

Eagle Forest

Traffic Impact Study

Prepared for:
Mr. Ty Klikus
7360 Shoup Road
Colorado Springs, CO 80908

JANUARY 13, 2021

LSC Transportation Consultants
Prepared by: Jeffrey C. Hodsdon, P.E.

LSC #204230





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**Eagle Forest
Traffic Impact Study
(LSC #204230)
January 13, 2021
PCD File No. PUDSP206**

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

A handwritten signature in blue ink, appearing to be 'W. W. W.', written over a horizontal line.

01/22/2021
Date

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Deviation Exhibit 1

Deviation Request Form

Level of Service Reports

Approved Deviation for Roadway Centerline Radius



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January 13, 2021

Mr. Ty Klikus
7360 Shoup Road
Colorado Springs, CO 80908

RE: Eagle Forest
El Paso County, CO
Traffic Impact Study
LSC # 204230
PCD File No. PUDSP206

Dear Mr. Klikus,

LSC Transportation Consultants, Inc. has prepared this traffic impact study for the proposed 9-lot Eagle Forest residential development located north of Shoup Road between Black Forest Road and Herring Road in El Paso County, Colorado (parcel number is 5208000071) as shown in Figure 1. The development project would create a new subdivision for nine single family lots, including one existing residence and eight new single-family homes. One site access point is proposed to Shoup Road (Eagle Forest Drive, a proposed new public road). This report has been prepared for submittal to El Paso County.

REPORT CONTENTS

This report is being prepared as part of a submittal to El Paso County and identifies the traffic impacts of the proposed development on Shoup Road and at the Shoup Road/Black Forest Road intersection.

The report contains the following:

- A determination of the existing roadway and traffic conditions adjacent to the site, including roadway widths, posted speed limits, traffic control, surface conditions, etc.;
- Peak-hour traffic volumes on Shoup Road and at Shoup Road/Eagle Forest Drive (site access intersection);
- Projected average weekday and peak-hour trips to be generated by this development;
- Assignment of that traffic to the Shoup Road/Black Forest Road and Shoup Road/Eagle Forest Drive intersections;
- Projection of the future background and resulting total traffic volumes; and
- Resulting traffic impacts which have been quantified by projecting the future intersection level of service at the Shoup Road/Eagle Forest intersection.

The report also identifies if any speed change lanes are or are not required at the site access.

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby roadways. As shown in Figure 2, there is one residence on the site with the rest consisting primarily of undeveloped land. Located north of Shoup Road about 3,100 feet east of Black Forest Road, the site is planned to be subdivided for a total of nine single-family homes (including the one single-family home already on the site). The only access to the site would be via a “replacement” full-movement access proposed to Shoup Road. This access would be the planned intersection of a new proposed public road (Eagle Forest Drive) and will be at a location just west of the current private driveway which would be closed. This new public road is proposed to also provide access to one of the adjacent properties (as shown on the site plan).

ECM Standard 2.2.5.C (Roadway Access Criteria – Rural Minor Arterial Access Standards) states that roadways accessing a Rural Minor Arterial that will result in a full-movement intersection shall be planned at one-quarter mile (1,320 feet) spacing. Eagle Forest Drive would exceed the minimum 1,320-foot spacing requirement to both Herring Road (1,540 feet) and to Black Forest Road (3,770 feet). The proposed access location meets ECM intersection spacing criteria.

INTERSECTION SIGHT DISTANCE

Access points (planned public roadway intersections) must meet El Paso County’s *Engineering Criteria Manual* standards for sight distance. The site access point (Eagle Forest Drive) is proposed as a stop-sign-controlled, full-movement intersection with Shoup Road. With a 45 mile-per-hour (mph) posted speed limit on Shoup Road, the intersection sight distances for both approaches at the proposed site access/public road intersection location must meet the required 555-foot requirement for passenger vehicles (per *Engineering Criteria Manual* Table 2-21).

Looking east from the proposed site access (Eagle Forest Drive) on the north side of Shoup Road, the field-measured sight distance is 631 feet. Field-measured sight distance, looking west from the proposed site access, is 2,810 feet. Both of these sight distances would meet the minimum 555-foot sight distance requirement when looking east or west.

ROAD AND TRAFFIC CONDITIONS

Figure 1 shows the streets and roads adjacent to and in the vicinity of the site. Roads serving the site are identified below, followed by a brief description of each:

Shoup Road is a two-lane paved rural Minor Arterial and is an important east/west route through the Black Forest area. The posted speed limit at the Shoup Road/Black Forest Road intersection is 30 mph. At the Shoup Road/site access intersection, the posted speed limit is 45 mph.

Black Forest Road is a two-lane, paved, rural Minor Arterial with a posted speed limit of 40 mph at the signalized intersection with Shoup Road. Black Forest Road extends north from Woodmen Road to County Line Road.

Existing Baseline Traffic Volumes

Existing baseline morning and evening weekday peak-hour traffic volumes at the proposed site access intersection to Shoup Road, as well as the estimated existing baseline average daily traffic (ADT) volumes adjacent to the site, are shown in Figure 3. The estimated baseline volumes on the proposed Eagle Forest Drive (20 vehicles per day) include trip generation for two existing single-family residences.

Note: The Covid-19 pandemic is likely affecting the traffic volumes adjacent to the site. LSC incorporated recent available traffic data on Shoup Road and estimated “typical” current volumes based on historical counts and estimated growth rates and/or projections from prior traffic studies, etc. This study contains estimates of current “short-term baseline” volumes. Traffic volume data from El Paso County’s 2016 *Major Transportation Corridors Plan* (MTCP) and previous nearby LSC traffic studies were used to estimate existing traffic volumes. These previously-conducted LSC traffic studies include:

- *Taylor Minor Subdivision* (2016)
- *Sanctuary in the Pines* (2006)
- *Eagle Heights* (2005)
- *Thee Occasion Wedding and Event Center* (2004)

TRIP GENERATION

Estimates of the vehicle trips projected to be generated by Eagle Forest residential development have been made using the nationally published trip-generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Land use category “210 – Single-Family Detached Housing,” along with corresponding trip-generation rates, have been used to develop the trip-generation estimates for the site development.

