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Grandwood
Traffic Impact Study
(LSC #185020)
February 12, 2019

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.

COLORADO LICENSED
JEFFREY C. HODSDON
31684
2-12-19
PROFESSIONAL ENGINEER

Developer's Statement

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

2-14-19
Date

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February 12, 2019

Bill Herebic
Grandwood Enterprises
270 Lodgepole Way
Monument, CO 80132

RE: Grandwood
El Paso County, CO
Traffic Impact Study
LSC #185020

Dear Mr. Herebic,

LSC Transportation Consultants, Inc. has prepared this traffic impact study for the proposed Grandwood residential development with 48 single-family units in Colorado Springs, Colorado. Located at El Paso County parcel ID 6119000003, the 146.84-acre parcel on Higby Road is currently vacant between Fairplay Drive and Colonial Park Drive.

Two access points are proposed for the property. The west access point would be located approximately 1,220 feet west of the center of Higby Road/Fairplay Drive, while the east access is proposed approximately 980 feet west of the center of Higby Road/Colonial Park Drive. This report has been prepared for submittal to El Paso County.

REPORT CONTENTS

The preparation of this report included the following:

- An inventory of existing roadway and traffic conditions on Higby Road adjacent to the site, including surface conditions, functional classification, widths, pavement markings, traffic control signs, posted speed limits, intersection and access spacing, roadway and intersection alignments, roadway grades and auxiliary turn lanes.

- Weekday peak-hour turning movement traffic counts at the intersection of Higby Road/ Fairplay Drive.

- Estimated average weekday traffic (AWT) volumes for Higby Road adjacent to the proposed residential development and at both Grandwood site access points.

- Projections of 20-year background traffic volumes on Higby Road adjacent to the site and Furrow Road through the site.

- The proposed site land use and access plan.

- Estimates of average weekday and weekday peak-hour trip generation for the proposed Grandwood residential development and the estimated directional distribution of site-generated vehicle-trips on the streets and intersections adjacent to the site.

- Projected site-generated and resulting total peak-hour intersection traffic volumes at the site access points on Higby Road and the future planned intersection of Furrow Road with the west access.

- Projected total daily and peak-hour traffic volumes on Higby Road and Furrow Road adjacent to the site.

- Intersection level of service analysis at both site access intersections with Higby Road.

- Evaluation of existing, short-term, and long-term projected intersection volumes to determine the short-term requirements for auxiliary right-/left-turn lanes on Higby Road at both site access points based on the criteria in El Paso County's *Engineering Criteria Manual* (ECM). Also included are the potential long-term lane requirements.

- Findings and recommendations.

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby streets. The proposed Grandwood residential development is proposed to contain approximately 48 single-family dwelling units. Located at El Paso County parcel ID 6119000003, the 146.84-acre site on Higby Road is currently vacant between Fairplay Drive and Colonial Park Drive.

Figure 2 contains the proposed site plan showing the individual residential units, site circulation, and the access points. Two access points are proposed for the property. The west access point would be located approximately 1,220 feet west of the center of Higby Road/Fairplay Drive, while the east access is proposed approximately 980 feet west of the center of Higby Road/Colonial Park Drive. Both access points are proposed as full-movement, stop-sign-controlled intersections.

ROAD AND TRAFFIC CONDITIONS

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

Higby Road is shown as a two-lane Collector between Jackson Creek Parkway and Roller Coaster Road on the El Paso County *Year 2040 Roadway Plan*. Adjacent to both proposed site access points, Higby Road has a posted speed limit of 35 miles per hour (mph). Higby Road is an unimproved, 24-foot-wide roadway.

Furrow Road is a two-lane local street that terminates approximately 1,500 feet north of Higby Road. El Paso County's *Major Transportation Corridors Plan* (MTCP) shows a planned extension that will connect Furrow Road to Higby Road by 2040.

Existing Traffic Volumes

Vehicular turning movement counts were conducted at the intersection of Higby Road/Fairfield Drive on Wednesday, May 16, 2018 from 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. Figure 3 shows these turning movement volumes, as well as the average weekday traffic volumes (estimated based on factored peak-hour count data) on the study area streets. Raw count data are attached.

TRIP GENERATION

Estimates of the vehicle-trips projected to be generated by the Grandwood 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 categories "210 – Single-Family Detached Housing," along with corresponding trip generation rates, have been used to develop the trip generation estimates for site buildout. The site plan, shown in Figure 2, shows 48 single-family lots within the proposed residential development.

Table 1 below presents a summary of the estimated site trip generation. A detailed trip generation estimate for the development, including ITE rates for the proposed land uses, is presented in Table 5 (attached).

The proposed Grandwood residential development is projected to generate about 529 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 10 entering vehicles and 29 exiting vehicles would be generated. Approximately 32 entering and 19 exiting vehicles would be generated by the site during the evening peak hour.

Table 1: Estimated Site Vehicle-Trip Generation

Analysis Period	Weekday		
	In	Out	Total
Morning Peak Hour	10	29	39
Evening Peak Hour	32	19	51
Daily/24-hour	265	265	529

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

Estimating 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 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 new land use, the area street and road system serving the site, 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 points on Higby Road have been calculated by applying the directional distribution percentages estimated by LSC (from Figure 4) to the trip generation estimates (from Table 5). Figure 5 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours.

Existing-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 site buildout.

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 Higby Road are based on projected 2040 volumes in the MTCP. Background traffic volumes do **not** include projected traffic to be generated by the proposed Grandwood residential development.

Future 2040 Total Traffic Volumes

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

LEVEL OF SERVICE ANALYSIS

Both site access intersections with Higby Road have been analyzed to determine the projected intersection levels of service for short- and long-term traffic scenarios for the morning and evening peak-hour time periods.

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 2 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 2: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	V/C(1)	Average Control Delay (seconds per vehicle)(2)
A	10.0 sec or less	Less than 0.60	10.0 sec or less
B	10.1-20.0 sec	0.60-0.69	10.1-15.0 sec
C	20.1-35.0 sec	0.70-0.79	15.1-25.0 sec
D	35.1-55.0 sec	0.80-0.89	25.1-35.0 sec
E	55.1-80.0 sec	0.90-0.99	35.1-50.0 sec
F	80.1 sec or more	1.00 and greater	50.1 sec or more

(1) Source: Transportation Research Circular 212
(2) 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.

Short-Term LOS

A summary of LOS for all short-term traffic scenarios during the weekday morning and evening peak hours is shown in Table 3. Detailed Synchro reports are attached.

Table 3: Intersection Level of Service Analysis Results (Short-Term)

Scenario	Higby/Furrow				Higby/E Site Access			
	Traffic Control	EB	WB	SB	Traffic Control	EB	WB	SB
								
2018 Existing + Site								
A.M. Peak Hour	TWSC	A	A	A	TWSC	A	A	A
P.M. Peak Hour		A	A	A		A	A	A

TWSC = two-way stop sign control
EB = eastbound, WB = westbound, NB = northbound, SB = southbound
L = left-turn, T = through, R = right-turn

As shown in Table 3, all turning movements/intersection approaches at both proposed site access intersections with Higby Road are projected to operate at LOS A during both peak periods upon site buildout in the short term.

Long-Term LOS

A summary of LOS for all long-term traffic scenarios during the weekday morning and evening peak hours is shown in Table 3. Detailed Synchro reports are attached.

Table 4: Intersection Level of Service Analysis Results (Long-Term)

Scenario	Higby/Furrow					Furrow/Lamplight/Minglewood					Higby/E Site Access				
	Traffic Control	NBL	EBL	WBL	SBL	Traffic Control	NB	EB	WB	SB	Traffic Control	NB	EBL	WBL	SB
A.M. Peak Hour															
2040 Background	TWSC	D	A	A	C	TWSC	A	B	B	A	TWSC	B	-	A	-
2040 Background + Site													A		B
P.M. Peak Hour															
2040 Background	TWSC	D	A	A	C	TWSC	A	B	B	A	TWSC	B	-	A	-
2040 Background + Site					D								A		B

TWSC = two-way stop sign control
EB = eastbound, WB = westbound, NB = northbound, SB = southbound
L = left-turn, T = through, R = right-turn

All individual turning movements and approaches at all studied intersections are projected to operate at LOS D or better during both peak hours through the 2040 horizon year with two-way stop-sign control (TWSC).

AUXILIARY TURN LANE ANALYSIS

According to the El Paso County *Engineering Criteria Manual* (ECM), exclusive left-turn lanes shall be provided for any access on a Collector or Minor Arterial with a projected peak-hour ingress turning volume of 25 vehicles per hour (vph) or greater.

Short Term

Projected left-turn volumes at the site access point are **not** expected to exceed the minimum left-turn volume thresholds outlined in the *ECM* upon site buildout. Thus, an exclusive westbound left-turn lane is **not** prescribed by the ECM at either of the proposed site access intersections with Higby Road.

