

---

**TRAFFIC IMPACT ANALYSIS**

**FOR**

**TOTEMWOOD TOWNHOMES**

**Prepared By**

Gary A. Norris, P.E., P.T.O.E. RSP1  
DN Traffic Consultants, Inc.  
PO Box 547  
Preston, Washington 98050-0547

**April 19, 2022**

**Client**

ARQOZB, LLC  
Weiming Bian/Paul Berndt  
PO Box 60147  
Shoreline, WA 98160-0147

---

## **INTRODUCTION**

The following Traffic Impact Analysis (TIA) was prepared in response to the City of Arlington request for a traffic impact analysis for the proposed Totemwood Townhomes development.

The study includes a description of the project, existing conditions review including roadway inventory, traffic counts, trip generation evaluation, project trip assignment, vehicle turn movements, level of service analyses for the PM peak hour, sight distance evaluation, and traffic mitigation fees.

### **Project Description**

The Totemwood Townhomes development is located at 18601 35<sup>th</sup> Avenue NE in Arlington Washington. It is located on the east side of 35<sup>th</sup> Avenue NE just south of 186<sup>th</sup> Place NE. The project is situated on one (rectangular) parcel. The parcel area is 41,556 square feet or approximately 0.95 acres. There is one existing occupied home on the parcel. It has a circular driveway with access to 35<sup>th</sup> Avenue NE.

A vicinity map of the site location is shown in Figure 1.

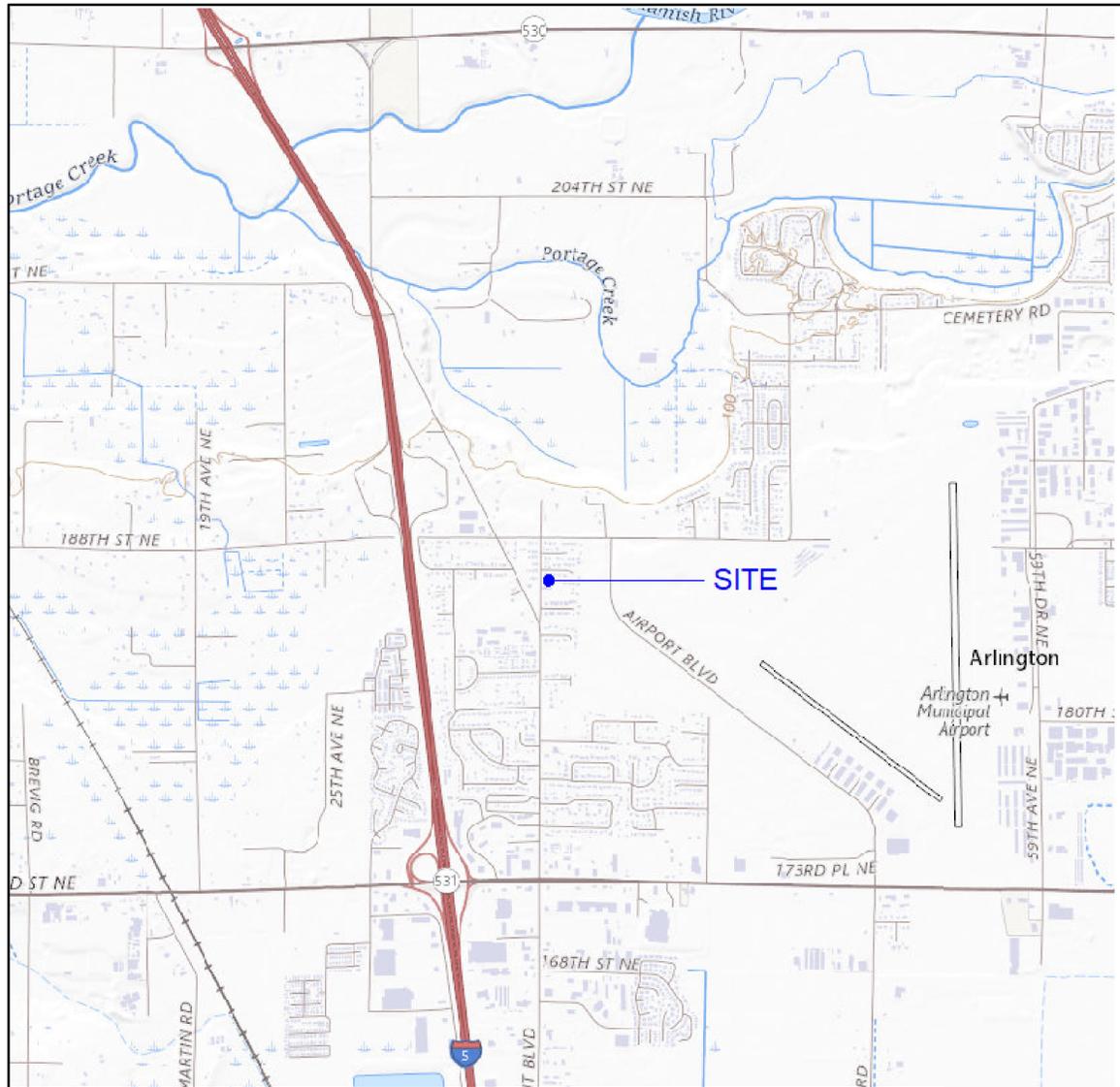


Figure 1: Vicinity Map with Site (north is up)

The project will consist of 12 townhome units in 6 duplex structures, that will take access to 35<sup>th</sup> Avenue NE.

An aerial depiction of the property is shown in Figure 2.



Figure 2: Site Aerial (north is up)

The proposed site plan (at the time of this writing) consists of two options. Option A includes a circular internal roadway around the perimeter of the site with the units located on the inside. There would be two (2) access points to 35<sup>th</sup> Avenue NE with this option. This is shown in Figure 3.

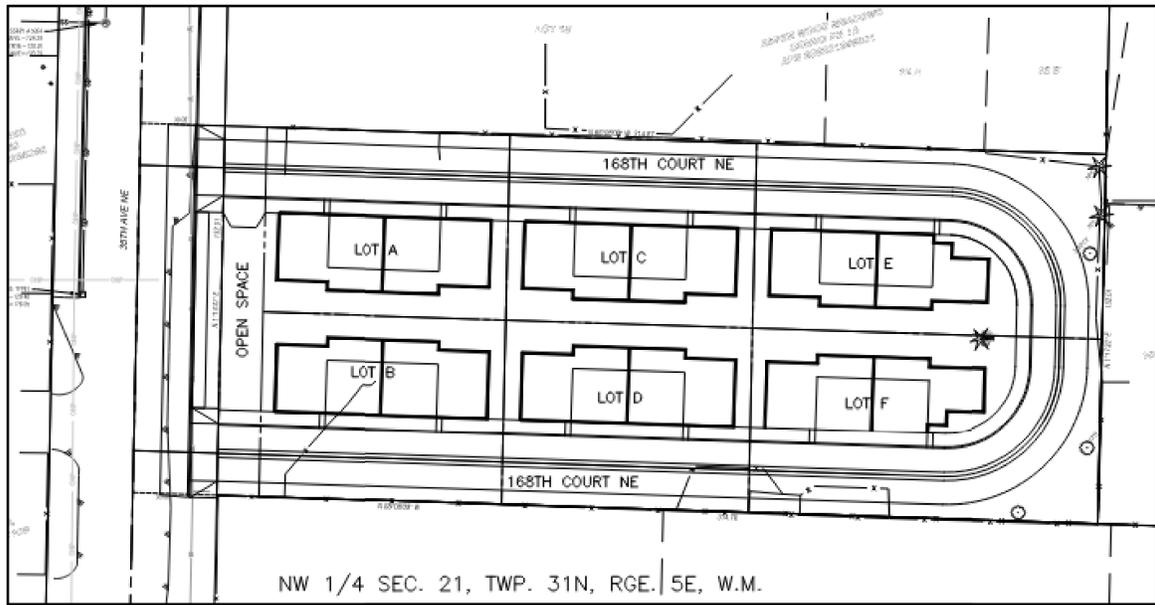


Figure 3: Site Plan Option A (north is up)

Option B includes an internal roadway through the middle of the site with a hammerhead end at the east end. The units are located both on the north and south sides of the road. With this option, there would be one (1) access point to 35<sup>th</sup> Avenue NE. This is shown in Figure 4.

