Hook Farms North

TRAFFIC IMPACT STUDY

November 20, 2018

Prepared For:
Olsson Associates
1301 Burlington Street, Suite 100
North Kansas City, MO 64116

Prepared By:
Priority Engineers, Inc.
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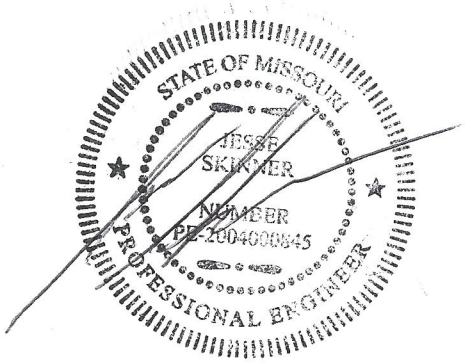

11-20-2018

November 20, 2018

Ms. Shannon Buster
Olsson Associates
1301 Burlington Street
North Kansas City, MO 64116

Re: Hook Farms North– Lee's Summit, MO

In response to your request, Priority Engineers, Inc. has completed a traffic impact study for the above referenced project. The purpose of the analysis is to determine the potential traffic impacts associated with this development on the intersections and streets surrounding this site, primarily during the AM and PM peak hours. The following report documents our analysis and recommendations.

We appreciate the opportunity to work with you on this project. Please contact us with any questions or if you require additional information.

Sincerely,

PRIORITY ENGINEERS, INC.

Jesse Skinner, P.E., PTOE

Priority Engineers, Inc.
PO Box 563
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Table of Contents

1) INTRODUCTION

The purpose of this study is to examine the potential traffic impacts associated with the proposed Hook Farms North development located north of SW Hook Road and west of SW Pryor Road in Lee's Summit, Missouri. The development will be constructed with access onto both SW Hook Road and SW Pryor Road.

The study area is shown in Figure 1. The site layout is shown in Figure 2.

2) EXISTING CONDITIONS

The existing site is located in the northwest quadrant of the intersection of SW Hook Road and SW Pryor Road. The property is currently used for agricultural purposes.

SW Pryor Road is a two-lane roadway adjacent to this property with a posted speed limit of 45 miles per hour. SW Pryor Road is classified as a Major Arterial by the City of Lee's Summit's *Thoroughfare Master Plan*. SW Pryor road has been previously improved to conform to the City's *Unimproved Roads Policy's* Interim Roadway Status. The City of Lee's Summit has identified a future project on Pryor Road to improve the roadway to a four-lane cross with sidewalks and other infrastructure upgrades. Project limits for this improvement will be between Longview Road and M-150.

SW Hook Road is a two-lane road with a posted speed limit of 35 miles per hour. SW Hook Road is classified as a two-lane Minor Arterial by the City of Lee's Summit. There have already been improvements to Hook Road east of Ward Road. The City of Lee's Summit has identified the portion of SW Hook Road west of Ward Road for a future construction project. As part of this project's improvements the construction of paved shoulders would bring the roadway in compliance the City's *Unimproved Roads Policy's* Interim Roadway Status. The project will have limits from Ward Road to the western city limits and is scheduled for the summer of 2019.

Currently, the intersection of SW Pryor Road and SW Hook road is unsignalized with stop signs controlling movements in all four directions.

There is a construction project identified for the stop-controlled intersection of SW Pryor Road and SW Scherer Road, upgrading it to a signalized intersection. This proposed improvement is approximately 1.5 miles north of the proposed development. The project is scheduled for December of this year.

The proposed development site is bounded on the east by SW Pryor Road. Along the south boundary of the property is SW Hook Road. To the southeast of the site, are large lot single family homes. To the of the east of the site lies Hawthorn Hill Elementary School.

Peak Hour turning movement traffic counts for the intersection of SW Hook Road and SW Pryor Road were conducted on a typical weekday in October of 2016 between the hours of 7:00 and 9:00 AM and from 4:00 to 6:00 PM. The peak hours were determined to be 7:45 to 8:45 in the AM and from 4:45 to 5:45 in the PM. The complete traffic counts are shown in Appendix II. The peak hour traffic volumes and existing lane configurations are shown in Figures 3-7.

3) APPROVED CONDITIONS

At the time that traffic counts were taken, there were several developments that were approved near the proposed Hook Farms North site that were not yet under construction. These developments are discussed in the following paragraphs.

Whispering Woods

The approved Whispering Woods development will construct 164 single family units in the northeast quadrant of SW Pryor Road and SW Hook Road. The development will include two residential street connections to SW Pryor Road. Additionally, the Hawthorn Hill Elementary School entrance that is currently located onto SW Pryor Road will be relocated to travel through the Whispering Woods development, and will access SW Pryor Road through the southern-most residential street connection. The Whispering Woods development trips were distributed onto the SW Pryor Road and SW Hook Road intersection as shown in the approved traffic impact study.

Arborwalk North

The approved Arborwalk North single-family residential development is located on the south side of SW Hook Road between SW Ward Road and SW Pryor Road, to the east of Hook Farms North. The proposed development will have 204 single family units with two residential collector streets accessing SW Hook Road. The proposed residential streets will be constructed with 200' left turn lanes and 150' right turn lanes.

An approved traffic impact study was not provided for the Arborwalk North project. Based on 204 proposed homes, it was estimated that the AM Peak Hour volumes for this project would be 153 vehicles, and the PM Peak Hour traffic would be 204. A distribution similar to that discussed in section 6 was assumed, with the majority of the vehicles traveling to and from the north and south utilizing Ward Road.

Arborwalk South

The approved Arborwalk South single-family residential development will be located east of Pryor Road and north of MO 150 Highway. The development will consist of 361 units, and will have access to MO 150, SW Pryor Road, and SW Ward Road through existing residential and collector streets.

An approved traffic impact study was not provided for the Arborwalk South project. Based on 361 proposed homes, it was estimated that the AM Peak Hour volumes for this project would be 262 vehicles, and the PM Peak Hour traffic would be 334. A distribution similar to that discussed in section 6 was assumed, with the majority of the vehicles traveling to and from the east, and west utilizing MO 150. The assumption was made that 75% of the vehicles traveling to and from the north would use SW Pryor Road.

Summit View Farms

The proposed Summit View Farms development will be located one half mile west of SW Pryor Road and south of Hook Road. The project includes 122 units, and will have a single residential street connecting to SW Hook Road. The Summit View Farms development trips were distributed through the SW Hook Road and SW Pryor Road intersection as illustrated in the traffic study provided.

The approved development trips were added to the existing traffic volumes and are illustrated in Figures 7 and 8 in Appendix I.

4) PROPOSED DEVELOPMENT

The proposed site plan is shown in Figure 2. The proposed development consists of 258 units of Single Family Detached Residences.

The proposed development will have two entrances onto SW Hook Road and a single entrance onto SW Pryor Road.

5) TRIP GENERATION

The vehicle trips generated by the proposed development were estimated using the Institute of Transportation Engineers' Trip Generation, 10th Edition. Land Use 210, Single Family Detached Residences, was used. The estimated AM and PM peak hour traffic volumes associated with these uses are shown in Table 1.

Table 1: Trip Generation

			AM Peak			PM Peak		
Land Use	***Intensity***	***Daily***	***Total***	***In***	***Out***	***Total***	***In***	***Out***
Single-Family Detached Housing	258 units	2487	188	47	141	252	159	93
Total New Trips		**2487**	**188**	**47**	**141**	**252**	**159**	**93**

6) TRIP DISTRIBUTION

Trips generated by the Hook Farms North development were distributed based on existing traffic flows and a general analysis of the surrounding area. The trips were distributed onto the existing street system approximately as follows:

- 40 percent to/from the north on SW Pryor Road
- 30 percent to/from the south on SW Pryor Road
- 15 percent to/from the east via SW Hook Road
- 15 percent to/from the west via SW Hook Road

The proposed development trips are shown in Figures 11-12.

