

**Osprey Subdivision
SR 158
Traffic Impact Study**

Eden, Utah

May 2021



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TRAFFIC STUDY



Osprey Subdivision SR 158 Traffic Impact Analysis

Eden, Utah

Category II

May 2021

Prepared by:

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I. Introduction and Summary

This traffic impact analysis is for the proposed Osprey Residential Development. The development is located on the west side of SR 158 near 1900 North in Eden, Utah. The site is planned to include 65 single family units and is projected to generate 48 AM and 64 PM peak hour trips and 614 daily trips. The site is planning a single access to SR 158.

SR 158 / 2200 North currently operates with critical WBLR at LOS B in the AM and LOS B in the PM peak period. This level of service is maintained with the addition of the site in 2021 and 2026. SR 158 / Access Z operates with critical EBLR at LOS B in the AM and PM peak periods throughout 2026.

Site Related Recommendations:

A northbound left turn deceleration lane is recommended at the site access along SR 158

II. Proposed Project

The proposed Osprey Residential Development is located on the west side of SR 158 near 1900 North in Eden, Utah. The site is planned to include 65 single family units. The site is projected to generate 48 AM and 64 PM peak hour trips and 614 daily trips. The site is planning a single access to SR 158, this access has no other accesses or roadways located within 660 feet of the proposed location. The site plan is shown in Figure 1.



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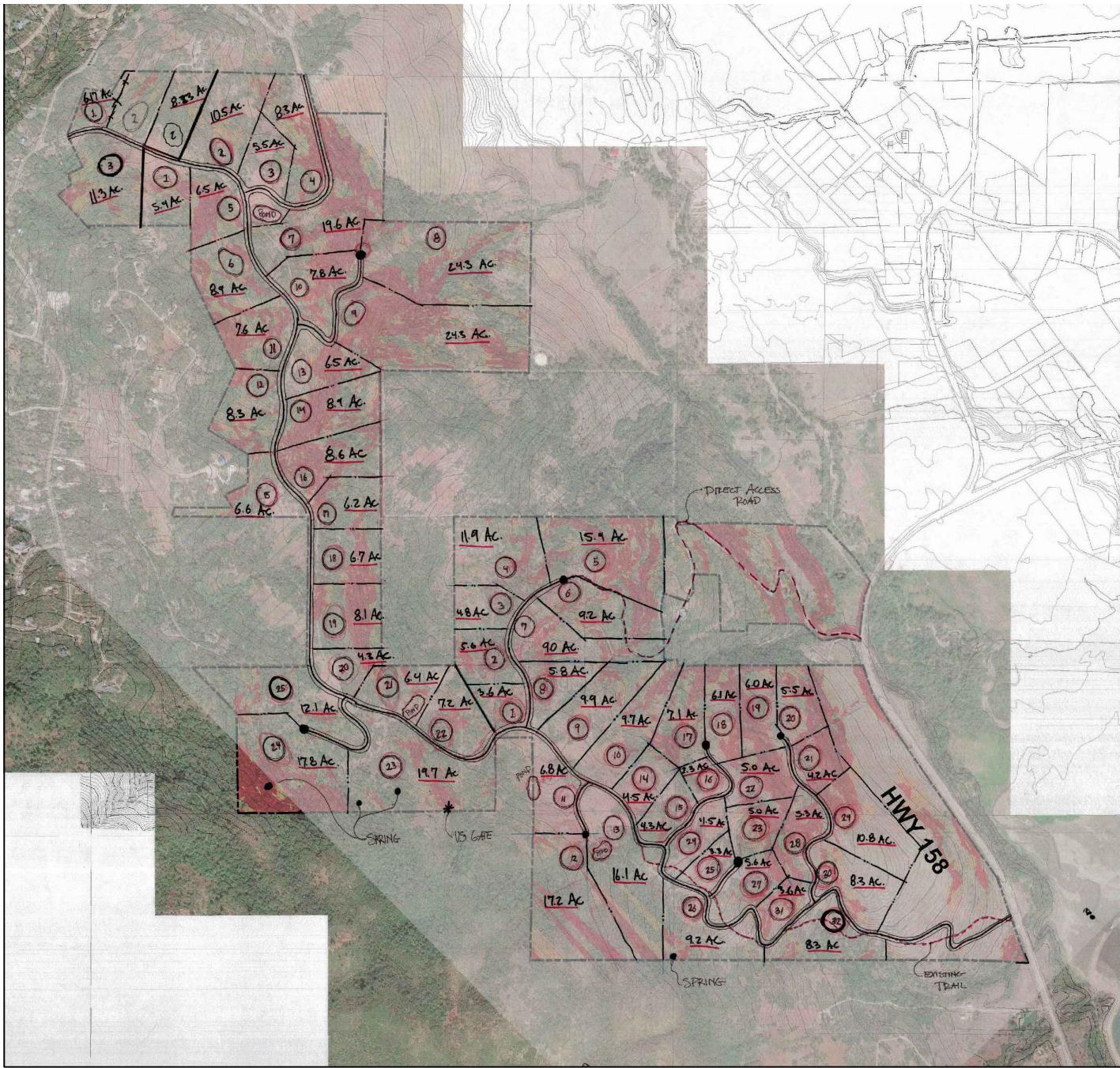


Figure 1

Conceptual Site Plan

III. Study Area Conditions

The study area includes the following intersection.