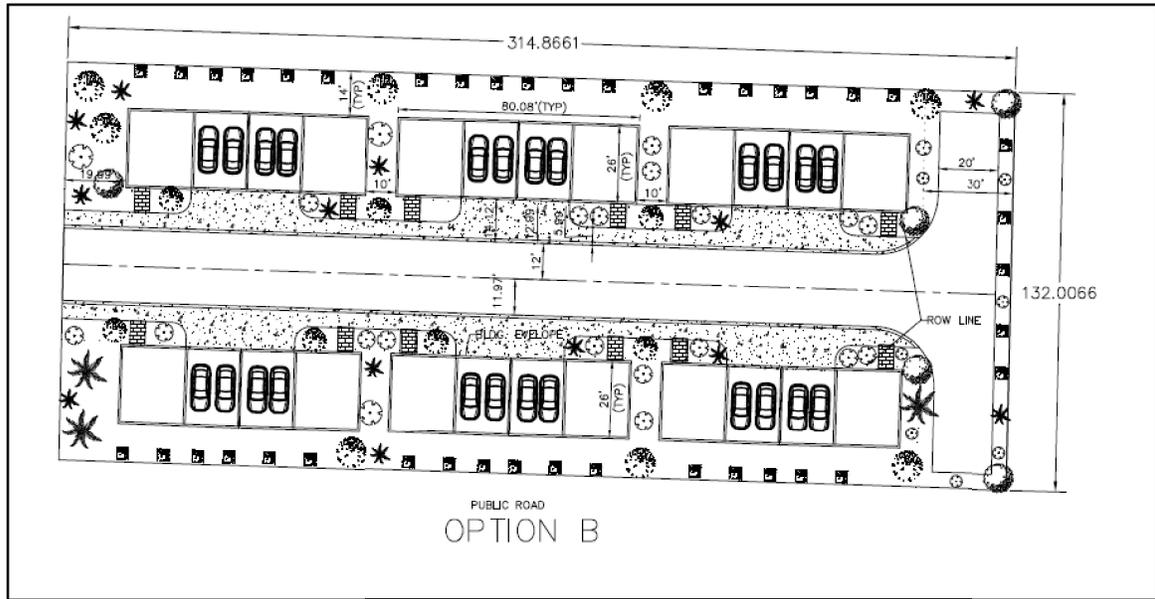


Figure 4: Site Plan Option B (north is up)

As noted above, there is an existing occupied home on the site. The home has a circular driveway with two access points to 35<sup>th</sup> Avenue NE. The existing parcel survey is shown in Figure 5.

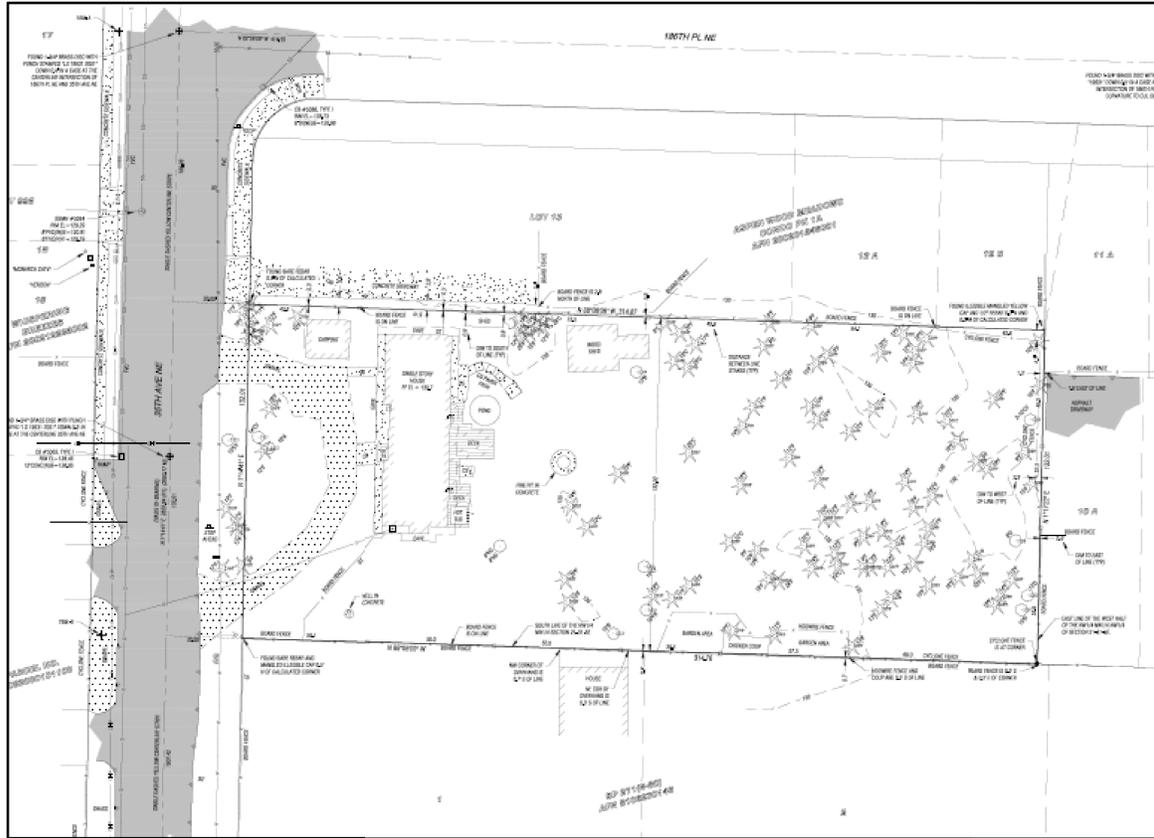


Figure 5: Existing Site Survey Map (north is up)

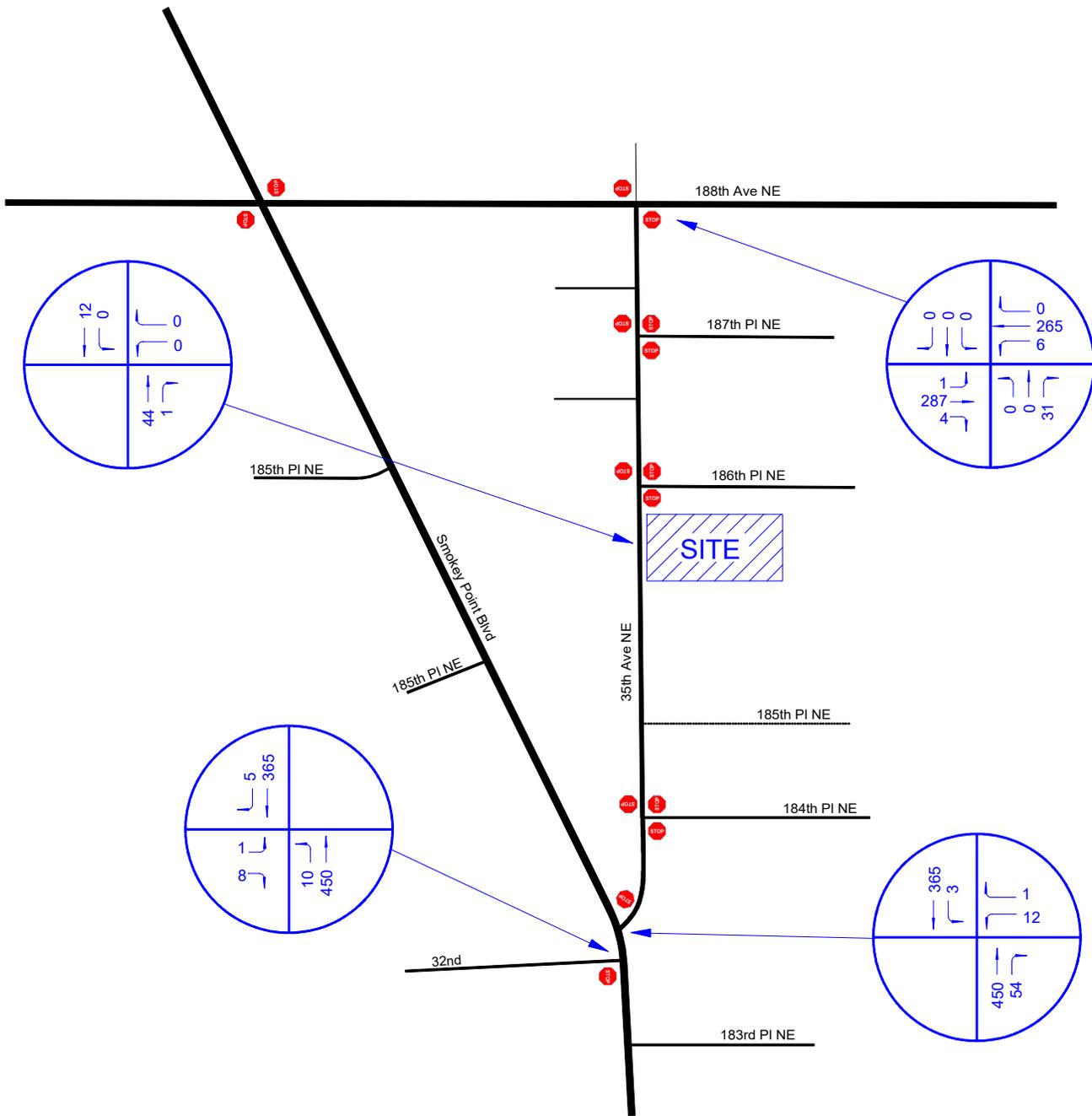
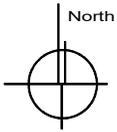
**Roadway Inventory**