Eagle Forest residential development is projected to generate about 76 additional vehicle trips on the average weekday during a 24-hour period, with approximately half entering and half exiting the site. During the morning peak hour, approximately 1 entering vehicles and 4 additional exiting vehicles would be generated by the project. Approximately 5 additional entering vehicles and 3 additional exiting vehicles would be generated by the project during the afternoon peak hour. Detailed trip-generation estimates for the development, including ITE rates for the proposed land use, are presented in Table 2 (attached).

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

An estimate of the directional distribution of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site’s traffic impacts. Figure 4 shows the directional distribution estimate for the site-generated trips. The figure shows the

percentages of the site-generated vehicle trips projected to be oriented to and from the site's major approaches. Estimates have been based on the following factors: the proposed land use, the area road system serving the site, the directional split of existing counts, and the site's geographic location relative to the City of Colorado Springs and unincorporated El Paso County.

Site-Generated Traffic

Site-generated traffic volumes at the proposed site access (Eagle Forest Drive) to Shoup Road have been calculated by applying the directional distribution percentages estimated by LSC (from Figure 4) to the trip-generation estimates (from Table 2). Figure 5 shows the projected site-generated traffic volumes for the weekday evening peak hour.

Existing Baseline -Plus-Site-Generated Traffic Volumes

Figure 6 shows the sum of the existing traffic volumes (from Figure 3) and site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected short-term total traffic following the completion of the Eagle Forest residential development.

Estimated Future 2040 Background Traffic Volumes

Figure 7 shows the projected 20-year background traffic volumes for the year 2040. Estimated 2040 background traffic volumes on Shoup Road and Black Forest Road are based, in part, on the El Paso County's *2016 Major Transportation Corridors Plan (MTCP)*. Traffic from the proposed new homes to be developed within the Eagle Forest residential development is not included in the **background** traffic volumes. However, the estimated background volumes on the proposed Eagle Forest Drive (20 vehicles per day) include trip generation for two existing single-family residences on the east side of the proposed roadway.

Future 2040 Total Traffic Volumes

Figure 8 shows the sum of 2040 background traffic volumes (from Figure 7) plus the site-generated traffic volumes (from Figure 5).

LEVEL OF SERVICE ANALYSIS

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 1 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ¹
A	0.0 - 10.0 sec	0.0 - 10.0 sec
B	10.1 - 20.0 sec	10.1 - 15.0 sec
C	20.1 - 35.0 sec	15.1 - 25.0 sec
D	35.1 - 55.0 sec	25.1 - 35.0 sec
E	55.1 - 80.0 sec	35.1 - 50.0 sec
F	80.1 sec or more	50.1 sec or more
¹ For unsignalized intersections, if v/c ratio is greater than 1.0, the level of service is LOS F regardless of the projected average control delay per vehicle		

All approaches at the proposed intersection of Eagle Forest Drive/Shoup Road are projected to operate at LOS B or better through the 2040 horizon year, during the morning and evening peak hours. A summary of all existing and 2040 traffic scenario levels of service during the weekday morning and evening peak hours are shown in the attached figures. Detailed Synchro reports are attached.

AUXILIARY TURN LANE ANALYSIS

No left- or right-turn auxiliary lanes improvements would be required at the proposed site access (Eagle Forest Drive) based on *ECM* criteria and projected intersection turning movements.

SUBDIVISION STREET CLASSIFICATION

The proposed subdivision road, Eagle Forest Drive, is proposed as a Rural Local roadway.

2040 ROADWAY IMPROVEMENT PROJECTS

ECM Appendix B requires traffic studies to, “State whether the *MTCP* or other approved corridor study calls for the construction of improvements in the immediate area”. Roadway improvement project U13 has been identified as being needed by the year 2040 per Map 15 and Table 5 of El Paso County’s 2016 *MTCP*. Project U13 shows Shoup Road improved from Black Forest Road to State Highway (SH 83) from a two-lane Rural Unimproved County Road to two-lane Rural Minor Arterial.

2040 MULTIMODAL IMPROVEMENT PROJECTS

The proposed subdivision roads are to be rural local roadways and, as such, would have shoulders but not sidewalks. Multimodal improvement project M14 has been identified for the year 2040

per Map 15 and Table 5 of El Paso County's 2016 *MTCP*. Approximately 6.24 miles of bicycle improvements would be made on Shoup Road from Vollmer Road to SH 83.

The project will dedicate to the County a trail easement of 25' width along Shoup Rd.

DEVIATION REQUESTED

- Per criteria in Section 2.3.8.A of the ECM, cul-de-sacs shall have a maximum length of 1,600 feet for rural condition. The request is to allow a non-through street, Eagle Forest Drive, with a length of approximately 2,500 feet. Please refer to the separate deviation-request form included with this submittal. This deviation has been updated in response to review comments.
- A deviation request has been prepared for the length of tangent between broken-back curves. Please refer to the separate deviation-request form included with this submittal.
- Note: There was another deviation for centerline radius of Eagle Forest Drive that was previously approved.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

This project will be required to participate in the El Paso County Road Impact Fee program. The applicant will opt out of the PID options and pay the full fee up front. Based on eight new single-family dwelling units and \$3,830 per single-family dwelling unit, the total fee amount would be \$30,640 payable at the building permit stage.

CONCLUSIONS

- The site would generate about 76 new driveway vehicle-trips on the average weekday.
- During the weekday evening peak hour of adjacent street traffic, 1 additional vehicle would enter the site while 4 additional vehicles would exit.
- During the weekday evening peak hour of adjacent street traffic, 5 additional vehicles would enter the site while 3 additional vehicles would exit.
- All approaches at the proposed site access to Shoup Road are projected to operate at LOS B or better through the 2040 horizon year during the morning and evening peak hours.
- Access width, radii, and other elements of the proposed Eagle Forest Drive/Shoup Road intersection should be constructed per El Paso County's *Engineering Criteria Manual (ECM)* standards.

- The proposed site access (Eagle Forest Drive) to Shoup Road would meet *ECM* intersection sight distance criteria.
- Please refer to the deviation request forms included with this submittal. Please refer to the report section above for the list of deviations.
- The County roadway impact fee amount will be \$30,640 (see section above for details).

