TRAFFIC ANALYSIS REPORT

FOR

RIVERSIDE ESTATES SUBDIVISION

NW PACIFIC HIGHWAY

CITY OF LA CENTER

SUBMITTED BY

CHARBONNEAU ENGINEERING LLC

May 2017

Project 17-13

TRAFFIC ANALYSIS REPORT

FOR

RIVERSIDE ESTATES SUBDIVISION

NW PACIFIC HIGHWAY

CITY OF LA CENTER

Prepared By

CHARBONNEAU Engineering LLC

5-2-17

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May 2017

Project 17-13

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FL1753

INTRODUCTION

This traffic study has been prepared to evaluate and document the operations and safety conditions for the Riverside Estates Subdivision development being planned in La Center, Washington. The development will build a 99 single-family homes and 306 apartment units. The project site is located in north La Center on the south side of Pacific Highway near the intersection of NW Larson Drive. Figure 'a' in the appendix is a vicinity map highlighting the project location.

In accordance with the City's requirements the study area was defined as the surrounding neighborhood including the site access point at Pacific Highway and several key intersections including NW Lacenter Road at Timmen Road and Pacific Highway at 5th Street and at 10th Street.

TRAFFIC ANALYSIS CONSIDERATIONS

In the project scope established with City of La Center staff, a number of important elements were identified and considered in the study.

- Inventory and record pertinent information such as traffic control devices, circulation patterns, lane conditions, pedestrian & bicycle facilities, transit zones, parking, and street characteristics.
- Record data on typical weekdays during the AM & PM peak traffic hours.
- Obtain traffic counts for the intersections on Pacific Highway at Larson Drive, 10th Street, and 5th Street and on Lacenter Drive at Timmen Road.
- The project buildout is estimated to occur in year 2020. Three years of traffic growth at 2% per year was applied to establish the year 2020 background volumes. The City confirmed that in-process traffic for the Sunrise Terrace development was applicable.
- Prepare trip generation for 99 single-family homes and 306 apartments using the latest edition of the ITE Trip Generation manual (9th edition, year 2012).
- Level of service (LOS) analysis of the study intersections to measure the approach delays and LOS for comparison to City of La Center standards.
- Review intersection sight distance at the proposed access on Pacific Highway.
- Prepare peak hour signal warrant and left turn lane warrant.
- Review crash data furnished by WSDOT. Identify crash rates at the study intersections.
- Review the WSDOT Six Year Transportation Improvement Program from 2016 to 2021 to identify future projects covered in La Center.

SITE DESCRIPTION, STREETS, ACCESS, AND CRITICAL INTERSECTIONS

Development of the Riverside Estates Subdivision project will include construction of 99 single-family homes and 306 apartment units. The project's location is situated on a 44.48 acre parcel (#986028830) at the corner of Pacific Highway and Larson Drive. The address is

1514 NW 339th Street, La Center. The property is currently vacant and is used for agriculture or pasture.

Access to the proposed development includes one approach on Pacific Highway. The project site plan (Figure 'b') illustrates the access location. The new approach will have stop control. The site's internal streets will include sidewalks and connectivity within for site circulation purposes.

The study intersections on Pacific Highway at 10th Street and at 5th Street are currently controlled by stop signs. The intersection at Lacenter Road and Timmen Road is controlled by stop signing. In the future according to WSDOT's Six Year TIP for 2016-2021 the intersection of Lacenter Road at Timmen Road will become signalized or converted to a roundabout. The existing and proposed lane configurations and traffic control are presented in Figure 'c'.

Pacific Highway adjacent to the site is classified as a major arterial and contains one travel lane in each direction. The travel speed is posted at 35 MPH. There are no bike lanes or sidewalks on the street. No on-street parking is permitted. Based on AASHTO the required intersection sight distance at the proposed access point is 390 feet.

Pacific Highway at 10th Street is configured as a tee-shaped intersection containing stop signing on the 10th Street approach where there are separate left and right turn lanes. There are no separate turn lanes on Pacific Highway. The travel speed is posted at 25 MPH on Pacific Highway. There are no bike lanes. Sidewalks exist on both streets.

Pacific Highway at 5th Street is four-way intersection with stop control on the 5th Street approaches. There are no separate turn lanes at this location. The travel speed is posted at 25 MPH on Pacific Highway. There are no bike lanes. Sidewalks exist on both streets.

Lacenter Road at Timmen Road is configured as a tee-shaped intersection containing stop signing on the Timmen Road approach where there are separate left and right turn lanes. There is a separate westbound left turn lane on Pacific Highway. The travel speed is posted at 40 MPH on Pacific Highway. There are no bike lanes or sidewalks at this location.

TRAFFIC OPERATIONAL ANALYSIS

In order to evaluate traffic flow and delay at the study intersections level of service (LOS) and safety conditions were determined. The intersections evaluated included Pacific Highway at the future site access, 10th Street, and 5th Street and Lacenter Road at Timmen Road. The results included identification of the LOS and average delay per vehicle in the peak hours for the following scenarios:

- Year 2017 Existing Traffic
- Year 2020 Background Traffic
- Year 2020 Total Traffic

In order to perform the LOS analysis at the critical intersections video traffic counts were conducted during the AM peak (7:00-9:00AM) & PM peak (4:00-6:00 PM) traffic hours. Figure 1 depicts the existing AM & PM peak hour traffic volumes.

Three years of traffic growth (2% per year) plus in-process traffic has been added to the existing volumes to account for the background traffic volumes. The in-process traffic included the Sunrise Terrace development as referenced according to City staff and is shown on Figure 2. The year 2020 background traffic volumes are illustrated in Figure 3.

The year 2020 total traffic scenario (background plus site generated traffic) is presented in Figure 6.

VEHICULAR TRIP GENERATION

Trip rates presented in the Institute of Transportation Engineers (ITE) Trip Generation manual 9th edition (year 2012) were utilized to estimate the site's trip generation. The trip generation is summarized in Table 1.

Table 1 Trip Generation Summary

ITE Land Use	Units (#)	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Single-Family (#210)	99							
Generation Rate [1]		9.52	0.75	25%	75%	1.00	63%	37%
Site Trips		**942**	**74**	19	55	**99**	62	37
Apartment (#220)	306							
Generation Rate [1]		6.65	0.51	20%	80%	0.62	65%	35%
Site Trips		**2,035**	**156**	31	125	**190**	124	66
Site Total Trips		**2,977**	**230**	**50**	**180**	**289**	**186**	**103**

[1] Source: *Trip Generation*, 9th Edition, ITE, 2012, average rates.

The proposed development is expected to generate a net total 2,977 daily trips, 230 AM peak hour trips, and 289 PM peak hour trips.

The trip distribution was based on the existing traffic counts, intersection traffic control, site access location, and engineering judgment. Figure 4 presents the trip distribution results and Figure 5 displays the trip assignments.

CAPACITY ANALYSIS

Capacity analyses were performed to determine the levels of service for the weekday peak hours. Synchro v9.1 software based on the year 2010 Highway Capacity Manual

methodology was used to determine the LOS and approach delays for the study intersections. The results are summarized in the following table. Copies of the capacity analysis summaries are included in the appendix.

Table 2 Capacity Analysis Summary

Intersection	Type of Control	Peak Hour	Traffic Scenario											
			2017 Existing				2020 Background				2020 Total			
			Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c
Pacific Highway at Site Access	Two-way Stop	AM	-	-	-	-	-	-	-	-	NB	B	10.3	0.23
		PM	-	-	-	-	-	-	-	-	NB	B	10.2	0.14
Pacific Highway at 10th Street	Two-way Stop	AM	WBL	B	10.9	0.10	WBL	B	11.3	0.12	WBL	B	13.0	0.17
		PM	WBL	B	10.8	0.03	WBL	B	11.6	0.04	WBL	C	15.5	0.06
Pacific Highway at 5th Street	Two-way Stop	AM	WB	C	19.4	0.55	WB	C	22.0	0.61	WB	F	63.6	0.91
		PM	WB	B	13.9	0.16	WB	C	16.6	0.32	WB	D	32.9	0.54
	Mitigated[1]	AM	-	-	-	-	-	-	-	-	-	B	13.6	0.64
		PM	-	-	-	-	-	-	-	-	-	A	8.5	0.48
Lacenter Road at Timmen Road	Two-way Stop	AM	NBL	C	21.4	0.05	NBL	D	25.7	0.07	NBL	D	34.4	0.10
		PM	NBL	D	27.5	0.09	NBL	D	31.3	0.09	NBL	E	43.8	0.13

Notes: 2010 Highway Capacity Manual methodology used in analysis, Synchro v9.
Crit. Mov't - Critical movement or critical approach.

[1]Mitigation with Signal

According to the City's Comprehensive Plan policy the minimum acceptable level of service mobility standard for stop controlled intersections is LOS `E`. As documented in the Table 2 summary all of the study intersections except Pacific Highway at 5th Street will operate at LOS `E` or better through the year 2020 total traffic scenario.

At Pacific Highway and 5th Street the intersection will experience LOS `F` with 63.6 seconds of delay in the AM peak hour in the year 2020 total traffic scenario. The failing approach is the east leg with contains a heavy westbound to southbound left turn demand with 159 vehicles in the AM peak hour. Implementing a separate westbound left turn lane will not upgrade the intersection to acceptable LOS as the left turn movement still fails (LOS `F`, delay 56 seconds). To mitigate this condition will require signalization with the service level improving to LOS `B` in the AM peak hour. However, signalization is not warranted and is not recommended. It is noted that the City will construct a roundabout at the intersection of 4th Street and Pacific Highway in 2017 which is anticipated to relieve some of the traffic load on 5th Street and improve the LOS condition.

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

Level of Service criteria defined in Highway Capacity Manual

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

QUEUING ANALYSIS

Queue length demand for the proposed site access on Pacific Highway was determined with the capacity analyses. The results based on the 95th percentile queue rating indicated that for the year 2020 total traffic scenario queues on the stop approach in the AM & PM peak hours will not exceed one to two vehicles. No westbound queuing on Pacific Highway at the site access is anticipated in the peak hours.

The LOS reports containing the queue results are contained in the appendix.

SIGHT DISTANCE

Sight distance at the proposed access on Pacific Highway was reviewed in the field in accordance with the AASHTO standards. Using the posted travel speed of 35 MPH an intersection sight distance of 390 feet is required in both directions. The length of sight distance was determined to exceed 500 feet to the north and equated to 450 feet to the south. Therefore, the intersection sight distance standard will be met.

LEFT TURN LANE REQUIREMENTS

Left turn lane needs were evaluated for the peak hour conditions at the site access point on Pacific Highway and on Pacific Highway at 10th Street. Based on the warrant results a left turn lane is warranted on Pacific Highway (northbound) at the site access in the PM peak hour for year 2020 total traffic condition. Street improvements planned on Pacific Highway at the site's access include construction of a two-way left turn lane. A southbound left turn lane on Pacific Highway at 10th Street is not warranted. The warrant curve results are included in the appendix.

TRAFFIC SIGNAL WARRANTS

The peak hour signal warrant was evaluated for the stop controlled study intersections including the site access and Pacific Highway. The peak hour warrant data is included in the appendix.

The intersection of Lacenter Road at Timmen Road met the peak hour signal warrant in the PM peak hour for the existing, year 2020 background, and year 2020 total traffic scenarios. Therefore, the signal need is not attributed to the development and is not proposed in conjunction with the project. According to WSDOT's Six Year TIP for 2016-2021 a traffic signal or roundabout improvement is planned at this location.

ACCIDENT HISTORY

Crash data for the study intersections on Pacific Highway and Lacenter Road was obtained from WSDOT staff and reviewed to identify potential safety issues. The latest available data covered the years 2012-2016.

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

Table 3 Crash Rate Summary

Intersection	Accident History (Years)	Number of Accidents	Accidents per year	PM Peak Vol. Entering (veh/hr)	Annual Traffic Entering (veh/yr)	Accident rate per M.E.V.*
Pacific Highway at Larson Drive	5	0	0.0	238	869271	**0.00**
Pacific Highway at 10th Street	5	0	0.0	360	1314864	**0.00**
Pacific Highway at 5th Street	5	1	0.2	450	1643580	**0.12**
Lacenter Road at Timmen Road	5	2	0.4	1181	4313484	**0.09**

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

None of the intersections experienced a crash rate above 0.12 crashes per MEV per year indicating safety mitigation is not necessary.

PEDESTRIANS, BICYCLES, & BUSES

Sidewalk will be provided along both sides of the streets constructed internally within site's property. Sidewalk will also be constructed along the site's frontage adjacent to Pacific Highway.

No bicycle lanes are provided on Pacific Highway along the development's frontage. New bike lanes are planned with the project along the site's property frontage.

C-Tran provides limited service to La Center with the Connector route which runs on weekdays only. The service operates between downtown La Center with a stop at the 4th Street Park & Ride to the 99th Street Transit Center in Vancouver.

SUMMARY AND RECOMMENDATIONS

The traffic study for Riverside Estates Subdivision has been prepared to determine the potential impacts at the site access point on Pacific Highway and several study intersections including Pacific Highway at 10th Street and 5th Street and Lacenter Road at Timmen Road. Development of the site includes 99 single-family homes and 306 apartment units. Trip generation is projected to be 2,977 daily trips with 230 AM peak hour trips and 289 PM peak hour trips.

Sight distance at the proposed access on Pacific Highway was reviewed in the field accordance with the AASHTO standards. Using the posted travel speed of 35 MPH an intersection sight distance of 390 feet is required in both directions. The length of sight distance was determined to exceed 500 feet to the north and equated to 450 feet to the south. Therefore, the intersection sight distance standard will be met. The sight distance standards shall be maintained for safety purposes and potential obstruction to the sightlines by vegetation, walls, parking, signing, buildings or other items must be avoided.

According to the City's Comprehensive Plan policy the minimum acceptable level of service mobility standard for stop controlled intersections is LOS `E`. All of the study intersections except Pacific Highway at 5th Street will operate at LOS `E` or better through the year 2020 total traffic scenario. At Pacific Highway and 5th Street the intersection will experience LOS `F` with 63.6 seconds of delay in the AM peak hour in the year 2020 total traffic scenario. The failing approach is the east leg with contains a heavy westbound to southbound left turn volume in the AM peak hour. Implementing a separate westbound left turn lane will not upgrade the intersection to acceptable LOS. To mitigate the condition will require signalization with the service level improving to LOS `B` in the AM peak hour. However, signalization is not warranted and is not recommended. It is noted that the City will construct

a roundabout this year at the intersection of 4th Street and Pacific Highway which is anticipated to relieve some of the traffic load on 5th Street and improve the LOS condition.

Queue length demand for the proposed site access on Pacific Highway was determined with the capacity analyses. The results based on the 95th percentile queue rating indicated that for the year 2020 total traffic scenario queues on the stop approach in the AM & PM peak hours will not exceed one to two vehicles. No westbound queuing on Pacific Highway at the site access is anticipated in the peak hours.

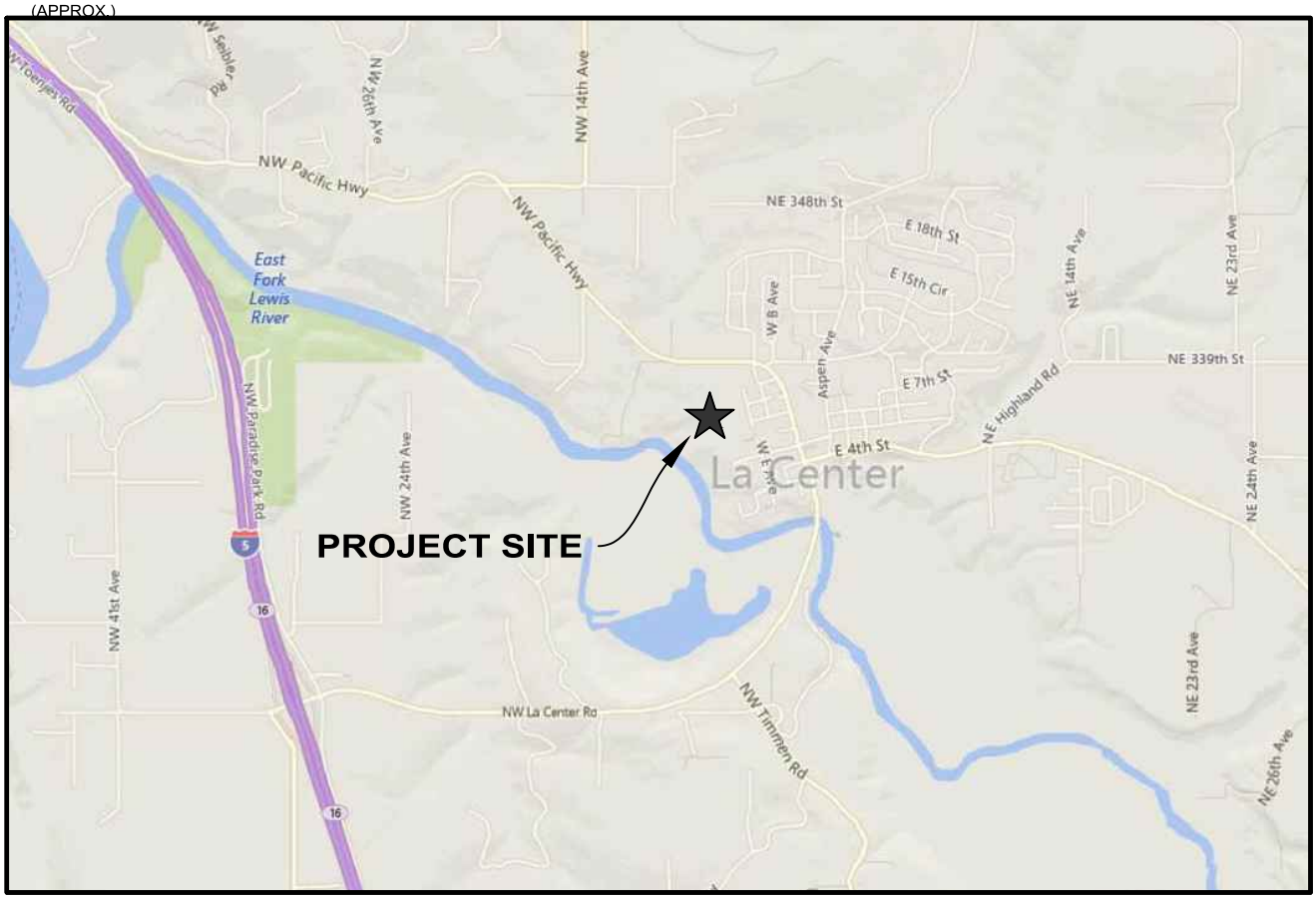
Crash data for the study intersections was obtained from WSDOT staff and reviewed to identify potential safety issues. The latest five years of available data was reviewed. None of the intersection crash rates exceed 0.12 accidents per MEV per year indicating safety mitigation is not necessary.

Based on evaluation of the study intersections including level of service conditions and vehicle delays, crash history, and warrants no intersection improvements beyond those planned at the site access and frontage are required in conjunction with the proposed development. The site access approach to Pacific Highway will require stop sign control and inclusion of a stop bar pavement marking.