35<sup>th</sup> Avenue NE is a two-lane roadway classified as a local access street in the City’s transportation plan. The roadway’s traveled way in the project vicinity is approximately 20 feet wide. There is paved parallel parking (8’ wide approximately) on the west side, plus with curb, gutter, landscape planter, and sidewalk. The east side has no shoulder or continuous pedestrian amenities. The posted speed limit is 25 mph. The estimated PM peak hour volume in this vicinity is approximately 60 vph, or about 600 vehicles per day.

Smokey Point Boulevard is a Minor Arterial street in the City’s transportation plan. The roadway is approximately 22 feet wide with sporadic sidewalks on the west side and generally six (6) foot wide paved shoulders on both sides. There are sporadic street lights on power poles. The posted speed limit is 35 mph. The estimated PM peak hour volume in the project vicinity is approximately 900 vph, or about 9,000 vehicles per day.

**Existing Traffic Counts**

Intersection turning movement counts were conducted at the Smokey Point Boulevard/35<sup>th</sup> Avenue NE intersection Tuesday January 18, 2022, and at 35<sup>th</sup> Avenue NE/188<sup>th</sup> St NE (Bjorn Rd) Wednesday January 19, 2022. The existing turn movement volumes are shown in Figure 6. The count details are included in the appendix.



**LEGEND**

- xx -- January 2022 counts (PM Peak Hour volumes)
- Stop Sign

**Project Trip Generation**

The proposed residential development will consist of twelve (12) new townhomes. Trip generation rates are based on the ITE Trip Generation Manual 11<sup>th</sup> Edition for Land Use Code 220, Multi-Family Housing (Low Rise). According to the ITE Trip Generation manual, the definition for LUC 220 is: Low-rise multifamily housing and includes apartments, townhouses, and condominiums located within the same building with at least three (3) other dwelling units and that have one (1) or two (2) levels (floors).

The site is currently occupied by one single family home. Trip generation for single family is included in ITE LUC 210.

Table 1 identifies project vehicular trip generation for the average weekday daily (24-hour), the AM peak hour, and the PM peak hour. The AM peak hours is assumed to occur between 7 AM and 9 AM whereas the PM peak hour occurs between 4 PM and 6 PM.

**Table 1. Project Trip Generation**

	AWDT	AM Peak			PM Peak		
		Total	In	Out	Total	In	Out
Proposed Totemwood Townhomes							
ITE LUC 220: Multifamily Housing (LUC 220) <sup>a</sup>							
Rates	6.74	0.4	24%	76%	0.51	63%	37%
12 units	81	5	1	4	6	4	2
Existing Use <sup>b</sup>							
ITE LUC 210: Single Family Dwelling Units <sup>a</sup>							
Rates	9.43	0.7	26%	74%	0.94	63%	37%
1 SFDU	-9	-1	0	-1	-1	-1	0
NET NEW <sup>c</sup>	72	4	1	3	5	3	2

a per ITE Trip Generation 10<sup>th</sup> Edition; LUC 210.  
 b The site has one existing home currently occupied  
 c NET NEW is the estimated project trips minus the existing site use trips.

As shown in Table 1, the project is estimated to generate 81 average weekday daily trips, five (5) trips during the AM Street peak hour (typically between 7 and 9 am), and six (6) trips during the PM Street peak hour (typically between 4 and 6 pm).

With removal of the existing site use, the net new trips on the surrounding street system is estimated to be 72 daily trips, four (4) AM peak hour trips, and five (5) PM peak hour trips.

**Trip Distribution/Traffic Assignment**

The project trip distribution and trip assignment was based on the traffic counts conducted at the subject intersections plus review of land use densities. For this analysis, it was estimated that 75 percent of the project trips would be to and from the south, 20 percent would be to and from the north, and five (5) percent would be to and from the east. The project trip assignment is shown in Figure 7.

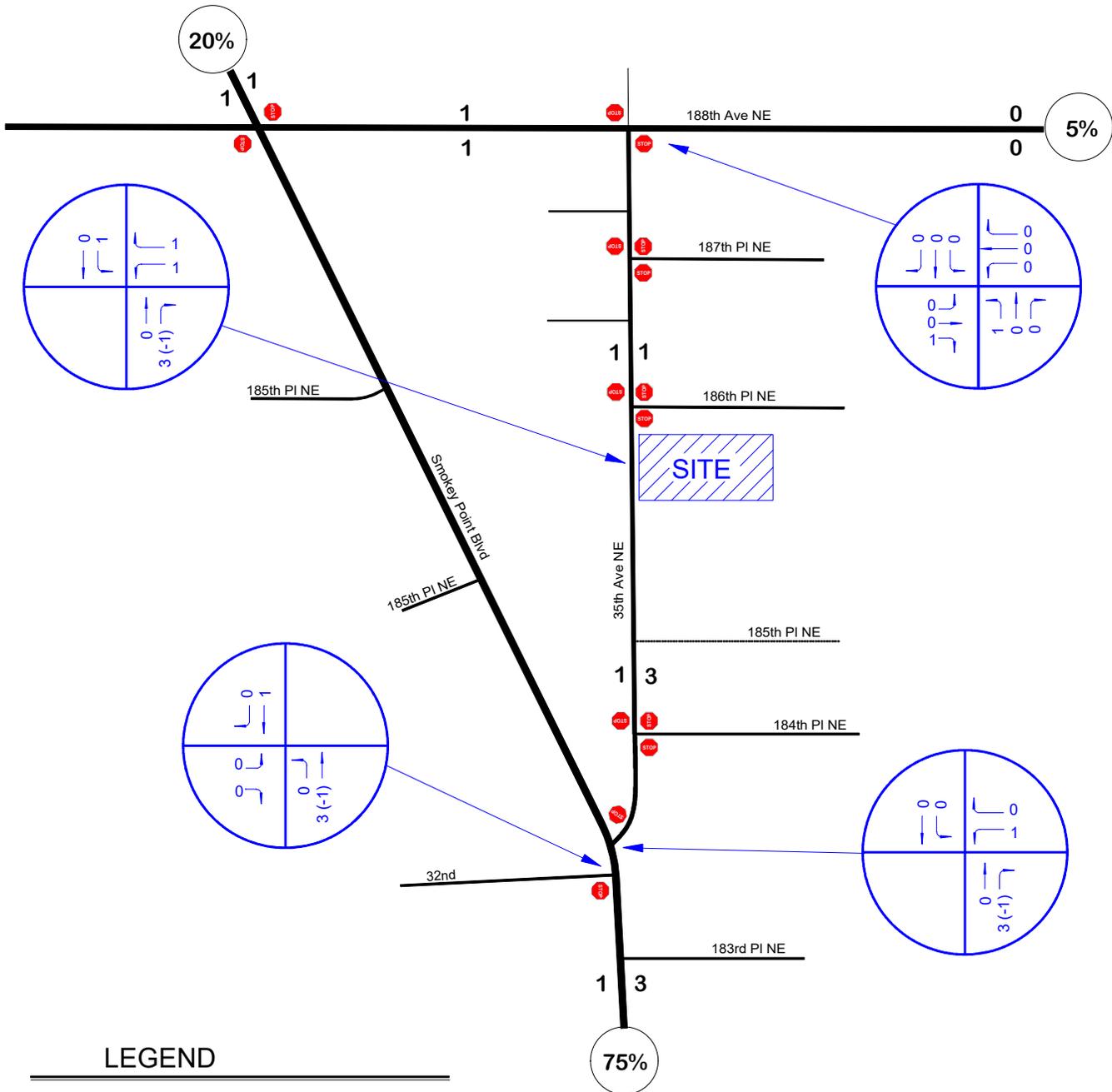
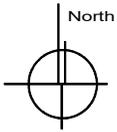
**Traffic Growth**