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH:JAB:jas

Enclosures: Table 2
Figure 1 – Figure 8
Deviation Exhibit 1
Deviation Request Form
Level of Service Reports
Approved Deviation for Roadway Centerline Radius

Tables

Table 2: Detailed Trip Generation Estimate

ITE		Value	Units ¹	Trip Generation Rates ²					Total Trips Generated				
				Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description			Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
<u>Existing</u>													
210	Single-Family Detached Housing	1	DU	9.44	0.19	0.56	0.62	0.37	9	0	1	1	0
<u>New Impact</u>													
210	Single-Family Detached Housing	8	DU	9.44	0.19	0.56	0.62	0.37	76	1	4	5	3
<u>Buildout</u>													
210	Single-Family Detached Housing	9	DU	9.44	0.19	0.56	0.62	0.37	85	2	5	6	3

¹ DU = dwelling units

² Source: Trip Generation, 10th Edition, 2017, by the Institute of Transportation Engineers (ITE)

Figures



Not to Scale

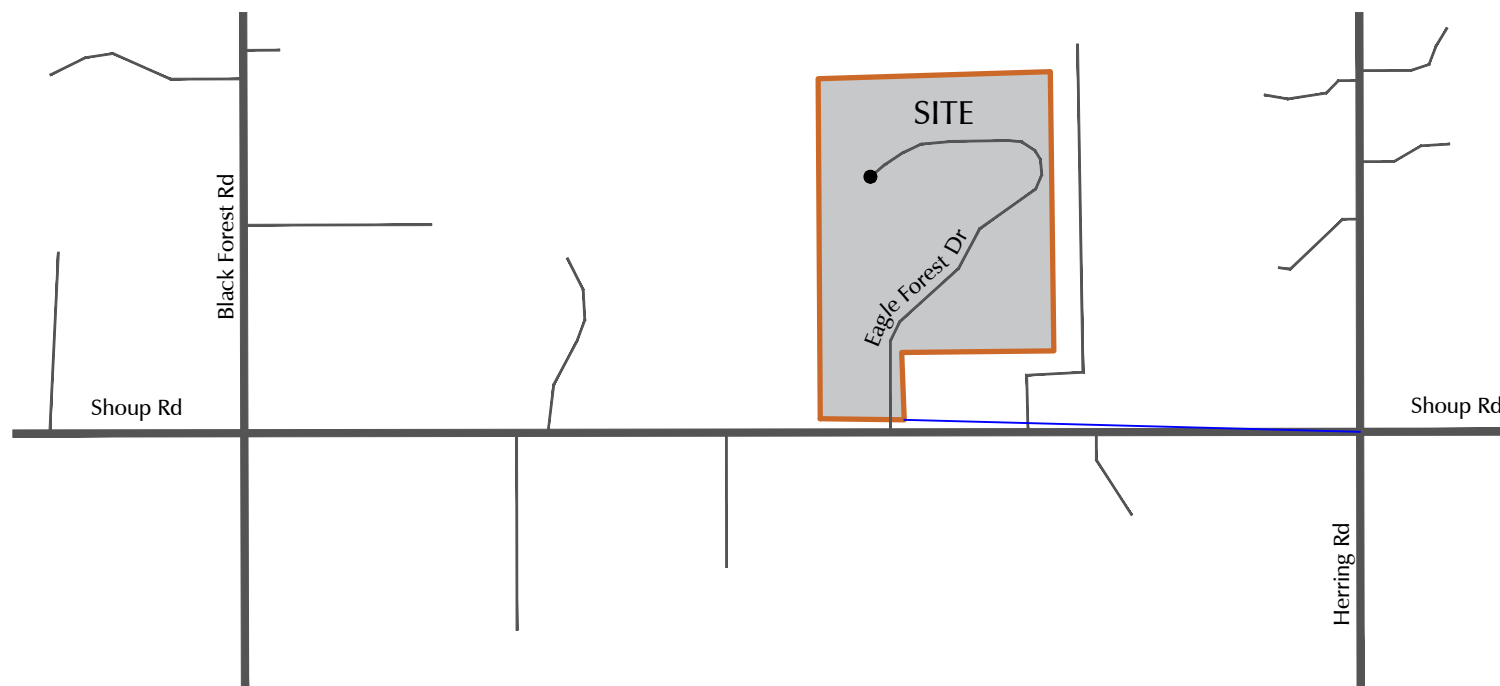


Figure 1
Vicinity Map
Eagle Forest (LSC # 204230)