Long Term

The El Paso County MTCP shows the planned Gleneagle to Furrow connection across Higby Road and through this site. Estimates of peak hour turning movements indicate that the intersections of Higby Road/Furrow Drive and Higby Road/east access point will potentially require the

installation of exclusive right- and left-turn auxiliary turn lanes once road connections to the north and south of Higby (and to the south of Higby in the case of the east access intersection) are built and associated residential developments are completed, **regardless of whether or not Grandwood is developed.**

Per the *Engineering Criteria Manual*, potential auxiliary turn lanes on Higby Road are shown in Figures 8 and 9.

SIGHT DISTANCE

ECM Requirements

Access points (planned public roadway intersections) must meet ECM standards for sight distance. Access points are anticipated to be stop-controlled, full-movement intersections with Higby Road.

Based on the spot-grades along Higby Road east of the proposed west site access point, the prescribed stopping sight distance is 333 feet (downgrade of approximately six percent).

All sight distance field measurements utilized a driver's eye height of 3.5 feet and a height of 3.5 feet for an eastbound vehicle approaching from the west. The following analysis corresponds to field-measured sight distances for the proposed west and east Grandwood site access locations.

Proposed west access:
- To the west: 1,302 feet
- To the east: 650 feet

Proposed east access:
- To the west: 645 feet
- To the east: 1,990 feet

Comparison to ECM Sight Distance Standards

With a 35-mph posted speed limit on Higby Road (design speed of 40 mph), the field-measured sight distances for both approaches from both proposed site access locations exceed the required 445-foot requirement for passenger vehicles per ECM Table 2-21.

HIGBY ROAD GRADES

The field-measured existing grade on Higby Road at the proposed west site access point is about 4.5 percent at the access centerline. West of the access, the grade is moderate to about 3.5 percent on the eastbound intersection approach (grade moderates as the distance west from the

intersection increases). East of the access, the grade is about 5.5 to 4.5 percent on the westbound approach to the intersection.

The ECM-prescribed maximum intersection grade is 4 percent, which is currently exceeded at the westbound intersection approach. A deviation will be required. These grades and the overall existing and potential future roadway profile for Higby Road should be considered as part of the evaluation of this location for the future Collector/Minor Arterial intersection shown on the County MTCP.

The Preliminary Plan, and certainly the final plat, for this subdivision would not only set the location for the short-term Grandwood-only access, but also the future location of what is planned to be a more significant intersection in the future. Based on the projected volumes in this report, a future traffic signal or modern roundabout would not be required. However, these volumes are estimates and are subject to change, especially depending on the Home Place Ranch plans. Generally, desirable approach grades at signalized intersections are about two percent. Maximum grades through modern roundabout intersection are also about two percent.

CONCLUSIONS

- The site is projected to generate about 550 new driveway vehicle-trips on the average weekday.

- During the weekday morning peak hour of adjacent street traffic, 10 vehicles would enter the site while 30 vehicles would exit.

- During the weekday evening peak hour of adjacent street traffic, 33 vehicles would enter the site while 19 vehicles would exit.

- All individual turning movements and approaches at all studied intersections are projected to operate at LOS D or better during both peak hours through the 2040 horizon year.

- Please refer to the "Auxiliary Turn Lane Analysis" section for more detail on turn lane requirements.

- A deviation will likely be required for the intersection grade on Higby Road at the west site access. Please refer to the "Higby Road Grades" section for considerations with respect to the west site access being the planned future Minor Arterial/Collector intersection of Furrow/Gleneagle/Higby per the MTCP.

- LSC recommends that both site access points be stop-sign-controlled accesses.

* * * * *

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH/JAB:bjwb

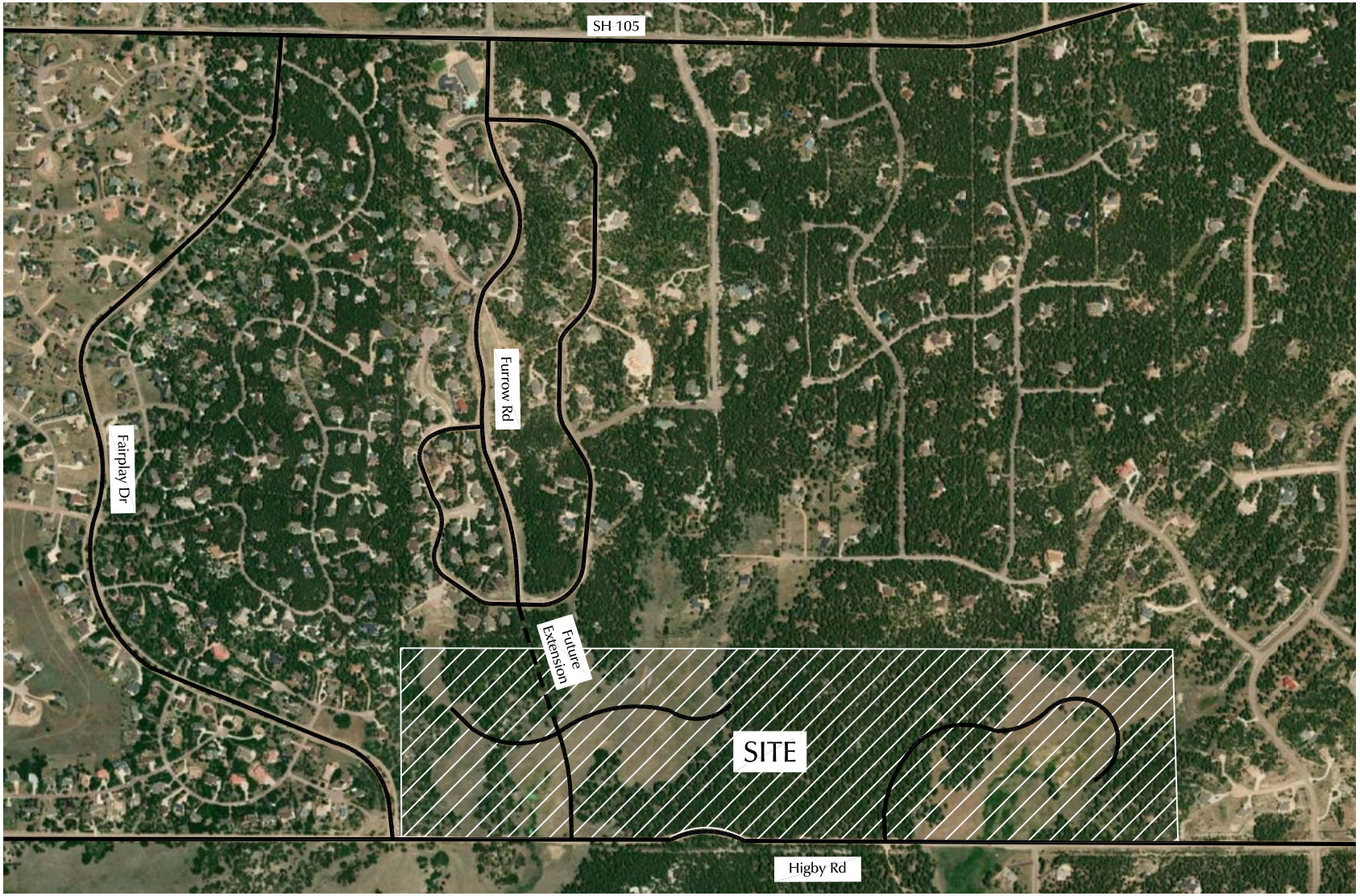
Enclosures: Table 5
Figures 1-9
Traffic Count Reports
Level of Service Reports
Queuing Analysis Reports

Table 5: Detailed Trip Generation Estimate

ITE		Value	Units	Trip Generation Rates [1]					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
210	Single-Family Detached Housing	48	DU	11.03	0.20	0.61	0.66	0.39	529	10	29	32	19

