; PM Peak=36%)		0	6	3	3	3	2	1
Pass-By Trips [4,5] (AM Peak=83%; PM Peak=83%)		166	23	12	11	4	2	2
New Site Trips		**34**	**5**	2	3	**1**	0	1
Total Site Trips		**4,326**	**342**	179	163	**356**	178	178
Internal Trips			**57**	29	28	**129**	65	64
Pass-by Trips			**141**	72	69	**107**	53	54
New Trips			**144**	78	66	**120**	60	60

[1] ADT trip rate estimated as ten times the PM peak hour trip rate.

[2] Source: *Trip Generation*, 10th Edition, ITE, 2017, average rates.

[3] Internal capture calculated with unconstrained internal capture rates presented in the Center for Urban Transportation Research (CUTR) *Trip Internalization in Multi-Use Developments*, April 2014, FDOT.

[4] Pass-by percentage based on Trip Generation Handbook, 3nd Edition, ITE, 2017.

[5] The weekday PM peak pass-by rate used to calculate the daily and weekday AM peak pass-by trips.

[6] New Trips = Total Trips - Internal Trips - Pass-by Trips.

Table 3 presents the net trip generation results (proposed site trips – existing site trips) for the development project. When the new facility is developed it is projected that the site will generate a net of 76 trips in the AM peak hour 52 trips in the PM peak hour. The ADT is projected to increase by 946 trips per day.

Table 3 Net New Trips

Site Uses	Weekday Peak Hour						Weekday ADT
	AM Peak Hour			PM Peak Hour			
	Total	Enter	Exit	Total	Enter	Exit	
Proposed Site [1]	**144**	78	66	**120**	60	60	4,326
Existing Site [2]	**-68**	-34	-34	**-68**	-33	-35	3,380
Net New Trips [3]	**76**	44	32	**52**	27	25	946

[1] Refer to Table 2.

[2] Refer to Table 1.

[3] Net New Trips = Proposed Site Trips - Existing Site Trips.

It is recommended that the City of La Center support the proposed development without the application of traffic impact fees as the projected number of site trips falls below the vested number of peak hour trips (199 trips) identified in the City's development agreement with Minit Management.

If you should need any additional traffic engineering support on this project or if there are any further questions, please contact Frank Charbonneau, PE, PTOE at 503.293.1118 or email Frank@CharbonneauEngineer.com.

Attachment

- Site Plan

APPENDIX D
BREEZE CREEK PROJECT

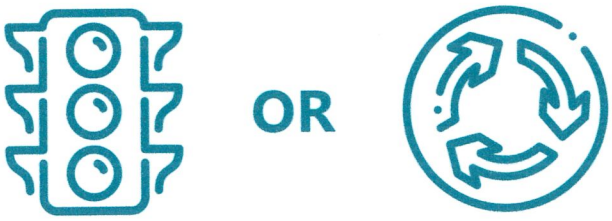
CITY OF LA CENTER | BREZEE CREEK CULVERT REPLACEMENT & 4TH STREET WIDENING FAQ

Thank you for your comments and questions about the Brezee Creek Culvert Replacement and 4th Street Widening Project. The topics listed below reflect feedback received to date during public meetings as well as those regarding the Virtual Open House released the week of October 19, 2020. This document will be updated periodically to address new frequently asked questions.

For more information, contact: Tony Cooper, Assistant Public Works Manager/City Engineer, PE | acooper@ci.lacenter.wa.us | 360.263.2889

CITY OF LA CENTER | BREZEE CREEK CULVERT REPLACEMENT & 4TH STREET WIDENING FAQ

TRAFFIC SIGNAL VS. ROUNDABOUT



Comment: Include the roundabout alternative in the scope of the 4th Street widening project. If the budget is unavailable for the roundabout alternative at the time of the 4th Street widening, the do nothing alternative should be chosen until funds are available. Signalization poses a significantly higher statistical risk to pedestrians than a stop sign controlled intersection. An increased risk to pedestrians is unacceptable for a primary intersection connecting the parks and schools of La Center.

Background

- Safety is paramount to both the design team and City staff who are working on this project.
- The original realignment of Highland Road and 4th Street, which took place in 2008, was designed to support a future traffic signal at this intersection.
- The posted speed limit of 4th Street is 25 mph with a reduction to 20 mph within the school zone while children are present. For a low-speed corridor of this type, both a signal and roundabout effectively provide a safe configuration for all users.

Design Process

- As part of the intersection design process completed during the current Brezee Creek Culvert Replacement/4th Street Widening Project, a traffic study and report were completed.
- Level of Service (LOS) is a measure of vehicular traffic flow, reflecting indicators such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.
- The LOS for the Highland Road and 4th Street intersection is projected to be LOS F (failing) by 2040 if left as-is.
- According to LOS guidelines set forth by the City of La Center, if the LOS exceeds D, the intersection fails, and an intersection improvement is required.