The City of Arlington recommended using an annual traffic growth rate of five (5) percent per year which is intended to account for future traffic from non-identified pipeline development. The City also recommended including the traffic forecasts from the Goldstream Venture Partners development located on the east side of the Smokey Point Boulevard/35<sup>th</sup> Avenue NE/183<sup>rd</sup> Place NE intersection.

For this traffic study, the future year analysis was assumed to be four (4) years from today, which would be conditions for the year 2026, when the project it is estimated to be complete and occupied.

**Future Traffic Volumes**

Future traffic volumes consist of inclusion of the background traffic growth, the known pipeline development all added to existing counts. The future volumes for 2026 include estimates for conditions without the project, and conditions with the project. The future volumes without project are shown in Figure 8, and the future volumes with the project are shown in Figure 9.



**LEGEND**

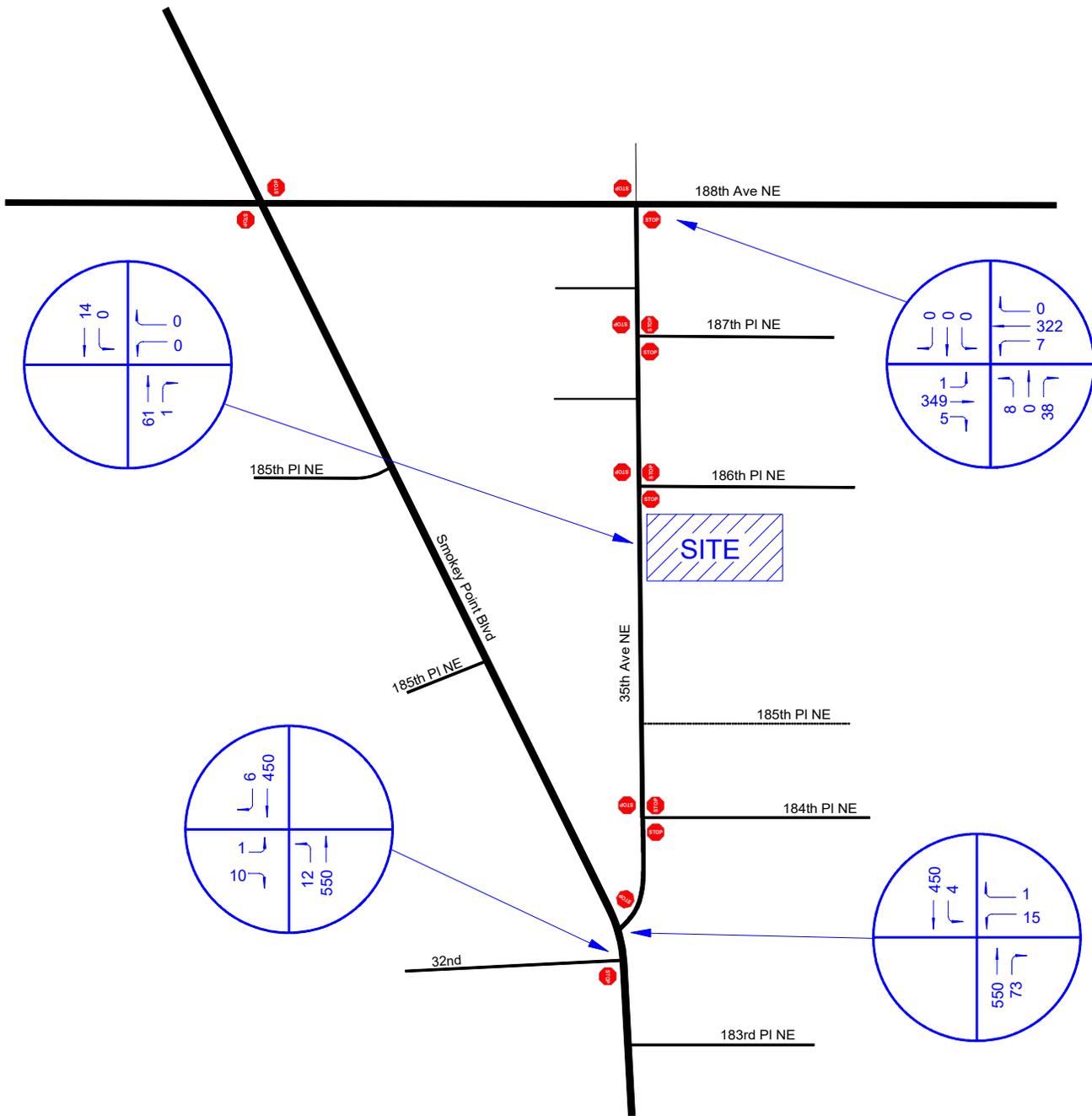
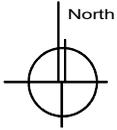
- xx -- Project PM Peak Hour trips
- (xx) -- existing site use PM Peak Hour trips
- STOP -- Stop Sign