APPENDIX

- Vicinity Map — Figure 'a'
- Site Plan — Figure 'b'
- Lane Configurations and Traffic Control — Figure 'c'
- Traffic Flow Diagrams
  - Figure 1 — 2017 Existing Traffic (AM & PM)
  - Figure 2 — In-Process Traffic
  - Figure 3 — 2020 Background Traffic
  - Figure 4 — Trip Distribution
  - Figure 5 — Trip Assignment
  - Figure 6 — 2020 Total Traffic
- Traffic Count Data
- In-Process Traffic – Sunrise Terrace
- Left Turn Lane Warrant Worksheets
- Peak Hour Signal Warrant
- Crash History Summary (furnished by WSDOT)
- 2016-2021 Six Year TIP
- Synchro v9.1 Capacity Analysis Worksheets

NORTH
(APPROX.)



VICINITY MAP

NOT TO SCALE

FILENAME: 17-13 Riverside.dwg

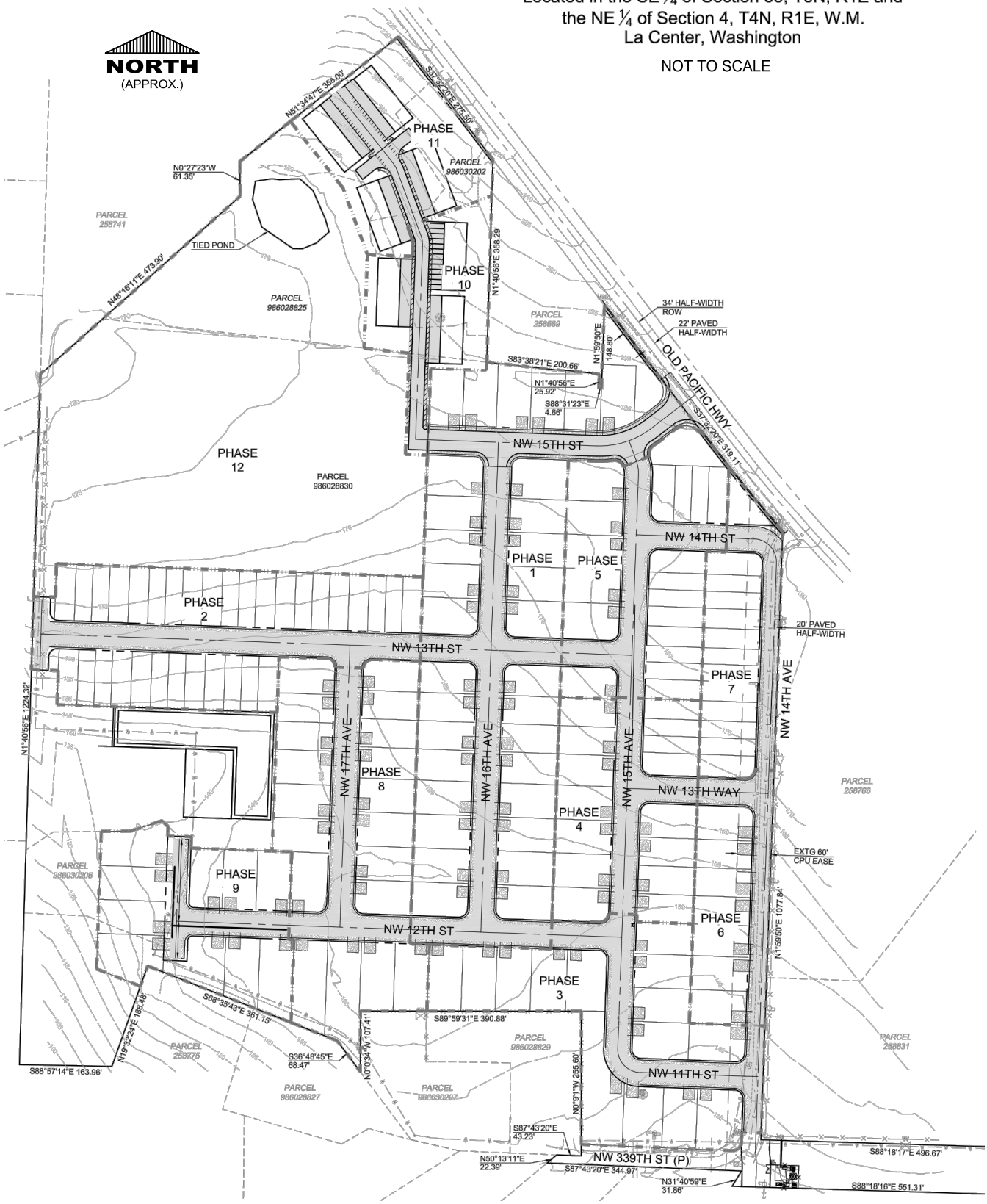
PLOT DATE: May 01, 2017

CHARBONNEAU ENGINEERING LLC PROJECT: 17-13	NOTE:	RIVERSIDE ESTATES SUBDIVISION **VICINITY MAP**	FIGURE a

Riverside Estates Subdivision

Located in the SE ¼ of Section 33, T5N, R1E and
the NE ¼ of Section 4, T4N, R1E, W.M.
La Center, Washington

NOT TO SCALE



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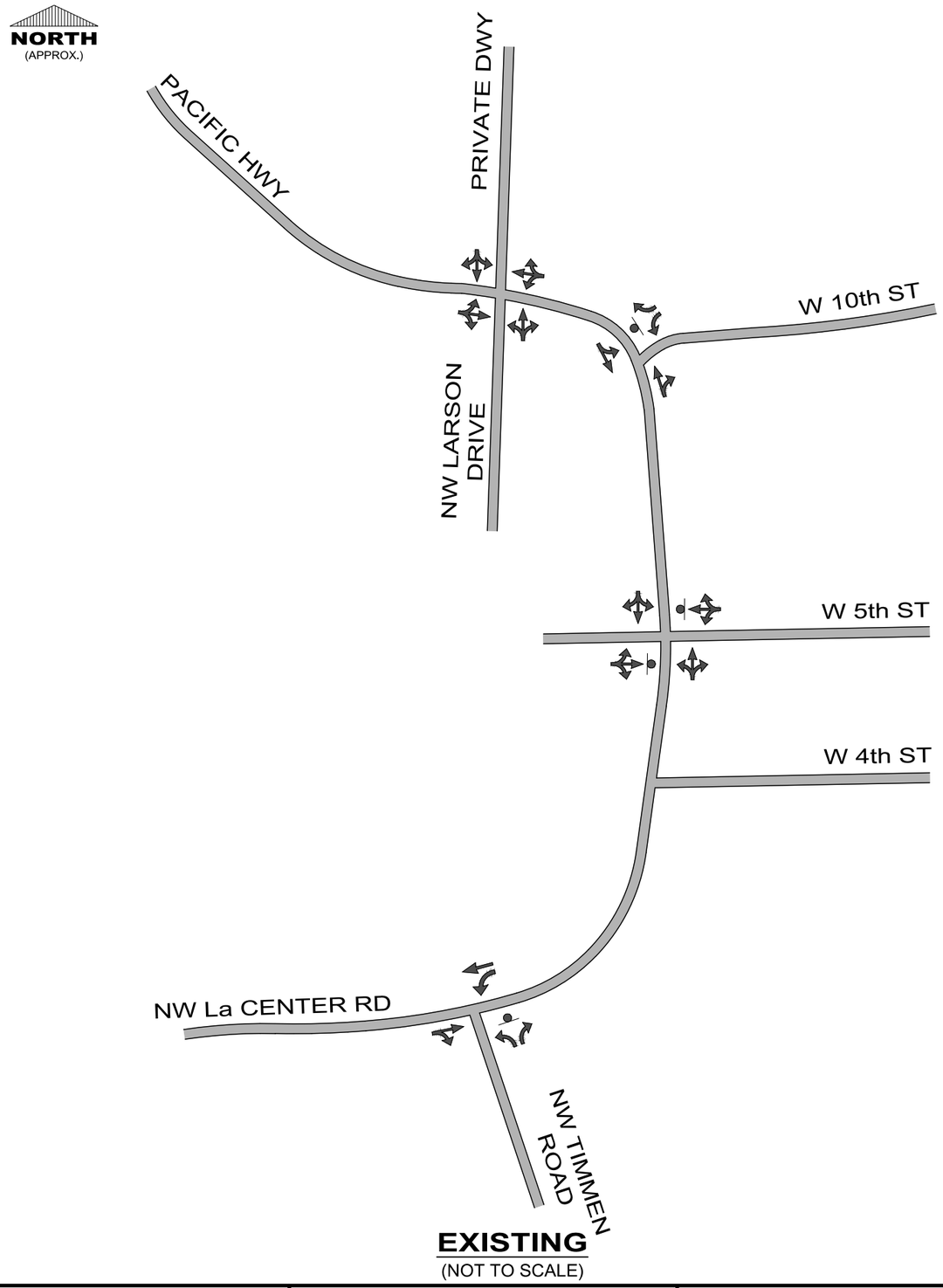
PLOT DATE: May 01, 2017

CHARBONNEAU ENGINEERING LLC PROJECT: 17-13	NOTE:	RIVERSIDE ESTATES SUBDIVISION **SITE PLAN**	FIGURE b



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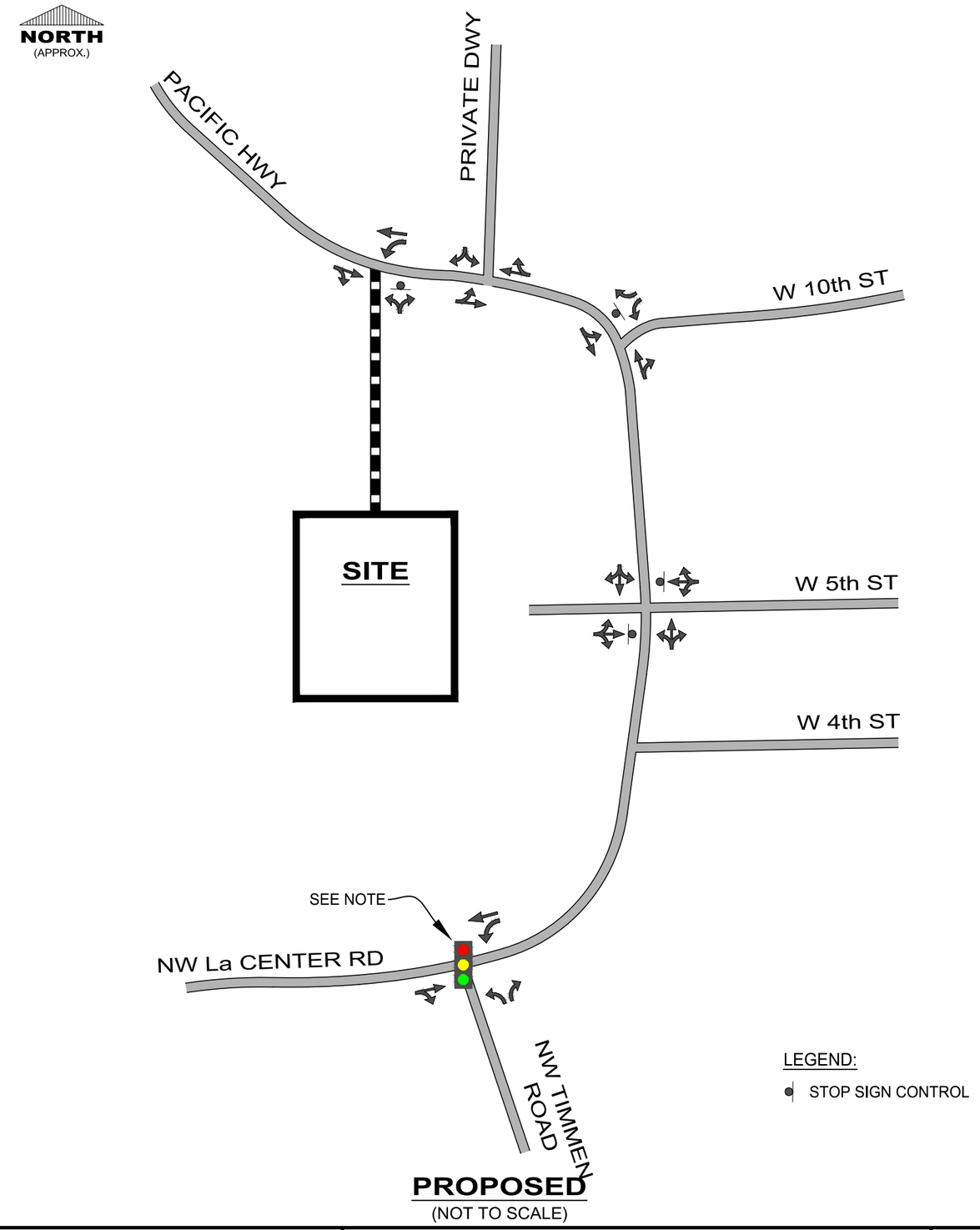

PROPOSED
(NOT TO SCALE)

CHARBONNEAU ENGINEERING LLC
PROJECT: 17-13

NOTE:
La CENTER ROAD AT TIMMEN ROAD IS INCLUDED IN WSDOT'S SIX YEAR TIP FOR SIGNALIZATION OR ROUNDABOUT CONSTRUCTION.

RIVERSIDE ESTATES SUBDIVISION
LANE CONFIGURATION
AND TRAFFIC CONTROL

FIGURE
C

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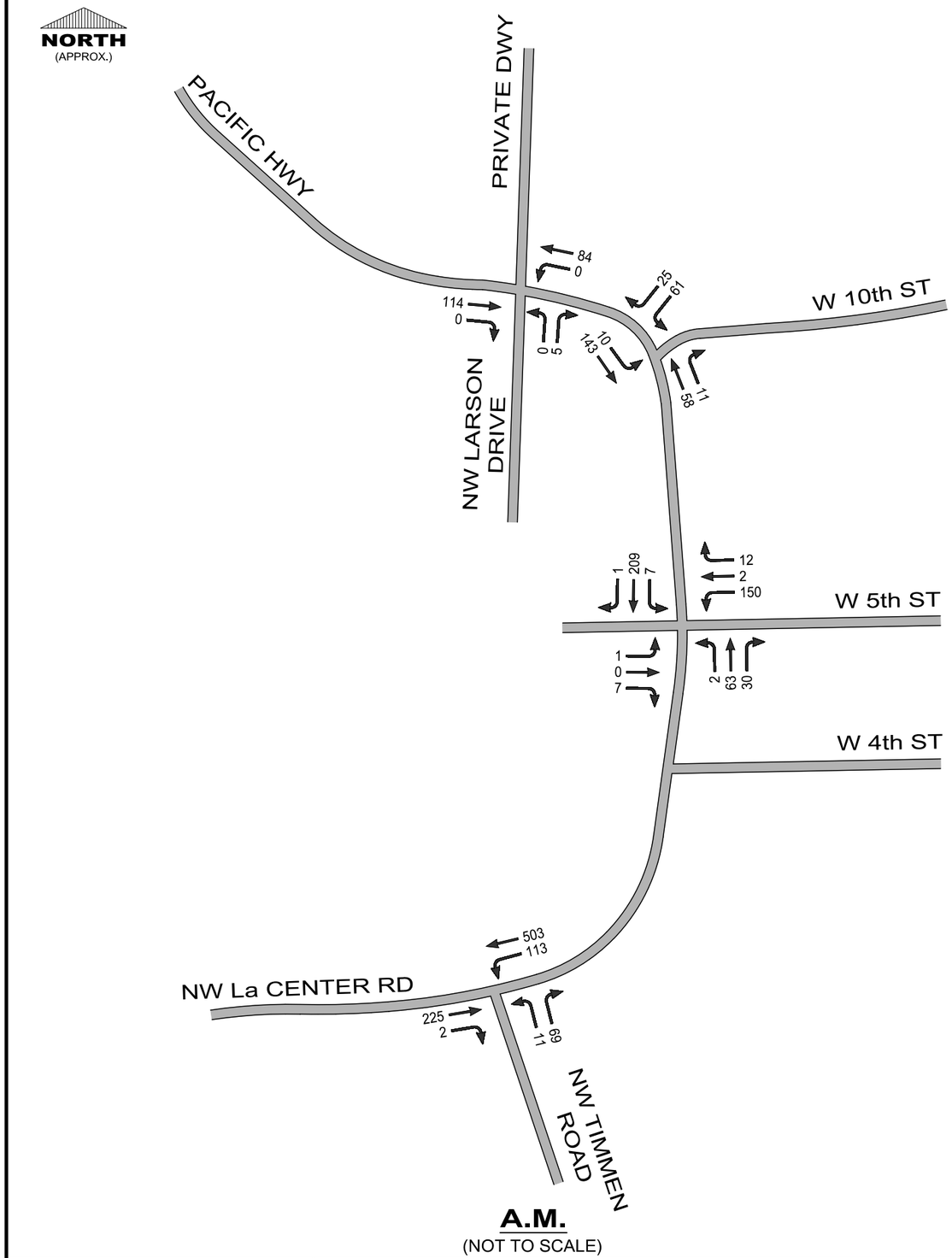
PLOT DATE: May 01, 2017



A.M.

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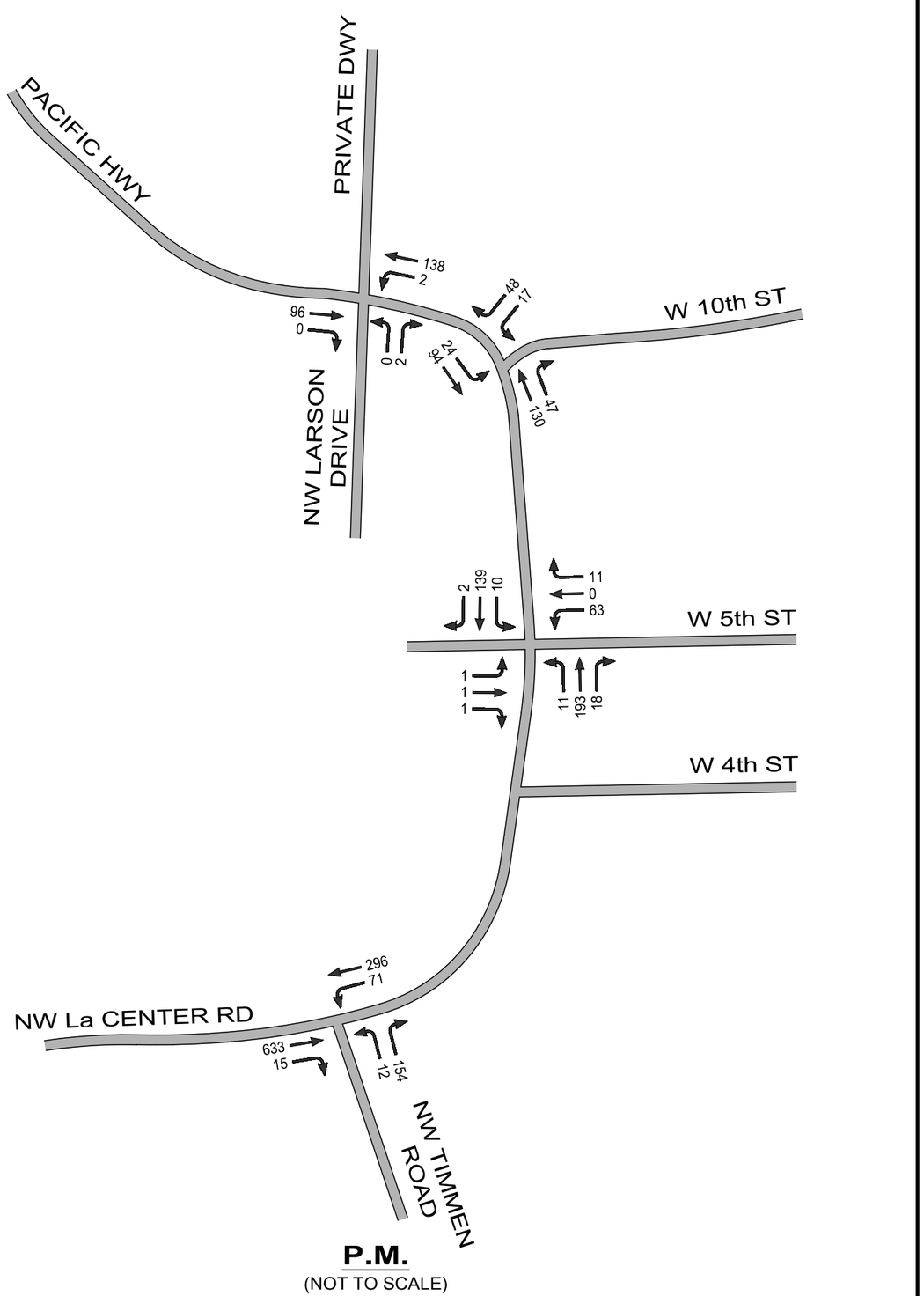


P.M.