Comparison

- A decision to use a signal or roundabout to address a deficient intersection, in this case Highland Road and 4th Street, requires numerous factors to be considered. For the Highland Road and 4th Street intersection, both alternatives (roundabout and signalization) would provide the necessary safety and LOS improvements required by City guidelines.
- However, for this specific intersection in a low-speed corridor, a signal provides safe crossing routes for pedestrians and bicyclists, particularly school children by requiring traffic to completely stop, offering visibility, and providing an allotted amount of time for pedestrian and bicyclist passage through the intersection.
- A signal provides safety and LOS improvements with a significantly lower construction cost, reduced property impacts and less right-of-way acquisition (the City purchasing property from private owners or public agencies).
- The analysis of available accident data completed as part of the Project development at this intersection reveals that only a single incident has occurred. The installation of a signal could effectively prevent this type of accident in the future.

For more information, contact: Tony Cooper, Assistant Public Works Manager/City Engineer, PE | acooper@ci.lacenter.wa.us | 360.263.2889

APPENDIX E
LEVEL OF SERVICE COMPUTER PRINTOUTS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*

East/West Street: *Lockwood Creek Road* | North/South Street: *24th Ave.*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*2*	*67*	*0*	*1*	*119*	*8*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*2*	*81*	*0*	*1*	*145*	*9*
Percent Heavy Vehicles	*50*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*3*	*0*	*6*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*3*	*0*	*7*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*17*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*2*	*1*		*0*			*10*	
C (m) (veh/h)	*1180*	*1529*					*812*	
v/c	*0.00*	*0.00*					*0.01*	
95% queue length	*0.01*	*0.00*					*0.04*	
Control Delay (s/veh)	*8.1*	*7.4*					*9.5*	
LOS	*A*	*A*					*A*	
Approach Delay (s/veh)	--	--				*9.5*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *Lockwood Creek Road*	North/South Street: *24th Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*18*	*81*	*0*	*1*	*138*	*9*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*21*	*98*	*0*	*1*	*168*	*10*
Percent Heavy Vehicles	*50*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*7*	*0*	*24*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*8*	*0*	*29*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*17*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*21*	*1*		*0*			*37*	
C (m) (veh/h)	*1155*	*1508*					*779*	
v/c	*0.02*	*0.00*					*0.05*	
95% queue length	*0.06*	*0.00*					*0.15*	
Control Delay (s/veh)	*8.2*	*7.4*					*9.9*	
LOS	*A*	*A*					*A*	
Approach Delay (s/veh)	--	--					*9.9*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Road*	North/South Street: *24th Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*18*	*81*	*12*	*1*	*138*	*9*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*21*	*98*	*14*	*1*	*168*	*10*
Percent Heavy Vehicles	*50*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*33*	*0*	*4*	*7*	*0*	*24*
Peak-Hour Factor, PHF	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Hourly Flow Rate, HFR (veh/h)	*40*	*0*	*4*	*8*	*0*	*29*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*17*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*21*	*1*		*44*			*37*	
C (m) (veh/h)	*1155*	*1490*		*611*			*776*	
v/c	*0.02*	*0.00*		*0.07*			*0.05*	
95% queue length	*0.06*	*0.00*		*0.23*			*0.15*	
Control Delay (s/veh)	*8.2*	*7.4*		*11.3*			*9.9*	
LOS	*A*	*A*		*B*			*A*	
Approach Delay (s/veh)	--	--	*11.3*			*9.9*		
Approach LOS	--	--	*B*			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*

East/West Street: *Lockwood Creek Road*	North/South Street: *24th Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*197*	*0*	*1*	*108*	*16*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*12*	*229*	*0*	*1*	*125*	*18*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*6*	*0*	*4*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*6*	*0*	*4*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*25*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*12*	*1*		*0*			*10*	
C (m) (veh/h)	*1452*	*1351*					*657*	
v/c	*0.01*	*0.00*					*0.02*	
95% queue length	*0.02*	*0.00*					*0.05*	
Control Delay (s/veh)	*7.5*	*7.7*					*10.6*	
LOS	*A*	*A*					*B*	
Approach Delay (s/veh)	--	--				*10.6*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *Lockwood Creek Road*	North/South Street: *24th Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*30*	*212*	*0*	*1*	*117*	*23*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*34*	*246*	*0*	*1*	*136*	*26*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*9*	*0*	*16*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*10*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*25*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*34*	*1*		*0*			*28*	
C (m) (veh/h)	*1429*	*1332*					*676*	
v/c	*0.02*	*0.00*					*0.04*	
95% queue length	*0.07*	*0.00*					*0.13*	
Control Delay (s/veh)	*7.6*	*7.7*					*10.6*	
LOS	*A*	*A*					*B*	
Approach Delay (s/veh)	--	--					*10.6*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & 24th Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/20/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Road*	North/South Street: *24th Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*30*	*212*	*38*	*4*	*117*	*23*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*34*	*246*	*44*	*4*	*136*	*26*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*23*	*0*	*2*	*9*	*0*	*16*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*26*	*0*	*2*	*10*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*25*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*34*	*4*		*28*			*28*	
C (m) (veh/h)	*1429*	*1283*		*475*			*660*	
v/c	*0.02*	*0.00*		*0.06*			*0.04*	
95% queue length	*0.07*	*0.01*		*0.19*			*0.13*	
Control Delay (s/veh)	*7.6*	*7.8*		*13.1*			*10.7*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*13.1*			*10.7*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*