DN TRAFFIC CONSULTANTS

**PROJECT TRAFFIC VOLUMES  
PM PEAK HOUR**

Totemwood Townhomes

Figure 7



**LEGEND**

xx -- 2026 PM Peak Hour traffic volumes

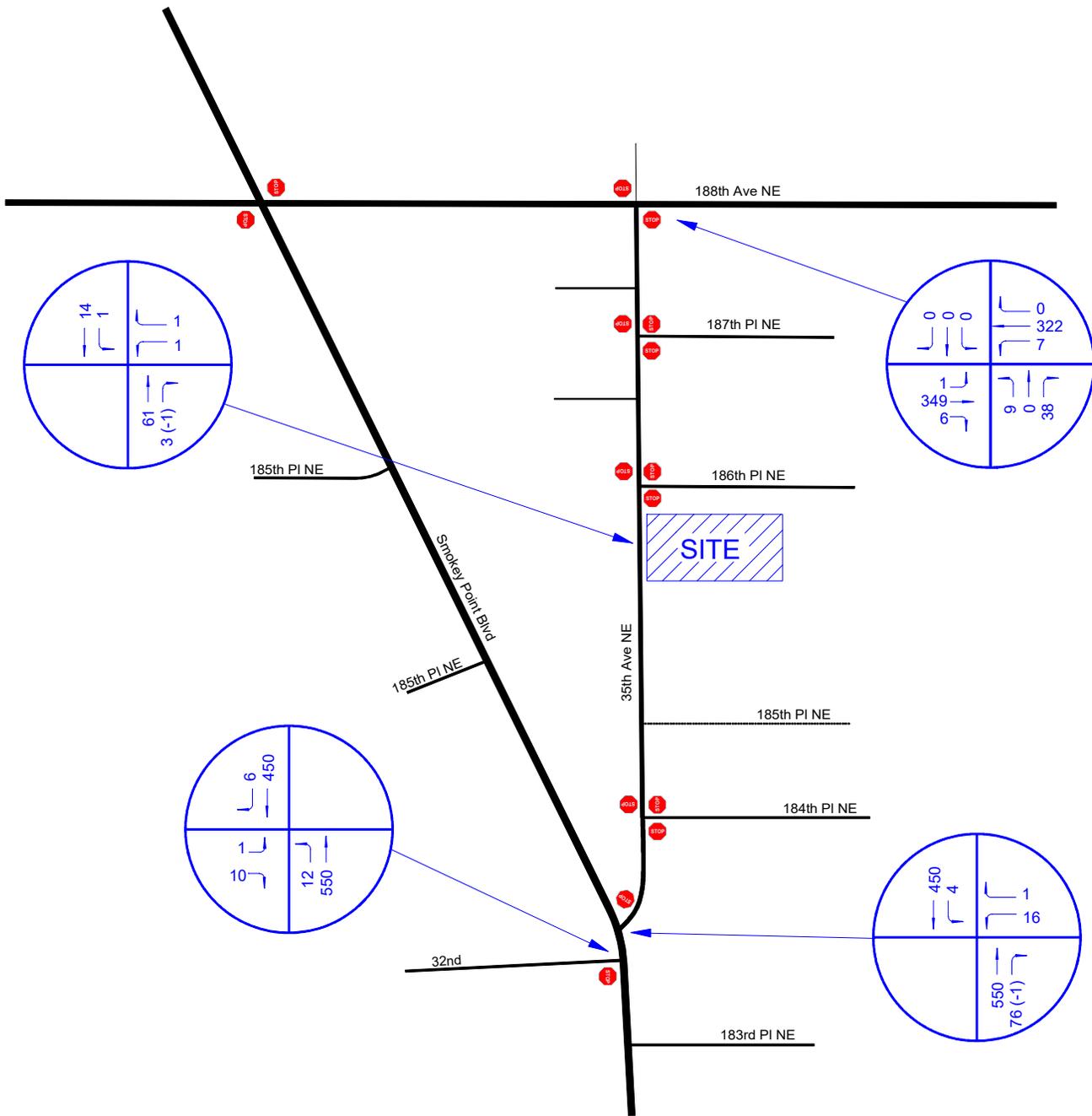
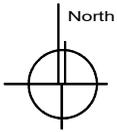
-- Stop Sign

DN TRAFFIC CONSULTANTS

**FUTURE WITHOUT PROJECT TRAFFIC VOLUMES  
PM PEAK HOUR**

Totenwood Townhomes

Figure 8



**LEGEND**

- xx -- 2026 PM Peak Hour traffic volumes
- (xx) -- existing trip credit
- Stop Sign

DN TRAFFIC CONSULTANTS

**FUTURE WITH PROJECT TRAFFIC VOLUMES  
PM PEAK HOUR**

Totemwood Townhomes

Figure 9

**Level of Service Analysis**

Level of service (LOS) is used to describe the degree of traffic congestion and driver comfort on streets or at intersections. The Highway Capacity Manual (HCM) describes the methodologies for calculating LOS on street segments and at signalized and unsignalized intersections.

According to the HCM (TRB Special Report #209), there are six (6) levels of service by which the operational performance of the roadway system may be described. The levels of service range from LOS A, which indicates a relatively free-flowing condition, to LOS F, which indicates operational breakdown.

The level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. Average control delay less than or equal to 10 seconds per vehicle is defined as LOS A. For LOS F, the average control delay is greater than 50 seconds per vehicle.

Level of service for this report was calculated using Synchro™ 9.0, the software of the HCM 2010. The result of the level of service analysis for the 2022 existing conditions, future 2026 with and without the project, all at the analysis intersections are shown in Table 2.

**Table 2. PM Peak Hour Level of Service**

PM PEAK HOUR								
Intersection	Traffic Control	2022 Existing LOS / Delay		2026 without Project LOS / Delay		2026 with Project LOS / Delay		LOS Standard
Smokey Point Blvd / 35 <sup>th</sup> Avenue NE	TWSC (WB)	C	18.3	C	24.3	C	24.5	D <sup>1</sup>
35 <sup>th</sup> Avenue NE / 188 <sup>th</sup> Street NE (Bjorn Road)	TWSC (NB)	B	10.8	B	13.2	B	13.4	D <sup>1</sup>
35 <sup>th</sup> Avenue NE / Site Access	TWSC (WB)	A	0	A	0	A	8.8	n/a <sup>1</sup>

<sup>1</sup> The City of Arlington LOS standard is LOS D for all city arterials and highways of statewide significance. 35<sup>th</sup> Avenue NE is a local access street.

As shown in Table 2, all of the analysis intersections are estimated to operate at LOS C or better during the PM peak hour for all existing and future conditions. This LOS is acceptable under the City of Arlington standards of LOS D for arterial roadways, and presumed LOS C for local access streets.

**Sight Distance**

A cursory sight distance evaluation was conducted at the proposed site access. 35<sup>th</sup> Avenue NE is straight and level, thus there are no stopping sight distance concerns. Entering sight distance for the site access (one or two driveways), shall include appropriate setback clearances such that a motorist at a 14-foot setback from the edge of

traveled way can see 280 feet both north and south on 35<sup>th</sup> Avenue NE. It is presumed that sight triangles for the site access will be designed such that there are no obstructions to meet the sight distance noted.

## **Traffic Mitigation Fees**

### Off-Site Improvements

This report evaluated intersection operations at two off-site locations. These two locations include Smokey Point Boulevard/35<sup>th</sup> Avenue NE and 35<sup>th</sup> Avenue NE/188<sup>th</sup> Pl NE. The LOS analysis indicated that the future LOS with or without the project is LOS C or better for all critical side street movements. The City's LOS threshold is LOS D thus the future LOS is acceptable with inclusion of project traffic.

### On-Site Improvements

In addition to the off-site intersection evaluations, this analysis did a LOS review of site access operations at 35<sup>th</sup> Avenue NE. The results of that analysis indicated LOS A operations, thus no channelization or lane widening recommendations are suggested. However, in order to maintain adequate sight distance, the driveway shall be constructed to prevent any sight line obstructions within the sight triangle. The sight triangle is measured with a 14-foot setback on the driveway from edge of traveled way on 35<sup>th</sup> Avenue NE, to a center of lane 280 feet north or south from the driveway.

As noted in the City's pre-application meeting notes, frontage improvements are required on 35<sup>th</sup> Avenue NE including curb, gutter, sidewalk, planter street trees for the full length of the 35<sup>th</sup> Avenue NE frontage. All improvements must meet ADA standards. Roadway frontage improvements shall consist of the following:

- Right-of-way dedication required; 50 feet
- Planter strip with street trees 30 feet on center
- Stormwater improvements
- Street lighting to meet City standards

Interior roadways shall consist of the following:

Public interior roadway per City Standard R-010

- 2–12-foot lanes, curb and gutter, five (5) foot planter strip and five (5) foot sidewalk on each side with street trees
- The City may consider on street parking if desired (may require more ROW)
- The one-way loop road is considered. If this concept is approved by the City, the required access & utility easement will be 30 feet; in which 20 will be the paved road, plus 5 feet for setbacks for property sides and back, and 5 feet for pedestrian sidewalks.

### City of Arlington Mitigation Fees

The City of Arlington's currently adopted traffic impact fee rate is \$3,355 per new PM peak hour trip. This impact fee is intended to help fund planned roadway improvements throughout the City. Payment is due prior to recording.

The proposed project is assumed with twelve (12) townhome units. The estimated PM peak hour trips for the new development are six (6) trips. There is however one (1) existing occupied home currently on the site. This home is estimated to generate one (1) PM peak hour trip. Therefore, assuming the fee would be subject to net new trips for the development, which in this case is five (5) PM peak hour trips, the fee due would be \$16,775.