7) SIGNAL WARRANTS

The Manual of Uniform Traffic Control Devised (MUTCD) peak hour signal warrants were checked for the intersection of SW Pryor Road and SW Hook Road.

According to Warrant 3, the Peak Hour Warrant, the intersection of SW Pryor Road and SW Hook Road is not met during the existing Peak Hours. However, because SW Pryor Road has a posted speed limit of 45 miles per hour, the 70% factor was also considered for Warrant 3. When considering this factor, the intersection of SW Pryor Road and SW Hook Road meets peak hour signal warrants during existing PM Peak Hour conditions.

The 70% factor is met during both the AM and PM Peak Hour when the approved, but not yet constructed projects (discussed in sections 3) have been built. The PM Peak Hour Warrant is also met in the PM Peak without the 70% factor in this scenario.

Table 2 below summarizes the Peak Hour Signal Warrant.

Table 2: Signal Warrants

Intersection	Scenario	Major Street Volume	Minor Street Volume	Peak Hour	Peak Hour (70% Factor)
Pryor & Hook	Existing AM	580	124	NO	NO
	Existing PM	692	173	NO	YES
	Approved AM	724	188	NO	YES
	Approved PM	916	222	YES	YES
	Proposed AM	801	233	NO	YES
	Proposed PM	1022	253	YES	YES

8) LEVEL OF SERVICE AND VOLUME/CAPACITY ANALYSES

Capacity analysis was used to quantify the impacts of the increased traffic on the intersections studied. The methodology outlined in the Highway Capacity Manual, 6th Edition, was used as a basis to perform the analysis for this study. Capacity analysis defines the quality of traffic operation for an intersection using a grading system called Level of Service (LOS). The LOS is defined in terms of average vehicle delay. Levels of service A through F have been established with A representing the best and F the worst.

Table 3: Level of Service Definitions

Level of Service	***Unsignalized Intersection***	***Signalized Intersection***
A	< 10 Seconds	< 10 Seconds
B	< 15 Seconds	< 20 Seconds
C	< 25 Seconds	< 35 Seconds
D	< 35 Seconds	< 55 Seconds
E	< 50 Seconds	< 80 Seconds
F	≥ 50 Seconds	≥ 80 Seconds

The study intersections were evaluated using Synchro, an analysis package based in part on Highway Capacity Manual methods. The analysis reports are included in Appendix II.

Existing Conditions

The levels of service and lane configuration for existing conditions are shown in Figures 5 and 6 in Appendix I.

During the AM Peak Hour, the intersection of SW Pryor Road and SW Hook Road experiences levels of service for individual movements at a level of service C or better meeting the desired goal of the City's *Level of Service Policy*. During the PM Peak Hour, the intersection of SW

Pryor Road and SW Hook Road experiences levels of service for individual movements at a level of service C or better for all movements except through movements on SW Pryor Road. The northbound SW Pryor Road through movement has a level of service D and the southbound through movement has a level of service E. Both of these existing conditions fall below the goals for the City's *Level of Service Policy.*

Existing + Approved Conditions
The levels of service and lane configuration, for the existing plus approved development scenario are shown in Figures 9 and 10 in Appendix I.

During the AM Peak Hour, the stop-controlled intersection of SW Hook Road and SW Pryor Road meets the goals of the City's *Level of Service Policy* for movements on SW Hook Road in either direction. The combined through and right turn movement for northbound SW Pryor Road is a level of service E. The southbound through movement is a level of service D. All other movements on SW Pryor Road meet the City's goals stated in the *Level of Service Policy.*

During the PM Peak Hour, the goals stated in the City's *Level of Service Policy* are not met for through movements in all directions. All other movements meet the goals of the City's *Level of Service Policy.* The most severe delays are experienced on through movements on SW Pryor Road. The anticipated design queues associated with these delays will be approximately 24 vehicles for southbound SW Pryor Road through movements and approximately 12 vehicles for northbound through movements.

Existing + Approved+ Proposed Conditions
The levels of service and lane configuration, for the ultimate buildout of the Hook Farms development are shown in Figures 13 and 14 in Appendix I.

During the AM Peak Hour, the stop-controlled intersection of SW Hook Road and SW Pryor Road meets the goals of the City's *Level of Service Policy* for movements on SW Hook Road in either direction. The combined through and right turn movement for northbound SW Pryor Road is a level of service F. The southbound through movement is a level of service F. All other movements on SW Pryor Road meet the City's goals stated in the *Level of Service Policy.*

During the PM Peak Hour, the goals stated in the City's *Level of Service Policy* are not met for through movements in all directions. All other movements meet the goals of the City's *Level of Service Policy.* The most severe delays are experienced on through movements on SW Pryor Road. The anticipated design queues associated with these delays will be approximately 27 vehicles for southbound SW Pryor Road through movements and approximately 16 vehicles for northbound through movements.

Both proposed access points onto SW Hook Road and the proposed access point onto SW Pryor Road perform at a level of service C or better for all movements in both the AM and PM Peak Hours exceeding the stated goals of the City's *Level of Service Policy.*

9) TURN LANES AND ACCESS MANAGEMENT

According to the City of Lee's Summit Access Management Code, *"Left-turn lanes shall be provided on minor arterial streets at the intersection with any local street or driveway where the left-turn volume is at least 20 vehicles in any hour"* the 2018 amended Access Management Code, right turn lanes are "*Required on arterial streets at each intersecting street or driveway where the right-turn volume on the major arterial street is or is projected to be at least 30*

vehicles in any hour, or the right turn volume on the minor arterial street is or is projected to be at least 60 vehicles in any hour" In compliance with this code, a right and a left turn lane is required on Pryor Road. The City of Lee's Summit plans to improve both SW Hook Road and SW Pryor Road in the future. An agreement between the developer and the City is needed to coordinate the improvements of the Developer and the City.

The spacing between the proposed Drive 1 entrance onto SW Hook Road (west access point) and Drive 2 (east access point) onto SW Hook Road is approximately 920'. The spacing between Drive 2 onto SW Hook Road and the intersection of SW Hook Road and SW Pryor Road is approximately 1170'. The spacing between the entrance onto SW Pryor Road (Drive 3) and the intersection of SW Hook Road and SW Pryor Road is approximately 2140'. The spacing between Drive 3 and SW Eagle Drive is approximately 890'. The spacing of all intersections exceeds the Access Management Code minimum spacing requirements.

The site has been laid out to provide for good site circulation and future connectivity. There are two local road connections to SW Hook Road. Each connection will have 180' or more of throat length.

10) UNIMPROVED ROAD POLICY

The City of Lee's Summit Unimproved Road Policy outlines the relation to unimproved roads to proposed developments. Unimproved roads are typically those roads that are narrow in width with drainage ditches adjacent to the roadway. Traffic volumes provided from the City on June 21, 2017 indicate an existing 24 traffic volume of 2476 vehicles on SW Hook Road and 4393 vehicles on SW Pryor Road. *The Unimproved Road Policy* allows development up to 11000 vehicles per day when the road is brought to an interim standard with two 12-foot lanes and six-foot grass shoulders. SW Pryor Road adjacent to this project has twelve-foot lanes and six-foot shoulders. Another project identified by the City of Lee's Summit will upgrade SW Hook Road to the interim standard.

To evaluate the total volume of traffic that will be generated by approved developments a comparison of was made calculated between of the total volumes observed during the June 21, 2017 count as compared to the 2016 PM Peak Hour count for the same intersection. The Peak Hour Volume for SW Hook road was found to be approximately 12% of the total volume on SW Hook. Similarly, SW Pryor Road was found to have a Peak Hour volume of approximately 16% of the total volume on SW Pryor. It is estimated that on a 24-hour basis, the approved developments will add an estimated 917 additional vehicles on SW Hook Road and 900 additional vehicles on SW Pryor Road. Using a similar methodology, 433 additional vehicles will be added to SW Hook Road and 481 vehicles on SW Pryor Road will be added at this location. This will result on a total volume on SW Hook road of 3,826 and a total volume on SW Pryor Road of 5,774.