East/West Street: *Lockwood Creek Rd.* | North/South Street: *Spruce Ave.*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*19*	*81*			*131*	*4*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*1.00*	*1.00*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*22*	*97*	*0*	*0*	*157*	*4*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*1*		*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.83*	*1.00*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*1*	*0*	*19*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*22*						*20*	
C (m) (veh/h)	*1430*						*879*	
v/c	*0.02*						*0.02*	
95% queue length	*0.05*						*0.07*	
Control Delay (s/veh)	*7.6*						*9.2*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.2*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *Spruce Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*220*			*258*	*11*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*1.00*	*1.00*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*32*	*265*	*0*	*0*	*310*	*13*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*6*		*35*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.83*	*1.00*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*7*	*0*	*42*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*32*						*49*	
C (m) (veh/h)	*1248*						*663*	
v/c	*0.03*						*0.07*	
95% queue length	*0.08*						*0.24*	
Control Delay (s/veh)	*8.0*						*10.9*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.9*	
Approach LOS	--	--					*B*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street:	*Lockwood Creek Rd.*
Intersection Orientation:	*East-West*
North/South Street:	*Spruce Ave.*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*232*			*309*	*11*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*1.00*	*1.00*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*32*	*279*	*0*	*0*	*372*	*13*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*6*		*35*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.83*	*1.00*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*7*	*0*	*42*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*32*						*49*	
C (m) (veh/h)	*1185*						*608*	
v/c	*0.03*						*0.08*	
95% queue length	*0.08*						*0.26*	
Control Delay (s/veh)	*8.1*						*11.4*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--				*11.4*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*	
East/West Street: *Lockwood Creek Rd.*	North/South Street: *Spruce Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*21*	*200*			*149*	*1*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*1.00*	*1.00*	*0.87*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*24*	*229*	*0*	*0*	*171*	*1*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*1*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*1*	*0*	*17*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*24*						*18*	
C (m) (veh/h)	*1417*						*834*	
v/c	*0.02*						*0.02*	
95% queue length	*0.05*						*0.07*	
Control Delay (s/veh)	*7.6*						*9.4*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.4*	
Approach LOS	--	--					*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description *Year 2025 w/o Project*

East/West Street: *Lockwood Creek Rd.* | North/South Street: *Spruce Ave.*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*40*	*261*			*198*	*3*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*1.00*	*1.00*	*0.87*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*45*	*299*	*0*	*0*	*227*	*3*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*3*		*27*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*3*	*0*	*31*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*45*						*34*	
C (m) (veh/h)	*1350*						*746*	
v/c	*0.03*						*0.05*	
95% queue length	*0.10*						*0.14*	
Control Delay (s/veh)	*7.8*						*10.1*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.1*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Sprice*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *Spruce Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*40*	*299*			*221*	*3*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*1.00*	*1.00*	*0.87*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*45*	*343*	*0*	*0*	*254*	*3*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*3*		*27*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*3*	*0*	*31*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*45*						*34*	
C (m) (veh/h)	*1320*						*713*	
v/c	*0.03*						*0.05*	
95% queue length	*0.11*						*0.15*	
Control Delay (s/veh)	*7.8*						*10.3*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.3*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*	
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*93*	*20*	*7*	*148*	
Peak-Hour Factor, PHF	*0.87*	*0.82*	*0.82*	*0.82*	*0.82*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*113*	*24*	*8*	*180*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*50*		*6*			
Peak-Hour Factor, PHF	*0.82*	*1.00*	*0.82*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*60*	*0*	*7*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*17*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*8*		*67*				
C (m) (veh/h)		*1459*		*690*				
v/c		*0.01*		*0.10*				
95% queue length		*0.02*		*0.32*				
Control Delay (s/veh)		*7.5*		*10.8*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*10.8*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*230*	*23*	*23*	*278*	
Peak-Hour Factor, PHF	*0.87*	*0.82*	*0.82*	*0.82*	*0.82*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*280*	*28*	*28*	*339*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*55*		*16*			
Peak-Hour Factor, PHF	*0.82*	*1.00*	*0.82*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*67*	*0*	*19*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*17*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*28*		*86*				
C (m) (veh/h)		*1264*		*449*				
v/c		*0.02*		*0.19*				
95% queue length		*0.07*		*0.70*				
Control Delay (s/veh)		*7.9*		*14.9*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--		*14.9*				
Approach LOS	--	--		*B*				