### Snohomish County Mitigation Fees

There is an interlocal agreement between the City of Arlington and Snohomish County, where any development in Arlington must assess potential mitigation for impacts on Snohomish County roadway facilities. The Totemwood Townhomes project is located in TSA A and is not expected to impact any TSA A projects included in the Snohomish County's Transportation Needs Report. Therefore, the Totemwood Townhomes development would not be required to pay traffic mitigation fees to Snohomish County.

### WSDOT Mitigation Fees

There is also an interlocal agreement between the City of Arlington and WSDOT. The current standard payment rate based on the Short Version Traffic Mitigation Offer to WSDOT, is \$36 per new ADT for the proposed project. The net new ADT for this project is 72 ADT, thus the estimated fee \$2,592.

**TECHNICAL APPENDIX**

**FOR**

**TOTEMWOOD TOWNHOMES**

April 19, 2022

**ATTACHMENTS:**

Attachment 1 – Traffic Counts (Two Intersections)

Attachment 2 – Traffic Volumes Summaries and Forecasts (PM Peak hour by movement)

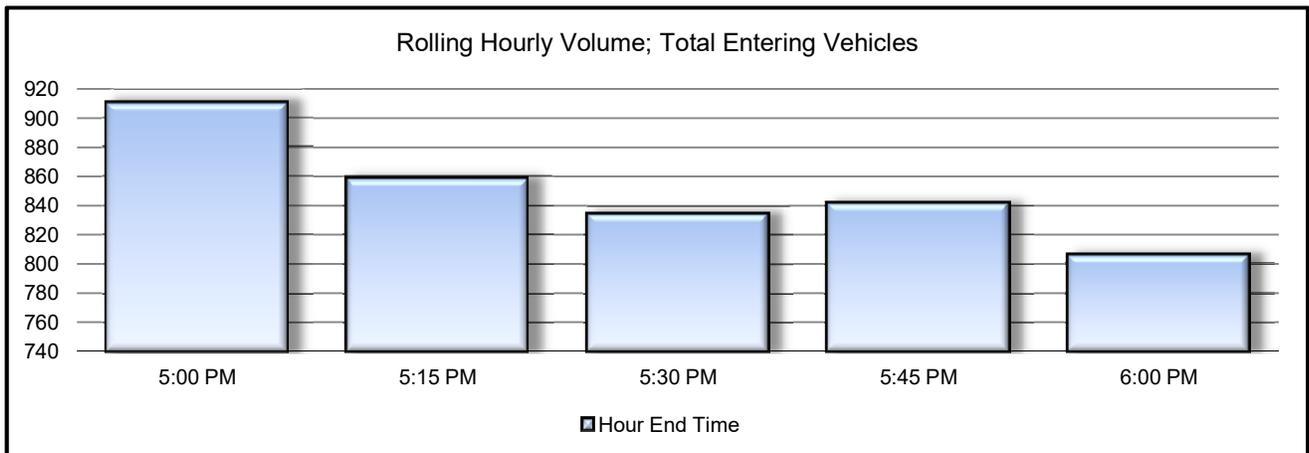
Attachment 3 – Level of Service Calculations PM Peak Hour (2 off-site intersection locations plus site access: 2022 existing, 2026 without project, and 2026 with project)

Location: Smokey Point Boulevard/35th Avenue NE City/Town: Arlington  
 Checker: GAN Weather: Rain Job: Totemwood  
 Date: 1/18/22 Thur Start Time: 4:00 PM Pk Hr: 4:00 PM 5:00 PM  
 # of minutes counted per interval: 14.0 minutes

END TIME	From the NORTH (SOUTHBOUND)						N Leg Peds	From the EAST (WESTBOUND)						E Leg Peds
	RT	TH	LT	TOTAL	HV	Bikes		RT	TH	LT	TOTAL	HV	Bikes	
4:15 PM	2	103	1	106	5	0	0	0	0	3	3	0		
4:30 PM	1	90	2	93	4	0	0	0	0	4	4	0		
4:45 PM	1	73	0	74	1	0	0	0	0	0	0	0		
5:00 PM	1	75	0	76	1	0	0	1	0	4	5	0		
5:15 PM	0	80	0	80	3	0	0	0	0	0	0	1		
5:30 PM	0	76	0	76	1	0	0	0	0	3	3	0		
5:45 PM	1	86	0	87	2	0	0	0	0	2	2	0		
6:00 PM	0	58	1	59	0	0	0	2	0	7	9	1	1	
PK HR	5	341	3	349	11	0	0	1	0	11	12	0	0	
Adj HR	5	365	3	373	12	0	0	1	0	12	13	0	0	

END TIME	From the SOUTH (NORTHBOUND)						S Leg Peds	From the WEST (EASTBOUND)						W Leg Peds
	RT	TH	LT	TOTAL	HV	Bikes		RT	TH	LT	TOTAL	HV	Bikes	
4:15 PM	18	109	1	128	6	0	0	1	0	0	1	1	0	0
4:30 PM	12	116	3	131	5	0	0	2	0	0	2	1	0	0
4:45 PM	13	89	1	103	3	0	0	1	0	0	1	0	0	3
5:00 PM	7	107	4	118	3	0	0	3	0	1	4	1	0	0
5:15 PM	9	96	3	108	3	0	1	1	0	0	1	0	0	1
5:30 PM	10	117	0	127	3	0	0	0	0	1	1	1	0	0
5:45 PM	12	82	1	95	0	0	0	1	0	0	1	0	0	0
6:00 PM	15	87	0	102	1	0	0	1	0	0	1	0	0	2
PK HR	50	421	9	480	17	0	0	7	0	1	8	3	1	3
Adj HR	54	451	10	515	18	0	0	8	0	1	9	3	1	3

END TIME	15 Min Totals (adj)				Time Start - End	Rolling Hr Vol	Pk Hr?
	Veh	HV	Peds	Bikes			
16:15	255	13	0	0	4:00 PM - 5:00 PM	910	YES
16:30	246	11	0	0	4:15 PM - 5:15 PM	858	no
16:45	191	4	0	3	4:30 PM - 5:30 PM	834	no
17:00	218	5	0	0	4:45 PM - 5:45 PM	841	no
17:15	203	8	0	2	5:00 PM - 6:00 PM	806	no
17:30	222	5	0	0			
17:45	198	2	0	0			
18:00	183	2	0	3			



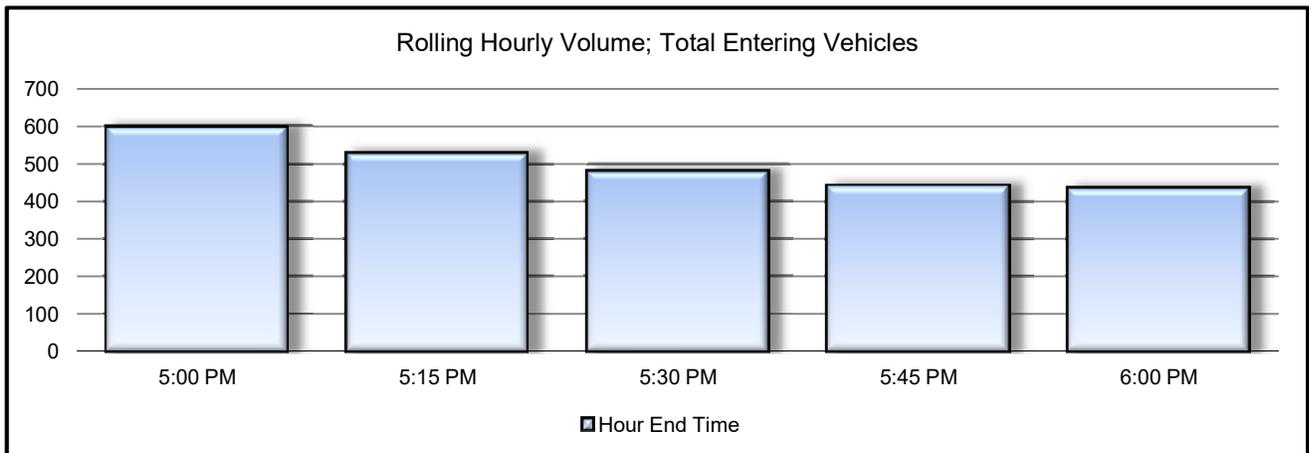


Location: 35th Avenue NE/188th Street NE (Bjorn Road) City/Town: Arlington  
 Checker: GAN Weather: Rain Job: Totemwood  
 Date: 1/19/22 Thur Start Time: 4:00 PM Pk Hr: 4:00 PM 5:00 PM  
 # of minutes counted per interval: 14.0 minutes