(NOT TO SCALE)

FILENAME: 17-13 Riverside.dwg

PLOT DATE: May 01, 2017

CHARBONNEAU ENGINEERING LLC

PROJECT: 17-13

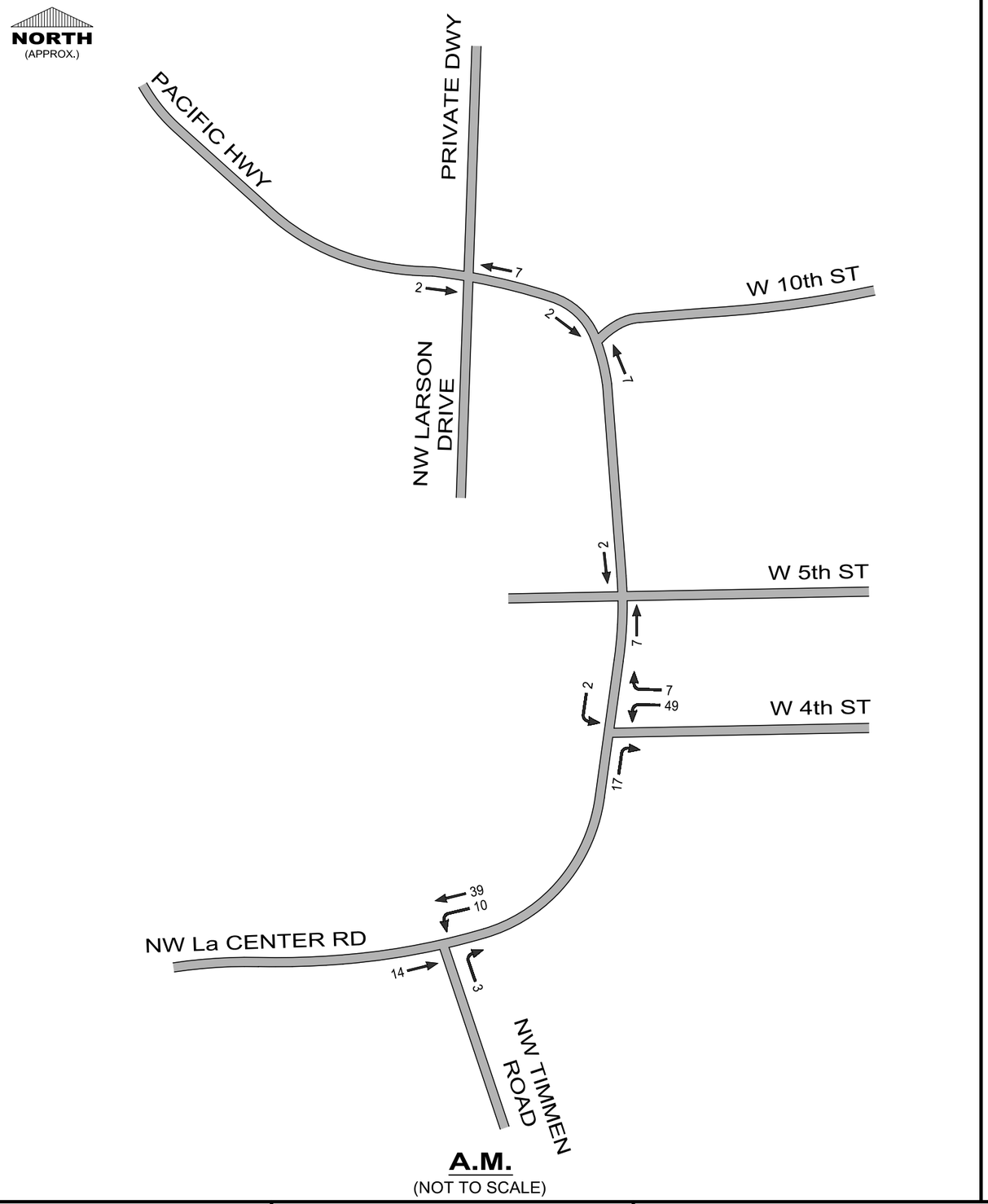
NOTE:

RIVERSIDE ESTATES SUBDIVISION

2017 EXISTING TRAFIC

A.M. AND P.M. PEAK HOUR

FIGURE 1



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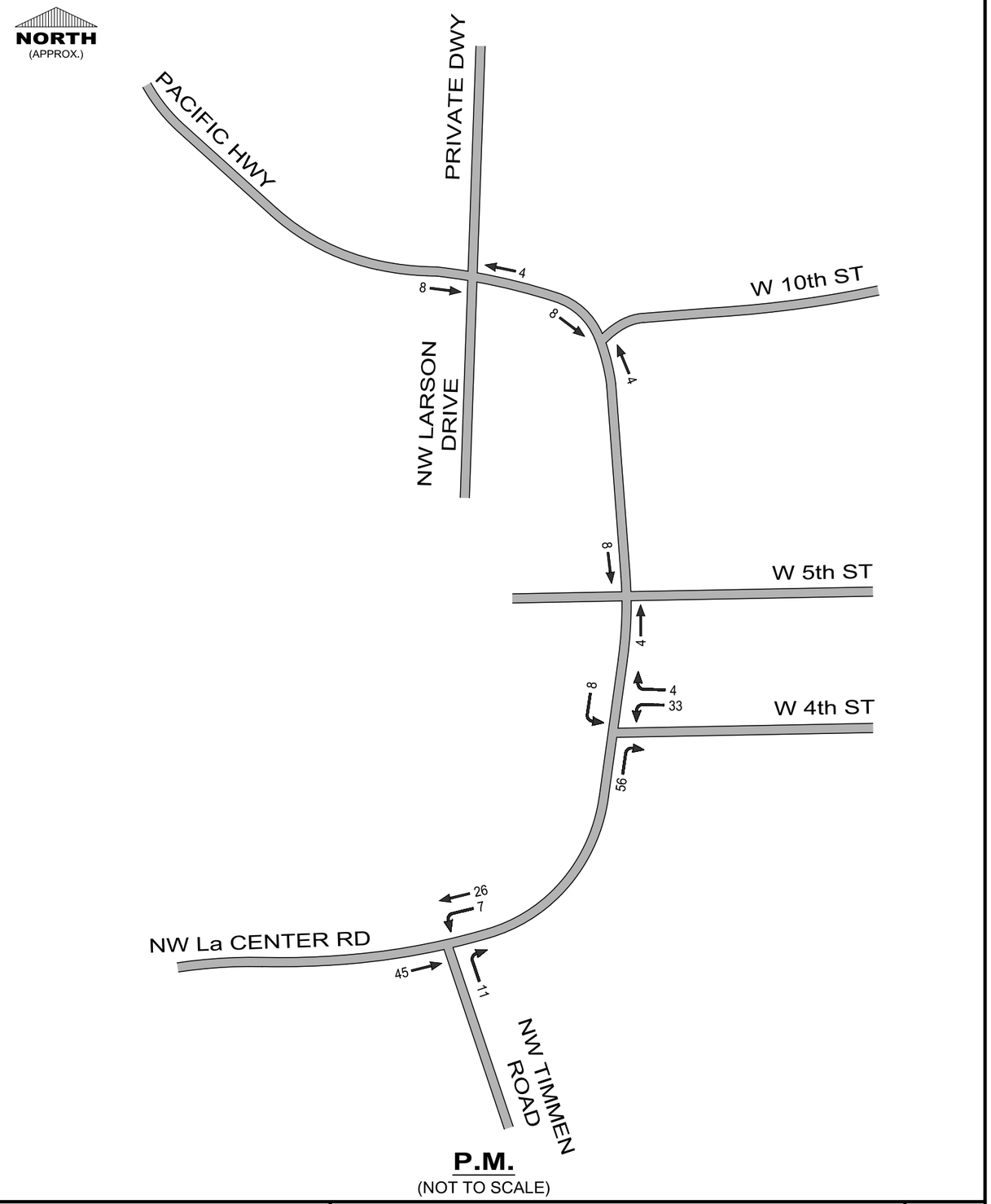


P.M.
(NOT TO SCALE)

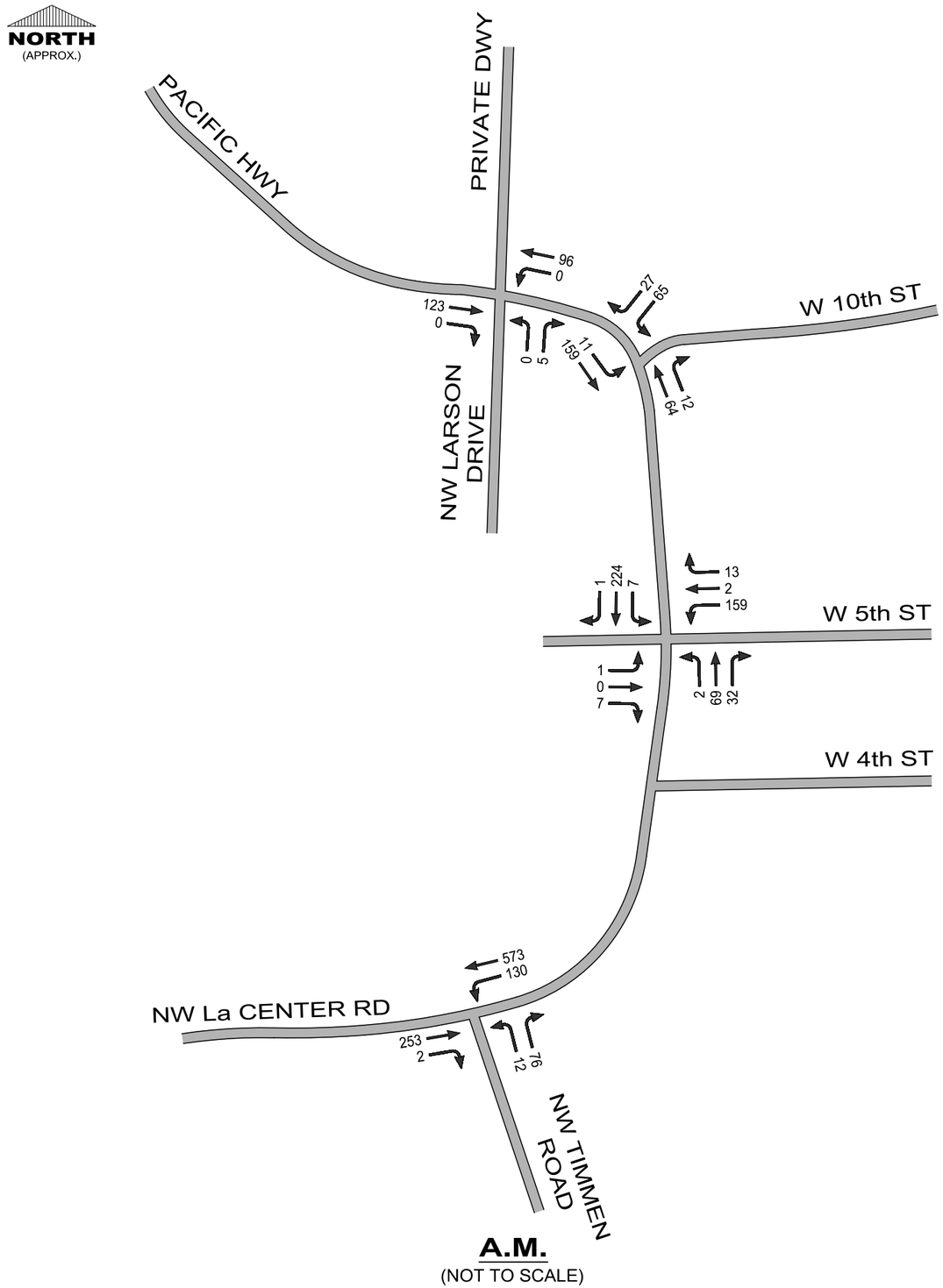
CHARBONNEAU ENGINEERING LLC
PROJECT: 17-13

NOTE:
IN-PROCESS TRAFFIC ASSOCIATED WITH APPROVED DEVELOPMENT OF SUNRISE TERRACE. CONTINUED TRIP DISTRIBUTION BASED ON EXISTING TRAFFIC PATTERNS.

RIVERSIDE ESTATES SUBDIVISION
IN-PROCESS TRAFFIC
A.M. AND P.M. PEAK HOUR

FIGURE
2

FILENAME: 17-13 Riverside.dwg
PLOT DATE: May 01, 2017



A.M.

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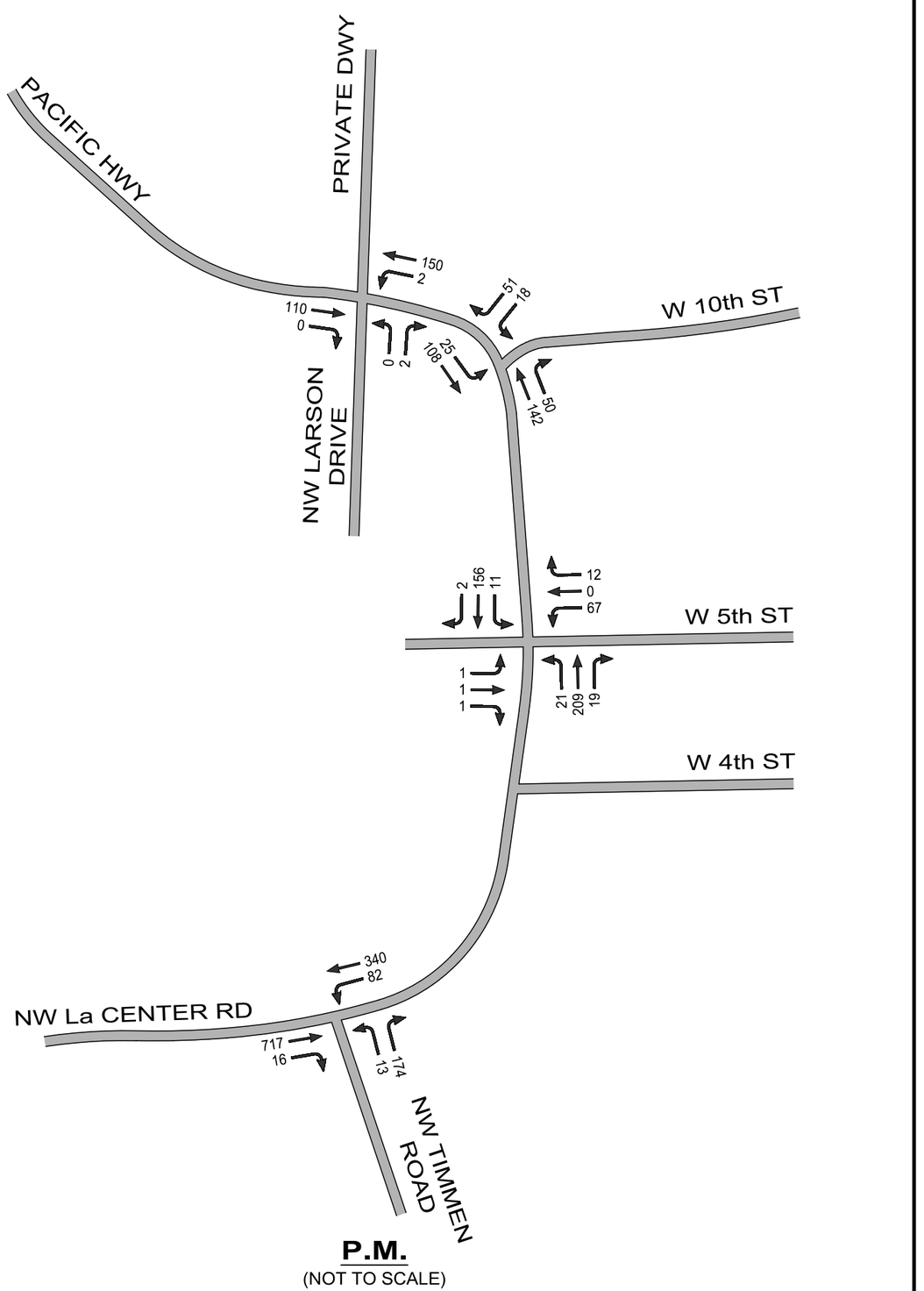

P.M.

(NOT TO SCALE)

CHARBONNEAU ENGINEERING LLC

PROJECT: 17-13

NOTE:
2020 BACKGROUND TRAFFIC = 2017 EXISTING TRAFFIC + GROWTH (2% PER YEAR FOR 3 YEARS) + IN-PROCESS TRAFFIC.