11) SIGHT DISTANCE

Intersection sight distance and stopping sight distance were measured for the proposed Drives 1, 2, and 3. Intersection sight distance represents the distance and time required for the drive to make the decision to turn and to complete the turn without slowing oncoming traffic. Stopping sight distance represents the distance and time required for the drive to detect an object in the roadway and safely come to a stop. Both of these measurements are typically taken from a point that is fourteen feet from the edge of the pavement to simulate the conditions of an average passenger car driver stopped on the minor roadway of an intersection. Measurements

on SW Pryor Road were taken at a point that was approximately 6.5' from the edge of and measurements performed on SW Hook Road were performed at a location approximately 2' from the edge of pavement to approximate the future elevation of the proposed entrances. Results are shown in Table 4.

Table 4: Sight Distance Values

	Access Management Code Required Stopping Sight Distance	Measured Stopping Sight Distance	Access Management Code Required Intersection Sight Distance	Measured Intersection Sight Distance
Drive 1 (40 MPH design)				
To the West	275'	>670'	470'	>670'
To the East	275'	>670'	440'	>670'
Drive 2 (40 MPH design)				
To the West	275'	>670'	470'	>670'
To the East	275'	>670'	440'	>670'
Drive 3 (50 MPH design)				
To the North	400'	>670'	550'	>670'
To the South	400'	>670'	590'	>670'

12) RECOMMENDATIONS & CONCLUSIONS

This study documents the impact of the proposed Hook Farms North Development on adjacent intersection during the AM and PM peak hours. Based on the findings of this report, the following improvements are recommended:

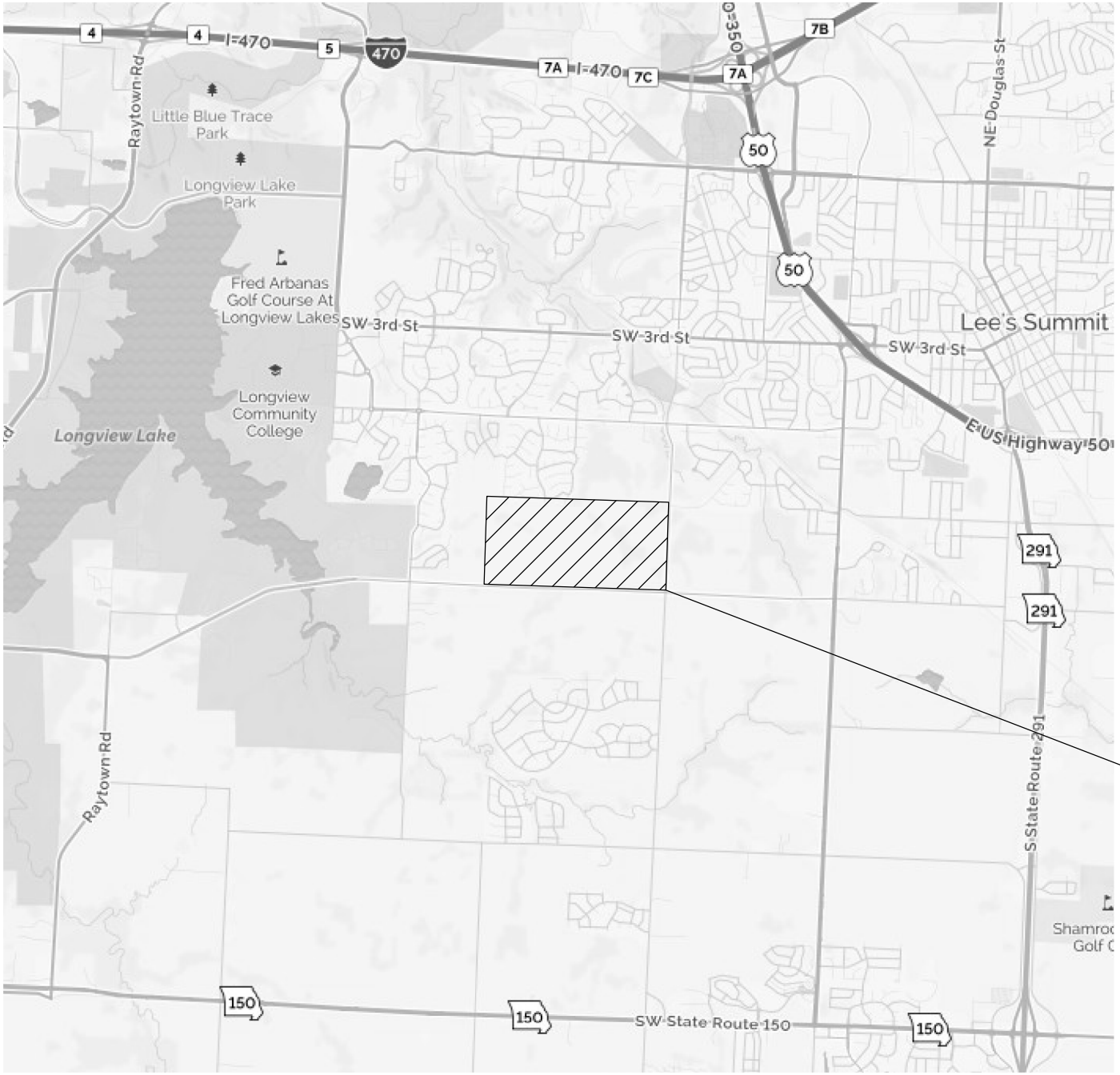
- Construction of a 150' plus taper length southbound right-turn lane into the SW Pryor Road entrance
- Construction of a 200' plus taper length northbound left-turn lane into SW Pryor Road entrance

The intersection of SW Pryor Road and SW Hook Road meets peak hour signal warrants during the existing PM Peak Hour based upon the 70% Factor discussed in section 7 of this report. When adding the additional traffic generated by other approved developments, the intersection will meet both AM and PM 70% Factor which could warrant signalization. The existing plus approved scenario also meets the PM Peak Hour warrant without including the 70% Factor. For the existing plus approved scenario, there are diminished levels of service for through movements, as discussed in Section 8 that do not meet the City's *Level of Service* Policy for Stop Controlled Intersections.

It is recommended that the City consider signalization of the SW Pryor Road and SW Hook Road intersection.

No additional improvements are necessary as a result of this development.

APPENDIX I



Project Location	Hook Farms North Lee's Summit, MO	No Scale Figure 1	Priority Engineers PO Box 563 Garden City, MO 64747 816.738.4400