END TIME	From the NORTH (SOUTHBOUND)						N Leg Peds	From the EAST (WESTBOUND)						E Leg Peds
	RT	TH	LT	TOTAL	HV	Bikes		RT	TH	LT	TOTAL	HV	Bikes	
4:15 PM	0	0	0	0	0	0	0	0	75	2	77	4	0	0
4:30 PM	0	0	0	0	0	0	0	0	65	2	67	3	0	0
4:45 PM	0	0	0	0	0	0	0	0	59	1	60	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	48	1	49	2	0	0
5:15 PM	0	0	0	0	0	0	0	0	48	1	49	7	0	0
5:30 PM	0	0	0	0	0	0	0	0	35	1	36	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	43	2	45	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	38	2	40	1	0	0
PK HR	0	0	0	0	0	0	0	0	247	6	253	11	0	0
Adj HR	0	0	0	0	0	0	0	0	265	6	271	12	0	0

END TIME	From the SOUTH (NORTHBOUND)						S Leg Peds	From the WEST (EASTBOUND)						W Leg Peds
	RT	TH	LT	TOTAL	HV	Bikes		RT	TH	LT	TOTAL	HV	Bikes	
4:15 PM	9	0	0	9	2	0	0	2	81		83	4	0	0
4:30 PM	8	0	0	8	1	0	0	1	72		73	5	0	0
4:45 PM	7	0	0	7	3	0	0	1	66	1	68	4	0	0
5:00 PM	5	0	0	5	0	0	0	0	49	0	49	4	0	0
5:15 PM	9	0	0	9	0	0	0	0	47	0	47	2	0	0
5:30 PM	10	0	0	10	1	0	0	1	56	0	57	1	0	0
5:45 PM	4	0	0	4	1	0	0	2	51	0	53	5	0	0
6:00 PM	3	0	0	3	0	0	0	2	51	0	53	1	0	0
PK HR	29	0	0	29	6	0	0	4	268	1	273	17	1	0
Adj HR	31	0	0	31	6	0	0	4	287	1	292	18	1	0

END TIME	15 Min Totals (adj)				Time Start - End	Rolling Hr Vol	Pk Hr?
	Veh	HV	Peds	Bikes			
16:15	181	11	0	0	4:00 PM - 5:00 PM	595	YES
16:30	159	10	0	0	4:15 PM - 5:15 PM	527	no
16:45	145	10	0	0	4:30 PM - 5:30 PM	478	no
17:00	110	6	0	0	4:45 PM - 5:45 PM	442	no
17:15	113	10	0	0	5:00 PM - 6:00 PM	435	no
17:30	110	2	0	0			
17:45	109	6	0	0			
18:00	103	2	0	0			

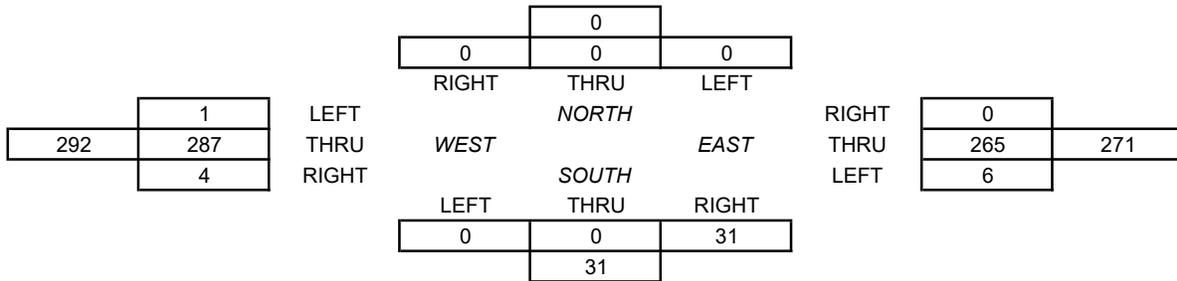


INTERSECTION:	35th Avenue NE/188th Street NE (Bjorn Road)
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	19-Jan-22

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	0	1	
W	265 292	271 318	E
	10 31		
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	1
Total	1

**ADJUSTMENT FACTORS DERIVED FROM COUNT**

<b>Peak Hour Factors:</b>	From North:	n/a	SB
	From South:	0.80	NB
	From East:	0.82	WB
	From West:	0.82	EB
	Total	0.82	All

<b>Heavy Vehicles:</b>	From North:	0	#DIV/0!	SB
	From South:	6	19.4%	NB
	From East:	12	4.4%	WB
	From West:	18	6.2%	EB

TRAFFIC COUNTS AND FORECASTS

**Totemwood**

**Smokey Point Boulevard/35th Avenue NE**

PM Peak Hour: 4:00 PM - 5:00 PM

Date Collected: 1/18/2022

	2022 PM Peak	Peak Hour Factor	Percent Trucks/Busses	Background Growth 2022-2026	2026 Background Traffic	Pipeline Development (Goldstream)	2026 Horizon Year w/o Proj	Existing Single Family Unit to be Removed	Totemwood	2026 PM with Project
EBLT	1			0	1	0	1	0	0	1
EBT	0	0.53	33.30	0	0	0	0	0	0	0
EBRT	8			2	10	0	10	0	0	10
WBLT	12			3	15	0	15	0	1	16
WBT	0	0.61	0.00	0	0	0	0	0	0	0
WBRT	1			0	1	0	1	0	0	1
NBLT	10			2	12	0	12	0	0	12
NBT	451	0.92	3.50	97	548	2	550	0	0	550
NBRT	54			12	66	7	73	-1	3	75
SBLT	3			1	4	0	4	0	0	4
SBT	365	0.82	3.20	79	444	10	454	0	0	454
SBRT	5			1	6	0	6	0	0	6
	910			197	1107	19	1126	-1	4	1129

**Totemwood**

**35th Avenue NE/188th Street NE (Bjorn Road)**

PM Peak Hour: 4:00 PM - 5:00 PM

Date Collected: 1/19/2022

	2022 PM Peak	Peak Hour Factor	Percent Trucks/Busses	Background Growth 2022-2026	2026 Background Traffic	Pipeline Development (Goldstream)	2026 Horizon Year w/o Proj	Existing Single Family Unit to be Removed	Totemwood	2026 PM with Project
EBLT	1			0	1	0	1	0	0	1
EBT	287	0.82	6.20	62	349	0	349	0	0	349
EBRT	4			1	5	0	5	0	1	6
WBLT	6			1	7	0	7	0	0	7
WBT	265	0.82	4.40	57	322	0	322	0	0	322
WBRT	0			0	0	0	0	0	0	0
NBLT	0			0	0	8	8	0	1	9
NBT	0	0.80	19.40	0	0	0	0	0	0	0
NBRT	31			7	38	0	38	0	0	38
SBLT	0			0	0	0	0	0	0	0
SBT	0	0.00	0.00	0	0	0	0	0	0	0
SBRT	0			0	0	0	0	0	0	0
	594			128	722	8	730	0	2	732