Not to Scale

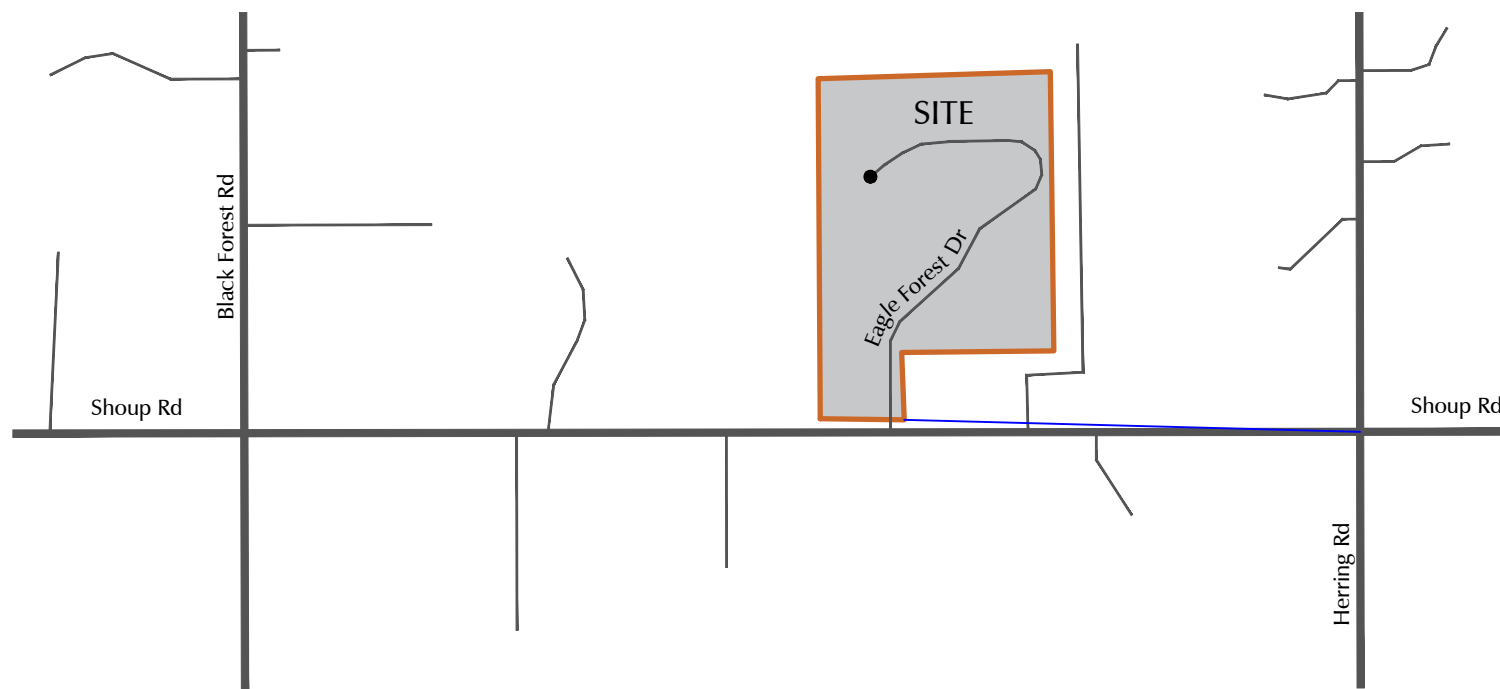
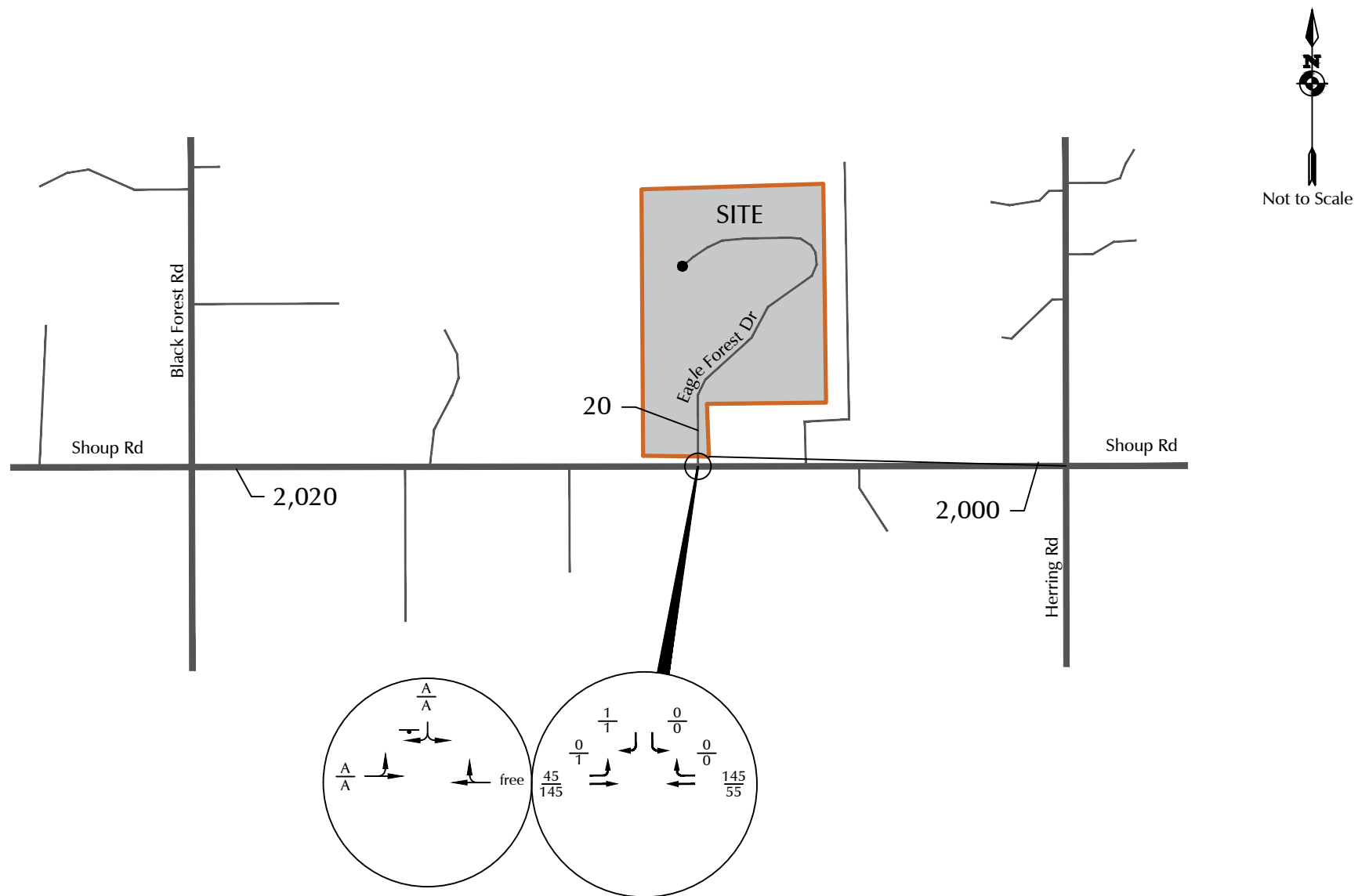


Figure 1

Vicinity Map

Eagle Forest (LSC # 204230)