- SR 158 / 2200 North
- SR 158 / Access Z

SR 158

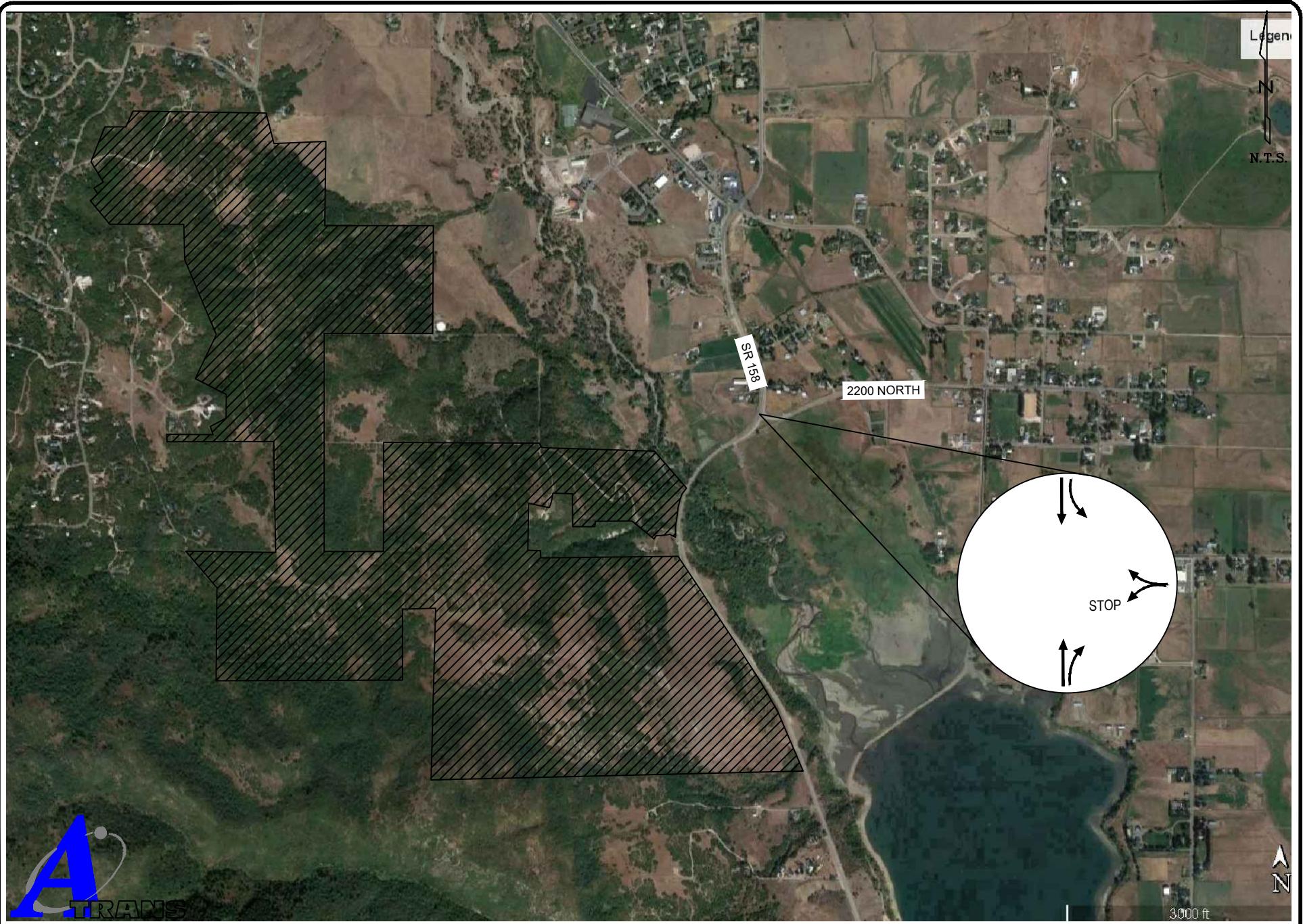
SR 158 is currently a 2 lane facility with a single lane in each direction. The 2019 AADT is 7,500 vehicles per day with a posted speed limit is 45 MPH. It is classified by UDOT as a Category 4 roadway.



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Figure 2

Site Location



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Figure 3

Existing Geometry

IV. Analysis of Existing Condition

The existing traffic counts were performed May 19-20, 2021 during the AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak periods. The 2021 Existing Traffic volumes used in the study are shown in Figure 4.

The 6th Edition Highway Capacity Manual defines the Level of Service (LOS) for both signalized and unsignalized intersections as a range of average experienced delay. LOS is a qualitative rating of traveler satisfaction from A to F whereby LOS A is good and LOS F poor. Table 1 shows the LOS range by delay for unsignalized and signalized intersections and accesses.

Table 1: Intersection LOS-Delay Relationship

	Unsignalized	Signalized
Level of Service	Total Delay per Vehicle (sec)	Total Delay per Vehicle (sec)
A	≤ 10.0	≤ 10.0
B	> 10.0 and ≤ 15.0	> 10.0 and ≤ 20.0
C	> 15.0 and ≤ 25.0	> 20.0 and ≤ 35.0
D	> 25.0 and ≤ 35.0	> 35.0 and ≤ 55.0
E	> 35.0 and ≤ 50.0	> 55.0 and ≤ 80.0
F	> 50.0	> 80.0

SR 158 / 2200 North currently operates with critical WBLR at LOS B in the AM and LOS B in the PM peak period. Table 2 shows the Existing LOS.

Table 2: Existing Level of Service

Intersection	Delay (sec/veh)	
SR 158 / 2200 North (WBLR)	10.8	B
	10.9	B

AM (PM)

N

N.T.S.

SR 158

2200 NORTH

(179)26 →
22 (19)
5 (6)
10 (11)
→ 185 (190)



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Figure 4

Existing Traffic

V. Projected Traffic

A. Trip Generation

Trip generation for the site was done using The Institute of Transportation Engineers (ITE) *Trip Generation* (10th Edition) handbook. The site is planned to include 65 single family units. The site is projected to generate 48 AM and 64 PM peak hour trips and 614 daily trips. The trip generation for the site is shown in Table 3.

Table 3: Trip Generation for Site

Land Use Type	Density	Land Use #	Trip Rate	Trips	% In	% Out	Trips In	Trips Out
AM								
Single Family	65	210	0.74	48	25%	75%	12	36
PM								
Single Family	65	210	0.99	64	63%	37%	40	24
SAT								
Single Family	65	210	9.44	614				

B. Trip Distribution

Project site traffic was applied to the origin-destination (O-D) for the site. Origin-destination was determined from evaluating the existing traffic patterns and hourly traffic volumes on each leg of the included intersections as well as the location of retail centers and freeways relative to this site. This was used as a baseline for origin destination and engineering judgment was applied to this to determine the following OD for the site. Origin Destination is shown in Figure 5. Site trip distribution is shown in Figure 6.