TRAFFIC COUNTS AND FORECASTS

**Totemwood**

**35th Avenue NE/Site Access**

PM Peak Hour: per adjacent counts

Date Collected: 1/18 and 1/19/2022 avg upstream downstream

	2022 PM Peak	Peak Hour Factor	Percent Trucks/Busses	Background Growth 2022-2026	2026 Background Traffic	Pipeline Development	2026 Horizon Year w/o Proj	Existing Single Family Unit to be Removed	Totemwood	2026 PM with Project
EBLT	0			0	0	0	0	0	0	0
EBT	0	0.82	6.20	0	0	0	0	0	0	0
EBRT	0			0	0	0	0	0	0	0
WBLT	0			0	0	0	0	0	1	1
WBT	0	0.82	4.40	0	0	0	0	0	0	0
WBRT	0			0	0	0	0	0	1	1
NBLT	0			0	0	0	0	0	0	0
NBT	44	0.80	19.40	9	53	8	61	0	0	61
NBRT	0			0	0	0	0	-1	3	2
SBLT	0			0	0	0	0	0	1	1
SBT	12	0.00	0.00	2	14	0	14	0	0	14
SBRT	0			0	0	0	0	0	0	0
	56	0	0	11	67	8	75	-1	6	80

**Intersection**

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	12	1	451	54	3	365
Future Vol, veh/h	12	1	451	54	3	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	61	61	92	92	82	82
Heavy Vehicles, %	0	0	4	4	3	3
Mvmt Flow	20	2	490	59	4	445

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	972	520	0
Stage 1	520	-	-
Stage 2	452	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	282	560	-
Stage 1	601	-	-
Stage 2	645	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	281	560	-
Mov Cap-2 Maneuver	281	-	-
Stage 1	601	-	-
Stage 2	642	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	292	1016
HCM Lane V/C Ratio	-	-	0.073	0.004
HCM Control Delay (s)	-	-	18.3	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0

**Intersection**

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	287	4	6	265	0	0	0	31	0	1	0
Future Vol, veh/h	1	287	4	6	265	0	0	0	31	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	80	80	80	90	90	90
Heavy Vehicles, %	6	6	6	4	4	4	0	0	19	0	0	0
Mvmt Flow	1	350	5	7	323	0	0	0	39	0	1	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	323	0	0	355
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.16	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.254	-	-	2.236
Pot Cap-1 Maneuver	1215	-	-	1193
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1215	-	-	1193
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.8	14.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	655	1215	-	-	1193	-	-	365
HCM Lane V/C Ratio	0.059	0.001	-	-	0.006	-	-	0.003
HCM Control Delay (s)	10.8	8	0	-	8	0	-	14.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	44	1	0	12
Future Vol, veh/h	0	0	44	1	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	48	1	0	13

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	61	48	0
Stage 1	48	-	-
Stage 2	13	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	945	1021	-
Stage 1	974	-	-
Stage 2	1010	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	945	1021	-
Mov Cap-2 Maneuver	945	-	-
Stage 1	974	-	-
Stage 2	1010	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1558	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	15	1	550	73	4	450
Future Vol, veh/h	15	1	550	73	4	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	61	61	92	92	82	82
Heavy Vehicles, %	0	0	4	4	3	3
Mvmt Flow	25	2	598	79	5	549

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1197	638	0	0	677
Stage 1	638	-	-	-	-
Stage 2	559	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227
Pot Cap-1 Maneuver	207	480	-	-	910
Stage 1	530	-	-	-	-
Stage 2	576	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	205	480	-	-	910
Mov Cap-2 Maneuver	205	-	-	-	-
Stage 1	530	-	-	-	-
Stage 2	571	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	213	910
HCM Lane V/C Ratio	-	-	0.123	0.005
HCM Control Delay (s)	-	-	24.3	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	349	5	7	322	0	8	0	38	0	1	0
Future Vol, veh/h	1	349	5	7	322	0	8	0	38	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	80	80	80	90	90	90
Heavy Vehicles, %	6	6	6	4	4	4	0	0	19	0	0	0
Mvmt Flow	1	426	6	9	393	0	10	0	48	0	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	393	0	0	432	0	0	841	841	429	865	844	393
Stage 1	-	-	-	-	-	-	431	431	-	410	410	-
Stage 2	-	-	-	-	-	-	410	410	-	455	434	-
Critical Hdwy	4.16	-	-	4.14	-	-	7.1	6.5	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.236	-	-	3.5	4	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	1144	-	-	1117	-	-	287	303	591	276	302	660
Stage 1	-	-	-	-	-	-	607	586	-	623	599	-
Stage 2	-	-	-	-	-	-	623	599	-	589	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1144	-	-	1117	-	-	284	300	591	252	299	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	284	300	-	252	299	-
Stage 1	-	-	-	-	-	-	606	585	-	622	593	-
Stage 2	-	-	-	-	-	-	616	593	-	541	584	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			13.2			17.1		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	497	1144	-	-	1117	-	-	299
HCM Lane V/C Ratio	0.116	0.001	-	-	0.008	-	-	0.004
HCM Control Delay (s)	13.2	8.2	0	-	8.2	0	-	17.1
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	61	1	0	14
Future Vol, veh/h	0	0	61	1	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	66	1	0	15

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	82	67	0
Stage 1	67	-	-
Stage 2	15	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	920	997	-
Stage 1	956	-	-
Stage 2	1008	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	920	997	-
Mov Cap-2 Maneuver	920	-	-
Stage 1	956	-	-
Stage 2	1008	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1535	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	16	1	550	75	4	450
Future Vol, veh/h	16	1	550	75	4	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	61	61	92	92	82	82
Heavy Vehicles, %	0	0	4	4	3	3
Mvmt Flow	26	2	598	82	5	549

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1198	639	0	0	679
Stage 1	639	-	-	-	-
Stage 2	559	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227
Pot Cap-1 Maneuver	207	480	-	-	908
Stage 1	530	-	-	-	-
Stage 2	576	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	205	480	-	-	908
Mov Cap-2 Maneuver	205	-	-	-	-
Stage 1	530	-	-	-	-
Stage 2	571	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	212	908
HCM Lane V/C Ratio	-	-	0.131	0.005
HCM Control Delay (s)	-	-	24.5	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	349	6	7	322	0	9	0	38	0	1	0
Future Vol, veh/h	1	349	6	7	322	0	9	0	38	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	80	80	80	90	90	90
Heavy Vehicles, %	6	6	6	4	4	4	0	0	19	0	0	0
Mvmt Flow	1	426	7	9	393	0	11	0	48	0	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	393	0	0	433	0	0	842	842	429	865	845	393
Stage 1	-	-	-	-	-	-	432	432	-	410	410	-
Stage 2	-	-	-	-	-	-	410	410	-	455	435	-
Critical Hdwy	4.16	-	-	4.14	-	-	7.1	6.5	6.39	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.236	-	-	3.5	4	3.471	3.5	4	3.3
Pot Cap-1 Maneuver	1144	-	-	1116	-	-	286	303	591	276	302	660
Stage 1	-	-	-	-	-	-	606	586	-	623	599	-
Stage 2	-	-	-	-	-	-	623	599	-	589	584	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1144	-	-	1116	-	-	283	300	591	252	299	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	283	300	-	252	299	-
Stage 1	-	-	-	-	-	-	605	585	-	622	593	-
Stage 2	-	-	-	-	-	-	616	593	-	541	583	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			13.4			17.1		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	1144	-	-	1116	-	-	299
HCM Lane V/C Ratio	0.12	0.001	-	-	0.008	-	-	0.004
HCM Control Delay (s)	13.4	8.2	0	-	8.3	0	-	17.1
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

**Intersection**

Int Delay, s/veh 0.3

**Movement** WBL WBR NBT NBR SBL SBT

Lane Configurations	W	W	N	N	S	S
Traffic Vol, veh/h	1	1	61	3	1	14
Future Vol, veh/h	1	1	61	3	1	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	66	3	1	15

**Major/Minor** Minor1 Major1 Major2

Conflicting Flow All	85	68	0	0	70	0
Stage 1	68	-	-	-	-	-
Stage 2	17	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	916	995	-	-	1531	-
Stage 1	955	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	915	995	-	-	1531	-
Mov Cap-2 Maneuver	915	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	1005	-	-	-	-	-

**Approach** WB NB SB

HCM Control Delay, s 8.8 0 0.5  
 HCM LOS A

**Minor Lane/Major Mvmt** NBT NBRWBLn1 SBL SBT

Capacity (veh/h)	-	-	953	1531	-
HCM Lane V/C Ratio	-	-	0.002	0.001	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-