RIVERSIDE ESTATES SUBDIVISION

2020 BACKGROUND TRAFFIC

A.M. AND P.M. PEAK HOUR

FIGURE 3

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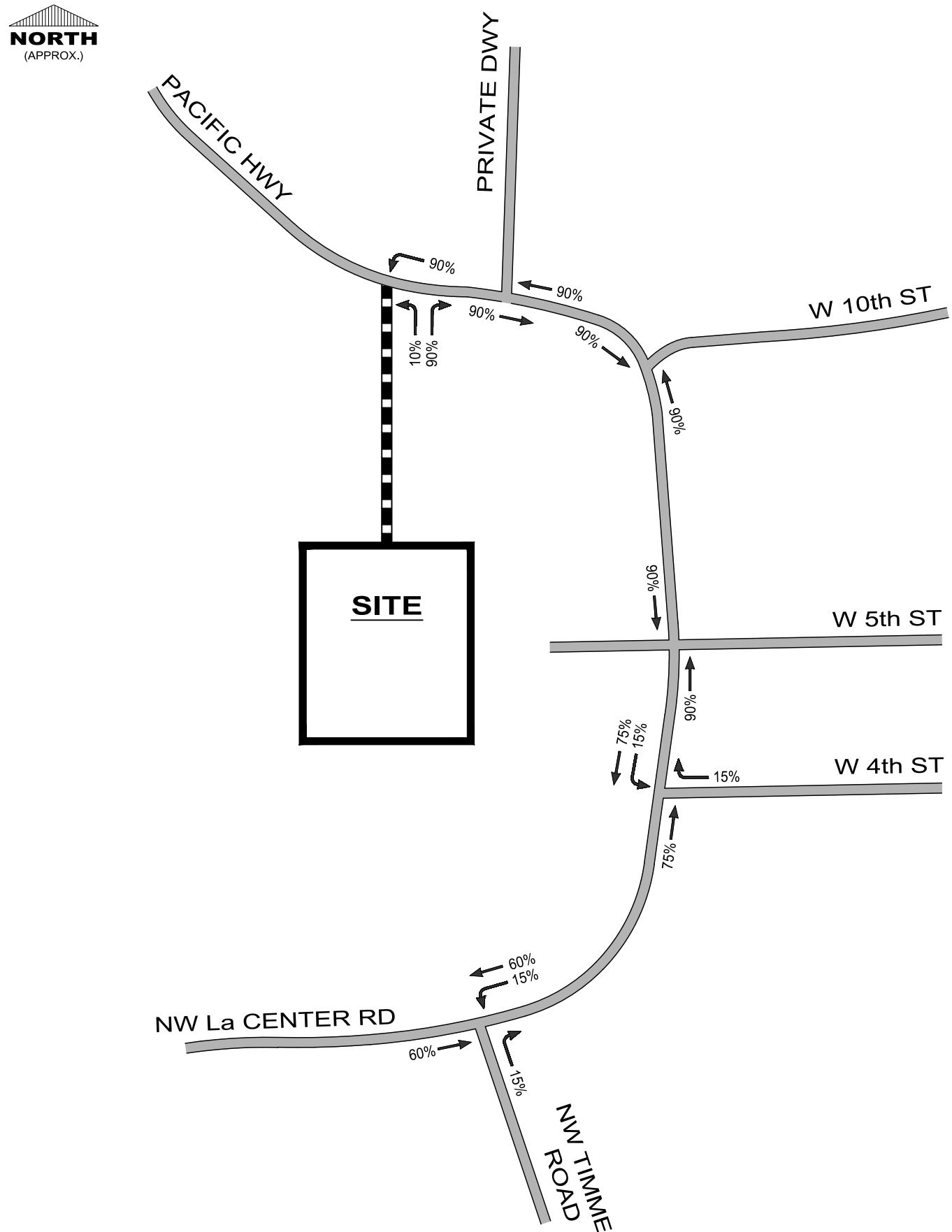
PLOT DATE: May 01, 2017



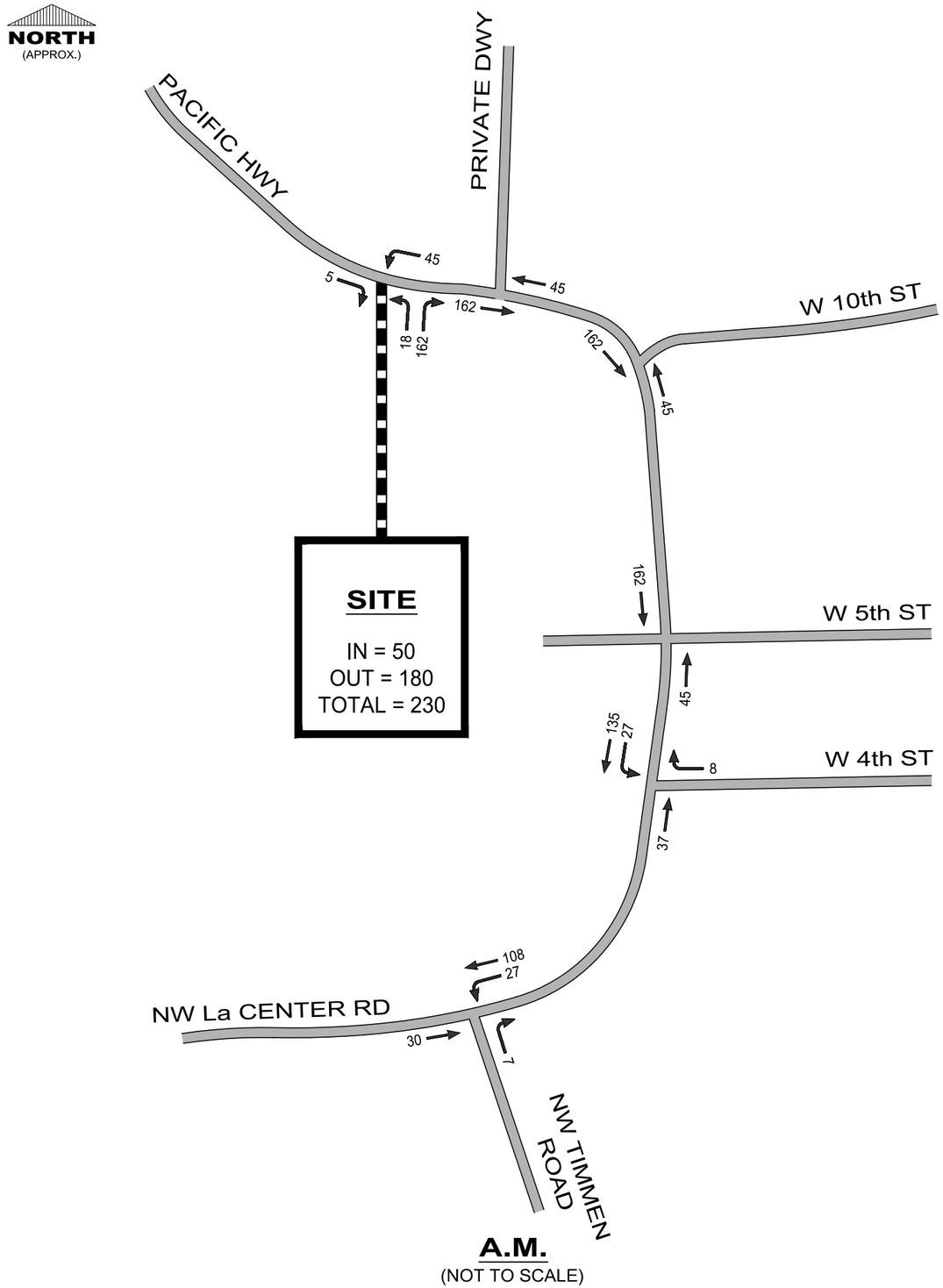
A.M. & P.M.

(NOT TO SCALE)

CHARBONNEAU ENGINEERING LLC PROJECT: 17-13	NOTE: TRIP DISTRIBUTION BASED ON EXISTING TRAFFIC PATTERNS AND ENGINEERING JUDGMENT.	RIVERSIDE ESTATES SUBDIVISION **TRIP DISTRIBUTION** **A.M. AND P.M. PEAK HOUR**	FIGURE 4

FILENAME: 17-13 Riverside.dwg

PLOT DATE: May 01, 2017



A.M.
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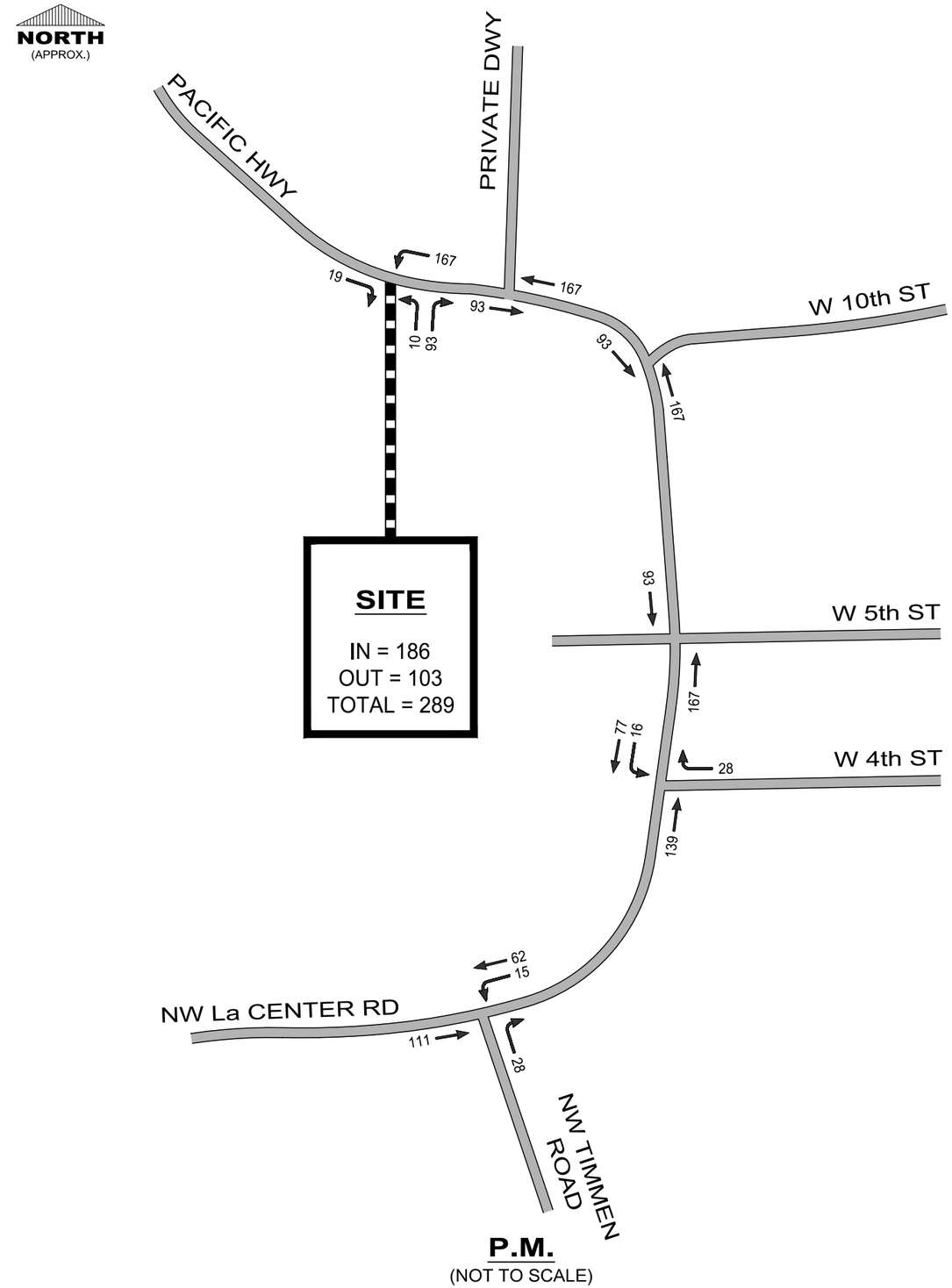


P.M.
(NOT TO SCALE)

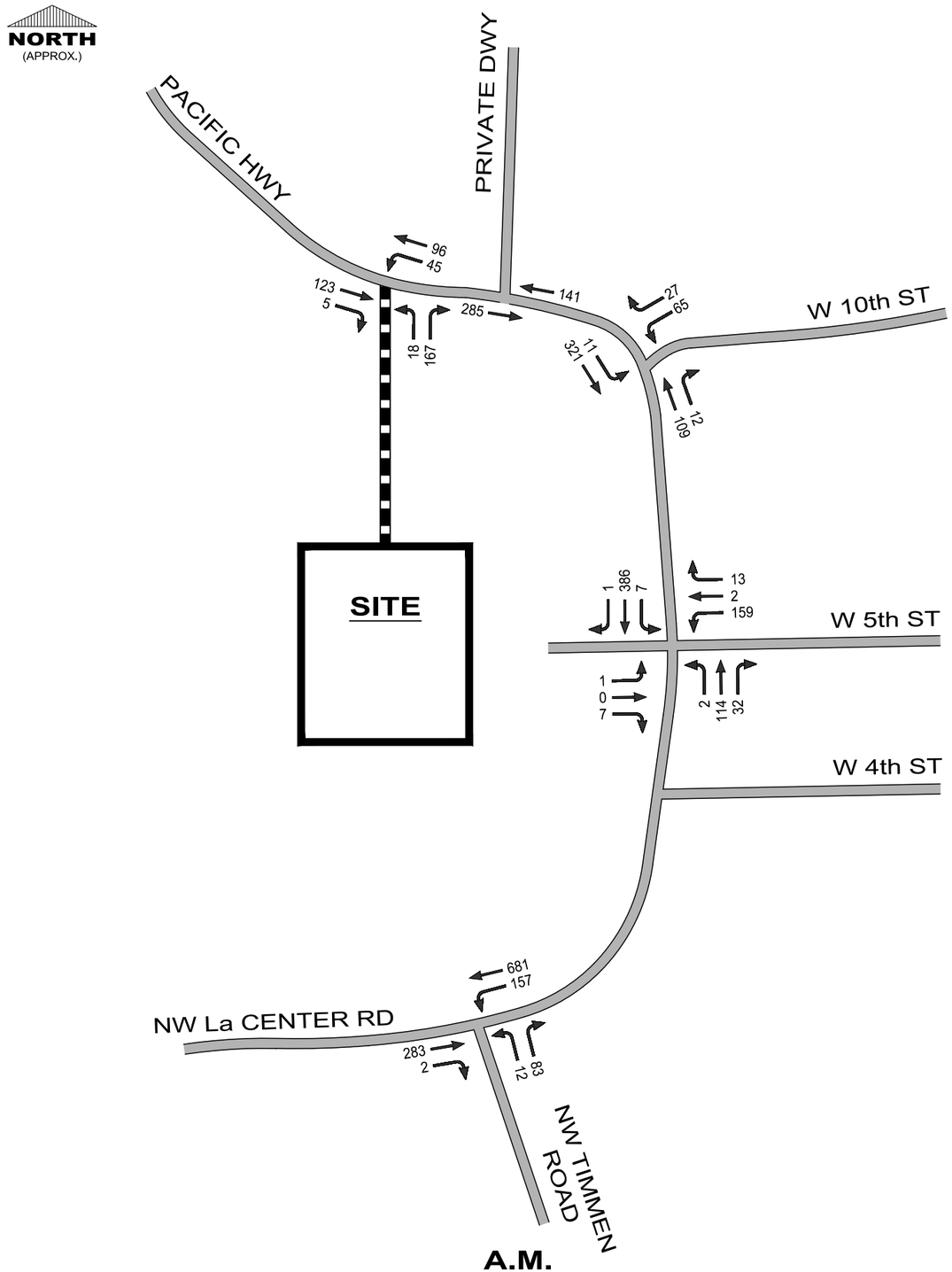
CHARBONNEAU ENGINEERING LLC
PROJECT: 17-13

NOTE:
TRIP ASSIGNMENT BASED ON SINGLE FAMILY.

RIVERSIDE ESTATES SUBDIVISION
TRIP ASSIGNMENT
A.M. AND P.M. PEAK HOUR

FIGURE
5

FILENAME: 17-13 Riverside.dwg
PLOT DATE: May 01, 2017



A.M.
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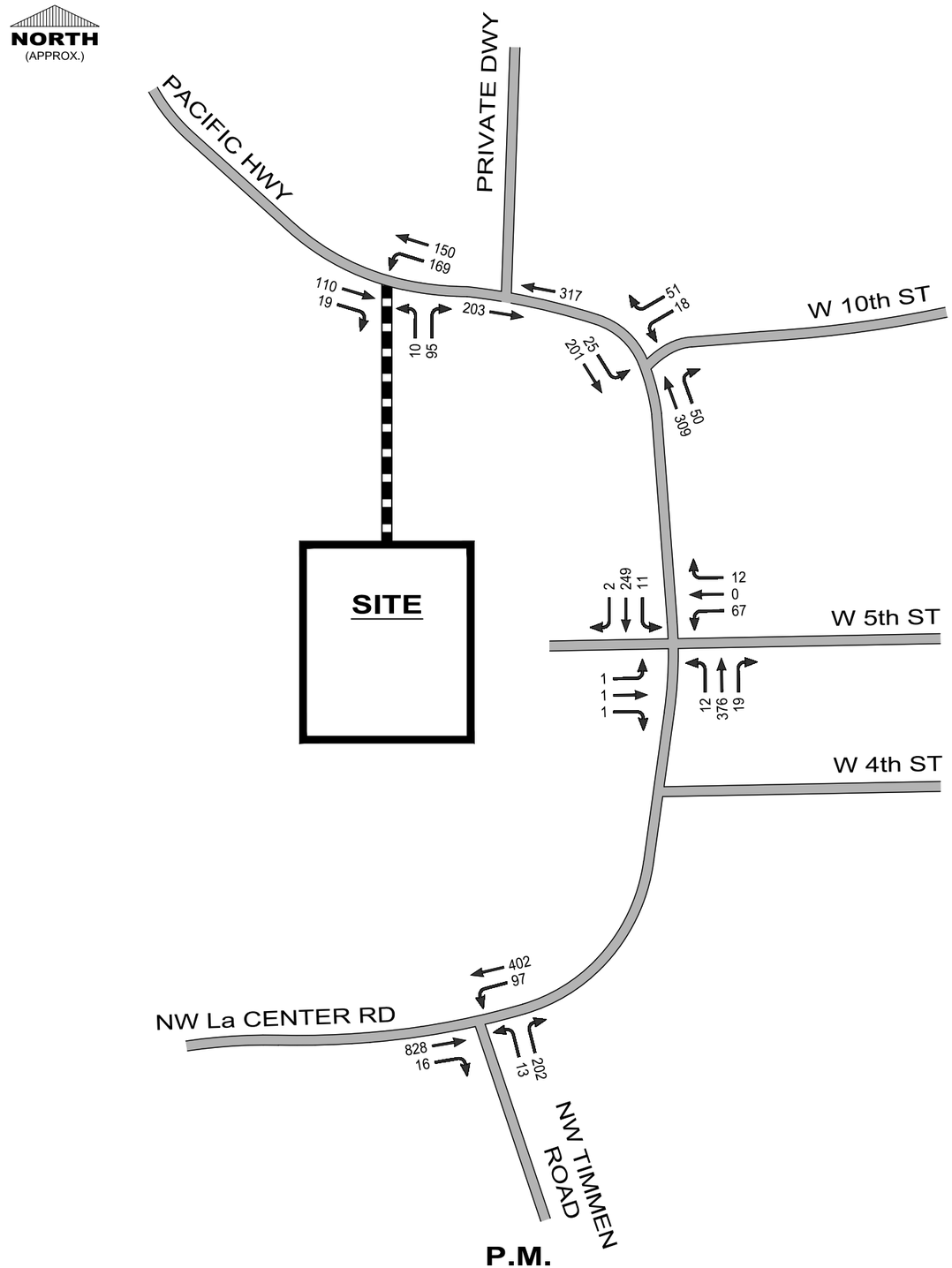


P.M.
(NOT TO SCALE)

CHARBONNEAU ENGINEERING LLC
PROJECT: 17-13

NOTE:
2020 TOTAL TRAFFIC = 2020 BACKGROUND TRAFFIC + TRIP ASSIGNMENT.