PRELIMINARY DEVELOPMENT DATA	
LOT AREA	LOT COUNT
SOUTHWEST	37
SOUTHEAST	50
NORTH	171
	258 TOTAL

N

0' 75' 150' 300'
SCALE IN FEET

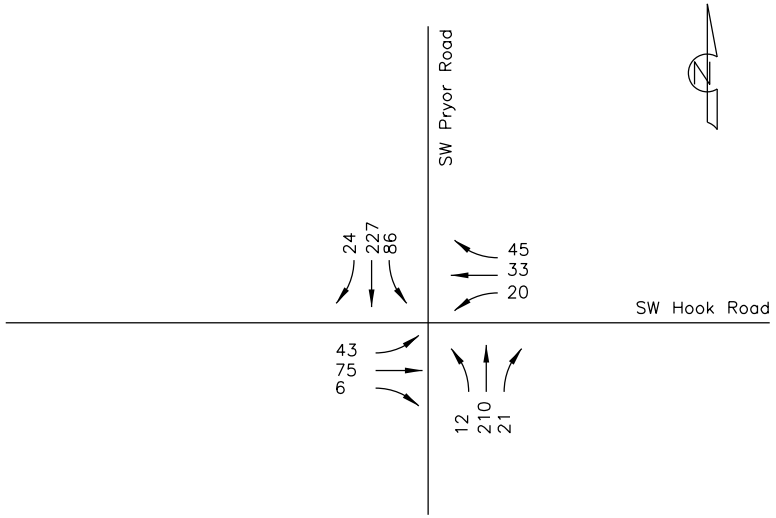
Site Plan

Hook Farms North
Lee's Summit, MO

No Scale

Figure 2

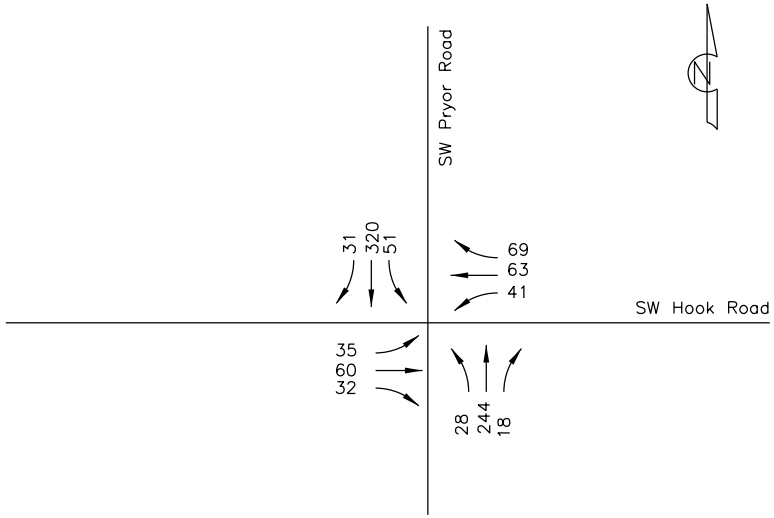
priority ENGINEERS
PO Box 563
Garden City, MO 64747
816.738.4400



LEGEND

Total Volume

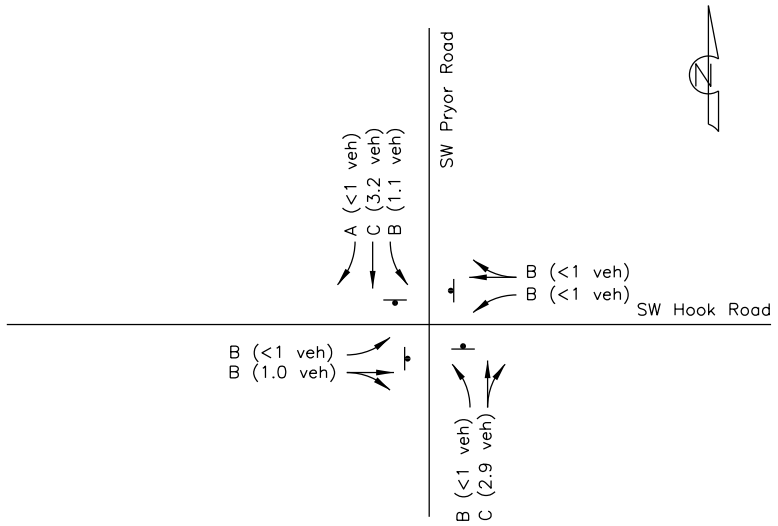
Existing AM Peak Hour Traffic Volumes	Hook Farms North Lee's Summit, MO	No Scale Figure 3	Priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

Total Volume

Existing PM Peak Hour Traffic Volumes	Hook Farms North Lee's Summit, MO	No Scale Figure 4	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



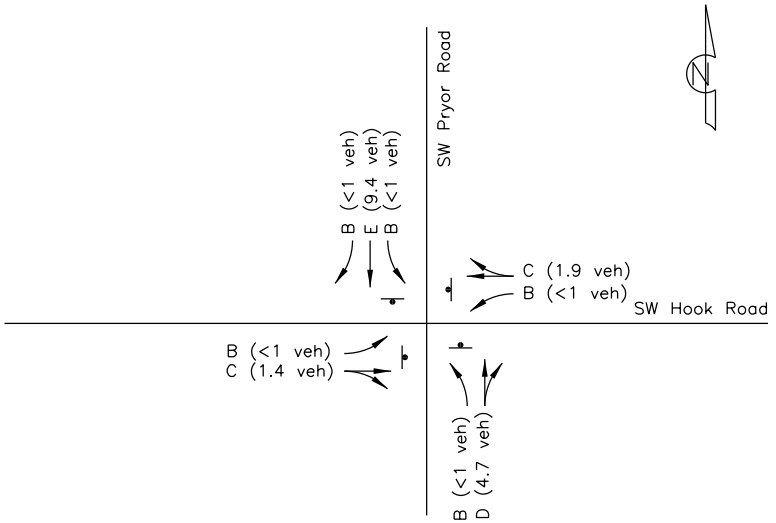
LEGEND

HCM LOS

Stop Sign

Ⓐ Traffic Signal LOS

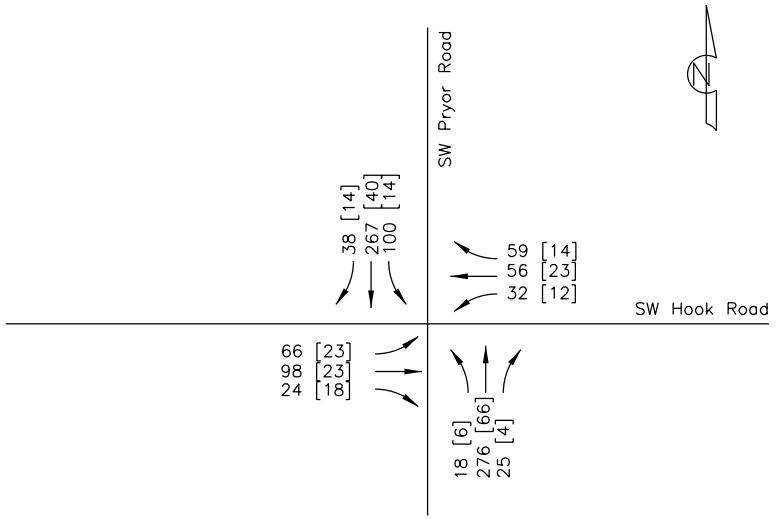
Existing AM Peak Hour Lane Configuration & Levels of Service	Hook Farms North Lee's Summit, MO	No Scale Figure 5	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

- HCM LOS (95th Percentile Queue)
- Stop Sign
- Ⓐ Traffic Signal LOS

Existing PM Peak Hour Lane Configuration & Levels of Service	Hook Farms North Lee's Summit, MO	No Scale Figure 6	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

Total Volume (Proposed Development)

Existing + Approved Development AM Peak Hour Traffic Volumes	Hook Farms North Lee's Summit, MO	No Scale Figure 7