(1) DU = dwelling units

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



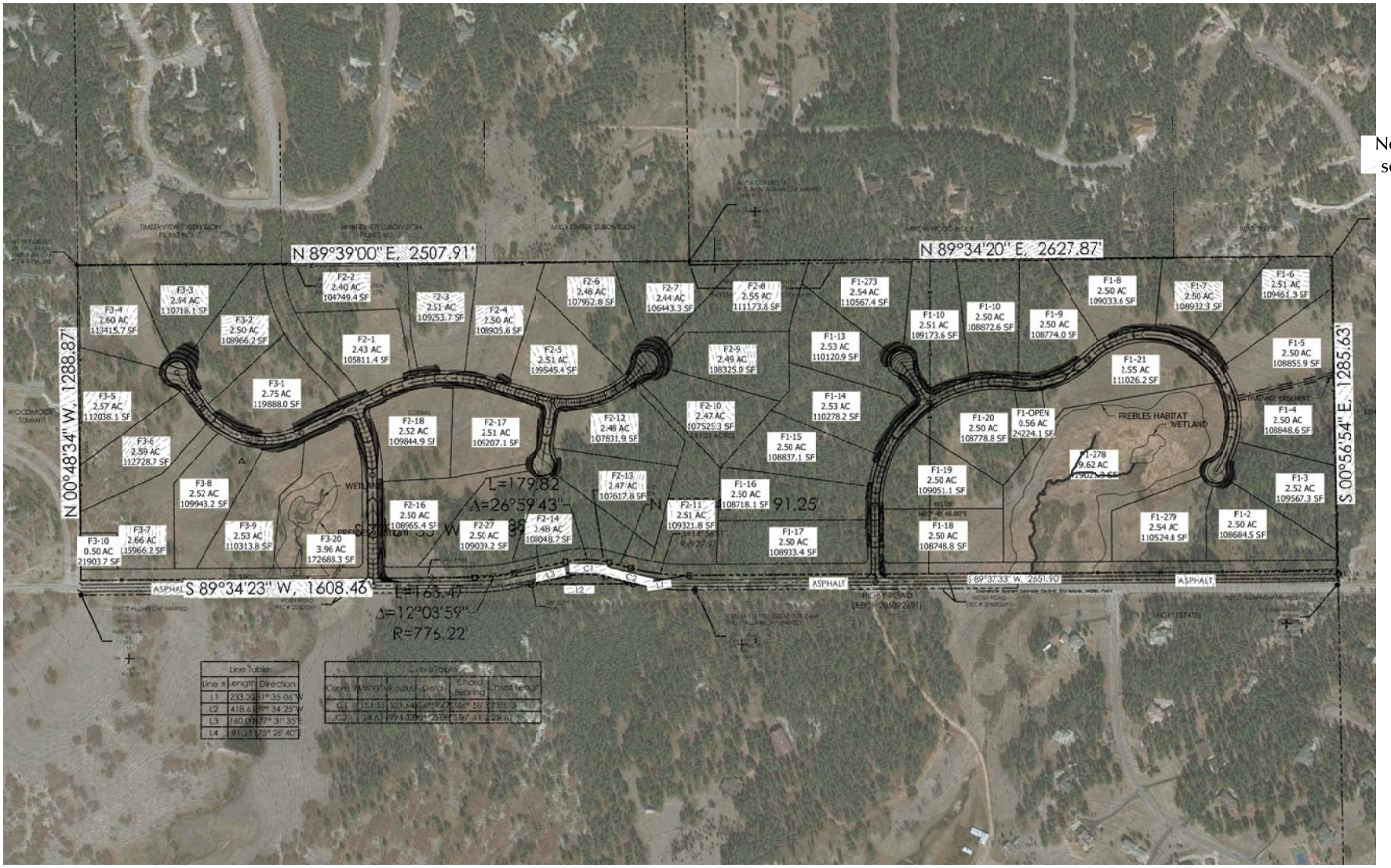
Not to scale

Figure 1

Vicinity Map

Grandwood (LSC# 185020)

LSC TRANSPORTATION CONSULTANTS, INC.



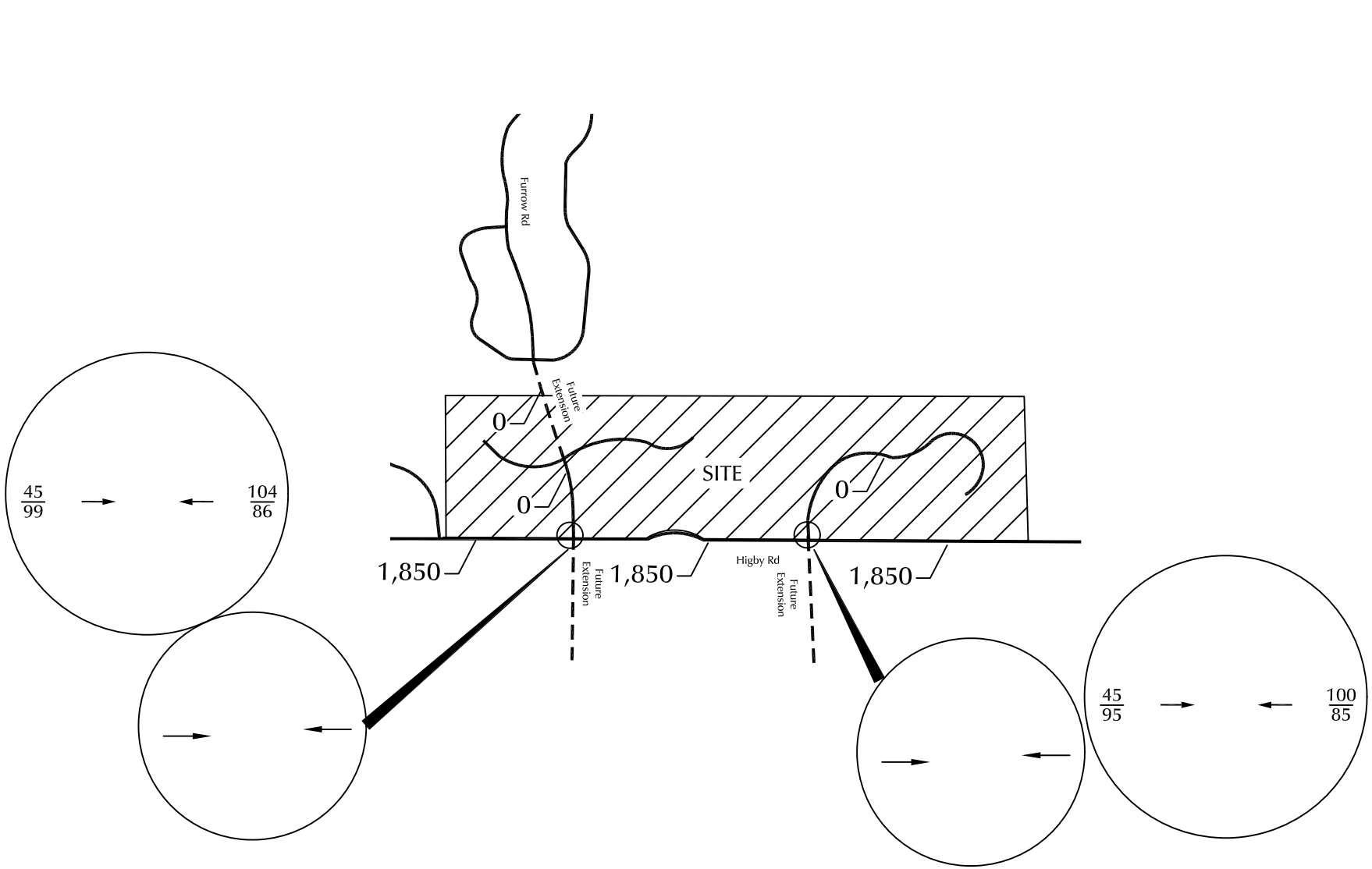
Not to scale

Figure 2

Site Plan

Grandwood (LSC# 185020)

LSC TRANSPORTATION CONSULTANTS, INC.