RIVERSIDE ESTATES SUBDIVISION
2020 TOTAL TRAFFIC
A.M. AND P.M. PEAK HOUR

FIGURE 6

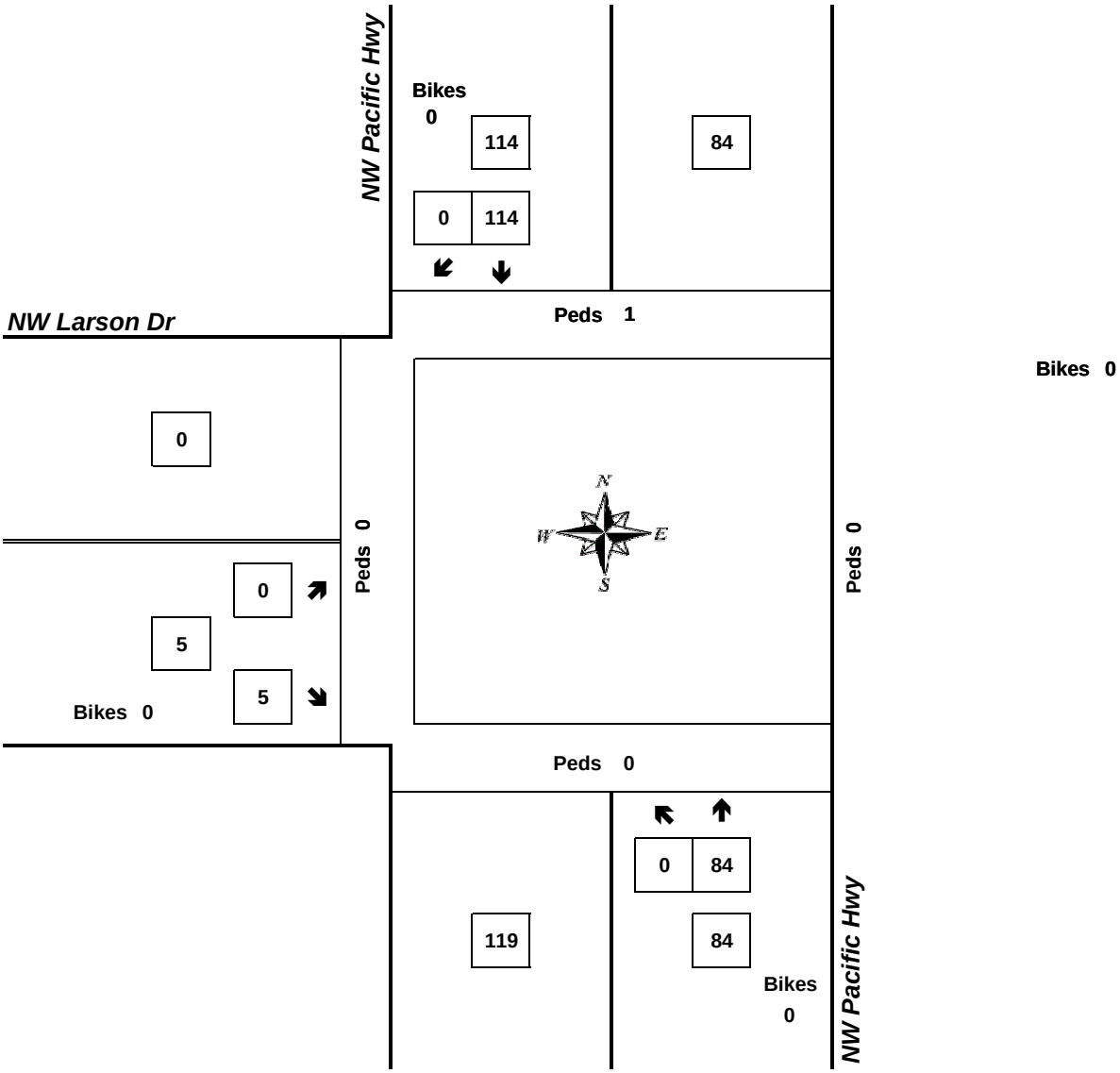
FILENAME: 17-13 Riverside.dwg
PLOT DATE: May 01, 2017

Peak Hour Summary

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

NW Pacific Hwy & NW Larson Dr

7:45 AM to 8:45 AM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.42	0.0%	5
WB	0.00	0.0%	0
NB	0.75	3.6%	84
SB	0.79	6.1%	114
Intersection	0.98	4.9%	203

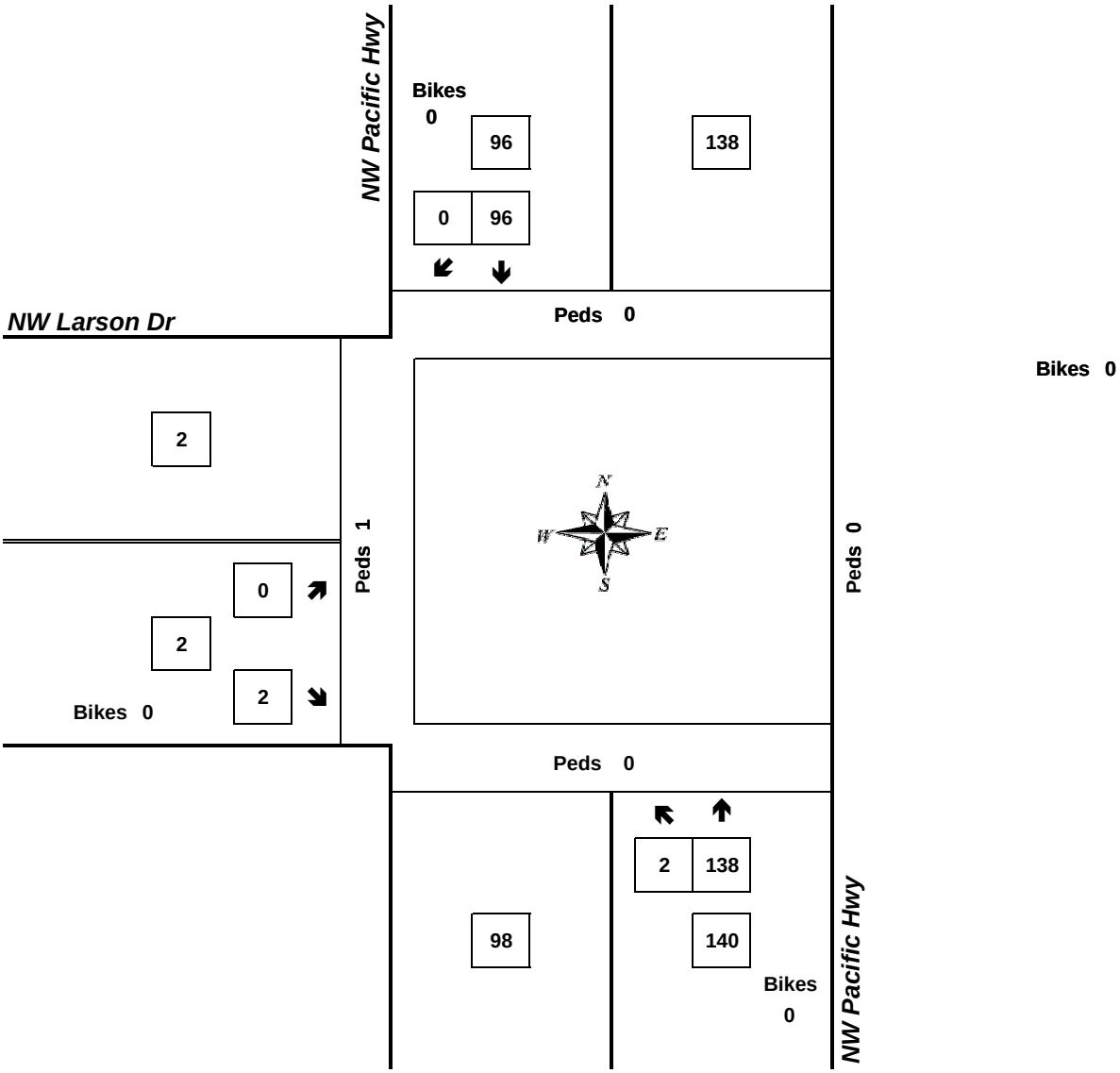
Count Period: 7:00 AM to 9:00 AM

Peak Hour Summary

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

NW Pacific Hwy & NW Larson Dr

4:15 PM to 5:15 PM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.50	0.0%	2
WB	0.00	0.0%	0
NB	0.95	0.7%	140
SB	0.83	1.0%	96
Intersection	0.90	0.8%	238

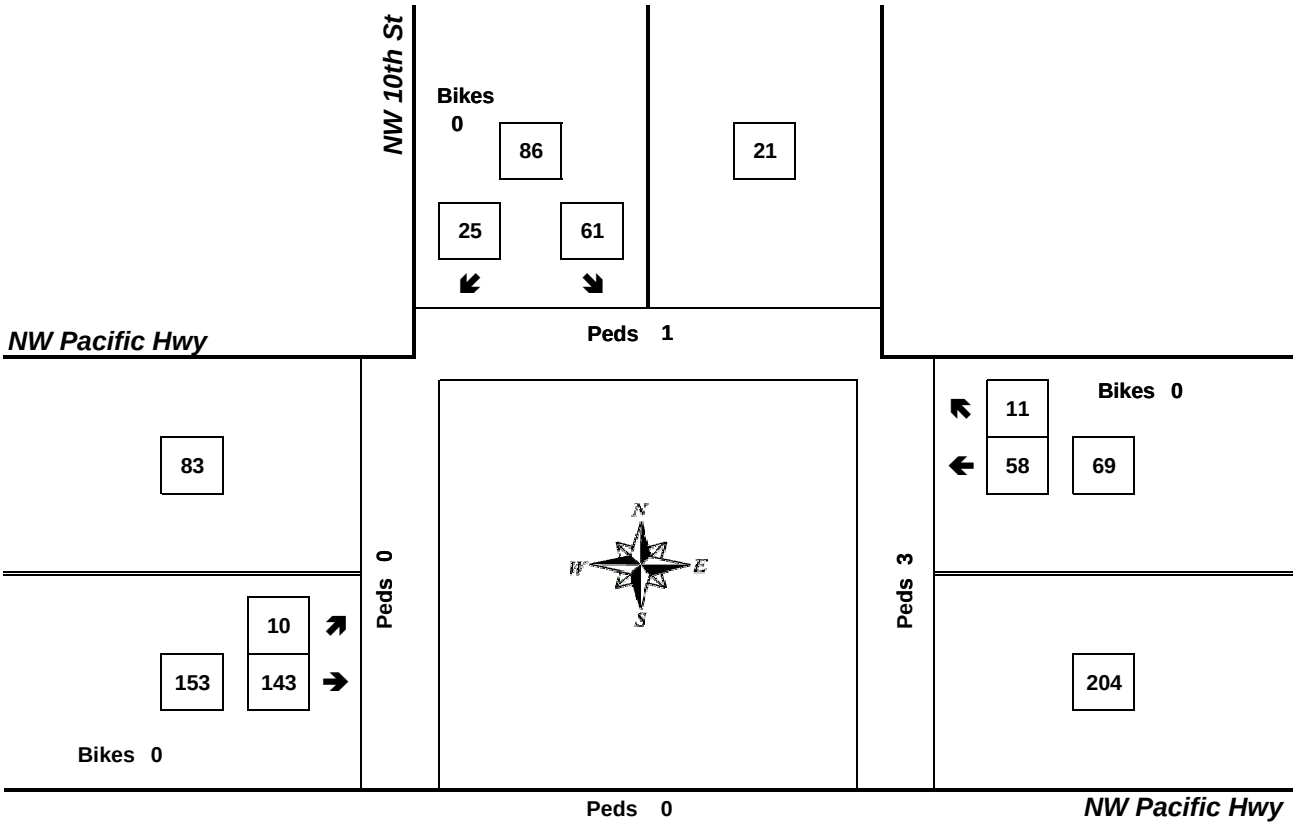
Count Period: 4:00 PM to 6:00 PM

Peak Hour Summary

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

NW 10th St & NW Pacific Hwy

7:30 AM to 8:30 AM
Tuesday, April 18, 2017



Bikes
0

Approach	PHF	HV%	Volume
EB	0.81	2.6%	153
WB	0.75	5.8%	69
NB	0.00	0.0%	0
SB	0.86	2.3%	86
Intersection	0.84	3.2%	308

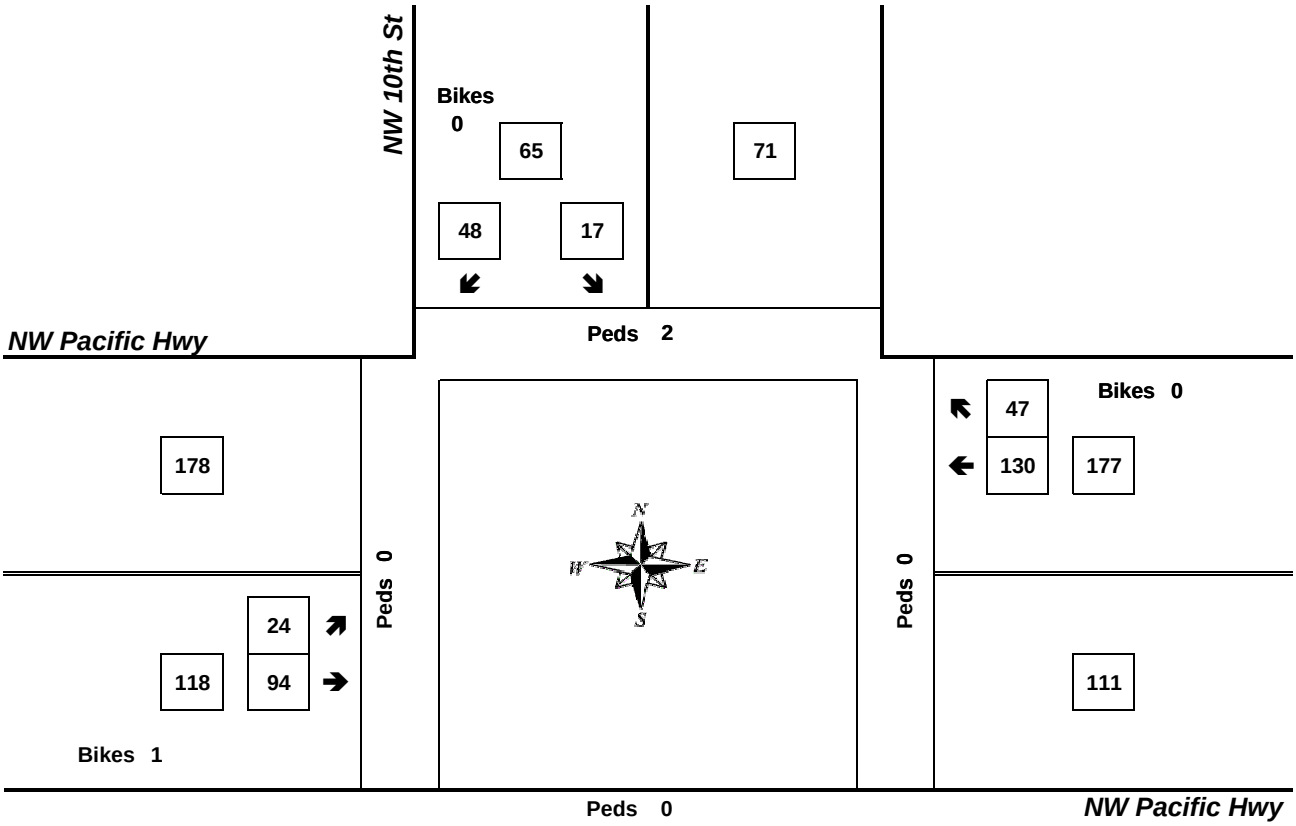
Count Period: 7:00 AM to 9:00 AM

Peak Hour Summary

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

NW 10th St & NW Pacific Hwy

4:00 PM to 5:00 PM
Tuesday, April 18, 2017



Bikes 0

Approach	PHF	HV%	Volume
EB	0.89	3.4%	118
WB	0.87	0.6%	177
NB	0.00	0.0%	0
SB	0.86	0.0%	65
Intersection	0.91	1.4%	360

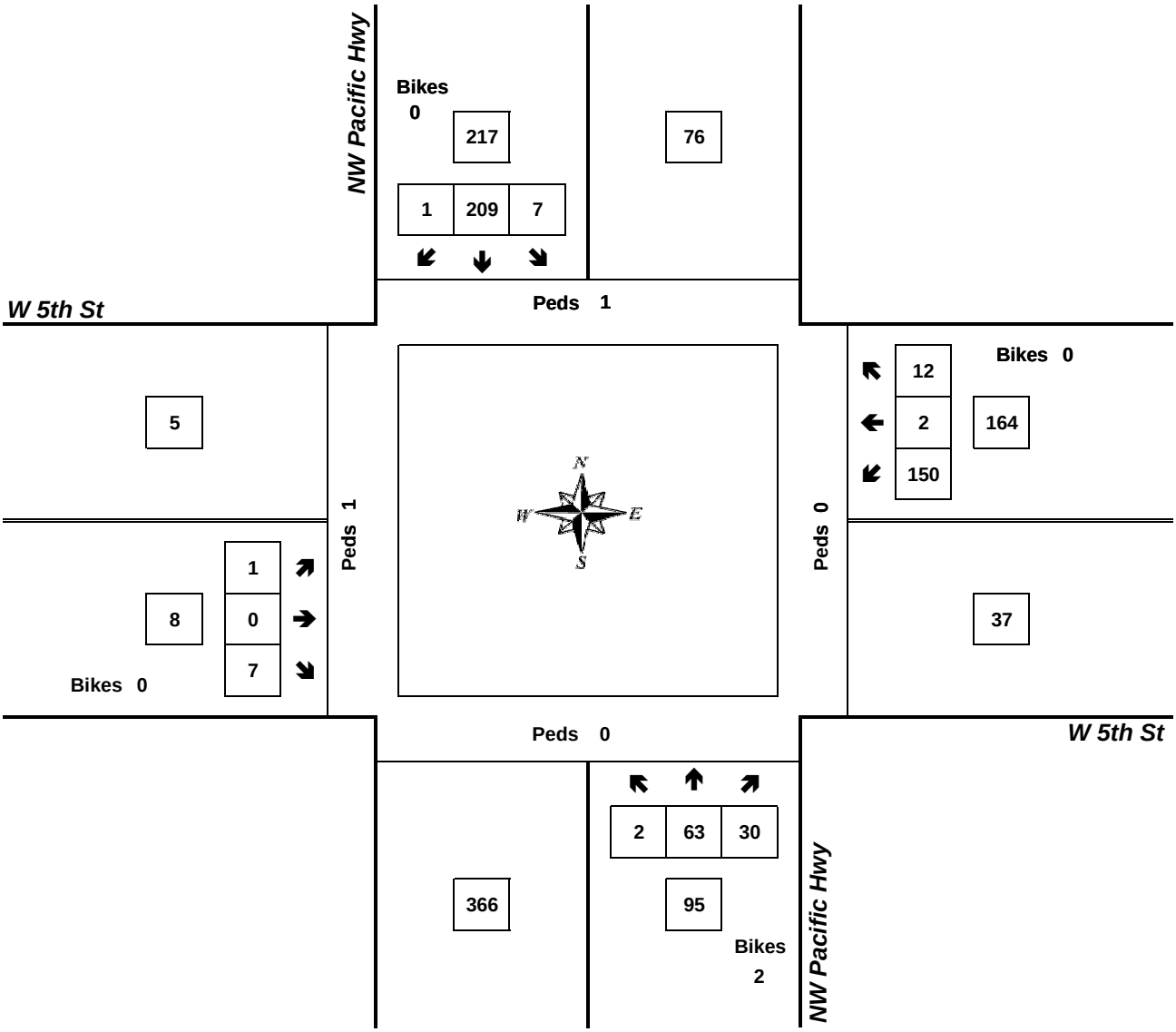
Count Period: 4:00 PM to 6:00 PM

Peak Hour Summary

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

NW Pacific Hwy & W 5th St

7:30 AM to 8:30 AM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.50	0.0%	8
WB	0.54	3.7%	164
NB	0.74	4.2%	95
SB	0.79	3.2%	217
Intersection	0.72	3.5%	484