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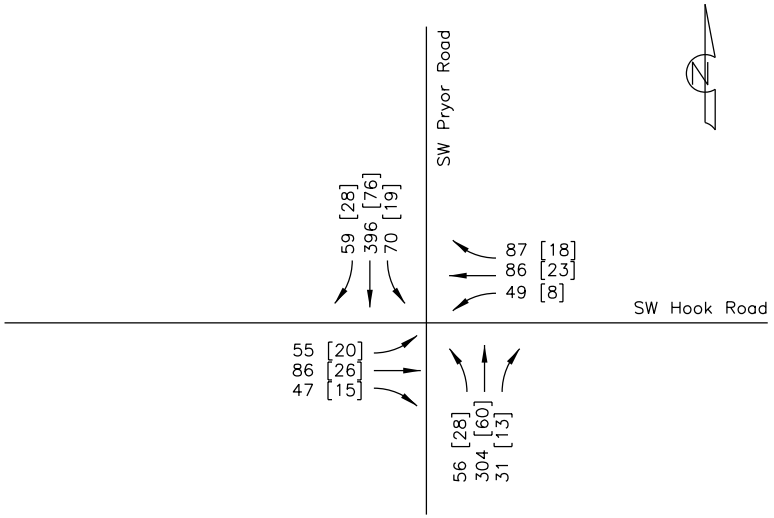
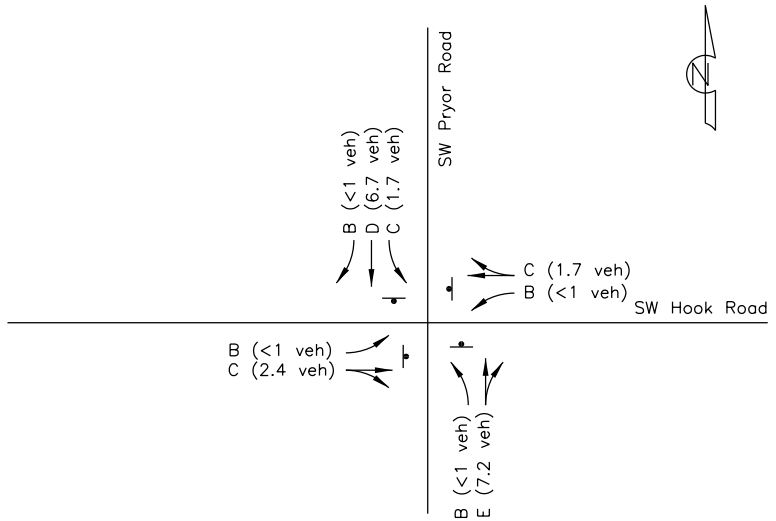


LEGEND

Total Volume (Proposed Development)

Existing + Approved Development PM Peak Hour Traffic Volumes	Hook Farms North Lee's Summit, MO	No Scale Figure 8	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

- HCM LOS (95th Percentile Queue)
- Stop Sign
- Ⓐ Traffic Signal LOS

Existing + Approved Development
AM Peak Hour
Lane Configuration & Levels of Service

Hook Farms North
Lee's Summit, MO

No Scale

Figure 9

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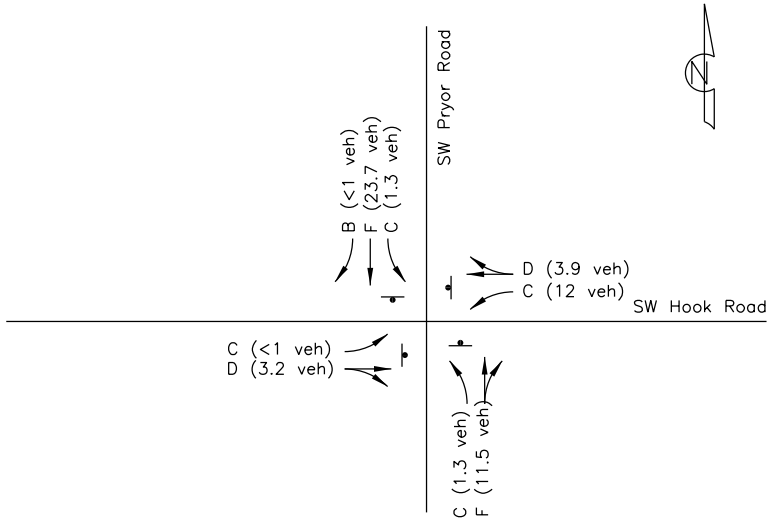


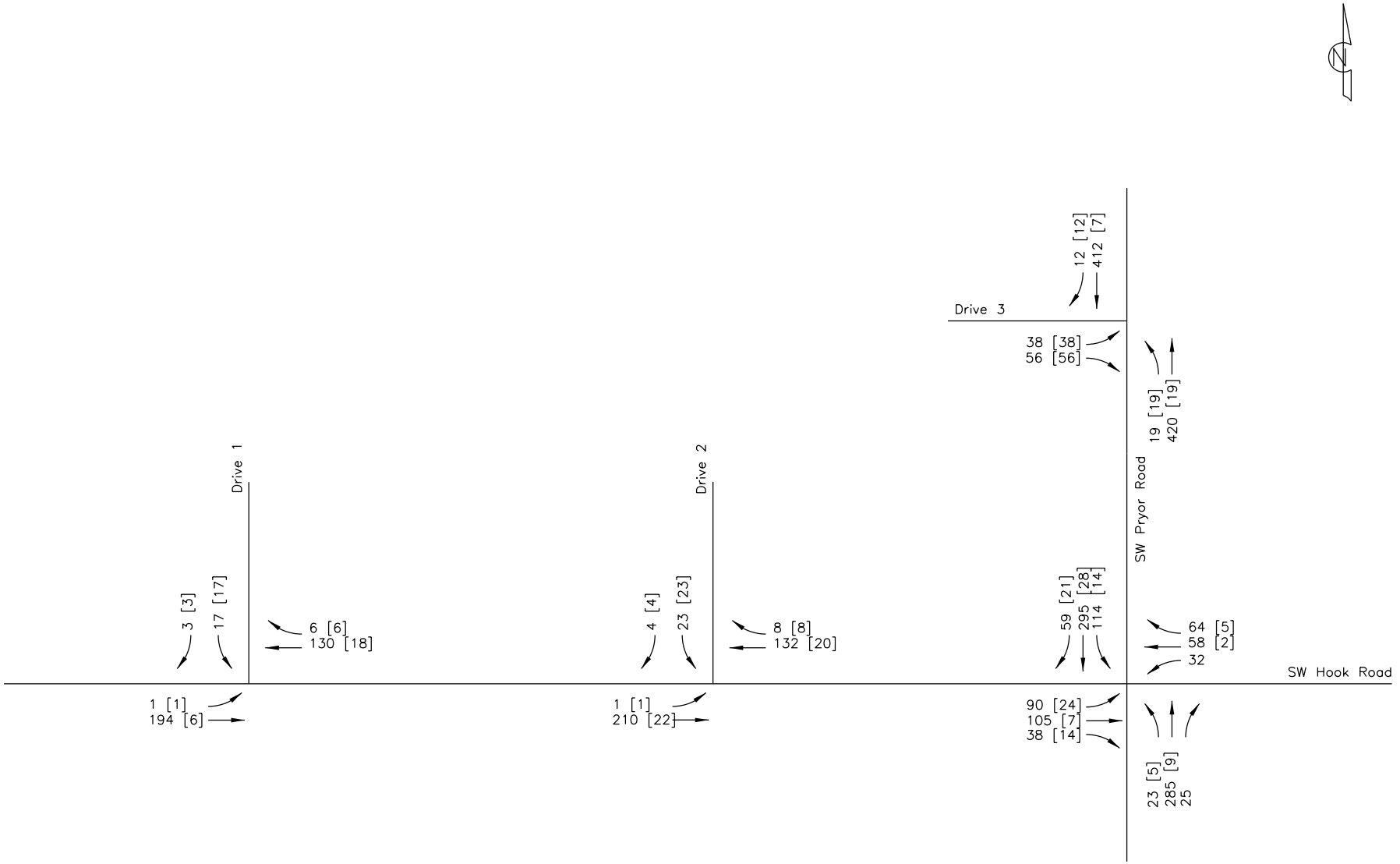
LEGEND

HCM LOS (95th Percentile Queue)