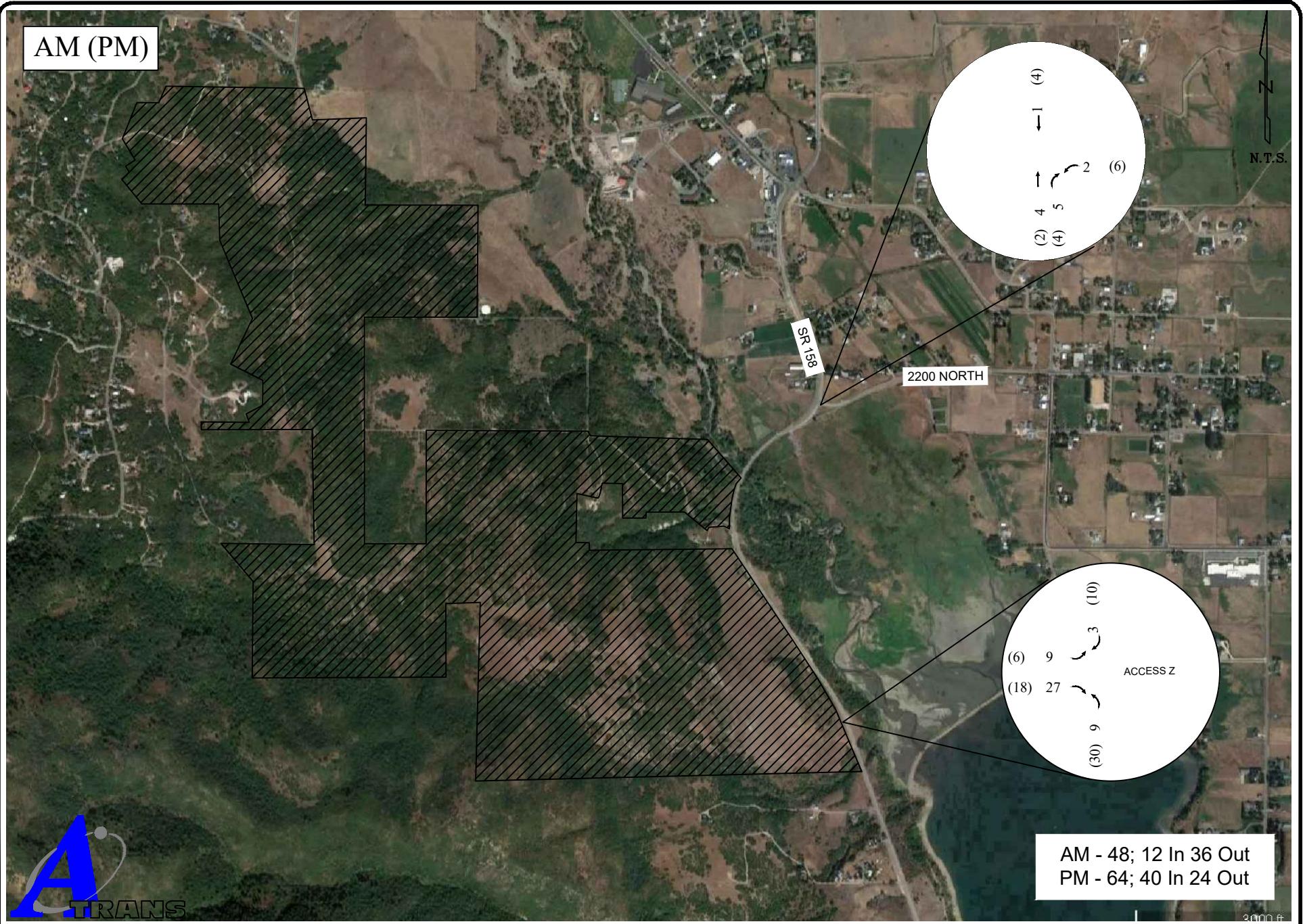
- 10% to/from north on SR 158
- 75% to/from south on SR 158
- 15% to/from east on 2200 North



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Figure 5

Origin Destination



VI. Growth

Growth in the area was determined from the 2019 Traffic Counts and 2050 projections from Wasatch Front Regional Council. The volumes utilized to determine growth in the area is shown in Table 4. Based on this data an average growth of 2.01% was found. The growth factor for 2026 is 1.10.

Table 4: Growth Projections

	SR 162 (West)	SR 162 (East)	SR 158 (South)	2200 North
2019	5,400	2,900	7,500	2,900
2040	7,500	5,000	12,500	5,000
Growth	1.07%	2.37%	2.24%	2.37%

Background traffic is determined by multiplying the existing traffic by the growth factor for 2026. 2026 Background Traffic is shown in Figure 7. Total traffic in the area for the future projection years is derived by adding the non-site volume forecasts to the site trip distribution. 2021 Total Traffic is shown in Figure 8. 2026 Total Traffic is shown in Figure 9.

AM (PM)

(197) 39 → 204 (209)
24 (44) 11 (12)
25 (21) 6 (10)

N.T.S.