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

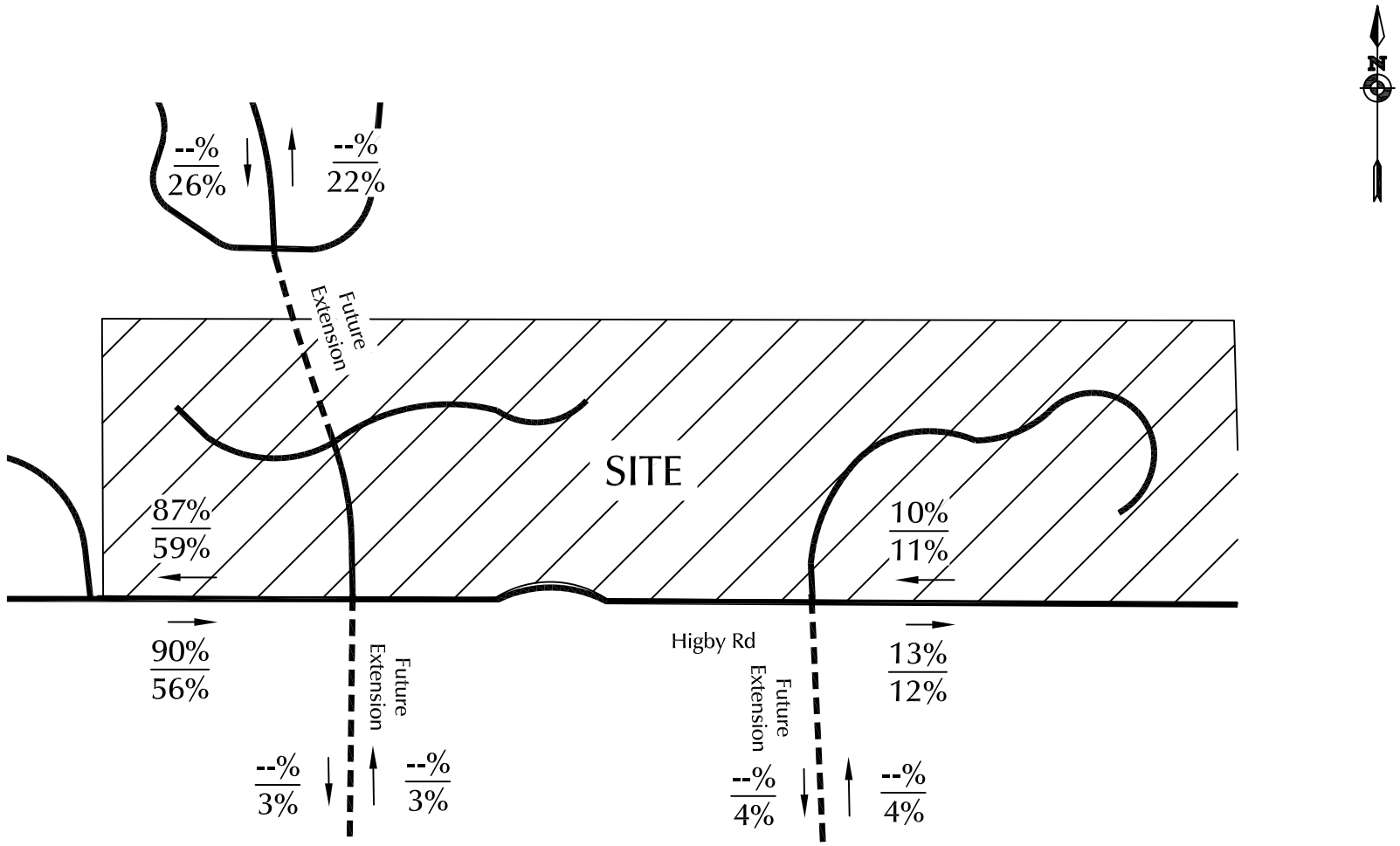
X,XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 3

Existing Traffic, Lane Geometry, and Traffic Control

Grandwood (LSC# 185020)



LEGEND:

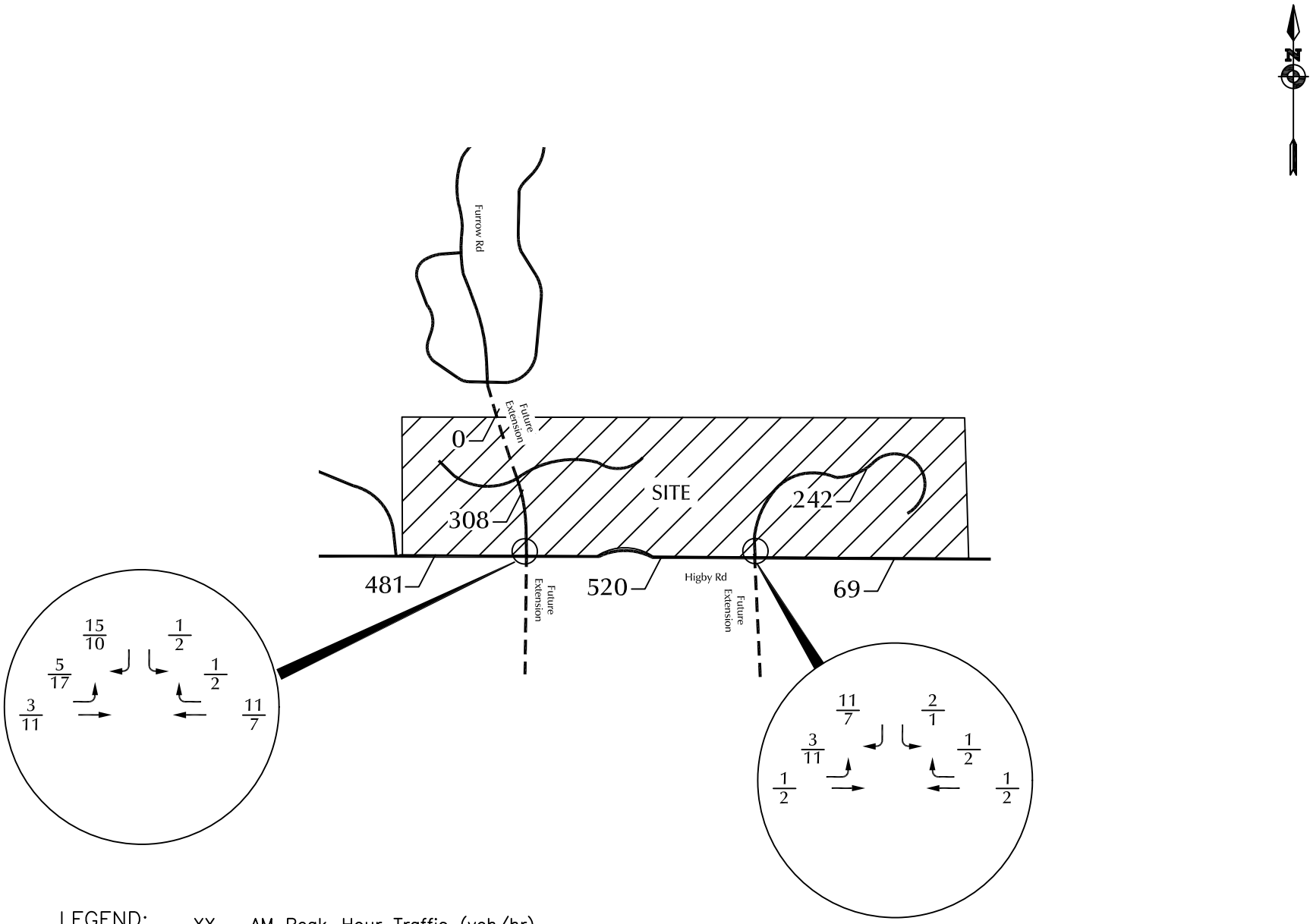
$$\frac{XX\%}{XX\%} = \frac{\text{Short-Term Trips}}{\text{Long-Term Trips}}$$

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 4

Directional Distribution

Grandwood (LSC# 185020)



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

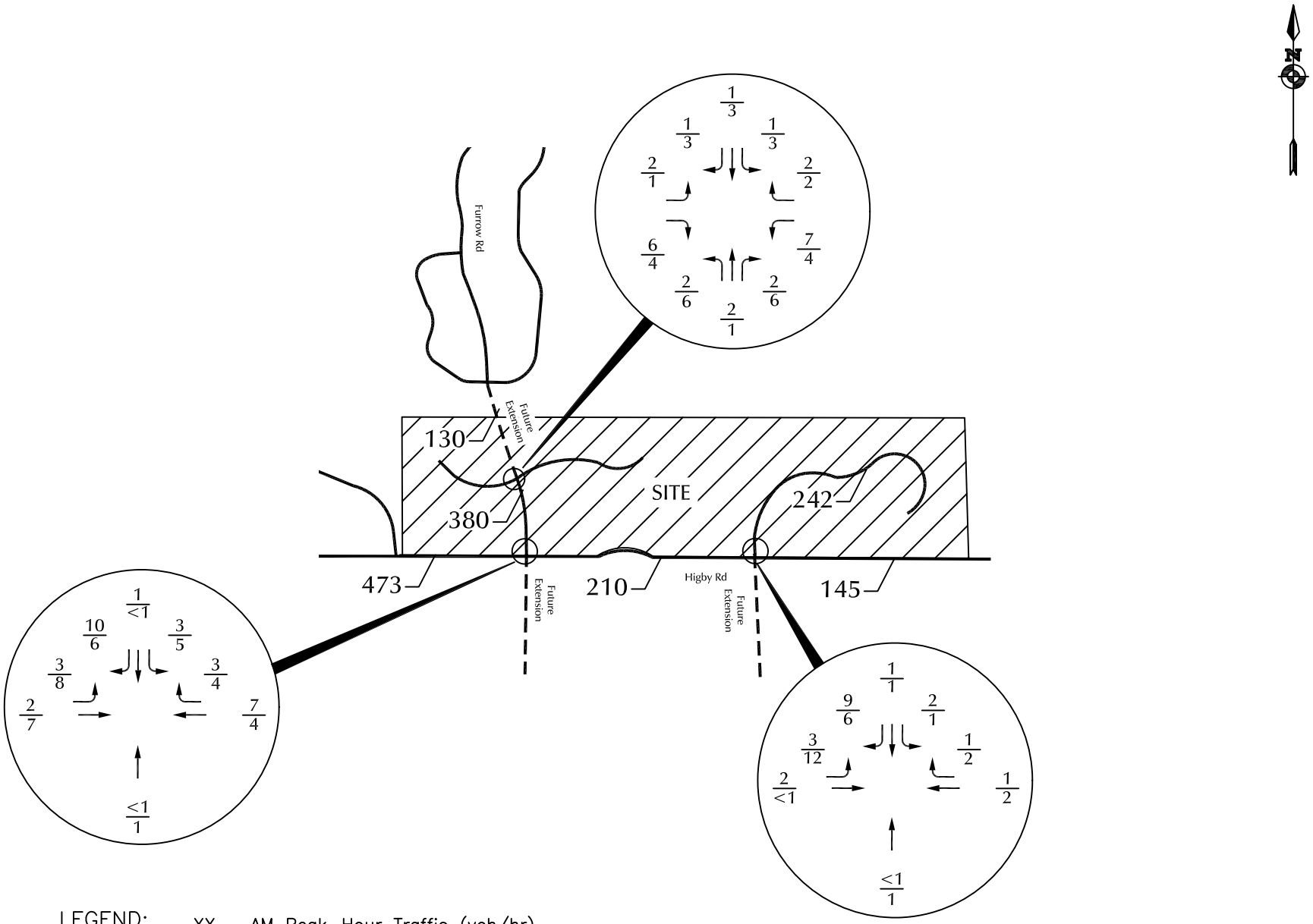
X,XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 5