Stop Sign

Ⓐ Traffic Signal LOS

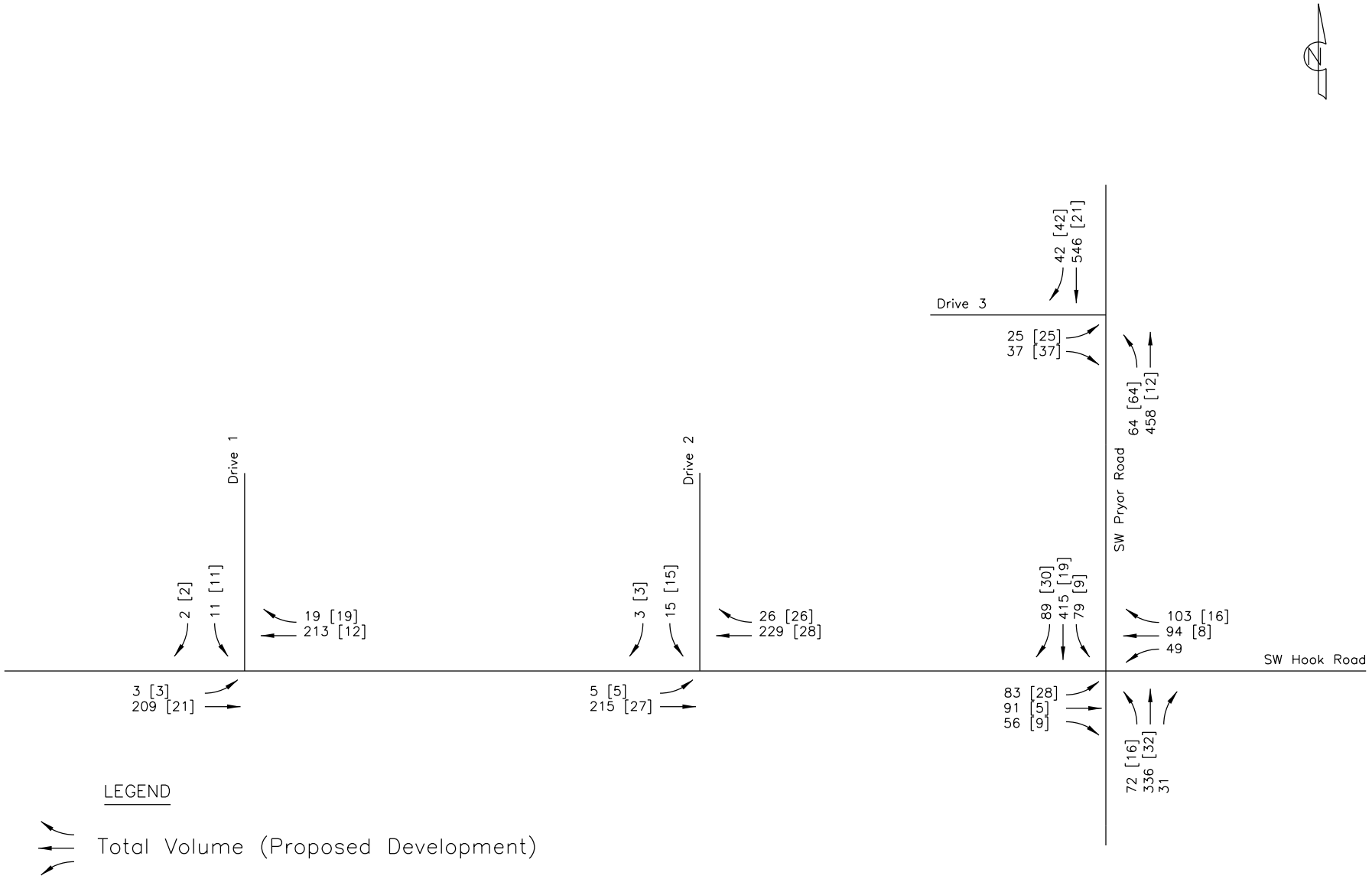
Existing + Approved Development PM Peak Hour Lane Configuration & Levels of Service	Hook Farms North Lee's Summit, MO	No Scale Figure 10	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



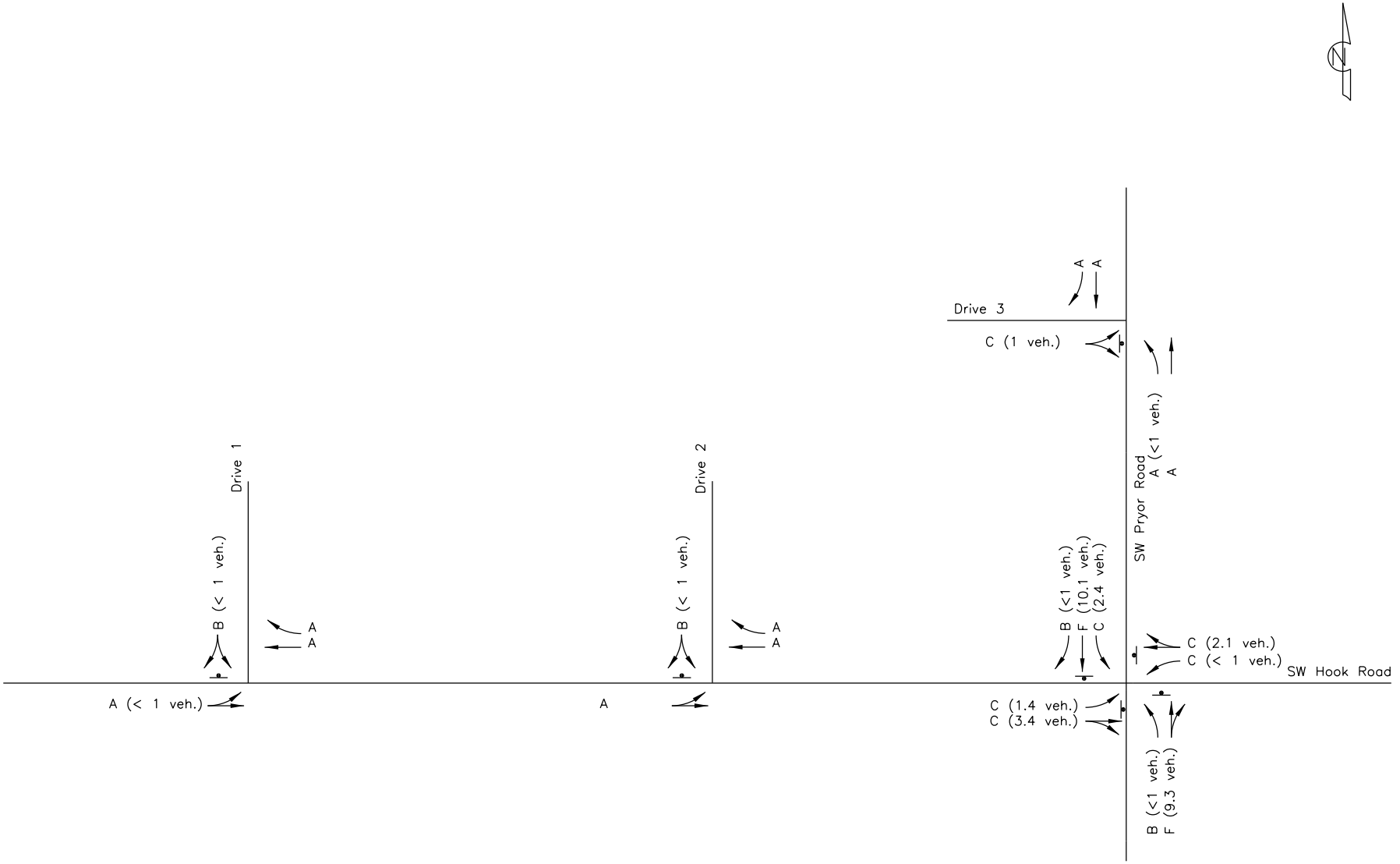
LEGEND

Total Volume [Proposed Development]