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*241*	*23*	*23*	*309*	
Peak-Hour Factor, PHF	*0.87*	*0.82*	*0.82*	*0.82*	*0.82*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*0*	*293*	*28*	*28*	*376*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*55*		*16*			
Peak-Hour Factor, PHF	*0.82*	*1.00*	*0.82*	*0.87*	*1.00*	*0.87*
Hourly Flow Rate, HFR (veh/h)	*67*	*0*	*19*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*17*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*28*		*86*				
C (m) (veh/h)		*1250*		*422*				
v/c		*0.02*		*0.20*				
95% queue length		*0.07*		*0.75*				
Control Delay (s/veh)		*7.9*		*15.7*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*15.7*					
Approach LOS	--	--	*C*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*	
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*186*	*11*	*10*	*150*	
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*0*	*211*	*12*	*11*	*170*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*37*		*24*			
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*42*	*0*	*27*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*11*		*69*				
C (m) (veh/h)		*1358*		*666*				
v/c		*0.01*		*0.10*				
95% queue length		*0.02*		*0.35*				
Control Delay (s/veh)		*7.7*		*11.0*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*11.0*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*261*	*12*	*15*	*206*	
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*0*	*296*	*13*	*17*	*234*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*39*		*28*			
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*44*	*0*	*31*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*75*				
C (m) (veh/h)		*1263*		*558*				
v/c		*0.01*		*0.13*				
95% queue length		*0.04*		*0.46*				
Control Delay (s/veh)		*7.9*		*12.5*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.5*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Creek Rd. & John St.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Rd.*	North/South Street: *John Storm Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*297*	*12*	*15*	*228*	
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*0*	*337*	*13*	*17*	*259*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*39*		*28*			
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*44*	*0*	*31*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*0*	*0*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*75*				
C (m) (veh/h)		*1220*		*516*				
v/c		*0.01*		*0.15*				
95% queue length		*0.04*		*0.51*				
Control Delay (s/veh)		*8.0*		*13.2*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--		*13.2*				
Approach LOS	--	--		*B*				