Short-Term Site Generated Traffic

Grandwood (LSC# 185020)



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

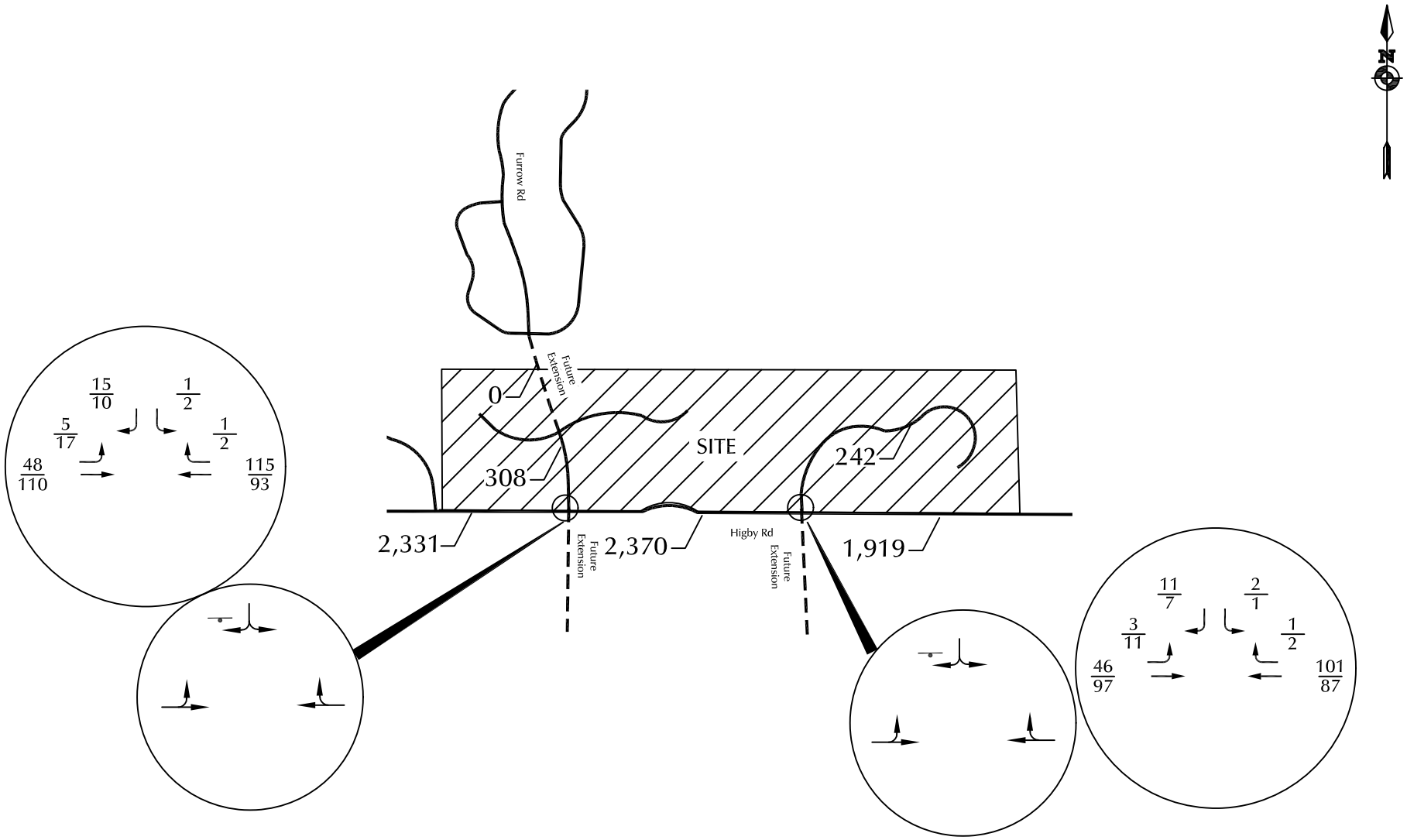
X,XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 6

Long-Term Site Generated Traffic

Grandwood (LSC# 185020)



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

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

= Stop Sign

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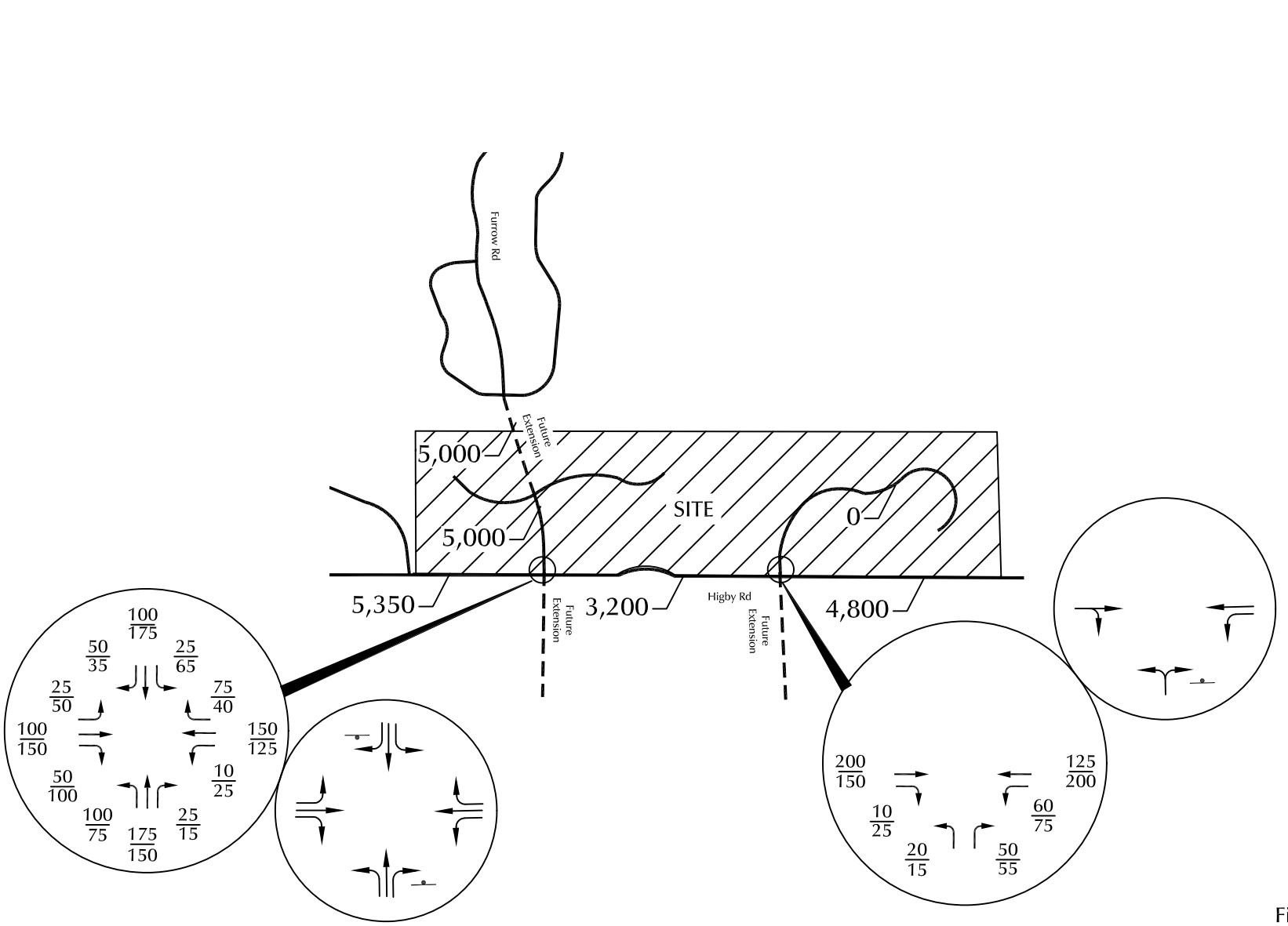
Figure 7

Existing plus Site-Generated Traffic, Lane Geometry, and Traffic Control

Grandwood (LSC# 185020)



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

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

= Stop Sign

Figure 8

2040 Background Traffic, Lane Geometry, and Traffic Control

Grandwood (LSC# 185020)

LSC TRANSPORTATION CONSULTANTS, INC.