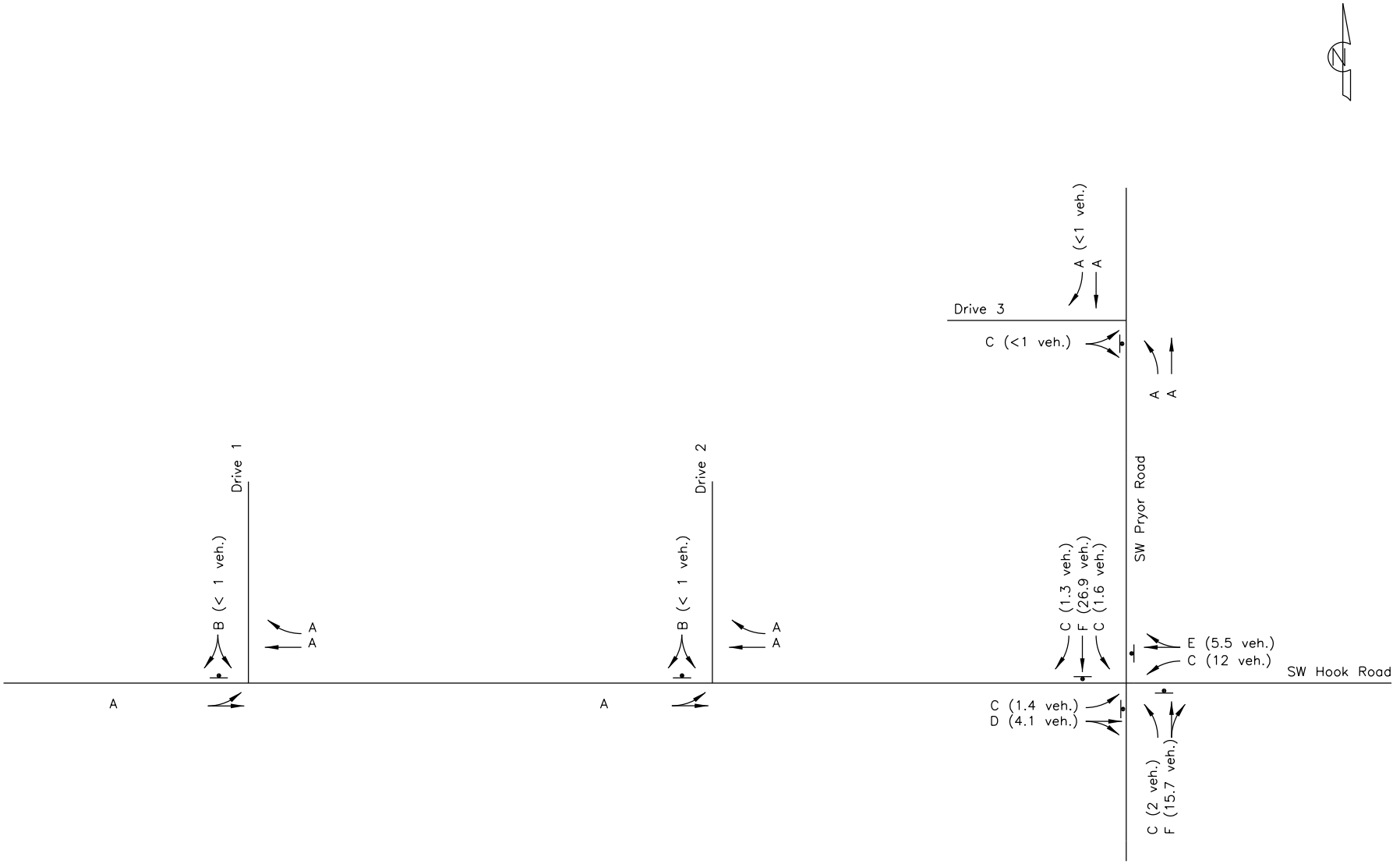
Existing+Approved +Proposed Development AM Peak Hour Traffic Volumes	Hook Farms Lee's Summit, MO	No Scale Figure 11	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



Existing+Approved + Proposed Development PM Peak Hour Traffic Volumes	Hook Farms Lee's Summit, MO	No Scale Figure 12	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



Existing+Approved+Proposed DevelopmentAM Peak Hour Lane Configuration & Levels of Service	Hook Farms Lee's Summit, MO	No Scale Figure 13	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



Existing+Approved+Proposed Development PM Peak Hour Lane Configuration & Levels of Service	Hook Farms Lee's Summit, MO	No Scale Figure 14	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400

APPENDIX II

Peak Hour Traffic Counts

Synchro Reports

	A	C	D	E	H	I	J	M	N	O	R	S	T	V	W	X
1	**Time**	**SB Right**	**SB Thru**	**SB Left**	**WB Right**	**WB Thru**	**WB Left**	**NB Right**	**NB Thru**	**NB Left**	**EB Right**	**EB Thru**	**EB Left**			
2																
3	07:00	0	3	2	2	0	0	0	3	0	0	0	0		10	
4	07:15	0	0	0	0	0	0	0	0	0	0	0	0		0	
5	07:30	1	14	1	2	3	0	2	19	0	1	2	8		53	
6	07:45	4	47	24	9	12	6	7	51	2	2	30	12		206	269
7	08:00	3	51	24	12	8	10	8	45	2	2	30	12		207	466
8	08:15	6	38	11	11	9	1	5	41	2	2	11	5		142	608
9	08:30	4	24	2	8	4	3	1	48	6	0	4	9		113	668
10	08:45	2	40	9	2	1	4	1	33	1	5	13	5		116	578
11																
12																
13		17	160	61	40	33	20	21	185	12	6	75	38		668	
14																
15																
16	AM Peak Hour Count SW Pryaor road @SW Hook Road															
17																
18	10/5/2016															

	A	C	D	E	H	I	J	M	N	O	R	S	T	W	X
1	**Time**	**SB Right**	**SB Thru**	**SB Left**	**WB Right**	**WB Thru**	**WB Left**	**NB Right**	**NB Thru**	**NB Left**	**EB Right**	**EB Thru**	**EB Left**		
2	16:00	8	55	12	7	7	3	2	36	6	8	4	17	165	
3	16:15	10	53	10	11	11	3	9	21	3	3	13	8	155	
4	16:30	8	66	9	15	11	10	3	51	4	8	14	9	208	
5	16:45	4	76	13	16	16	16	4	61	4	4	8	11	233	761
6	17:00	6	54	11	17	8	11	4	64	7	10	18	9	219	815
7	17:15	7	60	6	17	25	12	6	59	7	9	14	6	228	888
8	17:30	9	78	13	17	14	2	4	60	10	9	20	8	244	924
9	17:45	8	57	16	15	12	10	4	65	6	5	18	9	225	916
10	18:00	0	2	0	0	0	1	0	0	0	0	0	0	3	
11															
12		26	268	43	67	63	41	18	244	28	32	60	34	924	
13															
14															
15			PM Peak Hour SW Pryor Road @ SW Hook Road												
16															
17	10/5/16														

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	75	6	20	33	45	12	210	21	86	227	24
Future Vol, veh/h	43	75	6	20	33	45	12	210	21	86	227	24
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	119	8	40	48	54	24	231	32	134	291	34
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	12.5	11.8	16.3	15.3
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	91%	0%	93%	0%	42%	0%	100%	0%
Vol Right, %	0%	9%	0%	7%	0%	58%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	231	43	81	20	78	86	227	24
LT Vol	12	0	43	0	20	0	86	0	0
Through Vol	0	210	0	75	0	33	0	227	0
RT Vol	0	21	0	6	0	45	0	0	24
Lane Flow Rate	24	263	54	127	40	102	134	291	34
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.05	0.509	0.121	0.262	0.09	0.204	0.27	0.544	0.056
Departure Headway (Hd)	7.546	6.973	7.985	7.424	8.127	7.207	7.234	6.726	6.015
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	475	517	449	484	441	498	500	538	599
Service Time	5.286	4.713	5.73	5.169	5.876	4.956	4.934	4.426	3.715
HCM Lane V/C Ratio	0.051	0.509	0.12	0.262	0.091	0.205	0.268	0.541	0.057
HCM Control Delay	10.7	16.8	11.8	12.8	11.7	11.8	12.6	17.2	9.1
HCM Lane LOS	B	C	B	B	B	B	B	C	A
HCM 95th-tile Q	0.2	2.9	0.4	1	0.3	0.8	1.1	3.2	0.2