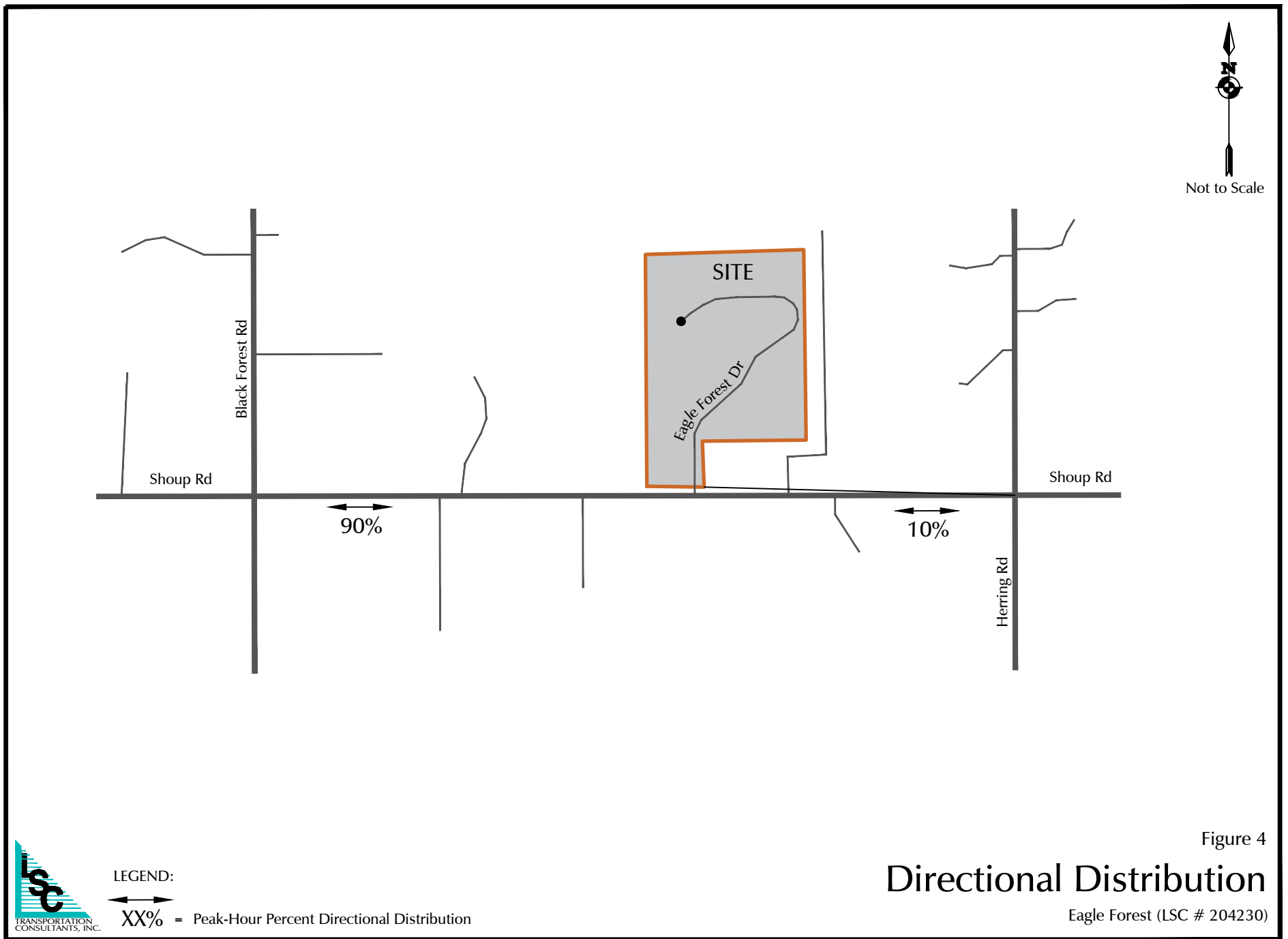
LEGEND:

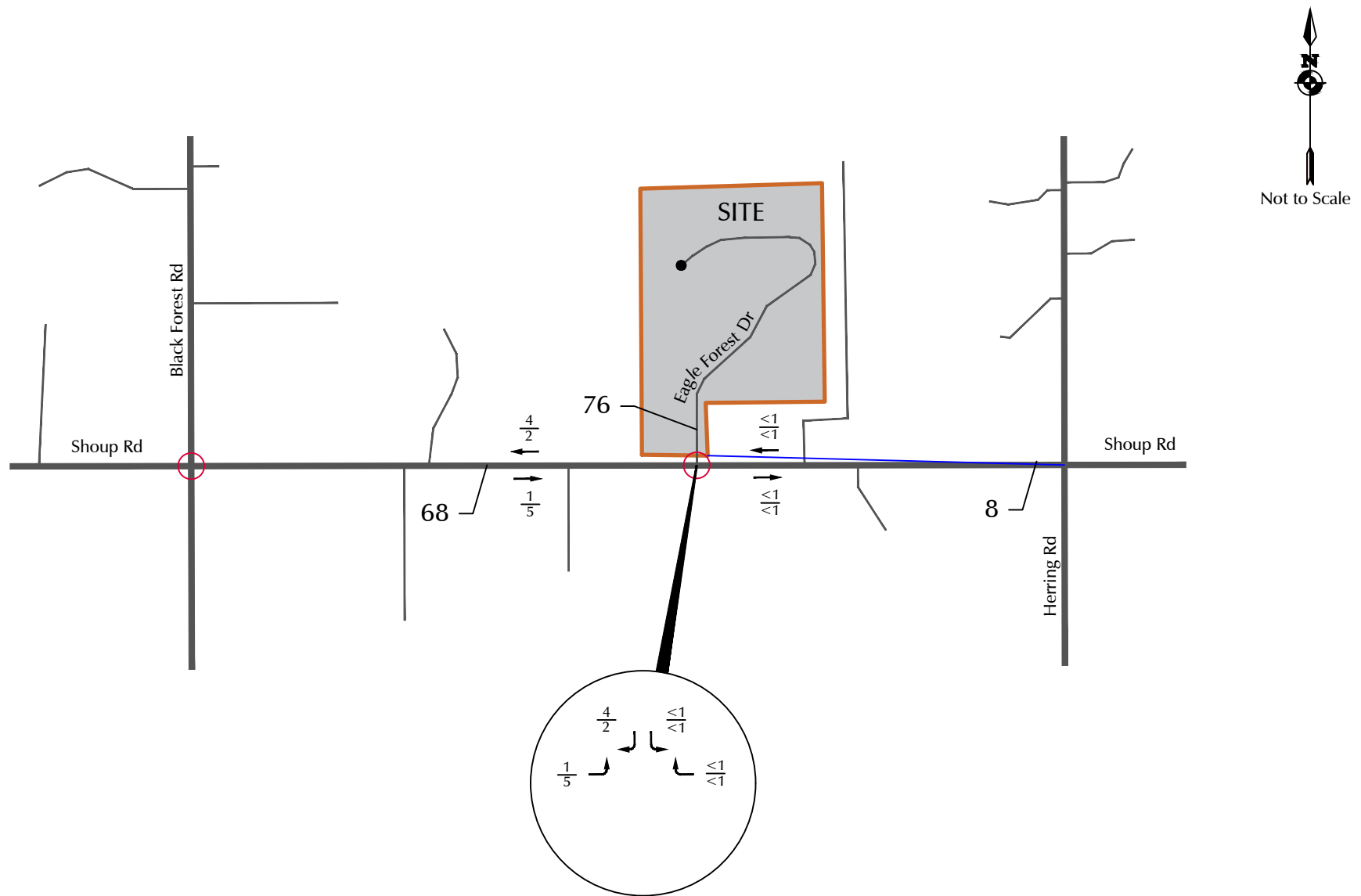
$\frac{XX}{XX}$ = AM Peak-Hour Traffic (veh/hr)
 PM Peak-Hour Traffic (veh/hr)