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Ivy Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*	
East/West Street: *Lockwood Creek Road*	North/South Street: *Ivy Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*147*	*132*	*15*	*10*	*246*	*39*
Peak-Hour Factor, PHF	*0.72*	*0.72*	*0.72*	*0.72*	*0.72*	*0.72*
Hourly Flow Rate, HFR (veh/h)	*204*	*183*	*20*	*13*	*341*	*54*
Percent Heavy Vehicles	*5*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*31*	*1*	*19*	*10*	*3*	*214*
Peak-Hour Factor, PHF	*0.72*	*0.72*	*0.72*	*0.72*	*0.72*	*0.72*
Hourly Flow Rate, HFR (veh/h)	*43*	*1*	*26*	*13*	*4*	*297*
Percent Heavy Vehicles	*55*	*0*	*5*	*10*	*0*	*7*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (veh/h)	*204*	*13*	*43*		*27*	*13*		*301*
C (m) (veh/h)	*1147*	*1381*	*66*		*749*	*175*		*646*
v/c	*0.18*	*0.01*	*0.65*		*0.04*	*0.07*		*0.47*
95% queue length	*0.65*	*0.03*	*2.83*		*0.11*	*0.24*		*2.48*
Control Delay (s/veh)	*8.8*	*7.6*	*129.9*		*10.0*	*27.2*		*15.3*
LOS	*A*	*A*	*F*		*A*	*D*		*C*
Approach Delay (s/veh)	--	--	*83.7*			*15.8*		
Approach LOS	--	--	*F*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Ivy Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*	
East/West Street: *Lockwood Creek Road*	North/South Street: *Ivy Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*179*	*289*	*2*	*1*	*144*	*15*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*198*	*321*	*2*	*1*	*160*	*16*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*23*	*6*	*18*	*13*	*2*	*132*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*25*	*6*	*20*	*14*	*2*	*146*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (veh/h)	*198*	*1*	*25*		*26*	*14*		*148*
C (m) (veh/h)	*1412*	*1248*	*175*		*496*	*222*		*851*
v/c	*0.14*	*0.00*	*0.14*		*0.05*	*0.06*		*0.17*
95% queue length	*0.49*	*0.00*	*0.49*		*0.17*	*0.20*		*0.63*
Control Delay (s/veh)	*8.0*	*7.9*	*29.0*		*12.7*	*22.3*		*10.1*
LOS	*A*	*A*	*D*		*B*	*C*		*B*
Approach Delay (s/veh)	--	--	*20.7*			*11.2*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Ivy Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street:	*Lockwood Creek Road*
North/South Street:	*Ivy Ave.*
Intersection Orientation:	*East-West*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*189*	*366*	*2*	*0*	*194*	*23*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*210*	*406*	*2*	*0*	*215*	*25*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*19*	*6*	*15*	*6*	*1*	*139*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*21*	*6*	*16*	*6*	*1*	*154*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (veh/h)	*210*	*0*	*21*		*22*	*6*		*155*
C (m) (veh/h)	*1339*	*1162*	*129*		*390*	*169*		*799*
v/c	*0.16*	*0.00*	*0.16*		*0.06*	*0.04*		*0.19*
95% queue length	*0.56*	*0.00*	*0.56*		*0.18*	*0.11*		*0.72*
Control Delay (s/veh)	*8.2*	*8.1*	*38.3*		*14.8*	*27.1*		*10.6*
LOS	*A*	*A*	*E*		*B*	*D*		*B*
Approach Delay (s/veh)	--	--	*26.2*			*11.2*		
Approach LOS	--	--	*D*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*Lockwood Cr. Rd. & Ivy Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *Lockwood Creek Road*	North/South Street: *Ivy Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*189*	*398*	*2*	*0*	*214*	*23*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*210*	*442*	*2*	*0*	*237*	*25*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*19*	*6*	*15*	*6*	*1*	*139*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*21*	*6*	*16*	*6*	*1*	*154*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (veh/h)	*210*	*0*	*21*		*22*	*6*		*155*
C (m) (veh/h)	*1314*	*1127*	*117*		*365*	*153*		*776*
v/c	*0.16*	*0.00*	*0.18*		*0.06*	*0.04*		*0.20*
95% queue length	*0.57*	*0.00*	*0.62*		*0.19*	*0.12*		*0.74*
Control Delay (s/veh)	*8.3*	*8.2*	*42.4*		*15.5*	*29.5*		*10.8*
LOS	*A*	*A*	*E*		*C*	*D*		*B*
Approach Delay (s/veh)	--	--	*28.6*			*11.5*		
Approach LOS	--	--	*D*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*	
East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*45*	*297*			*425*	*16*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*1.00*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*55*	*366*	*0*	*0*	*524*	*19*
Percent Heavy Vehicles	*7*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*47*		*124*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.81*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*58*	*0*	*124*
Percent Heavy Vehicles	*0*	*0*	*0*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*55*					*58*		*124*
C (m) (veh/h)	*1001*					*249*		*550*
v/c	*0.05*					*0.23*		*0.23*
95% queue length	*0.17*					*0.88*		*0.86*
Control Delay (s/veh)	*8.8*					*23.8*		*13.4*
LOS	*A*					*C*		*B*
Approach Delay (s/veh)	--	--				*16.7*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*48*	*325*			*481*	*19*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*1.00*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*59*	*401*	*0*	*0*	*593*	*23*
Percent Heavy Vehicles	*7*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*51*		*131*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.81*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*62*	*0*	*131*
Percent Heavy Vehicles	*0*	*0*	*0*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*59*					*62*		*131*
C (m) (veh/h)	*940*					*211*		*502*
v/c	*0.06*					*0.29*		*0.26*
95% queue length	*0.20*					*1.17*		*1.04*
Control Delay (s/veh)	*9.1*					*29.0*		*14.7*
LOS	*A*					*D*		*B*
Approach Delay (s/veh)	--	--				*19.3*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*48*	*333*			*506*	*21*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*1.00*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*59*	*411*	*0*	*0*	*624*	*25*
Percent Heavy Vehicles	*7*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*52*		*131*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.81*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*64*	*0*	*131*
Percent Heavy Vehicles	*0*	*0*	*0*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*59*					*64*		*131*
C (m) (veh/h)	*914*					*199*		*481*
v/c	*0.06*					*0.32*		*0.27*
95% queue length	*0.21*					*1.32*		*1.10*
Control Delay (s/veh)	*9.2*					*31.4*		*15.3*
LOS	*A*					*D*		*C*
Approach Delay (s/veh)	--	--				*20.6*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*