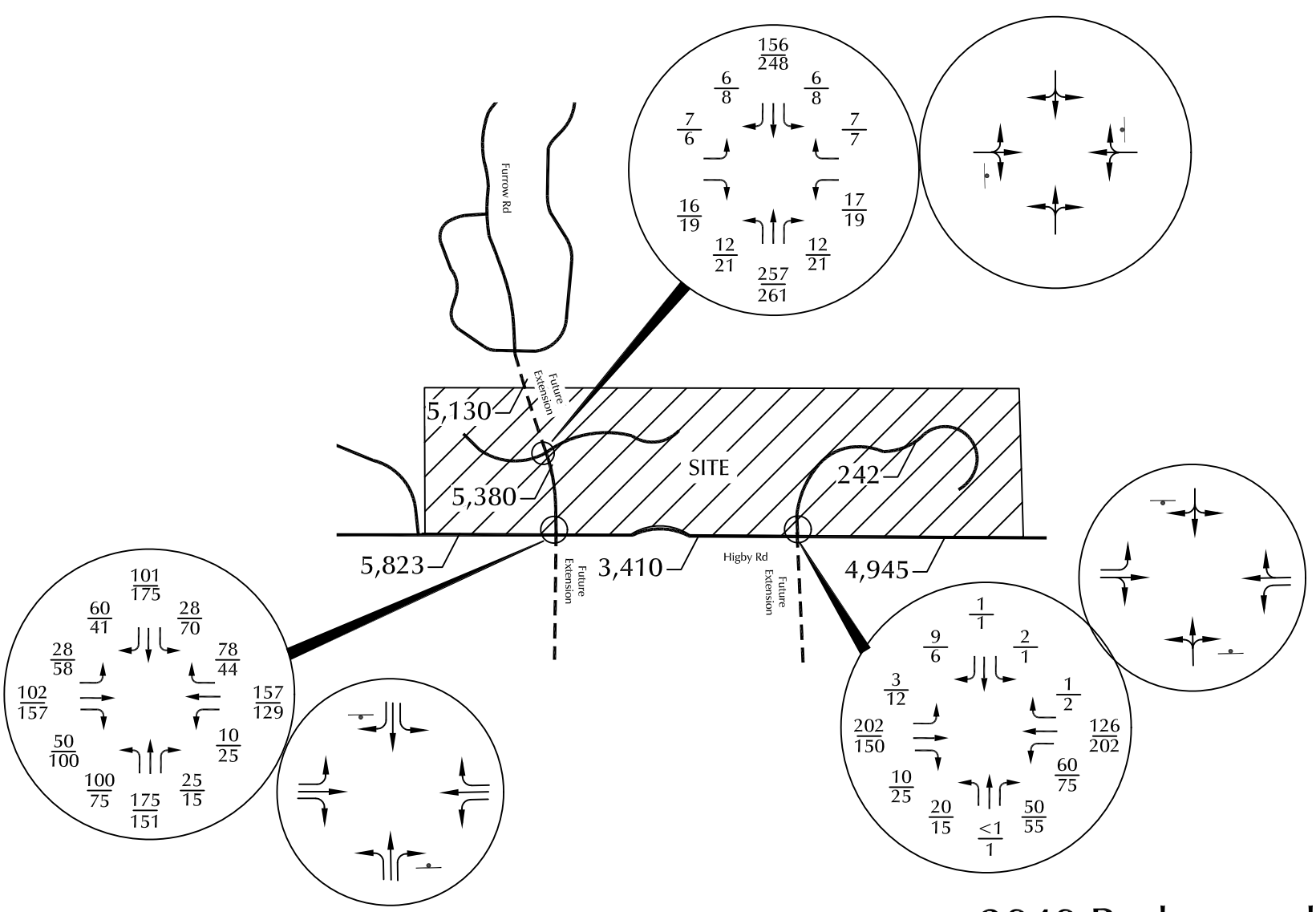


Figure 9

2040 Background plus Site-Generated Traffic, Lane Geometry, and Traffic Control

Grandwood (LSC# 185020)

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

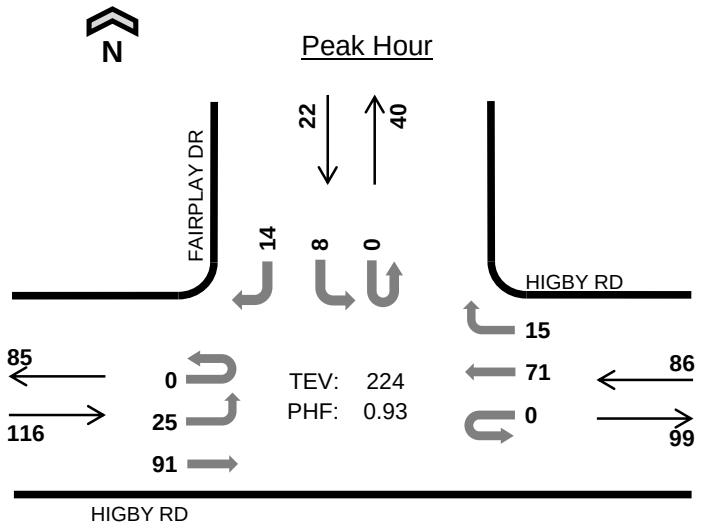
X,XXX = Average Weekday Traffic (vehicles per day)

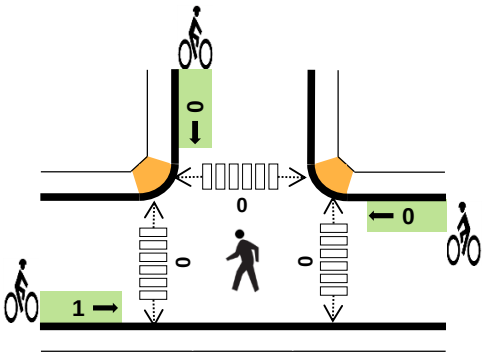
= Stop Sign

LSC TRANSPORTATION CONSULTANTS, INC.

FAIRPLAY DR
HIGBY RD

Date: Wed, May 16, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.0%	0.88
WB	1.2%	0.93
NB	-	-
SB	0.0%	0.69
TOTAL	0.4%	0.93

Two-Hour Count Summaries

Interval Start	HIGBY RD Eastbound				HIGBY RD Westbound				0 Northbound				FAIRPLAY DR Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	18	0	0	0	17	2	0	0	0	0	0	2	0	3	46	0
4:15 PM	0	5	24	0	0	0	12	3	0	0	0	0	0	3	0	1	48	0
4:30 PM	0	6	20	0	0	0	13	2	0	0	0	0	0	1	0	2	44	0
4:45 PM	0	3	21	0	0	0	19	1	0	0	0	0	0	1	0	2	47	185
5:00 PM	**0**	**7**	**21**	**0**	**0**	**0**	**14**	**7**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	**57**	196
5:15 PM	**0**	**5**	**22**	**0**	**0**	**0**	**21**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**55**	203
5:30 PM	**0**	**9**	**24**	**0**	**0**	**0**	**19**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**60**	219
5:45 PM	**0**	**4**	**24**	**0**	**0**	**0**	**17**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**52**	**224**
Count Total	0	43	174	0	0	0	132	23	0	0	0	0	0	15	0	22	409	0
Peak Hour	**0**	**25**	**91**	**0**	**0**	**0**	**71**	**15**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**14**	**224**	**0**

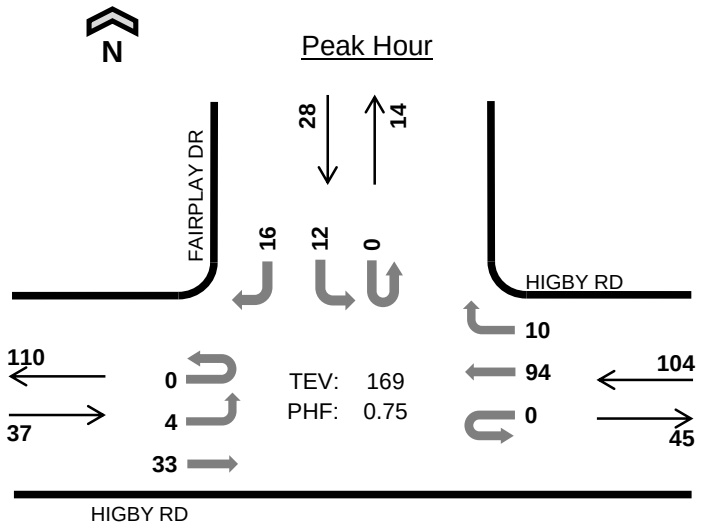
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