SR 158

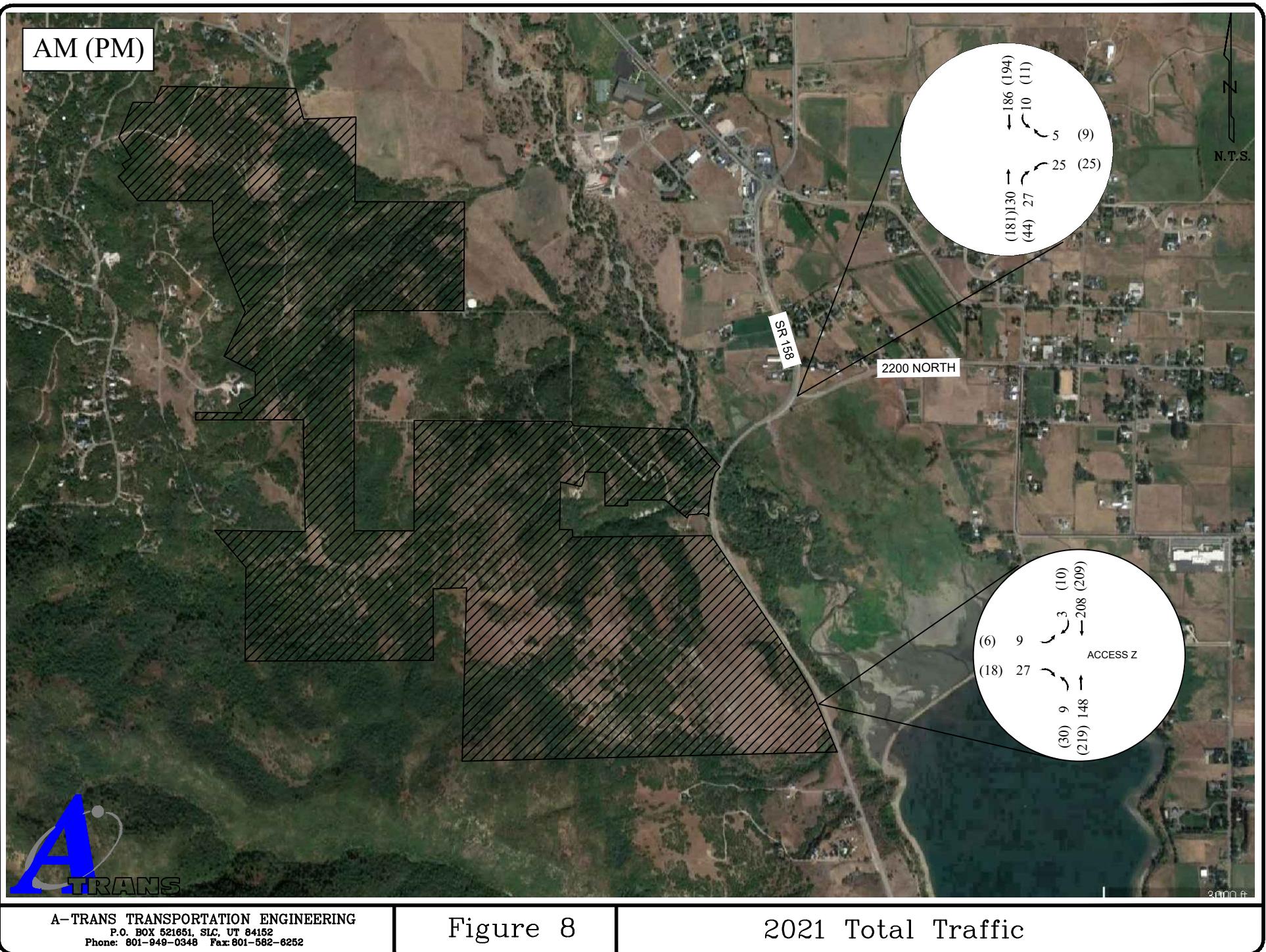
2200 NORTH

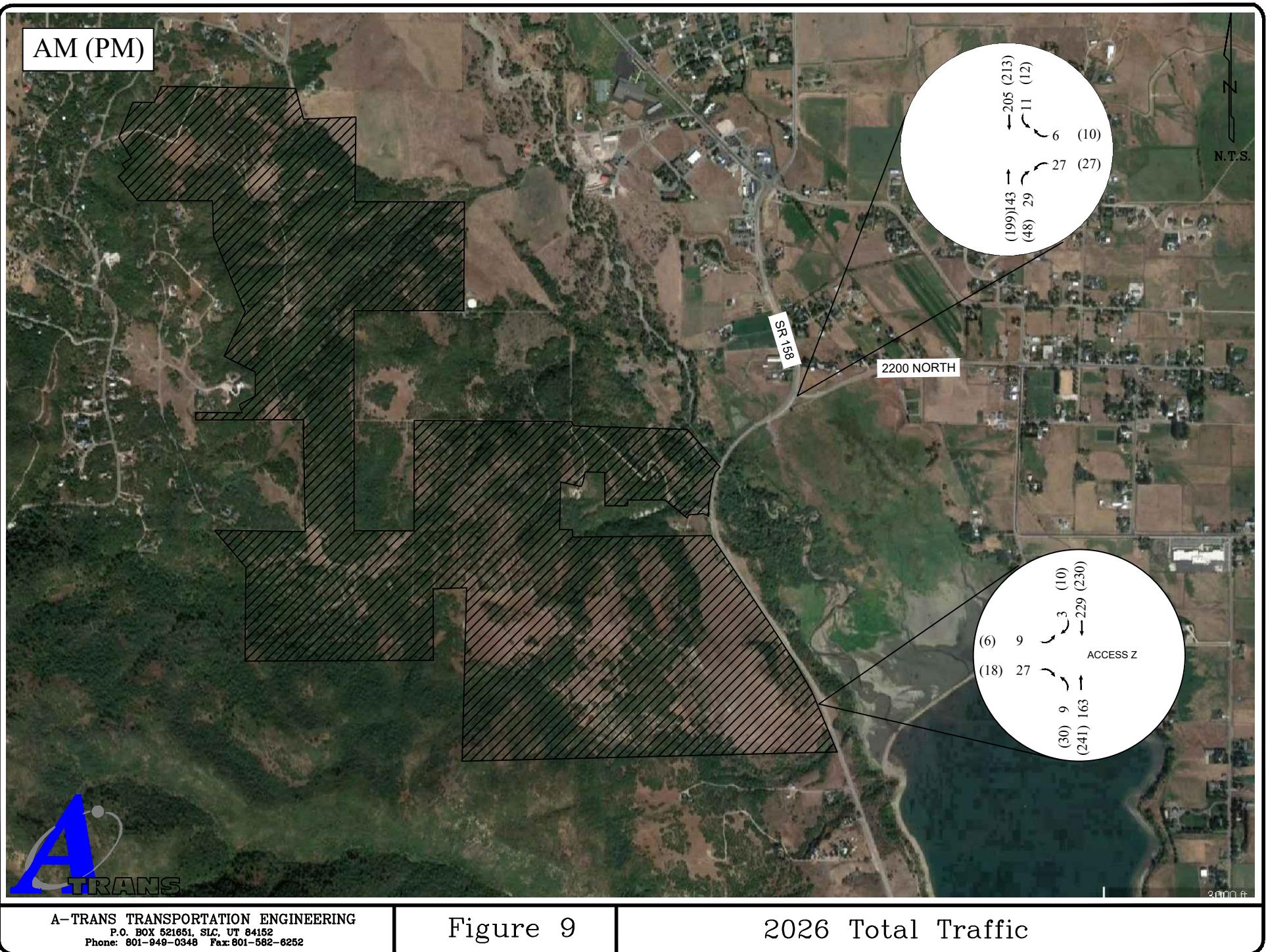


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Figure 7

2026 Background Traffic





VII. Traffic Analysis

A. Level of Service Analysis

The intersection and access analysis evaluates the performance of each intersection and access using the measure of performance of delay and level of service (LOS). Tables 5-6 show the intersection and access analysis.

Analysis Results

- SR 158 / 2200 North currently operates with critical WBLR at LOS B in the AM and LOS B in the PM peak period. This level of service is maintained with the addition of the site in 2021 and 2026.
- SR 158 / Access Z operates with critical EBLR at LOS B in the AM and PM peak periods throughout 2026.

Table 5: SR 158 / SR 162 Intersection Analysis

		WBLR	SBL
2021 Background	AM	10.8 B	7.6 A
	PM	10.9 B	7.7 A
2021 Total	AM	10.9 B	7.6 A
	PM	11.1 B	7.8 A
2026 Background	AM	11.1 B	7.6 A
	PM	11.2 B	7.8 A
2026 Total	AM	11.2 B	7.6 A
	PM	11.4 B	7.8 A

Table 6: SR 158 / Access Z Intersection Analysis

		NBL	EBLR
2021 Total	AM	7.7 A	10.2 B
	PM	7.8 A	10.4 B
2026 Total	AM	7.8 A	10.5 B
	PM	7.8 A	10.6 B

B. Queue Analysis

Based on the projected traffic, queue storage length requirements can be evaluated to determine if sufficient storage space exists to accommodate the projected demand. The intersection and accesses included in this traffic study are analyzed for queue storage capacity utilizing the HCM analysis and are done through Synchro. The queue analysis for 2026 is shown in Table 7.

Table 7: 2026 Queue Analysis

		NBL	NBR	SBL
SR 158 / 2200 North	Available		300	200
	Projected		50	50
SR 158 / Access Z	Available			
	Projected	100		

There are no projected queuing deficiencies projected within the study area.

C. Access Spacing Requirements

According to the UDOT, SR 158 is categorized as a Category 4 roadway. As per UDOT Administrative Rule R930-6, signal spacing is required at 2,640 feet, street spacing is required at 660 feet and access spacing is required at 500 feet or by variance. The distance between access points/intersections is measured from end of radius to end of adjacent radius. The site is planning a single access to SR 158, this access has no other accesses or roadways located within 660 feet of the proposed location and meets the spacing requirement for a Category 4 roadway.