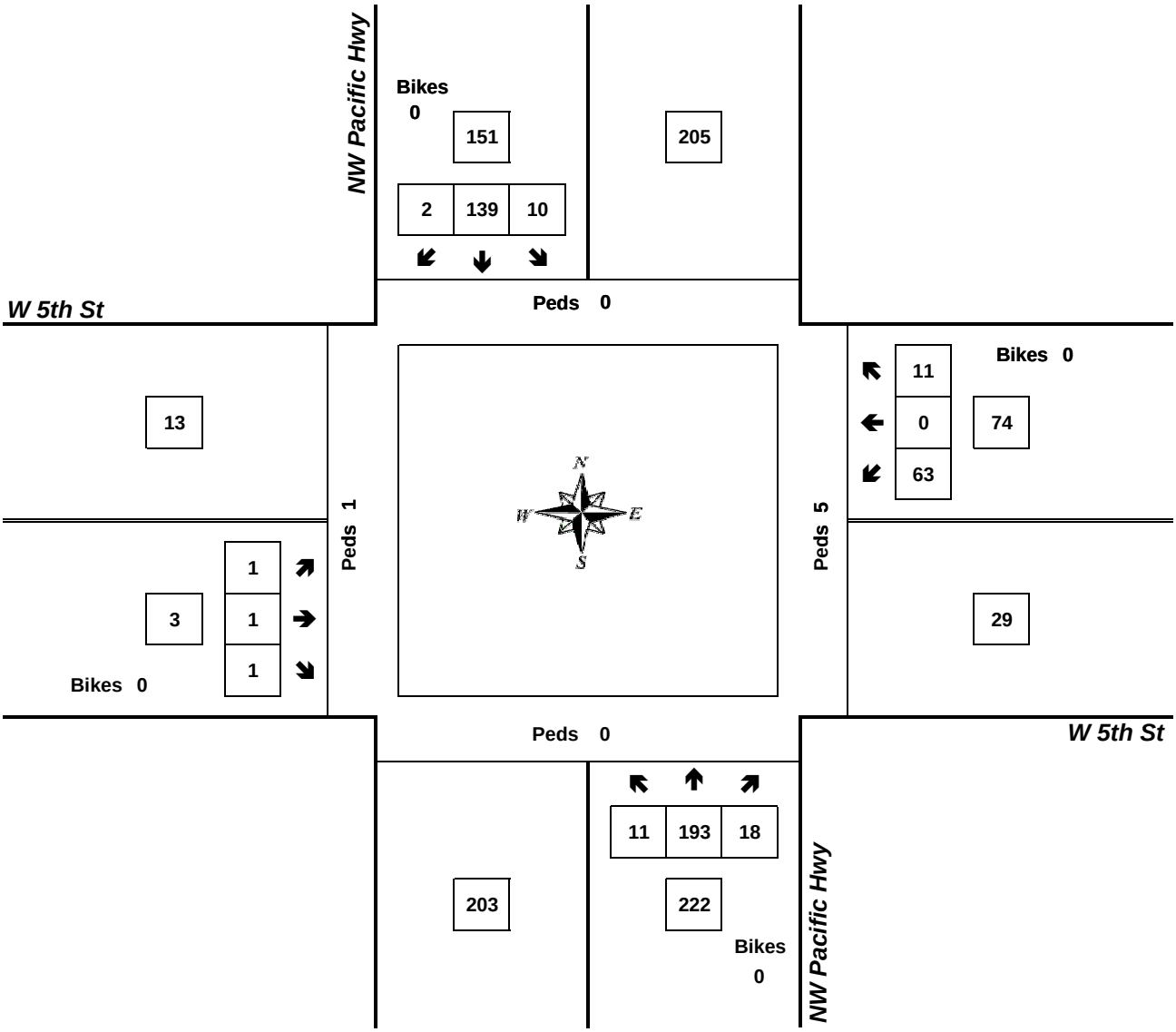
Count Period: 7:00 AM to 9:00 AM

Peak Hour Summary

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

NW Pacific Hwy & W 5th St

5:00 PM to 6:00 PM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.38	0.0%	3
WB	0.93	2.7%	74
NB	0.72	0.9%	222
SB	0.88	0.0%	151
Intersection	0.85	0.9%	450

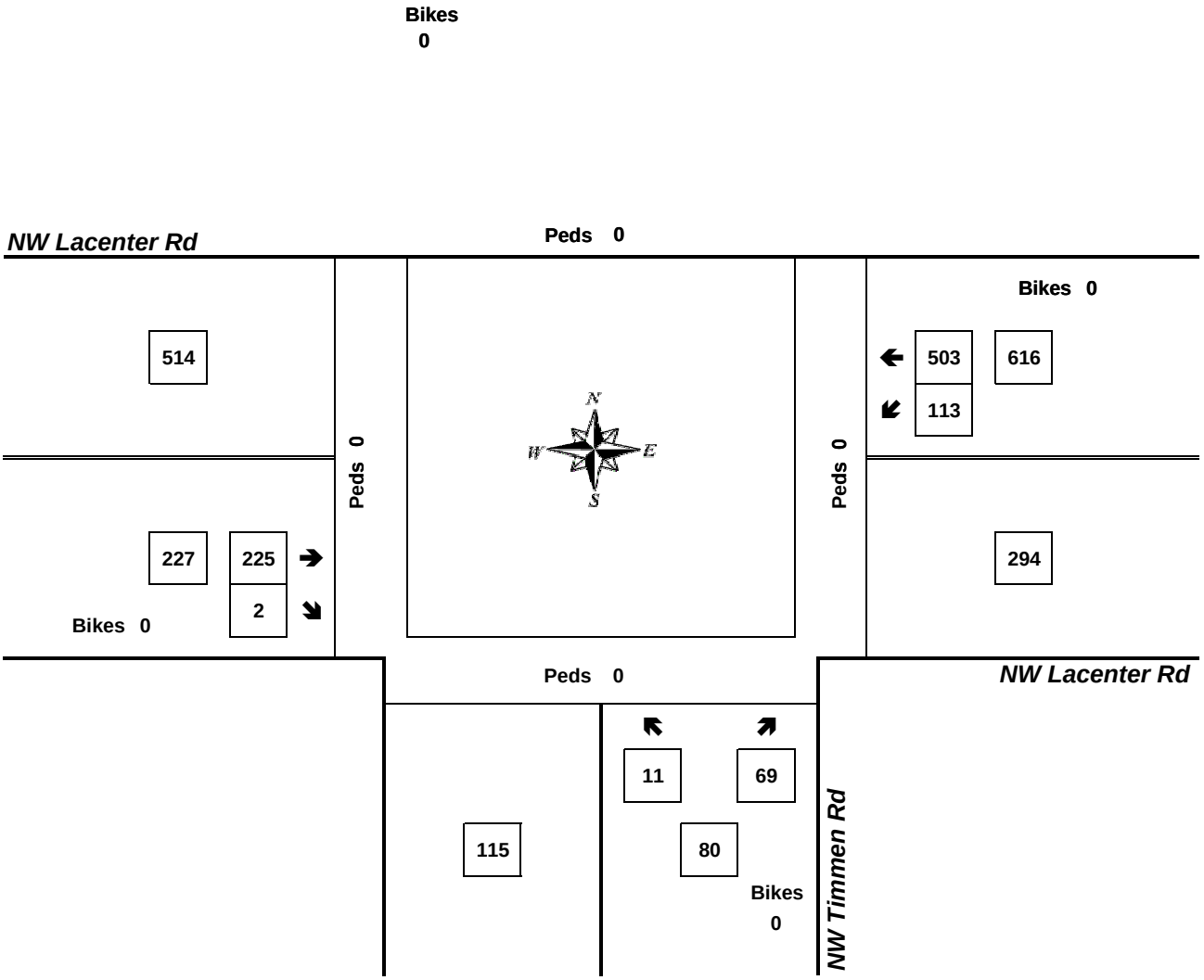
Count Period: 4:00 PM to 6:00 PM

Peak Hour Summary

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

NW Timmen Rd & NW Lacenter Rd

7:15 AM to 8:15 AM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.68	8.8%	227
WB	0.89	4.4%	616
NB	0.63	8.8%	80
SB	0.00	0.0%	0
Intersection	0.93	5.9%	923

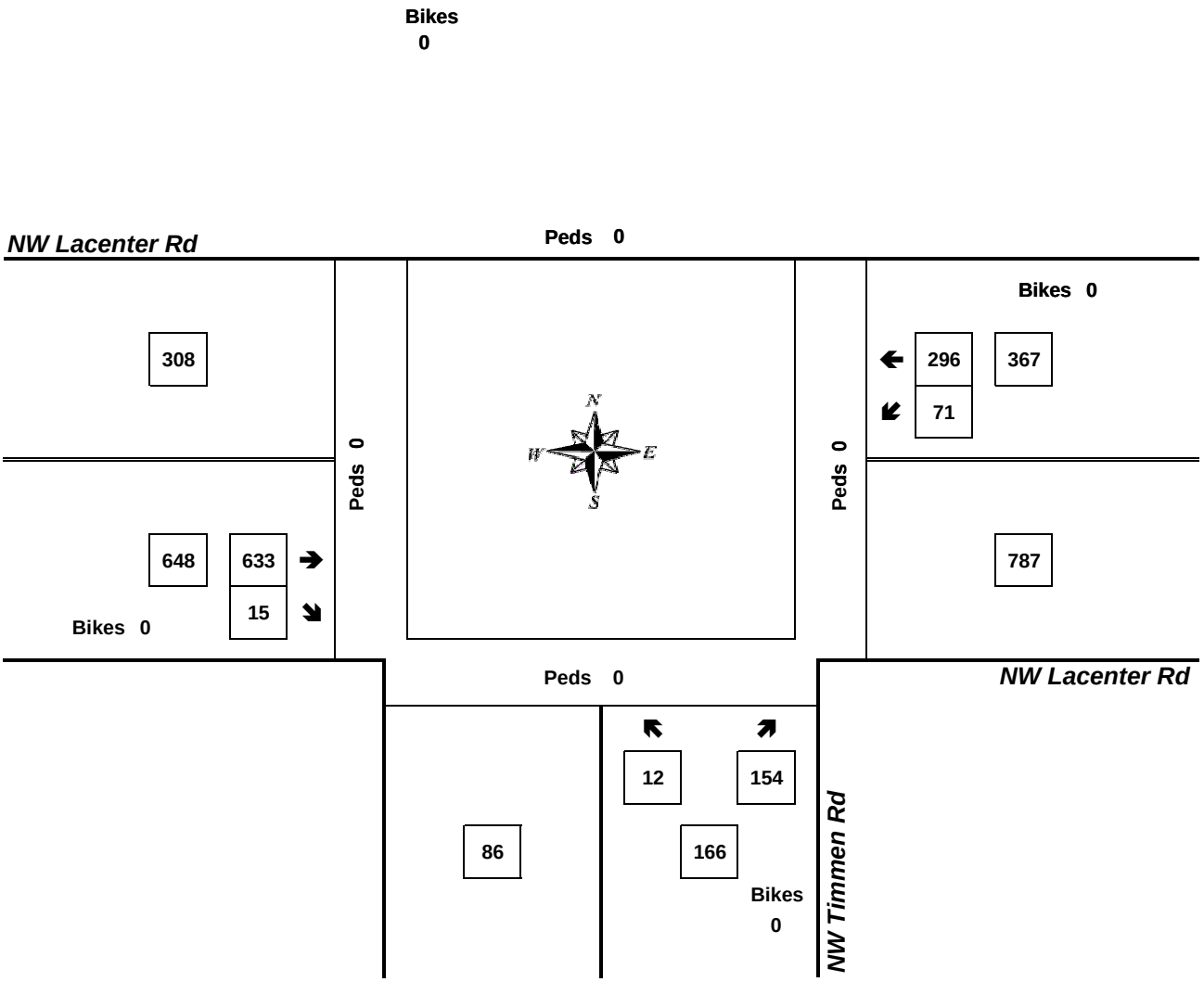
Count Period: 7:00 AM to 9:00 AM

Peak Hour Summary

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

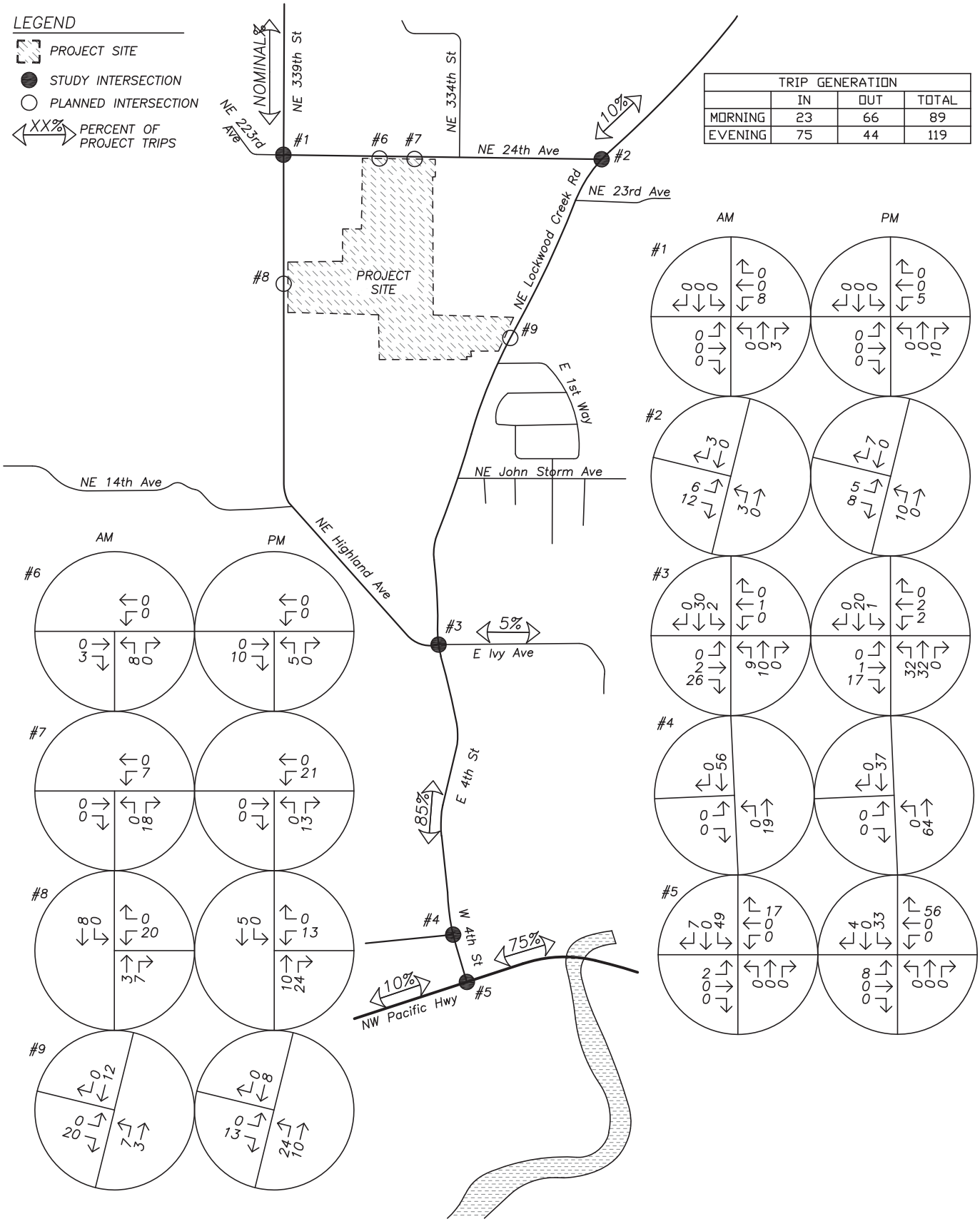
NW Timmen Rd & NW Lacenter Rd

4:45 PM to 5:45 PM
Tuesday, April 18, 2017



Approach	PHF	HV%	Volume
EB	0.87	0.6%	648
WB	0.87	1.4%	367
NB	0.81	4.2%	166
SB	0.00	0.0%	0
Intersection	0.96	1.4%	1,181

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

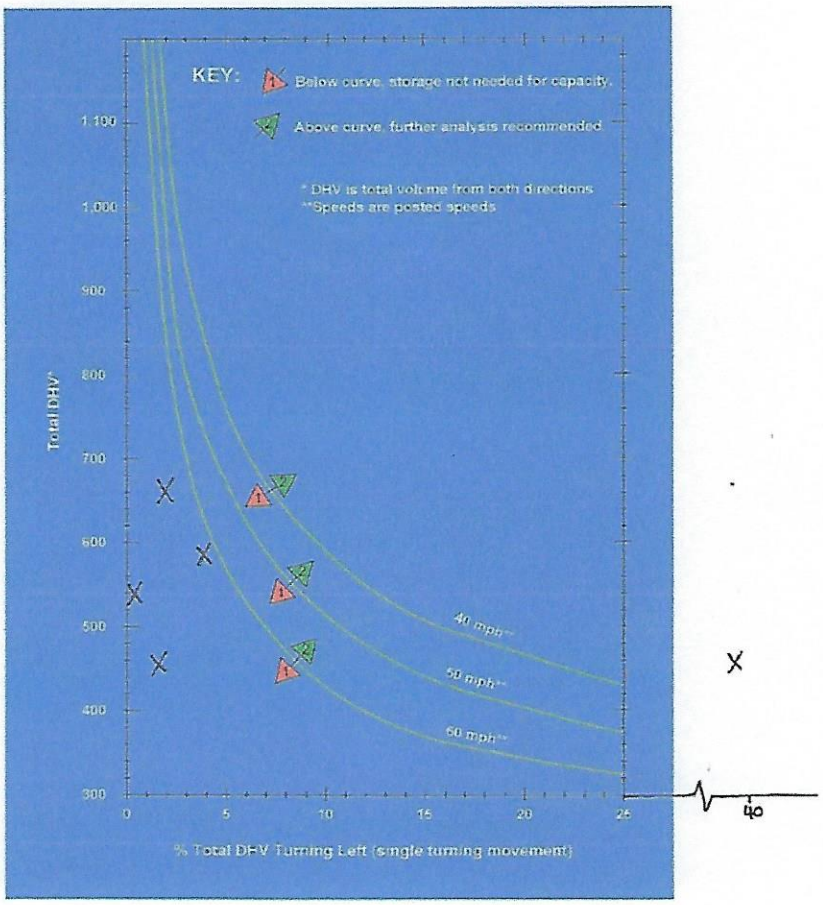


TRIP GENERATION			
	IN	OUT	TOTAL
MORNING	23	66	89
EVENING	75	44	119

SITE TRIP DISTRIBUTION & ASSIGNMENT
AM & PM Peak Hours

no scale

FIGURE 3



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

Left Turn Lane Criterion for 2020 Total Traffic

Intersection	Mov't	Analysis Period	Speed (mph)	%Total DHV Turning Left	Total DHV	Left Turn Lane Required
Pacific Highway at Site Access (NW 15th Street)	NB	AM Peak Hour	35	15.2%	296	No
		PM Peak Hour		37.7%	448	Yes
Pacific Highway at 10th Street	SB	AM Peak Hour	25	2.4%	453	No
		PM Peak Hour		4.3%	585	No
Pacific Highway at 5th Street	NB	AM Peak Hour	25	0.37%	542	No
		PM Peak Hour		1.8%	669	No