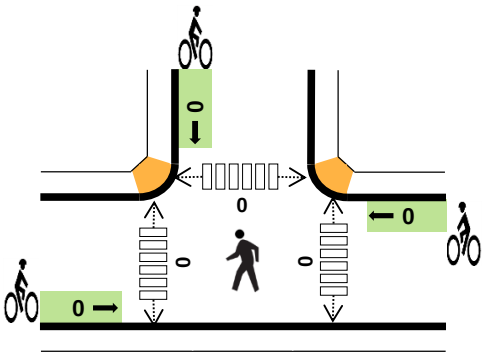
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	2	1	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	2	3	0	0	*5*	1	0	0	0	*1*	0	0	0	0	*0*
Peak Hr	**0**	**1**	**0**	**0**	***1***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

FAIRPLAY DR
HIGBY RD

Date: Wed, May 16, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Peak Hour





	HV %:	PHF
EB	2.7%	0.66
WB	0.0%	0.60
NB	-	-
SB	0.0%	0.54
TOTAL	0.6%	0.75

Two-Hour Count Summaries

Interval Start	HIGBY RD				HIGBY RD				0				FAIRPLAY DR				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**1**	**9**	**0**	**0**	**0**	**42**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**56**	0
7:15 AM	**0**	**2**	**3**	**0**	**0**	**0**	**20**	**6**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**7**	**44**	0
7:30 AM	**0**	**1**	**7**	**0**	**0**	**0**	**15**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**3**	**33**	0
7:45 AM	**0**	**0**	**14**	**0**	**0**	**0**	**17**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**36**	**169**
8:00 AM	0	1	7	0	0	0	10	0	0	0	0	0	0	0	0	3	21	134
8:15 AM	0	2	3	0	0	0	22	0	0	0	0	0	0	2	0	3	32	122
8:30 AM	0	2	13	0	0	0	12	2	0	0	0	0	0	2	0	4	35	124
8:45 AM	0	1	10	0	0	0	31	1	0	0	0	0	0	4	0	4	51	139
Count Total	0	10	66	0	0	0	169	13	0	0	0	0	0	20	0	30	308	0
Peak Hour	**0**	**4**	**33**	**0**	**0**	**0**	**94**	**10**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**16**	**169**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	1	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	3	101	1	2	11
Future Vol, veh/h	46	3	101	1	2	11
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	66	66	60	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	5	168	2	2	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	170	0	-	0	314	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	145	-
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	-	-	-	679	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	882	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	645	875
Mov Cap-2 Maneuver	-	-	-	-	645	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	882	-

Approach	EB	WB	SB
HCM Control Delay, s	7.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	829
HCM Lane V/C Ratio	0.05	-	-	-	0.017
HCM Control Delay (s)	7.7	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	48	115	1	1	15
Future Vol, veh/h	5	48	115	1	1	15
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, %	-	6	6	-	0	-
Peak Hour Factor	66	66	60	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	73	192	2	1	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	194	0	-	0	282	193
Stage 1	-	-	-	-	193	-
Stage 2	-	-	-	-	89	-
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	1379	-	-	-	708	849
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1379	-	-	-	704	849
Mov Cap-2 Maneuver	-	-	-	-	704	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	934	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1379	-	-	-	838
HCM Lane V/C Ratio	0.005	-	-	-	0.021
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	97	87	2	1	7
Future Vol, veh/h	11	97	87	2	1	7
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	88	88	93	93	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	110	94	2	1	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	96	0	-	0	231	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	136	-
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	1498	-	-	-	757	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	750	962
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	890	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	929
HCM Lane V/C Ratio	0.008	-	-	-	0.009
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	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	110	93	2	2	10
Future Vol, veh/h	17	110	93	2	2	10
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, %	-	6	6	-	0	-
Peak Hour Factor	88	88	93	93	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	125	100	2	2	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	264	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	163	-
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	1490	-	-	-	725	954
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1490	-	-	-	715	954
Mov Cap-2 Maneuver	-	-	-	-	715	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	866	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1490	-	-	-	904
HCM Lane V/C Ratio	0.013	-	-	-	0.014
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	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	5	0	10	10	0	5	10	255	10	5	155	5
Future Vol, veh/h	5	0	10	10	0	5	10	255	10	5	155	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	11	11	0	5	11	277	11	5	168	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	488	491	171	491	488	283	173	0	0	288	0	0
Stage 1	181	181	-	305	305	-	-	-	-	-	-	-
Stage 2	307	310	-	186	183	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	490	478	873	488	480	756	1404	-	-	1274	-	-
Stage 1	821	750	-	705	662	-	-	-	-	-	-	-
Stage 2	703	659	-	816	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	482	472	873	477	474	756	1404	-	-	1274	-	-
Mov Cap-2 Maneuver	482	472	-	477	474	-	-	-	-	-	-	-
Stage 1	814	747	-	699	656	-	-	-	-	-	-	-
Stage 2	692	653	-	803	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	11.8	0.3	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1404	-	-	687	544	1274	-	-
HCM Lane V/C Ratio	0.008	-	-	0.024	0.03	0.004	-	-
HCM Control Delay (s)	7.6	0	-	10.4	11.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	200	10	60	125	20	50
Future Vol, veh/h	200	10	60	125	20	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	135	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	303	11	65	208	22	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	314	0	647	309
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	338	-
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	-	-	1246	-	436	731
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1246	-	413	731
Mov Cap-2 Maneuver	-	-	-	-	413	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	684	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	-	-	1246	-
HCM Lane V/C Ratio	0.127	-	-	0.052	-
HCM Control Delay (s)	11.9	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	100	50	10	150	75	100	175	25	25	100	50
Future Vol, veh/h	25	100	50	10	150	75	100	175	25	25	100	50
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	135	135	-	135	135	-	135	135	-	135
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	6	-	-	6	-	-	0	-	-	0	-
Peak Hour Factor	66	66	92	92	60	60	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	152	54	11	250	125	109	190	27	27	109	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	375	0	0	206	0	0	644	625	152	636	554	250
Stage 1	-	-	-	-	-	-	228	228	-	272	272	-
Stage 2	-	-	-	-	-	-	416	397	-	364	282	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1183	-	-	1365	-	-	386	401	894	391	440	789
Stage 1	-	-	-	-	-	-	775	715	-	734	685	-
Stage 2	-	-	-	-	-	-	614	603	-	655	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1183	-	-	1365	-	-	279	385	894	225	422	789
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	385	-	225	422	-
Stage 1	-	-	-	-	-	-	750	692	-	711	680	-
Stage 2	-	-	-	-	-	-	476	598	-	446	656	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.2	22.9	15.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	279	385	894	1183	-	-	1365	-	-	225	422	789
HCM Lane V/C Ratio	0.39	0.494	0.03	0.032	-	-	0.008	-	-	0.121	0.258	0.069
HCM Control Delay (s)	25.9	23.1	9.2	8.1	-	-	7.7	-	-	23.2	16.5	9.9
HCM Lane LOS	D	C	A	A	-	-	A	-	-	C	C	A
HCM 95th %tile Q(veh)	1.8	2.6	0.1	0.1	-	-	0	-	-	0.4	1	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	15	15	0	5	15	260	15	5	245	5
Future Vol, veh/h	5	0	15	15	0	5	15	260	15	5	245	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	16	16	0	5	16	283	16	5	266	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	605	610	269	610	604	291	271	0	0	299	0	0
Stage 1	279	279	-	323	323	-	-	-	-	-	-	-
Stage 2	326	331	-	287	281	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	410	409	770	407	412	748	1292	-	-	1262	-	-
Stage 1	728	680	-	689	650	-	-	-	-	-	-	-
Stage 2	687	645	-	720	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	401	401	770	392	404	748	1292	-	-	1262	-	-
Mov Cap-2 Maneuver	401	401	-	392	404	-	-	-	-	-	-	-
Stage 1	717	677	-	679	640	-	-	-	-	-	-	-
Stage 2	672	635	-	701	675	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	13.5	0.4	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1292	-	-	626	445	1262	-	-
HCM Lane V/C Ratio	0.013	-	-	0.035	0.049	0.004	-	-
HCM Control Delay (s)	7.8	0	-	11	13.5	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	25	75	200	15	55
Future Vol, veh/h	150	25	75	200	15	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	135	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	93	93	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	170	28	81	215	16	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	198	0	561	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	377	-
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	-	-	1375	-	489	858
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	694	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1375	-	460	858
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	724	-	-	1375	-
HCM Lane V/C Ratio	0.105	-	-	0.059	-
HCM Control Delay (s)	10.6	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	11.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	150	100	25	125	40	75	150	15	65	175	35
Future Vol, veh/h	50	150	100	25	125	40	75	150	15	65	175	35
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	135	135	-	135	135	-	135	135	-	135
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	6	-	-	6	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	93	93	93	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	170	114	27	134	43	82	163	16	71	190	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	177	0	0	284	0	0	608	515	170	619	586	134
Stage 1	-	-	-	-	-	-	284	284	-	188	188	-
Stage 2	-	-	-	-	-	-	324	231	-	431	398	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1399	-	-	1278	-	-	408	464	874	401	422	915
Stage 1	-	-	-	-	-	-	723	676	-	814	745	-
Stage 2	-	-	-	-	-	-	688	713	-	603	603	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	1278	-	-	233	436	874	267	396	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	436	-	267	396	-
Stage 1	-	-	-	-	-	-	693	648	-	781	729	-
Stage 2	-	-	-	-	-	-	477	698	-	425	578	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	1	20.8	20.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	233	436	874	1399	-	-	1278	-	-	267	396	915
HCM Lane V/C Ratio	0.35	0.374	0.019	0.041	-	-	0.021	-	-	0.265	0.48	0.042
HCM Control Delay (s)	28.5	18.1	9.2	7.7	-	-	7.9	-	-	23.3	22.2	9.1
HCM Lane LOS	D	C	A	A	-	-	A	-	-	C	C	A
HCM 95th %tile Q(veh)	1.5	1.7	0.1	0.1	-	-	0.1	-	-	1	2.5	0.1