According to UDOT Administrative Rule R930-6 a Category 4 roadway requires:

- A left turn deceleration lane with taper and storage length is required for any access with a projected peak hour left ingress turning volume greater than 10 vehicles per hour. The taper length must be included in the required deceleration length.
- A right turn deceleration lane and taper length is required for any access with a projected peak hour right ingress turning volume greater than 25 vehicles per hour. The taper length must be included in the required deceleration length.
- A right turn acceleration lane and taper length is required for any access with a projected peak hour right turning volume greater than 50 vehicles per hour when the posted speed on the highway is greater than 40 mph. The taper length must be included in the required acceleration length. A right turn acceleration lane may also be required at a signalized intersection if a free-right turn is needed to maintain an appropriate level of service for the intersection.
- Right turn deceleration and acceleration lanes are generally not required on roadways with three or more travel lanes in the direction of the right turn.
- A left turn acceleration lane may be required if it will be a benefit to the safety and operation of the roadway.

- A left turn acceleration lane is generally not required where the posted speed is less than 45 mph, the intersection is signalized, or the acceleration lane would interfere with the left turn ingress movements to any other access.

The threshold is met for a northbound left turn deceleration lane.

VIII. Conclusions

The analysis is for the Osprey Residential Development which is located on the west side of SR 158 near 1900 North in Eden, Utah. The site is planned to include 65 single family units. The site is projected to generate 48 AM and 64 PM peak hour trips and 614 daily trips. The site is planning a single access to SR 158, this access has no other accesses or roadways located within 660 feet of the proposed location.

The following comments are made about the project:

- SR 158 / 2200 North currently operates with critical WBLR at LOS B in the AM and LOS B in the PM peak period. This level of service is maintained with the addition of the site in 2021 and 2026.
- SR 158 / Access Z operates with critical EBLR at LOS B in the AM and PM peak periods throughout 2026.
- There are no projected queuing deficiencies projected within the study area.
- The threshold for a northbound left turn deceleration lane is met at Access Z.

Site Related Recommendations:

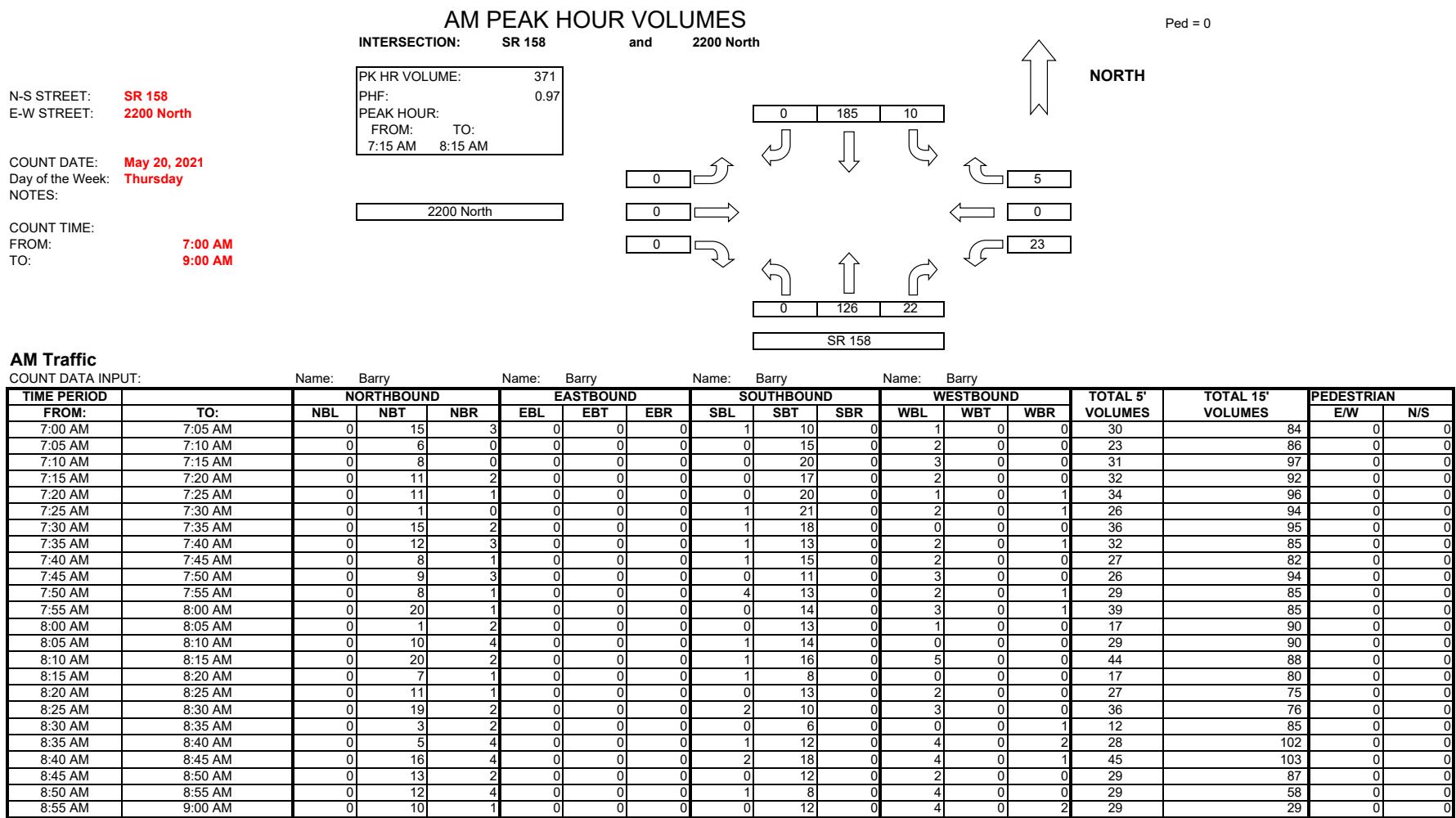
- A northbound left turn deceleration lane is required at the site access along SR 158.