Total Traffic Volume (DHV)
Source: Oregon Department of Transportation Analysis Procedure Manual

Charbonneau Engineering LLC

PROJECT: #17-13 Riverside Estates, La Center DATE: May, 2019

Warrant 3: Peak Hour

17-12 Riverside Estates

1: Pacific Highway at Site Access (NE15th Street)

Intersection Information

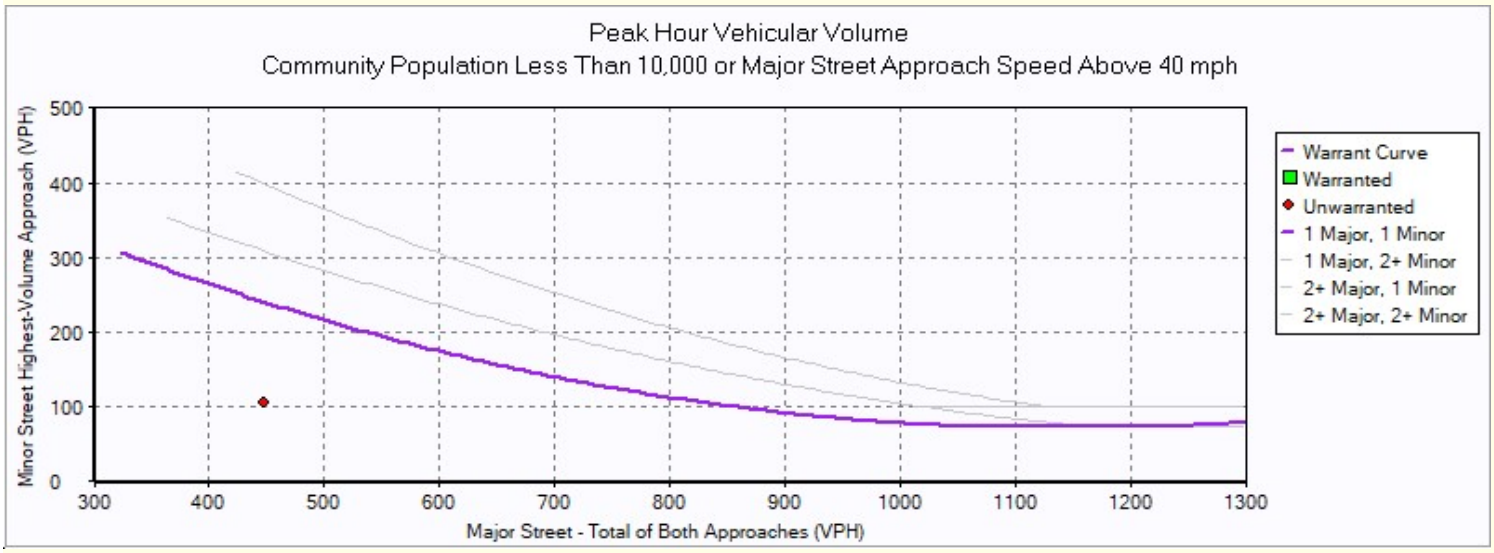
	Major Street	Minor Street
Street Name	Pacific Highway	Site Access/NW 15th Street
Direction	EB/WB/NWB	NB
Number of Lanes	1	1
Approch Speed	35	25

Warrant 3 Met? No

Details

Low Population?	Yes		
Condition A Met	No	**Condition B Met**	No
Notes	0 Hours met (1 required)	**Notes**	0 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

1: Pacific Highway at Site Access (NE15th Street)

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
7:45	269	185
16:15	448	105

Warrant 3: Peak Hour

17-12 Riverside Estates

2: Pacific Highway at W 10th Street

Intersection Information

	Major Street	Minor Street
Street Name	Pacific Highway	W 10th Street
Direction	EB/WB	SB
Number of Lanes	1	2
Approch Speed	25	25

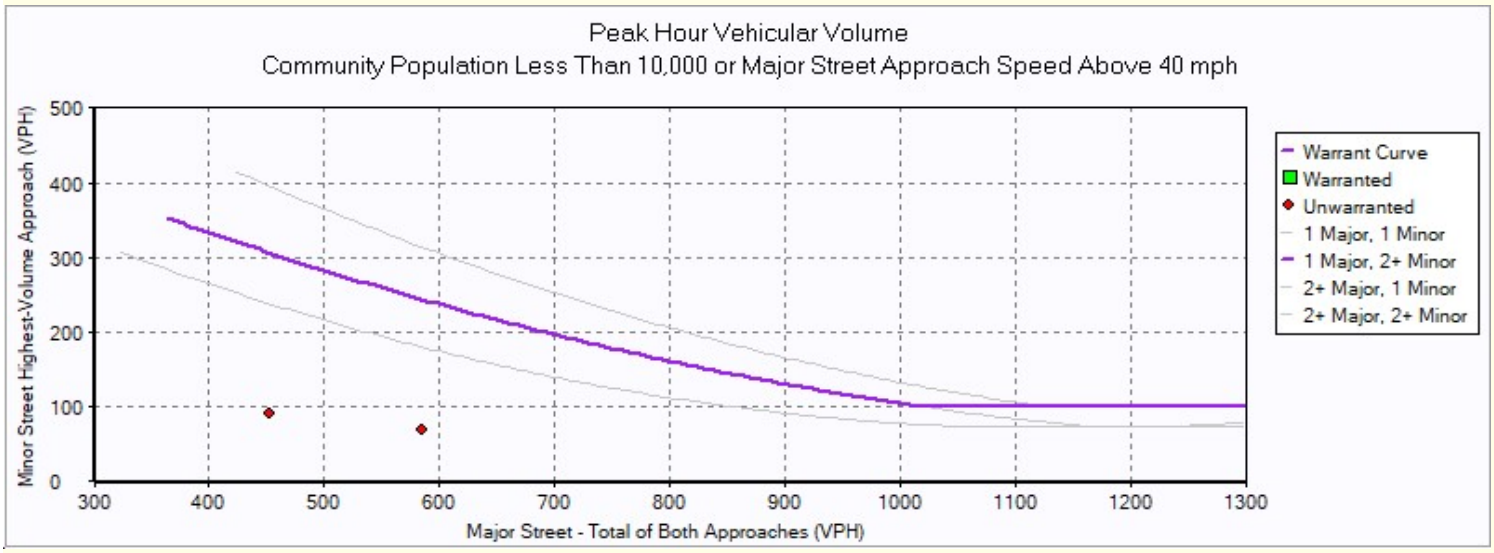
Warrant 3 Met? **No**

Details

Low Population? Yes

Condition A Met	No	**Condition B Met**	No
Notes	0 Hours met (1 required)	**Notes**	0 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

2: Pacific Highway at W 10th Street

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
7:30	453	92
16:00	585	69

Warrant 3: Peak Hour

3: Pacific Highway at W 5th Street

Intersection Information

	Major Street	Minor Street
Street Name	Pacific Highway	W 5th Street
Direction	NB/SB	EB/WB
Number of Lanes	1	1
Approch Speed	25	25

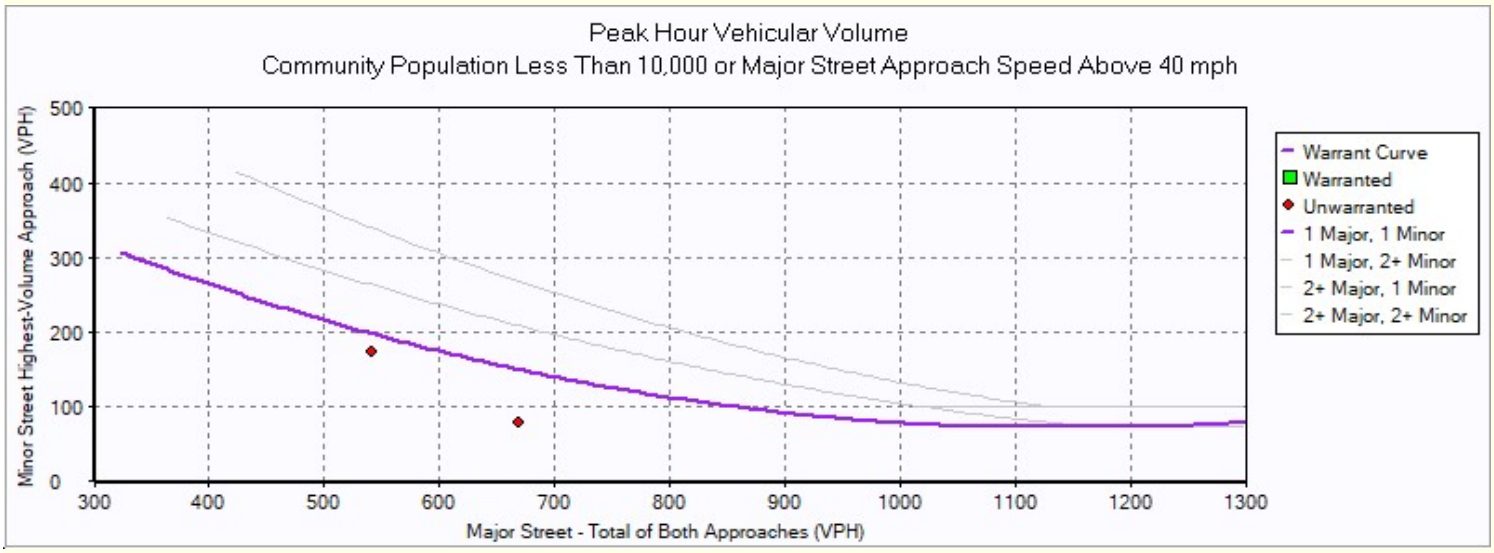
Warrant 3 Met? **No**

Details

Low Population? Yes

Condition A Met	No	**Condition B Met**	No
Notes	0 Hours met (1 required)	**Notes**	0 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

3: Pacific Highway at W 5th Street

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
7:30	542	174
17:00	669	79

Warrant 3: Peak Hour

4: Lacenter Road at Timmen Road

Intersection Information

	Major Street	Minor Street
Street Name	Lacenter	Timmen
Direction	EB/WB	NB
Number of Lanes	2	2
Approch Speed	40	40

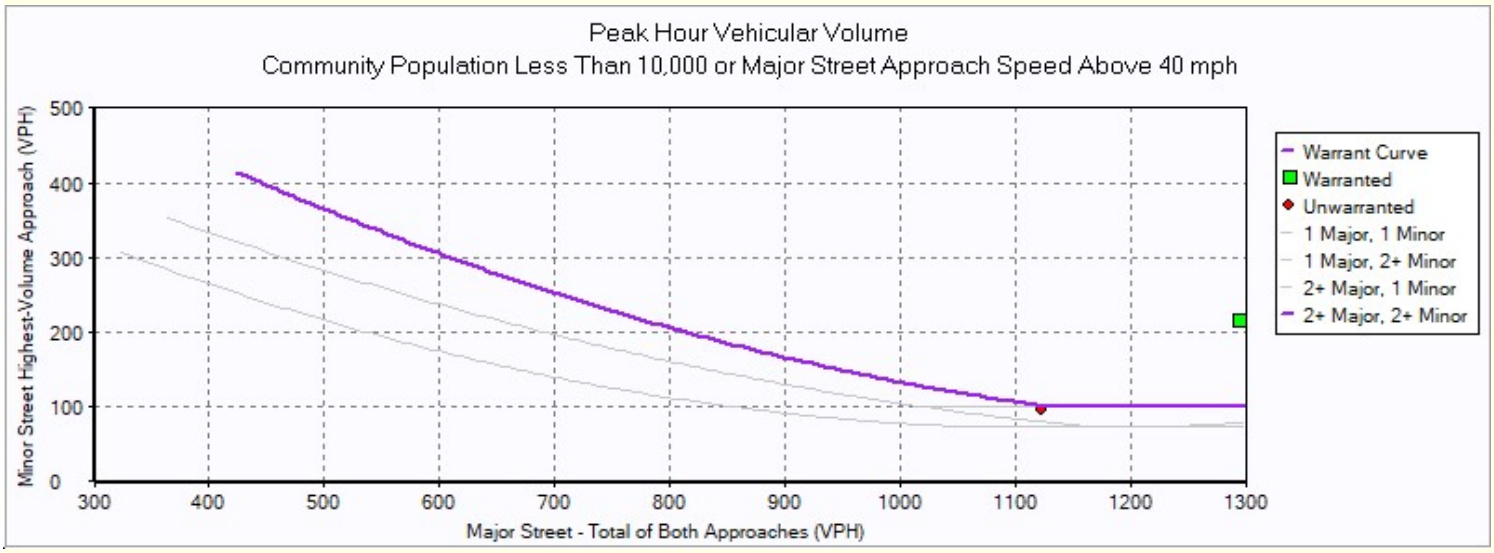
Warrant 3 Met? Yes

Details

Low Population? Yes

Condition A Met	No	**Condition B Met**	Yes
Notes	0 Hours met (1 required)	**Notes**	1 Hours met (1 required)

Minor Approach Time Delay Condition Met?	Not Met
Minor Approach Volume Condition Met?	Met
Total Entering Intersection Volume Condition Met?	Not Met



Warrant 3: Peak Hour

4: Lacenter Road at Timmen Road

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
7:15	1,123	95
16:45	1,343	215

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

PACIFIC HWY @ LARSON DR
PACIFIC HWY @ 10th ST
PACIFIC HWY @ 5th ST
LA CENTER RD @ TIMMEN RD

01/01/2012 - 12/31/2016

Under 23 U.S. Code § 409 and 23 U.S. Code § 148, 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	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILEPOST	A / B	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PED	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE
City Street	NW PACIFIC HWY	34200		200	F	SE	NW LARSON DR			E525947	03/17/2016	06:18	Possible Injury	1	0	1	0	0	Passenger Car	
City Street	NW PACIFIC HWY	900		50	F	SE	W 10TH ST			2427288	01/20/2012	11:13	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car
City Street	W 5TH ST	200		125	F	E	NW PACIFIC HWY			E261134	08/03/2013	13:59	Serious Injury	1	0	1	1	0	Passenger Car	
City Street	NW LACENTER RD	32000	NW TIMMEN RD							2427298	08/17/2012	00:30	Possible Injury	1	0	2	0	0	Passenger Car	Passenger Car
City Street	NW LACENTER RD	32000	NW TIMMEN RD							E273026	09/26/2013	14:04	No Injury	0	0	2	0	0	Passenger Car	Passenger Car
City Street	NW LACENTER RD	32000		500	F	SW	NW TIMMEN RD			2427290	06/11/2012	05:45	No Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	
City Street	NW LACENTER RD	1000				W	NW TIMMEN RD			E288194	11/20/2013	07:35	No Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	
City Street	NW LACENTER RD	32100		0.25	M	NE	NW TIMMEN RD			E288195	11/23/2013	06:02	No Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	
City Street	NW LACENTER RD	32000		249	F	SW	NW TIMMEN RD			E288238	11/26/2013	05:16	No Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	
City Street	NW LACENTER RD	32000		0.1	M	NE	NW TIMMEN RD			E347130	08/04/2014	23:40	No Injury	0	0	3	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb
City Street	NW LACENTER RD	32100		68	F	NE	NW TIMMEN RD			E532641	03/23/2016	17:37	No Injury	0	0	2	0	0	Passenger Car	Truck (Flatbad,Van,etc)
City Street	NW LACENTER RD	32000		1000	F	SW	NW TIMMEN RD			E603749	10/28/2016	10:37	Possible Injury	1	0	3	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb
City Street	NW TIMMEN RD	31600		243	F	NW	NE TIMMEN RD			E518648	02/24/2016	14:29	Possible Injury	2	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car

JUNCTION RELATIONSHIP	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	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)
Not at Intersection and Not Related	Dry	Dark-No Street Lights	Roadway Ditch	Going Straight Ahead		West	East			Exceeding Stated Speed Limit
Not at Intersection and Not Related	Wet	Daylight	From same direction - both going straight - both moving - sideswipe	Starting in Traffic Lane	Overtaking and Passing	Northwest	Southeast	Northwest	Southeast	Other
At Driveway	Dry	Daylight	Vehicle going straight hits pedestrian	Going Straight Ahead		East	West			None
At Intersection and Related	Dry	Dark-No Street Lights	Entering at angle	Making Left Turn	Going Straight Ahead	Southeast	Southwest	Southwest	Northeast	Did Not Grant RW to Vehicle
Not at Intersection and Not Related	Dry	Daylight	From same direction - both going straight - both moving - rear-end	Slowing	Going Straight Ahead	South	North	South	North	None
Not at Intersection and Not Related	Dry	Dawn	Tree or Stump (stationary)	Going Straight Ahead		Northeast	Southwest			Apparently Ill
Not at Intersection and Not Related	Ice	Daylight	Roadway Ditch	Going Straight Ahead		Northeast	Southwest			None
Not at Intersection and Not Related	Ice	Dark-No Street Lights	Roadway Ditch	Going Straight Ahead		East	West			None
Not at Intersection and Not Related	Ice	Dark-No Street Lights	Guardrail - Face	Going Straight Ahead		East	West			None
Not at Intersection and Not Related	Dry	Dark-No Street Lights	Vehicle Strikes Deer	Going Straight Ahead	Going Straight Ahead	South	North	North	South	Driver Not Distracted
At Driveway	Wet	Other	From same direction - one left turn - one straight	Overtaking and Passing	Making Left Turn	West	East	West	North	Driver Not Distracted
Not at Intersection and Not Related	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Stopped in Roadway	Going Straight Ahead	Vehicle Stopped	Vehicle Stopped	West	East	None
Not at Intersection and Not Related	Dry	Daylight	From same direction - both going straight - both moving - rear-end	Going Straight Ahead	Going Straight Ahead	East	West	East	West	Inattention

MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	PEDESTRIAN CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	PEDESTRIAN CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	PEDESTRIAN CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	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	1083833.899	202953.37
		Improper Passing						Lane of Primary Trafficway	1086414.25	201833.04
					Did Not Grant RW to Vehicle			Lane of Primary Trafficway	1086963.8	200705.73
		None						Lane of Primary Trafficway	1085773.83	197292.799
Follow Too Closely		Inattention						Lane of Primary Trafficway	1085773.83	197292.79
								Past the Outside Shoulder of Primary Trafficway	1085343.159	197039.209
								Past the Outside Shoulder of Primary Trafficway	1084559.09	196810.85
								Past the Outside Shoulder of Primary Trafficway	1086654.32	198264.959
								Outside Shoulder of Primary Trafficway	1085567.129	197154.78
		Driver Not Distracted						Lane of Primary Trafficway	1086181.72	197648.66
		None	Improper Passing					Lane of Primary Trafficway	1085823.439	197340.429
		Inattention						Lane of Primary Trafficway	1084880.73	196883.989
		None						Lane of Primary Trafficway	1086589.33	195846.95