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	16	17	0	7	12	257	12	6	156	6
Future Vol, veh/h	7	0	16	17	0	7	12	257	12	6	156	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	17	18	0	8	13	279	13	7	170	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	504	506	174	508	503	286	177	0	0	292	0	0
Stage 1	188	188	-	312	312	-	-	-	-	-	-	-
Stage 2	316	318	-	196	191	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	478	469	869	475	471	753	1399	-	-	1270	-	-
Stage 1	814	745	-	699	658	-	-	-	-	-	-	-
Stage 2	695	654	-	806	742	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	467	461	869	459	463	753	1399	-	-	1270	-	-
Mov Cap-2 Maneuver	467	461	-	459	463	-	-	-	-	-	-	-
Stage 1	805	741	-	691	651	-	-	-	-	-	-	-
Stage 2	680	647	-	785	738	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	12.3	0.3	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1399	-	-	689	518	1270	-	-
HCM Lane V/C Ratio	0.009	-	-	0.036	0.05	0.005	-	-
HCM Control Delay (s)	7.6	0	-	10.4	12.3	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	202	10	60	126	1	20	0	50	2	1	9
Future Vol, veh/h	3	202	10	60	126	1	20	0	50	2	1	9
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	-	135	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	92	92	60	60	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	306	11	65	210	2	22	0	54	2	1	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	212	0	0	317	0	0	669	664	312	690	668	211
Stage 1	-	-	-	-	-	-	322	322	-	341	341	-
Stage 2	-	-	-	-	-	-	347	342	-	349	327	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1358	-	-	1243	-	-	371	381	728	359	379	829
Stage 1	-	-	-	-	-	-	690	651	-	674	639	-
Stage 2	-	-	-	-	-	-	669	638	-	667	648	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1358	-	-	1243	-	-	350	360	728	318	358	829
Mov Cap-2 Maneuver	-	-	-	-	-	-	350	360	-	318	358	-
Stage 1	-	-	-	-	-	-	687	648	-	671	606	-
Stage 2	-	-	-	-	-	-	625	605	-	615	645	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	12.5	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	556	1358	-	-	1243	-	-	602
HCM Lane V/C Ratio	0.137	0.003	-	-	0.052	-	-	0.022
HCM Control Delay (s)	12.5	7.7	-	-	8.1	-	-	11.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	102	50	10	157	78	100	175	25	28	101	60
Future Vol, veh/h	28	102	50	10	157	78	100	175	25	28	101	60
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	135	135	-	135	135	-	135	135	-	135
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	6	-	-	6	-	-	0	-	-	0	-
Peak Hour Factor	66	66	92	92	60	60	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	155	54	11	262	130	109	190	27	30	110	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	209	0	0	676	653	155	659	577	262
Stage 1	-	-	-	-	-	-	239	239	-	284	284	-
Stage 2	-	-	-	-	-	-	437	414	-	375	293	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	-	1362	-	-	367	387	891	377	427	777
Stage 1	-	-	-	-	-	-	764	708	-	723	676	-
Stage 2	-	-	-	-	-	-	598	593	-	646	670	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1167	-	-	1362	-	-	258	370	891	211	408	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	258	370	-	211	408	-
Stage 1	-	-	-	-	-	-	736	683	-	697	671	-
Stage 2	-	-	-	-	-	-	454	588	-	436	646	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.2	24.7	16
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	258	370	891	1167	-	-	1362	-	-	211	408	777
HCM Lane V/C Ratio	0.421	0.514	0.03	0.036	-	-	0.008	-	-	0.144	0.269	0.084
HCM Control Delay (s)	28.7	24.6	9.2	8.2	-	-	7.7	-	-	24.9	17	10.1
HCM Lane LOS	D	C	A	A	-	-	A	-	-	C	C	B
HCM 95th %tile Q(veh)	2	2.8	0.1	0.1	-	-	0	-	-	0.5	1.1	0.3

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	19	19	0	7	21	261	21	8	248	8
Future Vol, veh/h	6	0	19	19	0	7	21	261	21	8	248	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,#	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	21	21	0	8	23	284	23	9	270	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	639	646	275	645	639	296	279	0	0	307	0	0
Stage 1	293	293	-	342	342	-	-	-	-	-	-	-
Stage 2	346	353	-	303	297	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	389	390	764	385	394	743	1284	-	-	1254	-	-
Stage 1	715	670	-	673	638	-	-	-	-	-	-	-
Stage 2	670	631	-	706	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	376	378	764	366	382	743	1284	-	-	1254	-	-
Mov Cap-2 Maneuver	376	378	-	366	382	-	-	-	-	-	-	-
Stage 1	699	665	-	658	624	-	-	-	-	-	-	-
Stage 2	649	617	-	681	663	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	14.1	0.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	612	424	1254	-	-
HCM Lane V/C Ratio	0.018	-	-	0.044	0.067	0.007	-	-
HCM Control Delay (s)	7.9	0	-	11.2	14.1	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	150	25	75	202	2	15	1	55	1	1	6
Future Vol, veh/h	12	150	25	75	202	2	15	1	55	1	1	6
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	-	135	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	93	93	93	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	170	28	81	217	2	16	1	60	1	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	219	0	0	198	0	0	596	593	184	623	606	218
Stage 1	-	-	-	-	-	-	212	212	-	380	380	-
Stage 2	-	-	-	-	-	-	384	381	-	243	226	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1350	-	-	1375	-	-	415	418	858	398	411	822
Stage 1	-	-	-	-	-	-	790	727	-	642	614	-
Stage 2	-	-	-	-	-	-	639	613	-	761	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1350	-	-	1375	-	-	389	390	858	350	383	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	389	390	-	350	383	-
Stage 1	-	-	-	-	-	-	782	720	-	636	578	-
Stage 2	-	-	-	-	-	-	595	577	-	700	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.1	11	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	675	1350	-	-	1375	-	-	627
HCM Lane V/C Ratio	0.114	0.01	-	-	0.059	-	-	0.014
HCM Control Delay (s)	11	7.7	-	-	7.8	-	-	10.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	11.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	157	100	25	129	44	75	151	15	70	175	41
Future Vol, veh/h	58	157	100	25	129	44	75	151	15	70	175	41
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	-	-	None	-	-	None	-	-	None
Storage Length	135	-	135	135	-	135	135	-	135	135	-	135
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	6	-	-	6	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	93	93	93	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	178	114	27	139	47	82	164	16	76	190	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	186	0	0	292	0	0	644	550	178	650	617	139
Stage 1	-	-	-	-	-	-	310	310	-	193	193	-
Stage 2	-	-	-	-	-	-	334	240	-	457	424	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1388	-	-	1270	-	-	386	443	865	382	405	909
Stage 1	-	-	-	-	-	-	700	659	-	809	741	-
Stage 2	-	-	-	-	-	-	680	707	-	583	587	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1388	-	-	1270	-	-	211	413	865	246	377	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	413	-	246	377	-
Stage 1	-	-	-	-	-	-	666	627	-	770	725	-
Stage 2	-	-	-	-	-	-	467	692	-	402	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	1	22.7	22.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	211	413	865	1388	-	-	1270	-	-	246	377	909
HCM Lane V/C Ratio	0.386	0.397	0.019	0.047	-	-	0.021	-	-	0.309	0.505	0.049
HCM Control Delay (s)	32.4	19.3	9.2	7.7	-	-	7.9	-	-	26.1	23.9	9.2
HCM Lane LOS	D	C	A	A	-	-	A	-	-	D	C	A
HCM 95th %tile Q(veh)	1.7	1.9	0.1	0.1	-	-	0.1	-	-	1.3	2.7	0.2