APPENDICES

- | | |
|------------|------------------------------------|
| Appendix A | Traffic Counts and Projections |
| Appendix B | Without Site Intersection Analyses |
| Appendix C | With Site Intersection Analysis |



Appendix A Traffic Counts and Projections



N-S STREET: **SR 158**
E-W STREET: **2200 North**

COUNT DATE: **May 18, 2021**
Day of the Week: **Tuesday**
NOTES:

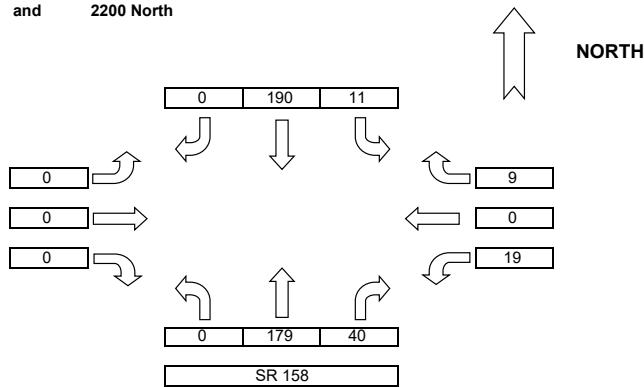
COUNT TIME:
FROM: **4:00 PM**
TO: **6:00 PM**

PM PEAK HOUR VOLUMES

INTERSECTION: SR 158 and 2200 North

PK HR VOLUME: 448
PHF: 0.89
PEAK HOUR:
FROM: TO:
4:15 PM 5:15 PM

2200 North



PM Traffic

COUNT DATA INPUT:

Name: Barry

Name: Barry

Name: Barry

Name: Barry

TIME PERIOD	TO:	NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL 5' VOLUMES	TOTAL 15' VOLUMES	PEDESTRIAN	
		NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR	WBL	WBT	WBR			E/W	N/S
FROM:	TO:																
4:00 PM	4:05 PM	0	16	4	0	0	0	1	14	0	5	0	1	41	100	0	0
4:05 PM	4:10 PM	0	12	1	0	0	0	0	7	0	0	1	0	22	99	0	0
4:10 PM	4:15 PM	0	12	3	0	0	0	0	16	0	4	0	2	37	114	0	0
4:15 PM	4:20 PM	0	20	1	0	0	0	2	14	0	2	0	1	40	117	0	0
4:20 PM	4:25 PM	0	9	2	0	0	0	1	22	0	2	0	1	37	126	0	0
4:25 PM	4:30 PM	0	16	2	0	0	0	2	18	0	1	0	1	40	119	0	0
4:30 PM	4:35 PM	0	19	5	0	0	0	0	22	0	2	0	1	49	124	0	0
4:35 PM	4:40 PM	0	12	4	0	0	0	0	11	0	1	0	2	30	101	0	0
4:40 PM	4:45 PM	0	23	4	0	0	0	1	15	0	1	0	1	45	110	0	0
4:45 PM	4:50 PM	0	7	3	0	0	0	1	13	0	2	0	0	26	93	0	0
4:50 PM	4:55 PM	0	19	8	0	0	0	0	12	0	0	0	0	39	106	0	0
4:55 PM	5:00 PM	0	13	0	0	0	0	1	13	0	0	0	1	28	93	0	0
5:00 PM	5:05 PM	0	18	1	0	0	0	2	16	0	2	0	0	39	114	0	0
5:05 PM	5:10 PM	0	6	3	0	0	0	0	12	0	5	0	0	26	109	0	0
5:10 PM	5:15 PM	0	17	7	0	0	0	1	22	0	1	0	1	49	121	0	0
5:15 PM	5:20 PM	0	17	4	0	0	0	2	9	0	2	0	0	34	98	0	0
5:20 PM	5:25 PM	0	13	3	0	0	0	0	14	0	7	0	1	38	98	0	0
5:25 PM	5:30 PM	0	4	4	0	0	0	1	15	0	2	0	0	26	100	0	0
5:30 PM	5:35 PM	0	17	2	0	0	0	1	10	0	4	0	0	34	104	0	0
5:35 PM	5:40 PM	0	18	4	0	0	0	0	16	0	1	0	1	40	96	0	0
5:40 PM	5:45 PM	0	16	2	0	0	0	2	8	0	2	0	0	30	98	0	0
5:45 PM	5:50 PM	0	9	3	0	0	0	0	14	0	0	0	0	26	101	0	0
5:50 PM	5:55 PM	0	22	3	0	0	0	0	12	0	5	0	0	42	75	0	0
5:55 PM	6:00 PM	0	15	2	0	0	0	1	13	0	2	0	0	33	33	0	0

TRIP GENERATION

ITE 10th Ed	Size	Land Use	Trip Rate			Trips			In / Out %				New			
			AM	PM	Daily	AM	PM	Daily	AM IN	AM Out	PM IN	PM OUT	AM IN	AM OUT	PM IN	PM OUT
Single Family	65.000	210	0.74	0.99	9.44	48	64	614	25%	75%	63%	37%	12	36	40	24
Total			0	0	0	0	0	0	0%	0%	0%	0%	0	0	0	0
			48	64	614								12	36	40	24

Long Term Growth

2.01%	Growth Factor	Years	Analysis Year
1.00	0	2021	
1.10	5	2026	
1.46	19	2040	

Straight line growth assumed between 2016 and 2040

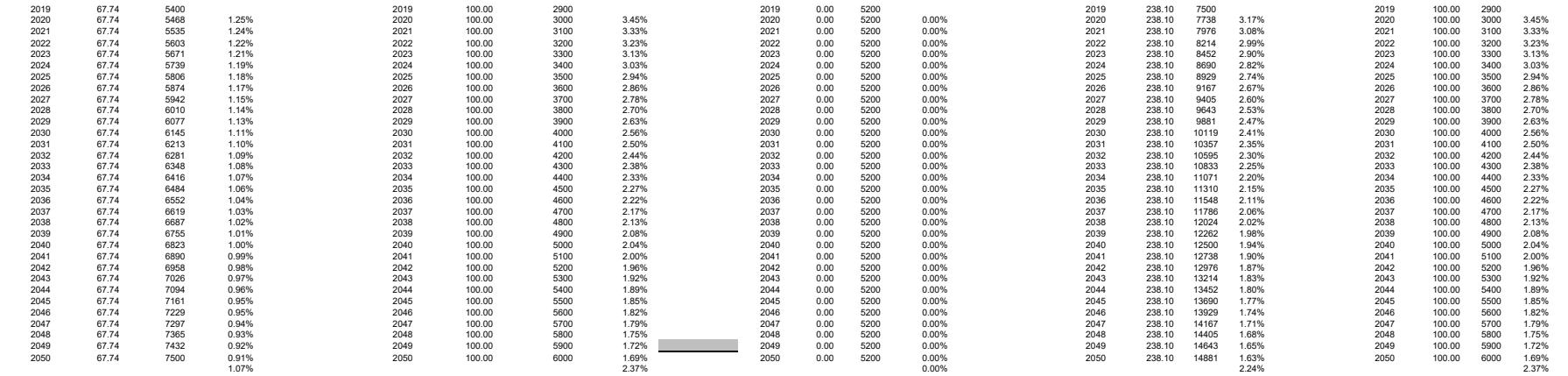
SR 162 (West)		Traffic on Utah Highways	
2019	5,400	Traffic on Utah Highways	
2050	7,500	Wasatch Front Regional Council	
growth	1.07%		