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2016 to 2021

Agency: La Center
County: Clark
MPO/RTPO: RTC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
07	4	La Center Road & Timmen Road Intersection Improvements to Project involves widening to include turn lanes, upgrade of utilities and traffic signal or roundabout at intersection.	WA-04006	06/27/12	06/27/12		12-353	03	C G O P S T W	0.000	EA	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2016		0		0	29,000	29,000
P	CN	2016		0		0	1,421,000	1,421,000
			Totals	**0**		**0**	**1,450,000**	**1,450,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
	0	0	0	0	0
Totals	**0**	**0**	**0**	**0**	**0**

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	25	58	11	10	143
Future Vol, veh/h	61	25	58	11	10	143
Conflicting Peds, #/hr	4	1	0	3	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	81	81	75	75
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	71	29	72	14	13	191

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	302	82	0	0	88	0
Stage 1	81	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	690	978	-	-	1483	-
Stage 1	942	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	679	974	-	-	1482	-
Mov Cap-2 Maneuver	679	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	679	974	1482	-
HCM Lane V/C Ratio	-	-	0.104	0.03	0.009	-
HCM Control Delay (s)	-	-	10.9	8.8	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	7	150	2	12	2	63	30	7	209	1
Future Vol, veh/h	1	0	7	150	2	12	2	63	30	7	209	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	54	54	54	74	74	74	79	79	79
Heavy Vehicles, %	0	0	0	4	4	4	4	4	4	3	3	3
Mvmt Flow	2	0	14	278	4	22	3	85	41	9	265	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	410	417	268	403	398	107	268	0	0	127	0	0
Stage 1	285	285	-	112	112	-	-	-	-	-	-	-
Stage 2	125	132	-	291	286	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	556	530	776	554	537	942	1284	-	-	1453	-	-
Stage 1	727	679	-	888	799	-	-	-	-	-	-	-
Stage 2	884	791	-	713	671	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	534	523	774	539	530	940	1283	-	-	1452	-	-
Mov Cap-2 Maneuver	534	523	-	539	530	-	-	-	-	-	-	-
Stage 1	723	673	-	884	796	-	-	-	-	-	-	-
Stage 2	856	788	-	695	665	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	19	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1283	-	-	733	556	1452	-	-
HCM Lane V/C Ratio	0.002	-	-	0.022	0.546	0.006	-	-
HCM Control Delay (s)	7.8	0	-	10	19	7.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	3.3	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	225	2	113	503	11	69
Future Vol, veh/h	225	2	113	503	11	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	245	2	123	547	12	75

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	247	0	1038	246
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	792	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1319	-	256	793
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	446	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1319	-	232	793
Mov Cap-2 Maneuver	-	-	-	-	232	-
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	232	793	-	-	1319	-
HCM Lane V/C Ratio	0.052	0.095	-	-	0.093	-
HCM Control Delay (s)	21.4	10	-	-	8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	48	130	47	24	94
Future Vol, veh/h	17	48	130	47	24	94
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	87	87	89	89
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	20	56	149	54	27	106

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	340	180	0	0	205	0
Stage 1	178	-	-	-	-	-
Stage 2	162	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	656	863	-	-	1343	-
Stage 1	853	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	640	860	-	-	1340	-
Mov Cap-2 Maneuver	640	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	640	860	1340	-
HCM Lane V/C Ratio	-	-	0.031	0.065	0.02	-
HCM Control Delay (s)	-	-	10.8	9.5	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	63	0	11	11	193	18	10	139	2
Future Vol, veh/h	1	1	1	63	0	11	11	193	18	10	139	2
Conflicting Peds, #/hr	1	0	1	5	0	5	1	0	5	5	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	93	93	93	72	72	72	88	88	88
Heavy Vehicles, %	0	0	0	3	3	3	1	1	1	1	1	1
Mvmt Flow	3	3	3	68	0	12	15	268	25	11	158	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	505	512	165	505	500	291	161	0	0	298	0	0
Stage 1	183	183	-	316	316	-	-	-	-	-	-	-
Stage 2	322	329	-	189	184	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	481	468	885	476	471	746	1424	-	-	1269	-	-
Stage 1	823	752	-	693	653	-	-	-	-	-	-	-
Stage 2	694	650	-	810	746	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	462	455	880	460	458	739	1417	-	-	1263	-	-
Mov Cap-2 Maneuver	462	455	-	460	458	-	-	-	-	-	-	-
Stage 1	812	744	-	681	641	-	-	-	-	-	-	-
Stage 2	671	638	-	793	738	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.7	13.8	0.4	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1417	-	-	546	487	1263	-	-
HCM Lane V/C Ratio	0.011	-	-	0.014	0.163	0.009	-	-
HCM Control Delay (s)	7.6	0	-	11.7	13.8	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	633	15	71	296	12	154
Future Vol, veh/h	633	15	71	296	12	154
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	728	17	82	340	15	190

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	745	0	1239	736
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	503	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	863	-	194	419
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	863	-	176	419
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	549	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	176	419	-	-	863	-
HCM Lane V/C Ratio	0.084	0.454	-	-	0.095	-
HCM Control Delay (s)	27.3	20.5	-	-	9.6	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	2.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	27	64	12	11	159
Future Vol, veh/h	65	27	64	12	11	159
Conflicting Peds, #/hr	4	1	0	3	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	81	81	75	75
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	76	31	79	15	15	212

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	334	90	0	0	97	0
Stage 1	89	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	661	968	-	-	1472	-
Stage 1	934	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	649	964	-	-	1471	-
Mov Cap-2 Maneuver	649	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	649	964	1471	-
HCM Lane V/C Ratio	-	-	0.116	0.033	0.01	-
HCM Control Delay (s)	-	-	11.3	8.9	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0	-

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	7	159	2	13	2	69	32	7	224	1
Future Vol, veh/h	1	0	7	159	2	13	2	69	32	7	224	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	54	54	54	74	74	74	79	79	79
Heavy Vehicles, %	0	0	0	4	4	4	4	4	4	3	3	3
Mvmt Flow	2	0	14	294	4	24	3	93	43	9	284	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	439	447	287	431	426	117	287	0	0	137	0	0
Stage 1	304	304	-	121	121	-	-	-	-	-	-	-
Stage 2	135	143	-	310	305	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	532	509	757	531	517	930	1264	-	-	1441	-	-
Stage 1	710	667	-	878	792	-	-	-	-	-	-	-
Stage 2	873	782	-	696	659	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	510	502	755	516	510	928	1263	-	-	1440	-	-
Mov Cap-2 Maneuver	510	502	-	516	510	-	-	-	-	-	-	-
Stage 1	707	661	-	875	789	-	-	-	-	-	-	-
Stage 2	843	779	-	678	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	21.5	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1263	-	-	712	534	1440	-	-
HCM Lane V/C Ratio	0.002	-	-	0.022	0.603	0.006	-	-
HCM Control Delay (s)	7.9	0	-	10.2	21.5	7.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	4	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	253	2	130	573	12	76
Future Vol, veh/h	253	2	130	573	12	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	275	2	141	623	13	83

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	277	0	1181	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	905	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1286	-	210	763
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	395	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1286	-	187	763
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	352	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	763	-	-	1286	-
HCM Lane V/C Ratio	0.07	0.108	-	-	0.11	-
HCM Control Delay (s)	25.7	10.3	-	-	8.1	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.4	-	-	0.4	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	51	142	50	25	108
Future Vol, veh/h	18	51	142	50	25	108
Conflicting Peds, #/hr	4	1	0	3	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	81	81	75	75
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	21	59	175	62	33	144

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	424	210	0	0	240	0
Stage 1	209	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	587	830	-	-	1304	-
Stage 1	826	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	567	827	-	-	1303	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	567	827	1303	-
HCM Lane V/C Ratio	-	-	0.037	0.072	0.026	-
HCM Control Delay (s)	-	-	11.6	9.7	7.8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	67	0	12	12	209	19	11	156	2
Future Vol, veh/h	1	1	1	67	0	12	12	209	19	11	156	2
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	54	54	54	74	74	74	79	79	79
Heavy Vehicles, %	0	0	0	4	4	4	4	4	4	3	3	3
Mvmt Flow	2	2	2	124	0	22	16	282	26	14	197	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	569	571	202	559	559	297	202	0	0	309	0	0
Stage 1	229	229	-	329	329	-	-	-	-	-	-	-
Stage 2	340	342	-	230	230	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	436	434	844	437	435	738	1358	-	-	1246	-	-
Stage 1	778	718	-	680	643	-	-	-	-	-	-	-
Stage 2	679	642	-	768	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	413	421	842	425	422	737	1357	-	-	1245	-	-
Mov Cap-2 Maneuver	413	421	-	425	422	-	-	-	-	-	-	-
Stage 1	766	707	-	670	633	-	-	-	-	-	-	-
Stage 2	649	632	-	753	699	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	16.7	0.4	0.5
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1357	-	-	501	454	1245	-	-
HCM Lane V/C Ratio	0.012	-	-	0.012	0.322	0.011	-	-
HCM Control Delay (s)	7.7	0	-	12.3	16.7	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.4	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	717	16	82	340	13	174
Future Vol, veh/h	717	16	82	340	13	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	779	17	89	370	14	189

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	797	0	1336	788
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	548	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	825	-	169	391
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	825	-	151	391
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	517	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	23.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	391	-	-	825	-
HCM Lane V/C Ratio	0.094	0.484	-	-	0.108	-
HCM Control Delay (s)	31.3	22.5	-	-	9.9	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	2.6	-	-	0.4	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	5	45	76	18	167
Future Vol, veh/h	123	5	45	76	18	167
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	5	49	83	20	182

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	316	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	180	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	677	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	851	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	653	913
Mov Cap-2 Maneuver	-	-	-	-	653	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	820	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	879	-	-	1445	-
HCM Lane V/C Ratio	0.229	-	-	0.034	-
HCM Control Delay (s)	10.3	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	27	109	12	11	321
Future Vol, veh/h	65	27	109	12	11	321
Conflicting Peds, #/hr	4	1	0	3	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	81	81	75	75
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	76	31	135	15	15	428

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	606	146	0	0	152	0
Stage 1	145	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	460	901	-	-	1405	-
Stage 1	882	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	451	898	-	-	1404	-
Mov Cap-2 Maneuver	451	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	451	898	1404	-
HCM Lane V/C Ratio	-	-	0.168	0.035	0.01	-
HCM Control Delay (s)	-	-	14.6	9.2	7.6	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0	-

Intersection	
Int Delay, s/veh	19.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	7	159	2	13	2	114	32	7	386	1
Future Vol, veh/h	1	0	7	159	2	13	2	114	32	7	386	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	54	54	54	74	74	74	79	79	79
Heavy Vehicles, %	0	0	0	4	4	4	4	4	4	3	3	3
Mvmt Flow	2	0	14	294	4	24	3	154	43	9	489	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	705	713	492	697	692	178	492	0	0	198	0	0
Stage 1	509	509	-	182	182	-	-	-	-	-	-	-
Stage 2	196	204	-	515	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	354	360	581	353	365	860	1061	-	-	1369	-	-
Stage 1	550	541	-	815	745	-	-	-	-	-	-	-
Stage 2	810	737	-	539	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	337	355	579	341	359	858	1060	-	-	1368	-	-
Mov Cap-2 Maneuver	337	355	-	341	359	-	-	-	-	-	-	-
Stage 1	547	535	-	812	742	-	-	-	-	-	-	-
Stage 2	780	734	-	521	528	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	60.8	0.1	0.1
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1060	-	-	531	357	1368	-	-
HCM Lane V/C Ratio	0.003	-	-	0.03	0.903	0.006	-	-
HCM Control Delay (s)	8.4	0	-	12	60.8	7.6	0	-
HCM Lane LOS	A	A	-	B	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	9	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	283	2	157	681	12	83
Future Vol, veh/h	283	2	157	681	12	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	308	2	171	740	13	90

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	1391	309
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	1082	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1250	-	157	731
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	325	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1250	-	136	731
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	281	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	136	731	-	-	1250	-
HCM Lane V/C Ratio	0.096	0.123	-	-	0.137	-
HCM Control Delay (s)	34.3	10.6	-	-	8.3	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0.5	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	19	169	150	10	95
Future Vol, veh/h	110	19	169	150	10	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	21	184	163	11	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	140	0	660	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	530	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1443	-	428	920
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	368	920
Mov Cap-2 Maneuver	-	-	-	-	368	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	507	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	805	-	-	1443	-
HCM Lane V/C Ratio	0.142	-	-	0.127	-
HCM Control Delay (s)	10.2	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.4	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	51	309	50	25	201
Future Vol, veh/h	18	51	309	50	25	201
Conflicting Peds, #/hr	4	1	0	3	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	81	81	75	75
Heavy Vehicles, %	2	2	3	3	6	6
Mvmt Flow	21	59	381	62	33	268

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	754	416	0	0	446	0
Stage 1	415	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	377	637	-	-	1093	-
Stage 1	666	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	361	635	-	-	1092	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	361	635	1092	-
HCM Lane V/C Ratio	-	-	0.058	0.093	0.031	-
HCM Control Delay (s)	-	-	15.6	11.3	8.4	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.3	0.1	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	67	0	12	12	376	19	11	249	2
Future Vol, veh/h	1	1	1	67	0	12	12	376	19	11	249	2
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	54	54	54	74	74	74	79	79	79
Heavy Vehicles, %	0	0	0	4	4	4	4	4	4	3	3	3
Mvmt Flow	2	2	2	124	0	22	16	508	26	14	315	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	911	913	319	901	902	523	320	0	0	535	0	0
Stage 1	346	346	-	554	554	-	-	-	-	-	-	-
Stage 2	565	567	-	347	348	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	257	276	726	257	275	550	1229	-	-	1028	-	-
Stage 1	674	639	-	513	511	-	-	-	-	-	-	-
Stage 2	513	510	-	665	631	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	239	265	724	247	264	549	1228	-	-	1027	-	-
Mov Cap-2 Maneuver	239	265	-	247	264	-	-	-	-	-	-	-
Stage 1	660	627	-	503	501	-	-	-	-	-	-	-
Stage 2	482	500	-	649	619	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	33.1	0.2	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	321	270	1027	-	-
HCM Lane V/C Ratio	0.013	-	-	0.019	0.542	0.014	-	-
HCM Control Delay (s)	8	0	-	16.4	33.1	8.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	3	0	-	-

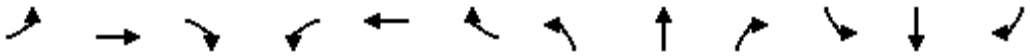
Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	828	16	97	402	13	202
Future Vol, veh/h	828	16	97	402	13	202
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	900	17	105	437	14	220

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	917	0	1557	909
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	744	-	124	333
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	744	-	107	333
Mov Cap-2 Maneuver	-	-	-	-	107	-
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	447	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	35.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	107	333	-	-	744	-
HCM Lane V/C Ratio	0.132	0.659	-	-	0.142	-
HCM Control Delay (s)	43.7	34.5	-	-	10.6	-
HCM Lane LOS	E	D	-	-	B	-
HCM 95th %tile Q(veh)	0.4	4.4	-	-	0.5	-

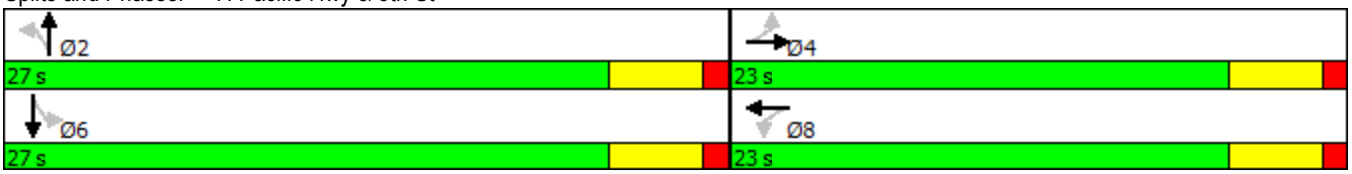


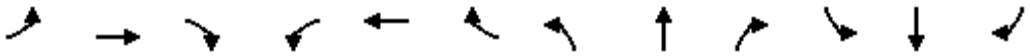
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	7	159	2	13	2	114	32	7	386	1
Future Volume (vph)	1	0	7	159	2	13	2	114	32	7	386	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	12	12	12	12	12
Satd. Flow (prot)	0	1635	0	0	1960	0	0	1772	0	0	1843	0
Flt Permitted		0.957			0.733			0.993			0.995	
Satd. Flow (perm)	0	1574	0	0	1503	0	0	1762	0	0	1835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			9			36				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		343			440			420			345	
Travel Time (s)		7.8			10.0			9.5			7.8	
Confl. Peds. (#/hr)	1		1				1			1		2
Peak Hour Factor	0.50	0.50	0.50	0.54	0.54	0.54	0.74	0.74	0.74	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	322	0	0	200	0	0	499	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	23.0	23.0		23.0	23.0		27.0	27.0		27.0	27.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Act Effct Green (s)		13.1			13.1			17.5			17.5	
Actuated g/C Ratio		0.33			0.33			0.44			0.44	
v/c Ratio		0.03			0.64			0.25			0.62	
Control Delay		2.6			18.1			7.5			13.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		2.6			18.1			7.5			13.5	
LOS		A			B			A			B	
Approach Delay		2.6			18.1			7.5			13.5	
Approach LOS		A			B			A			B	
Queue Length 50th (ft)		0			53			20			77	
Queue Length 95th (ft)		1			67			45			147	
Internal Link Dist (ft)		263			360			340			265	
Turn Bay Length (ft)												
Base Capacity (vph)		772			725			1042			1070	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.02			0.44			0.19			0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 39.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 13.6		Intersection LOS: B	

Intersection Capacity Utilization 48.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Pacific Hwy & 5th St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	67	0	12	12	376	19	11	249	2
Future Volume (vph)	1	1	1	67	0	12	12	376	19	11	249	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1773	0	0	1717	0	0	1814	0	0	1839	0
Flt Permitted		0.884			0.754			0.988			0.976	
Satd. Flow (perm)	0	1592	0	0	1350	0	0	1794	0	0	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			33			7			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		343			440			420			345	
Travel Time (s)		7.8			10.0			9.5			7.8	
Confl. Peds. (#/hr)	1		1				1			1		2
Peak Hour Factor	0.50	0.50	0.50	0.54	0.54	0.54	0.74	0.74	0.74	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	146	0	0	550	0	0	332	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	22.5	22.5		22.5	22.5		27.5	27.5		27.5	27.5	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Act Effct Green (s)		8.9			8.9			24.1			24.1	
Actuated g/C Ratio		0.23			0.23			0.63			0.63	
v/c Ratio		0.02			0.43			0.48			0.29	
Control Delay		10.0			14.7			8.1			6.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.0			14.7			8.1			6.3	
LOS		A			B			A			A	
Approach Delay		10.0			14.7			8.1			6.3	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)		1			19			64			33	
Queue Length 95th (ft)		4			29			116			72	
Internal Link Dist (ft)		263			360			340			265	
Turn Bay Length (ft)												
Base Capacity (vph)		777			674			1148			1149	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.01			0.22			0.48			0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 38.2			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 42.7%		ICU Level of Service A	

Analysis Period (min) 15

Splits and Phases: 7: Pacific Hwy & 5th St