X,XXX = Average Daily Traffic (vehicles per day)

└ = Stop Sign * Estimated by LSC

Figure 3
 Existing Baseline* Traffic Lane Geometry,
 Traffic Control, and Level of Service
 Eagle Forest (LSC # 204230)



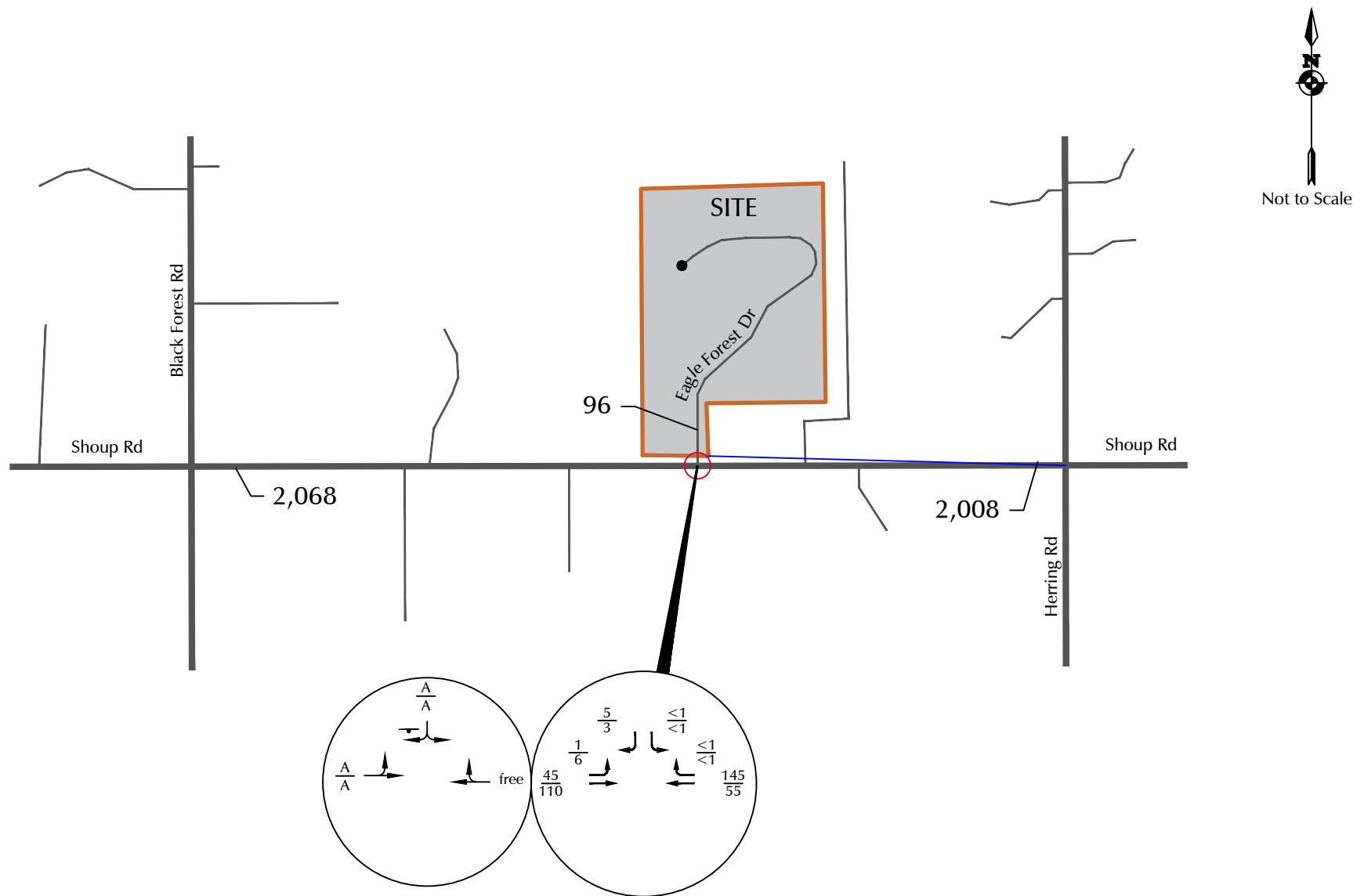


LEGEND:

XX = AM Peak-Hour Traffic (veh/hr)
 XX = PM Peak-Hour Traffic (veh/hr)

X,XXX = Average Daily Traffic (vehicles per day)

Figure 5
 Site-Generated Traffic
 Eagle Forest (LSC # 204230)



LEGEND:

$\frac{XX}{XX}$ = AM Peak-Hour Traffic (veh/hr)
 $\frac{XX}{XX}$ = PM Peak-Hour Traffic (veh/hr)

X,XXX = Average Daily Traffic (vehicles per day)

⌋ = Stop Sign

Existing Baseline + Site Traffic Lane Geometry,
 Traffic Control, and Level of Service

Eagle Forest (LSC # 204230)

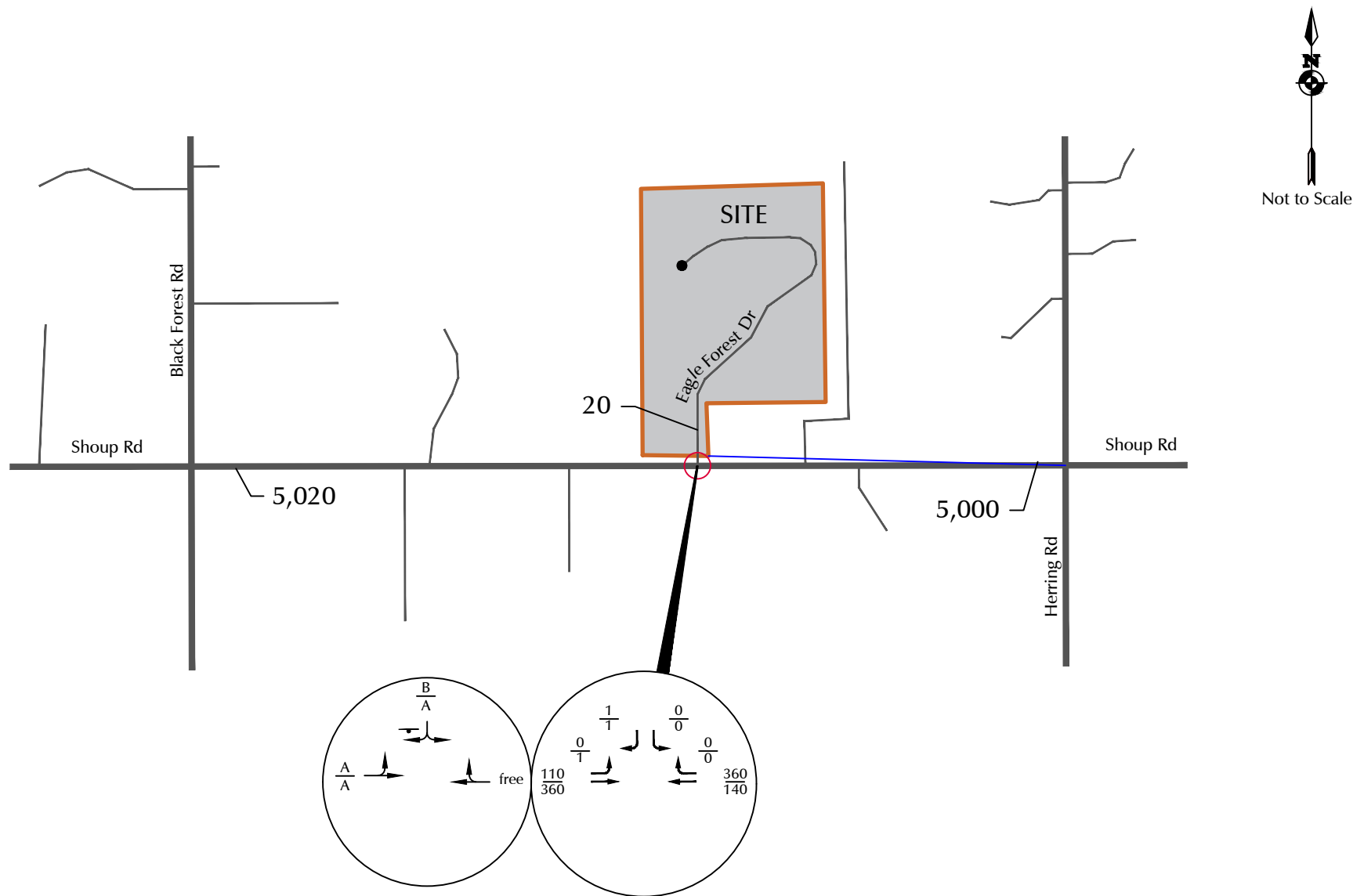


Figure 7
 2040 Background Traffic Lane Geometry,
 Traffic Control, and Level of Service
 Eagle Forest (LSC # 204230)