SR 162 (East)		Traffic on Utah Highways	
2019	2,800	Traffic on Utah Highways	
2040	5,000	Wasatch Front Regional Council	

SR 158 (North)		Traffic on Utah Highways	
2019	5,200	Traffic on Utah Highways	
2040	5,200	Wasatch Front Regional Council	

SR 158 (South)		Traffic on Utah Highways	
2019	7,500	Traffic on Utah Highways	
2040	12,500	Wasatch Front Regional Council	

Z200 North		Traffic on Utah Highways	
2019	2,900	Traffic on Utah Highways	
2040	5,000	Wasatch Front Regional Council	



Trip Distribution

SR 158 / 2200 North			1.1		
	2021	Site	2021	2026	2026
AM	Existing	Traffic	Total	Growth	Total
EBL			0	0	0
EBT			0	0	0
EBR			0	0	0
WBL	23	2	25	25	27
WBT			0	0	0
WBR	5		5	6	6
NBL			0	0	0
NBT	126	4	130	139	143
NBR	22	5	27	24	29
SBL	10		10	11	11
SBT	185	1	186	204	205
SBR			0	0	0
East	60			66	
West	0			0	
North	326			359	
South	356			392	

	2021	Site	2021	2026	2026
PM	Existing	Traffic	Total	Growth	Total
EBL			0	0	0
EBT			0	0	0
EBR			0	0	0
WBL	19	6	25	21	27
WBT			0	0	0
WBR	9		9	10	10
NBL			0	0	0
NBT	179	2	181	197	199
NBR	40	4	44	44	48
SBL	11		11	12	12
SBT	190	4	194	209	213
SBR			0	0	0
East	79			87	
West	0			0	
North	389			428	
South	428			471	

103.23%

103.57%

SR 158 / Access Z			1.05		
	2021	Site	2021	2026	2026
AM	Existing	Traffic	Total	Growth	Total
EBL			9	9	9
EBT				0	0
EBR			27	27	27
WBL				0	0
WBT				0	0
WBR				0	0
NBL			9	9	9
NBT	148			148	163
NBR				0	0
SBL				0	0
SBT	208			208	229
SBR			3	3	3
East	0			0	
West	0			0	
North	356			392	
South	356			392	

13.48%

	2021	Site	2021	2026	2026
PM	Existing	Traffic	Total	Growth	Total
EBL			6	6	6
EBT				0	0
EBR			18	18	18
WBL				0	0
WBT				0	0
WBR				0	0
NBL			30	30	30
NBT	219			219	241
NBR				0	0
SBL				0	0
SBT	209			209	230
SBR			10	10	10
East	0			0	
West	0			0	
North	428			471	
South	428			471	

14.95%

ArcGIS ▾ UDOT Access Category Identification Map

[Open in new Map View](#)[Details](#)[Basemap](#)[Share](#)[Print](#)[Measure](#)

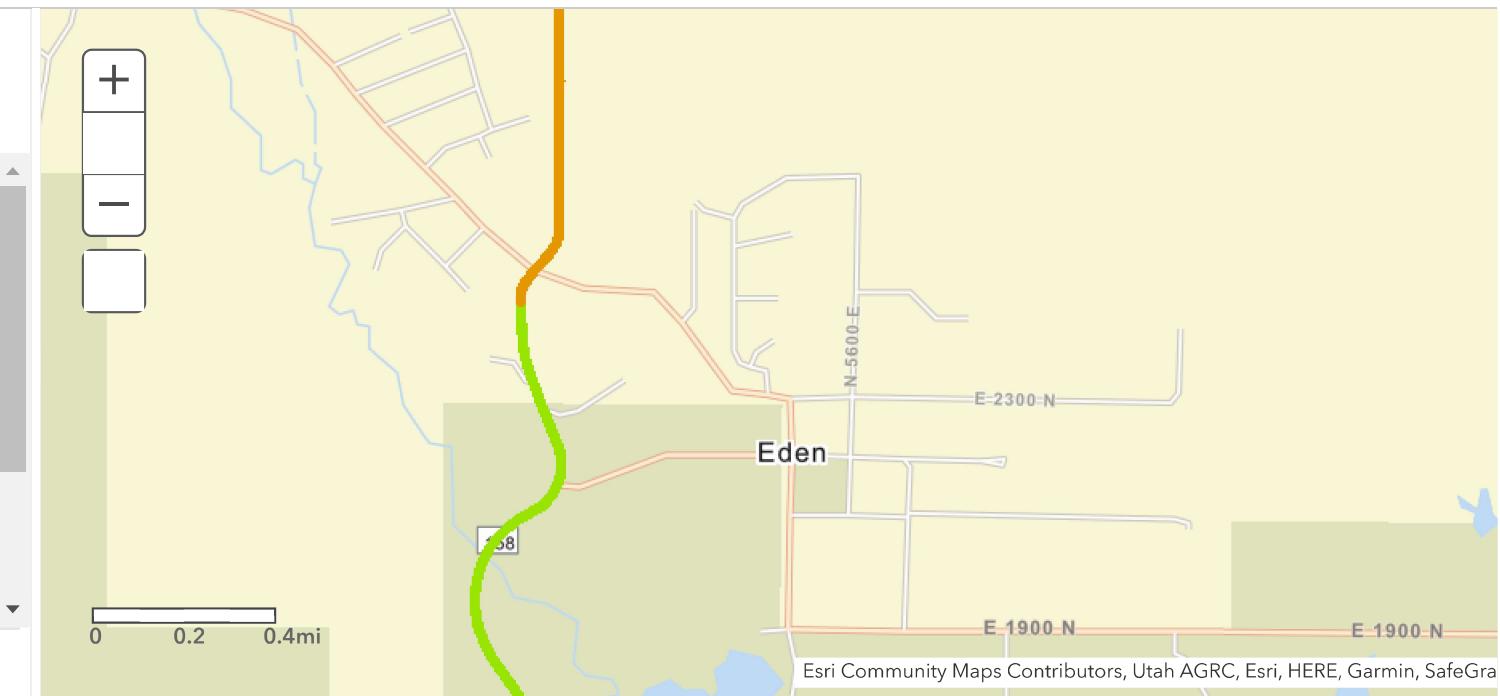
E 2200 N, Eden, UT, 84310, USA

Legend

ROW Access Categories

UDOT Access Category Identification

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6
- Category 7

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Appendix B Without Site Intersection Analyses