East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*171*	*425*			*229*	*11*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*1.00*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*183*	*456*	*0*	*0*	*246*	*11*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*11*		*87*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*11*	*0*	*93*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*183*					*11*		*93*
C (m) (veh/h)	*1320*					*212*		*792*
v/c	*0.14*					*0.05*		*0.12*
95% queue length	*0.48*					*0.16*		*0.40*
Control Delay (s/veh)	*8.2*					*22.9*		*10.1*
LOS	*A*					*C*		*B*
Approach Delay (s/veh)	--	--				*11.5*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*181*	*483*			*263*	*13*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*1.00*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*194*	*519*	*0*	*0*	*282*	*13*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*14*		*92*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*15*	*0*	*98*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*194*					*15*		*98*
C (m) (veh/h)	*1278*					*176*		*756*
v/c	*0.15*					*0.09*		*0.13*
95% queue length	*0.53*					*0.28*		*0.44*
Control Delay (s/veh)	*8.3*					*27.4*		*10.5*
LOS	*A*					*D*		*B*
Approach Delay (s/veh)	--	--				*12.7*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*E. 4th St. & Aspen Ave.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *E 4th St.*	North/South Street: *Aspen Ave.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*181*	*513*			*282*	*14*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*1.00*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*194*	*551*	*0*	*0*	*303*	*15*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*16*		*92*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*17*	*0*	*98*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (veh/h)	*194*					*17*		*98*
C (m) (veh/h)	*1253*					*163*		*735*
v/c	*0.15*					*0.10*		*0.13*
95% queue length	*0.55*					*0.34*		*0.46*
Control Delay (s/veh)	*8.4*					*29.6*		*10.7*
LOS	*A*					*D*		*B*
Approach Delay (s/veh)	--	--				*13.5*		
Approach LOS	--	--				*B*		

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	DSK	Intersection	Pacific Hwy. & 4th St.
Agency or Co.	Kelly Engineering	E/W Street Name	W 4th St.
Date Performed	2/21/2022	N/S Street Name	Pacific Hwy.
Time Period	AM Peak Hour	Analysis Year	2022
Peak Hour Factor	0.87	Project ID	Existing

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	0	0		0	0	0		0	1	0		0	1	0	
Lane Assignment							LR				T				LT	
Right-Turn Bypass	None				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Volume (V), veh/h				0	473		52	0		67		0	46	179		0
Heavy Veh. Adj. (f_{HV}), %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	826			79			54			560		
Exiting Flow (V_{ex}), pc/h	54			0			141			772		
Entry Flow (V_e), pc/h					622			79	701		266	
Entry Volume veh/h					604			77	681		258	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		0			1044			1070			645	
Capacity (c), veh/h		0			1013			1039			627	
v/c Ratio (X)					0.60			0.07			0.41	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					11.6			4.1	0.0		11.8	
Lane LOS		F			B			A			B	
Lane 95% Queue					4.1			0.2			2.0	
Approach Delay, s/veh				11.64			0.42			11.76		
Approach LOS, s/veh				B			A			B		
Intersection Delay, s/veh	6.41											
Intersection LOS	A											

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	DSK	Intersection	Pacific Hwy. & 4th St.
Agency or Co.	Kelly Engineering	E/W Street Name	W 4th St.
Date Performed	2/21/2022	N/S Street Name	Pacific Hwy.
Time Period	AM Peak Hour	Analysis Year	2025
Peak Hour Factor	0.87	Project ID	Year 2025 w/o Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	0	0		0	0	0		0	1	0		0	1	0	
Lane Assignment							LR				T				LT	
Right-Turn Bypass	None				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Volume (V), veh/h				0	523		63	0		71		0	52	190		0
Heavy Veh. Adj. (f_{HV}), %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	906			84			62			619		
Exiting Flow (V_{ex}), pc/h	62			0			159			844		
Entry Flow (V_e), pc/h					694			84	752		287	
Entry Volume veh/h					674			82	730		279	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		0			1039			1063			608	
Capacity (c), veh/h		0			1009			1032			591	
v/c Ratio (X)					0.67			0.08			0.47	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					13.8			4.2	0.0		13.8	
Lane LOS		F			B			A			B	
Lane 95% Queue					5.3			0.3			2.5	
Approach Delay, s/veh				13.76			0.42			13.76		
Approach LOS, s/veh				B			A			B		
Intersection Delay, s/veh	7.63											
Intersection LOS	A											

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*DSK*	Intersection	*Pacific Hwy. & 4th St.*
Agency or Co.	*Kelly Engineering*	E/W Street Name	*W 4th St.*
Date Performed	*2/21/2022*	N/S Street Name	*Pacific Hwy.*
Time Period	*AM Peak Hour*	Analysis Year	*2025*
Peak Hour Factor	*0.87*	Project ID	*Year 2025 with Project*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*0*	*0*		*0*	*0*	*0*		*0*	*1*	*0*		*0*	*1*	*0*	
Lane Assignment							*LR*				*T*				*LT*	
Right-Turn Bypass	*None*				None				Non-Yielding				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h				*0*	*546*		*65*	*0*		*71*		*0*	*53*	*190*		*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*934*			*84*			*63*			*646*		
Exiting Flow (V_{ex}), pc/h	*63*			*0*			*161*			*871*		
Entry Flow (V_e), pc/h				*723*				*84*	*760*		*288*	
Entry Volume veh/h				*702*				*82*	*738*		*280*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*0*			*1039*			*1061*			*592*	
Capacity (c), veh/h		*0*			*1009*			*1030*			*575*	
v/c Ratio (X)					*0.70*			*0.08*			*0.49*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					*14.8*			*4.2*	*0.0*		*14.5*	
Lane LOS		*F*			*B*			*A*			*B*	
Lane 95% Queue					*5.9*			*0.3*			*2.6*	
Approach Delay, s/veh				*14.77*			*0.42*			*14.47*		
Approach LOS, s/veh				*B*			*A*			*B*		
Intersection Delay, s/veh	*8.19*											
Intersection LOS	*A*											