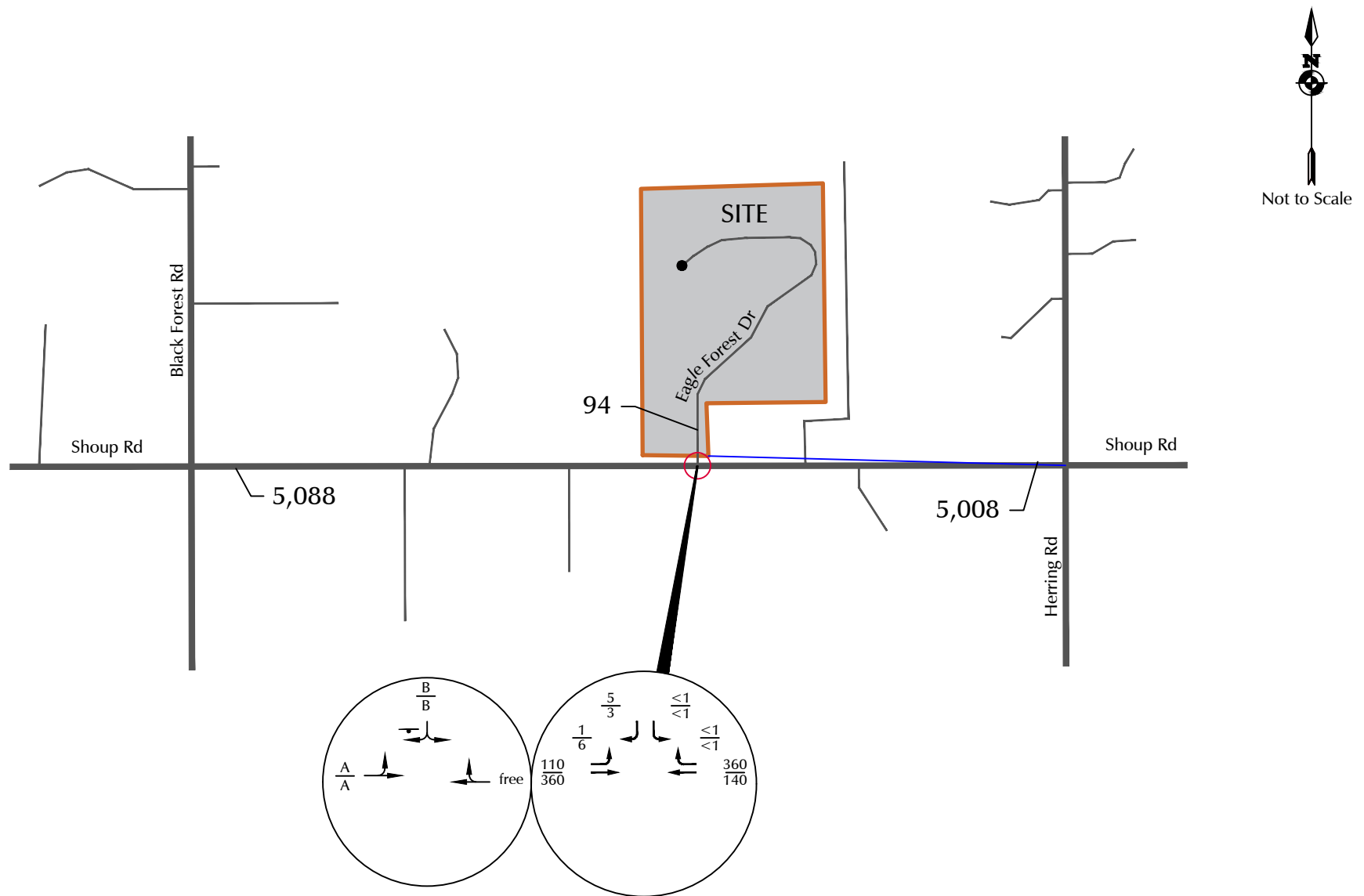














Figure 8
 2040 Background + Site Traffic Lane
 Geometry, Traffic Control, and Level of Service
 Eagle Forest (LSC # 204230)




Levels of Service




Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	145	0	0	1
Future Vol, veh/h	0	45	145	0	0	1
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	83	83	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	186	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	186	0	-	0	240	186
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	54	-
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	1388	-	-	-	748	856
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1388	-	-	-	748	856
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	969	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.2		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1388	-	-	-	856	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s)	0	-	-	-	9.2	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	




Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	145	55	0	0	1
Future Vol, veh/h	1	145	55	0	0	1
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	78	78	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	186	66	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	66	0	-	0	254	66
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	188	-
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	1536	-	-	-	735	998
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1536	-	-	-	734	998
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	844	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		8.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1536	-	-	-	-	998
HCM Lane V/C Ratio	0.001	-	-	-	-	0.001
HCM Control Delay (s)	7.3	0	-	-	-	8.6
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0




Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	110	55	1	0	4
Future Vol, veh/h	7	110	55	1	0	4
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	78	78	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	141	66	1	0	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	67	0	-	0	226	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	159	-
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	1535	-	-	-	762	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	870	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1535	-	-	-	757	997
Mov Cap-2 Maneuver	-	-	-	-	757	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	870	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		8.6		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1535	-	-	-	997	
HCM Lane V/C Ratio	0.006	-	-	-	0.005	
HCM Control Delay (s)	7.4	0	-	-	8.6	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	110	55	1	1	3
Future Vol, veh/h	6	110	55	1	1	3
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	78	78	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	141	66	1	1	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	67	0	-	0	224	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	157	-
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	1535	-	-	-	764	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1535	-	-	-	759	997
Mov Cap-2 Maneuver	-	-	-	-	759	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	871	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		8.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1535	-	-	-	925	
HCM Lane V/C Ratio	0.005	-	-	-	0.006	
HCM Control Delay (s)	7.4	0	-	-	8.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	110	360	0	0	1
Future Vol, veh/h	0	110	360	0	0	1
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	83	83	92	92	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	391	0	0	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	391	0	-	0	524	391
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	133	-
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	1168	-	-	-	514	658
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1168	-	-	-	514	658
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	893	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1168	-	-	-	658	
HCM Lane V/C Ratio	-	-	-	-	0.002	
HCM Control Delay (s)	0	-	-	-	10.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	360	140	0	0	1
Future Vol, veh/h	1	360	140	0	0	1
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	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	391	169	0	0	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	169	0	-	0	562	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	393	-
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	1409	-	-	-	488	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1409	-	-	-	488	875
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	682	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.1		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1409	-	-	-	-	875
HCM Lane V/C Ratio	0.001	-	-	-	-	0.001
HCM Control Delay (s)	7.6	0	-	-	-	9.1
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	110	360	1	1	5
Future Vol, veh/h	1	110	360	1	1	5
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	83	83	92	92	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	133	391	1	1	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	392	0	-	0	527	392
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	135	-
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	1167	-	-	-	512	657
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1167	-	-	-	511	657
Mov Cap-2 Maneuver	-	-	-	-	511	-
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	891	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10.8		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1167	-	-	-	-	627
HCM Lane V/C Ratio	0.001	-	-	-	-	0.012
HCM Control Delay (s)	8.1	0	-	-	-	10.8
HCM Lane LOS	A	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	360	140	1	1	3
Future Vol, veh/h	6	360	140	1	1	3
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	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	391	169	1	1	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	170	0	-	0	575	170
Stage 1	-	-	-	-	170	-
Stage 2	-	-	-	-	405	-
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	1407	-	-	-	480	874
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	477	874
Mov Cap-2 Maneuver	-	-	-	-	477	-
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	673	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1407	-	-	-	723	
HCM Lane V/C Ratio	0.005	-	-	-	0.007	
HCM Control Delay (s)	7.6	0	-	-	10	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	