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	23	5	126	22	10	185
Future Vol, veh/h	23	5	126	22	10	185
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	-	-	300	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	6	145	25	11	213
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	380	145	0	0	170	0
Stage 1	145	-	-	-	-	-
Stage 2	235	-	-	-	-	-
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	622	902	-	-	1407	-
Stage 1	882	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	617	902	-	-	1407	-
Mov Cap-2 Maneuver	617	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.8	0	0.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	654	1407	-	-
HCM Lane V/C Ratio	-	-	0.049	0.008	-	-
HCM Control Delay (s)	-	-	10.8	7.6	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	19	9	179	40	11	190
Future Vol, veh/h	19	9	179	40	11	190
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	-	-	300	200	-
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	21	10	195	43	12	207
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	426	195	0	0	238	0
Stage 1	195	-	-	-	-	-
Stage 2	231	-	-	-	-	-
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	585	846	-	-	1329	-
Stage 1	838	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	580	846	-	-	1329	-
Mov Cap-2 Maneuver	580	-	-	-	-	-
Stage 1	838	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.9	0		0.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	645	1329	-	
HCM Lane V/C Ratio	-	-	0.047	0.009	-	
HCM Control Delay (s)	-	-	10.9	7.7	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	23	5	126	22	10	185
Future Vol, veh/h	23	5	126	22	10	185
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	-	-	300	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	6	159	28	13	234
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	419	159	0	0	187	0
Stage 1	159	-	-	-	-	-
Stage 2	260	-	-	-	-	-
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	591	886	-	-	1387	-
Stage 1	870	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	586	886	-	-	1387	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	776	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.1	0	0.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	624	1387	-	
HCM Lane V/C Ratio	-	-	0.057	0.009	-	
HCM Control Delay (s)	-	-	11.1	7.6	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	19	9	179	40	11	190
Future Vol, veh/h	19	9	179	40	11	190
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	-	-	300	200	-
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	23	11	214	48	13	227
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	467	214	0	0	262	0
Stage 1	214	-	-	-	-	-
Stage 2	253	-	-	-	-	-
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	554	826	-	-	1302	-
Stage 1	822	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	548	826	-	-	1302	-
Mov Cap-2 Maneuver	548	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.2	0		0.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	614	1302	-	
HCM Lane V/C Ratio	-	-	0.055	0.01	-	
HCM Control Delay (s)	-	-	11.2	7.8	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	



Appendix C With Site Intersection Analyses

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	25	5	130	27	10	186
Future Vol, veh/h	25	5	130	27	10	186
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	-	-	300	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	6	149	31	11	214

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	385	149	0	0	180
Stage 1	149	-	-	-	-
Stage 2	236	-	-	-	-
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	618	898	-	-	1396
Stage 1	879	-	-	-	-
Stage 2	803	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	613	898	-	-	1396
Mov Cap-2 Maneuver	613	-	-	-	-
Stage 1	879	-	-	-	-
Stage 2	797	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	647	1396	-
HCM Lane V/C Ratio	-	-	0.053	0.008	-
HCM Control Delay (s)	-	-	10.9	7.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	9	27	9	148	208	3
Future Vol, veh/h	9	27	9	148	208	3
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	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	31	10	170	239	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	431	241	242	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	190	-	-	-	-	-
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	581	798	1324	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	576	798	1324	-	-	-
Mov Cap-2 Maneuver	576	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.2	0.4	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1324	-	728	-	-	
HCM Lane V/C Ratio	0.008	-	0.057	-	-	
HCM Control Delay (s)	7.7	-	10.2	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	25	9	181	44	11	194
Future Vol, veh/h	25	9	181	44	11	194
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	-	-	300	200	-
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	27	10	197	48	12	211
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	432	197	0	0	245	0
Stage 1	197	-	-	-	-	-
Stage 2	235	-	-	-	-	-
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	581	844	-	-	1321	-
Stage 1	836	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	576	844	-	-	1321	-
Mov Cap-2 Maneuver	576	-	-	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.1	0	0.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	629	1321	-	
HCM Lane V/C Ratio	-	-	0.059	0.009	-	
HCM Control Delay (s)	-	-	11.1	7.8	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	↑	
Traffic Vol, veh/h	6	18	30	219	209	10
Future Vol, veh/h	6	18	30	219	209	10
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	-	150	-	-	-
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	7	20	33	238	227	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	537	233	238	0	-	0
Stage 1	233	-	-	-	-	-
Stage 2	304	-	-	-	-	-
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	505	806	1329	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	492	806	1329	-	-	-
Mov Cap-2 Maneuver	492	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1329	-	695	-	-	
HCM Lane V/C Ratio	0.025	-	0.038	-	-	
HCM Control Delay (s)	7.8	-	10.4	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	27	6	143	29	11	205
Future Vol, veh/h	27	6	143	29	11	205
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	-	-	300	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	7	164	33	13	236
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	426	164	0	0	197	0
Stage 1	164	-	-	-	-	-
Stage 2	262	-	-	-	-	-
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	585	881	-	-	1376	-
Stage 1	865	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	580	881	-	-	1376	-
Mov Cap-2 Maneuver	580	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.2	0		0.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	618	1376	-	
HCM Lane V/C Ratio	-	-	0.061	0.009	-	
HCM Control Delay (s)	-	-	11.2	7.6	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	↑	
Traffic Vol, veh/h	9	27	9	163	229	3
Future Vol, veh/h	9	27	9	163	229	3
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	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	31	10	187	263	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	472	265	266	0	-	0
Stage 1	265	-	-	-	-	-
Stage 2	207	-	-	-	-	-
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	551	774	1298	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	547	774	1298	-	-	-
Mov Cap-2 Maneuver	547	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.5	0.4	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1298	-	701	-	-	
HCM Lane V/C Ratio	0.008	-	0.059	-	-	
HCM Control Delay (s)	7.8	-	10.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↗	↖	↑
Traffic Vol, veh/h	27	10	199	48	12	213
Future Vol, veh/h	27	10	199	48	12	213
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	-	-	300	200	-
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	29	11	216	52	13	232
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	474	216	0	0	268	0
Stage 1	216	-	-	-	-	-
Stage 2	258	-	-	-	-	-
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	549	824	-	-	1296	-
Stage 1	820	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	544	824	-	-	1296	-
Mov Cap-2 Maneuver	544	-	-	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.4	0	0.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	599	1296	-	-
HCM Lane V/C Ratio	-	-	0.067	0.01	-	-
HCM Control Delay (s)	-	-	11.4	7.8	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	↑	
Traffic Vol, veh/h	6	18	30	241	230	10
Future Vol, veh/h	6	18	30	241	230	10
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	-	150	-	-	-
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	7	20	33	262	250	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	584	256	261	0	-	0
Stage 1	256	-	-	-	-	-
Stage 2	328	-	-	-	-	-
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	474	783	1303	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	462	783	1303	-	-	-
Mov Cap-2 Maneuver	462	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1303	-	667	-	-	
HCM Lane V/C Ratio	0.025	-	0.039	-	-	
HCM Control Delay (s)	7.8	-	10.6	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	