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	DSK	Intersection	Pacific Hwy. & 4th St.
Agency or Co.	Kelly Engineering	E/W Street Name	W 4th St.
Date Performed	2/21/2022	N/S Street Name	Pacific Hwy.
Time Period	PM Peak Hour	Analysis Year	2022
Peak Hour Factor	0.94	Project ID	Existing

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	0	0		0	0	0		0	1	0		0	1	0	
Lane Assignment							LR				T				LT	
Right-Turn Bypass	None				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Volume (V), veh/h				0	327		31	0		169		0	16	129		0
Heavy Veh. Adj. (f_{HV}), %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	517			185			18			358		
Exiting Flow (V_{ex}), pc/h	18			0			219			500		
Entry Flow (V_e), pc/h					392			185	640		159	
Entry Volume veh/h					381			180	621		154	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		0			939			1110			790	
Capacity (c), veh/h		0			912			1078			767	
v/c Ratio (X)					0.42			0.17			0.20	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					8.8			4.8	0.0		6.9	
Lane LOS		F			A			A			A	
Lane 95% Queue					2.1			0.6			0.7	
Approach Delay, s/veh				8.83			1.09			6.88		
Approach LOS, s/veh				A			A			A		
Intersection Delay, s/veh	3.96											
Intersection LOS	A											

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	DSK	Intersection	Pacific Hwy. & 4th St.
Agency or Co.	Kelly Engineering	E/W Street Name	W 4th St.
Date Performed	2/21/2022	N/S Street Name	Pacific Hwy.
Time Period	PM Peak Hour	Analysis Year	2025
Peak Hour Factor	0.94	Project ID	Year 2025 w/o Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	0	0		0	0	0		0	1	0		0	1	0	
Lane Assignment							LR				T				LT	
Right-Turn Bypass	None				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Volume (V), veh/h				0	362		38	0		179		0	26	137		0
Heavy Veh. Adj. (f_{HV}), %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	575			196			28			397		
Exiting Flow (V_{ex}), pc/h	28			0			238			547		
Entry Flow (V_e), pc/h					438			196	705		179	
Entry Volume veh/h					425			190	684		174	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		0			929			1098			760	
Capacity (c), veh/h		0			902			1066			738	
v/c Ratio (X)					0.47			0.18			0.24	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					9.9			5.0	0.0		7.6	
Lane LOS		F			A			A			A	
Lane 95% Queue					2.6			0.6			0.9	
Approach Delay, s/veh				9.86			1.09			7.55		
Approach LOS, s/veh				A			A			A		
Intersection Delay, s/veh	4.38											
Intersection LOS	A											

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	DSK	Intersection	Pacific Hwy. & 4th St.
Agency or Co.	Kelly Engineering	E/W Street Name	W 4th St.
Date Performed	2/21/2022	N/S Street Name	Pacific Hwy.
Time Period	PM Peak Hour	Analysis Year	2025
Peak Hour Factor	0.94	Project ID	Year 2025 with Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	0	0		0	0	0		0	1	0		0	1	0	
Lane Assignment							LR				T				LT	
Right-Turn Bypass	None				None				Non-Yielding				None			
Conflicting Lanes	1				1				1				1			
Volume (V), veh/h				0	380		39	0		179		0	28	137		0
Heavy Veh. Adj. (f_{HV}), %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	597			196			31			416		
Exiting Flow (V_{ex}), pc/h	31			0			239			567		
Entry Flow (V_e), pc/h					459			196	735		181	
Entry Volume veh/h					446			190	714		176	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		0			929			1096			745	
Capacity (c), veh/h		0			902			1064			723	
v/c Ratio (X)					0.49			0.18			0.24	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					10.3			5.0	0.0		7.8	
Lane LOS		F			B			A			A	
Lane 95% Queue					2.8			0.6			1.0	
Approach Delay, s/veh				10.29			1.05			7.79		
Approach LOS, s/veh				B			A			A		
Intersection Delay, s/veh	4.53											
Intersection LOS	A											

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*AM Peak Hour*		

Project Description *Existing*

East/West Street: *La Center Road* | North/South Street: *Timmen Rd.*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*288*	*8*	*61*	*622*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*300*	*8*	*63*	*647*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*		*46*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*11*	*0*	*47*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*63*	*11*		*47*			
C (m) (veh/h)		*1264*	*230*		*736*			
v/c		*0.05*	*0.05*		*0.06*			
95% queue length		*0.16*	*0.15*		*0.20*			
Control Delay (s/veh)		*8.0*	*21.4*		*10.2*			
LOS		*A*	*C*		*B*			
Approach Delay (s/veh)	--	--	*12.4*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Year 2025 w/o Project*
East/West Street: *La Center Road*	North/South Street: *Timmen Rd.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*340*	*9*	*68*	*699*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*354*	*9*	*70*	*728*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*		*49*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*51*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*70*	*12*		*51*			
C (m) (veh/h)		*1207*	*186*		*686*			
v/c		*0.06*	*0.06*		*0.07*			
95% queue length		*0.18*	*0.20*		*0.24*			
Control Delay (s/veh)		*8.2*	*25.7*		*10.7*			
LOS		*A*	*D*		*B*			
Approach Delay (s/veh)	--	--	*13.5*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Year 2025 with Project*		
East/West Street:	*La Center Road*	North/South Street:	*Timmen Rd.*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*347*	*9*	*71*	*719*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*361*	*9*	*73*	*748*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*		*49*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*51*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*73*	*12*		*51*			
C (m) (veh/h)		*1200*	*177*		*679*			
v/c		*0.06*	*0.07*		*0.08*			
95% queue length		*0.19*	*0.22*		*0.24*			
Control Delay (s/veh)		*8.2*	*26.8*		*10.7*			
LOS		*A*	*D*		*B*			
Approach Delay (s/veh)	--	--	*13.8*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2022*
Analysis Time Period	*PM Peak Hour*		

Project Description *Existing*

East/West Street: *La Center Road* | North/South Street: *Timmen Rd.*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*639*	*20*	*67*	*421*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*665*	*20*	*69*	*438*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*		*126*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*26*	*0*	*131*	*0*	*0*	*0*
Percent Heavy Vehicles	*8*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*69*	*26*		*131*			
C (m) (veh/h)		*918*	*171*		*454*			
v/c		*0.08*	*0.15*		*0.29*			
95% queue length		*0.24*	*0.52*		*1.18*			
Control Delay (s/veh)		*9.2*	*29.8*		*16.1*			
LOS		*A*	*D*		*C*			
Approach Delay (s/veh)	--	--	*18.4*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Year 2025 w/o Project*		
East/West Street:	*La Center Road*	North/South Street:	*Timmen Rd.*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*691*	*21*	*71*	*456*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*719*	*21*	*73*	*475*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*		*133*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*26*	*0*	*138*	*0*	*0*	*0*
Percent Heavy Vehicles	*8*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*73*	*26*		*138*			
C (m) (veh/h)		*876*	*148*		*422*			
v/c		*0.08*	*0.18*		*0.33*			
95% queue length		*0.27*	*0.61*		*1.40*			
Control Delay (s/veh)		*9.5*	*34.4*		*17.6*			
LOS		*A*	*D*		*C*			
Approach Delay (s/veh)	--	--	*20.3*					
Approach LOS	--	--	*C*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*DSK*	Intersection	*La Ctr. Rd. & Timmen Rd.*
Agency/Co.	*Kelly Engineering*	Jurisdiction	*City of La Center*
Date Performed	*2/21/2022*	Analysis Year	*2025*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Year 2025 with Project*
East/West Street: *La Center Road*	North/South Street: *Timmen Rd.*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*715*	*21*	*74*	*471*	
Peak-Hour Factor, PHF	*0.93*	*0.96*	*0.96*	*0.96*	*0.96*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*0*	*744*	*21*	*77*	*490*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*1*	*0*
Configuration			*TR*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*26*		*133*			
Peak-Hour Factor, PHF	*0.96*	*1.00*	*0.96*	*0.93*	*1.00*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*27*	*0*	*138*	*0*	*0*	*0*
Percent Heavy Vehicles	*8*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*77*	*27*		*138*			
C (m) (veh/h)		*857*	*137*		*409*			
v/c		*0.09*	*0.20*		*0.34*			
95% queue length		*0.30*	*0.70*		*1.46*			
Control Delay (s/veh)		*9.6*	*37.6*		*18.2*			
LOS		*A*	*E*		*C*			
Approach Delay (s/veh)	--	--	*21.4*					
Approach LOS	--	--	*C*					

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APPENDIX F
REFERENCES

References

1. Trip Generation Manual, 10th Edition, 2017, Institute of Transportation Engineers.

2. Highway Capacity Manual, 2000 and 2010, Transportation Research Board, National Research Council.

3. Correspondence with staff from the City of La Center.

4. Traffic Analysis Report, Lockwood Meadows Subdivision, Charbonneau Engineering, August 2021.