Intersection	
Intersection Delay, s/veh	26.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	60	32	41	63	69	28	244	18	51	321	31
Future Vol, veh/h	35	60	32	41	63	69	28	244	18	51	321	31
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	95	43	82	91	83	56	268	27	80	412	44
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	15	15.6	23.5	37.6
HCM LOS	B	C	C	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	93%	0%	65%	0%	48%	0%	100%	0%
Vol Right, %	0%	7%	0%	35%	0%	52%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	262	35	92	41	132	51	321	31
LT Vol	28	0	35	0	41	0	51	0	0
Through Vol	0	244	0	60	0	63	0	321	0
RT Vol	0	18	0	32	0	69	0	0	31
Lane Flow Rate	56	295	44	138	82	174	80	412	44
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.135	0.665	0.115	0.328	0.207	0.397	0.182	0.882	0.085
Departure Headway (Hd)	8.667	8.104	9.339	8.573	9.078	8.189	8.23	7.718	7.001
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	446	384	419	395	440	437	473	513
Service Time	6.389	5.825	7.096	6.33	6.83	5.94	5.948	5.436	4.719
HCM Lane V/C Ratio	0.135	0.661	0.115	0.329	0.208	0.395	0.183	0.871	0.086
HCM Control Delay	12.7	25.5	13.3	15.5	14.2	16.3	12.8	45.3	10.4
HCM Lane LOS	B	D	B	C	B	C	B	E	B
HCM 95th-tile Q	0.5	4.7	0.4	1.4	0.8	1.9	0.7	9.4	0.3

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	98	24	32	56	59	18	276	25	100	267	38
Future Vol, veh/h	66	98	24	32	56	59	18	276	25	100	267	38
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	156	32	64	81	71	36	303	38	156	342	54
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	17.7	16.1	35.1	26.9
HCM LOS	C	C	E	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	92%	0%	80%	0%	49%	0%	100%	0%
Vol Right, %	0%	8%	0%	20%	0%	51%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	301	66	122	32	115	100	267	38
LT Vol	18	0	66	0	32	0	100	0	0
Through Vol	0	276	0	98	0	56	0	267	0
RT Vol	0	25	0	24	0	59	0	0	38
Lane Flow Rate	36	341	84	188	64	152	156	342	54
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.09	0.8	0.22	0.46	0.173	0.373	0.377	0.776	0.111
Departure Headway (Hd)	9.015	8.439	9.48	8.823	9.706	8.819	8.68	8.165	7.445
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	397	430	378	409	369	408	414	442	481
Service Time	6.77	6.194	7.241	6.583	7.469	6.581	6.434	5.919	5.198
HCM Lane V/C Ratio	0.091	0.793	0.222	0.46	0.173	0.373	0.377	0.774	0.112
HCM Control Delay	12.7	37.5	14.9	18.9	14.5	16.8	16.6	34.1	11.1
HCM Lane LOS	B	E	B	C	B	C	C	D	B
HCM 95th-tile Q	0.3	7.2	0.8	2.4	0.6	1.7	1.7	6.7	0.4

Intersection	
Intersection Delay, s/veh	82.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	86	47	49	86	87	56	304	31	70	396	59
Future Vol, veh/h	55	86	47	49	86	87	56	304	31	70	396	59
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	137	63	98	125	105	112	334	47	109	508	83
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	23.8	25.6	65.3	144.3
HCM LOS	C	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	91%	0%	65%	0%	50%	0%	100%	0%
Vol Right, %	0%	9%	0%	35%	0%	50%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	335	55	133	49	173	70	396	59
LT Vol	56	0	55	0	49	0	70	0	0
Through Vol	0	304	0	86	0	86	0	396	0
RT Vol	0	31	0	47	0	87	0	0	59
Lane Flow Rate	112	381	70	199	98	229	109	508	83
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.311	0.997	0.208	0.555	0.287	0.618	0.303	1.332	0.201
Departure Headway (Hd)	10.643	10.051	11.557	10.773	11.314	10.421	9.963	9.443	8.715
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	340	362	313	337	319	349	361	386	412
Service Time	8.343	7.751	9.257	8.473	9.014	8.121	7.716	7.196	6.468
HCM Lane V/C Ratio	0.329	1.052	0.224	0.591	0.307	0.656	0.302	1.316	0.201
HCM Control Delay	18.1	79.2	17.3	26.1	18.5	28.6	17	193.1	13.7
HCM Lane LOS	C	F	C	D	C	D	C	F	B
HCM 95th-tile Q	1.3	11.5	0.8	3.2	1.2	3.9	1.3	23.7	0.7

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	56	19	420	412	12
Future Vol, veh/h	38	56	19	420	412	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	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	41	61	21	457	448	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	947	448	461	0	-	0
Stage 1	448	-	-	-	-	-
Stage 2	499	-	-	-	-	-
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	290	611	1100	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	284	611	1100	-	-	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1100	-	417	-	-
HCM Lane V/C Ratio	0.019	-	0.245	-	-
HCM Control Delay (s)	8.3	-	16.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	210	132	8	23	4
Future Vol, veh/h	1	210	132	8	23	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	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	228	143	9	25	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	152	0	-	0	373	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	230	-
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	1429	-	-	-	628	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1429	-	-	-	627	905
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1429	-	-	-	657
HCM Lane V/C Ratio	0.001	-	-	-	0.045
HCM Control Delay (s)	7.5	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	36.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	90	105	38	32	58	64	23	285	25	114	295	59
Future Vol, veh/h	90	105	38	32	58	64	23	285	25	114	295	59
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	167	51	64	84	77	46	313	38	178	378	83
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	21.9	18.7	50.2	41.4
HCM LOS	C	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	92%	0%	73%	0%	48%	0%	100%	0%
Vol Right, %	0%	8%	0%	27%	0%	52%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	310	90	143	32	122	114	295	59
LT Vol	23	0	90	0	32	0	114	0	0
Through Vol	0	285	0	105	0	58	0	295	0
RT Vol	0	25	0	38	0	64	0	0	59
Lane Flow Rate	46	351	114	217	64	161	178	378	83
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.125	0.9	0.321	0.57	0.188	0.434	0.461	0.925	0.187
Departure Headway (Hd)	9.812	9.233	10.151	9.44	10.59	9.688	9.326	8.809	8.085
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	364	393	353	380	338	371	385	412	442
Service Time	7.599	7.02	7.941	7.23	8.389	7.486	7.109	6.591	5.866
HCM Lane V/C Ratio	0.126	0.893	0.323	0.571	0.189	0.434	0.462	0.917	0.188
HCM Control Delay	14	54.9	17.7	24.1	15.8	19.8	19.9	57.8	12.7
HCM Lane LOS	B	F	C	C	C	C	C	F	B
HCM 95th-tile Q	0.4	9.3	1.4	3.4	0.7	2.1	2.4	10.1	0.7

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	194	130	6	17	3
Future Vol, veh/h	1	194	130	6	17	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	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	211	141	7	18	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	354	141
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	213	-
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	1434	-	-	-	644	907
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	643	907
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	823	-

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)	1434	-	-	-	672
HCM Lane V/C Ratio	0.001	-	-	-	0.032
HCM Control Delay (s)	7.5	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	37	64	458	546	42
Future Vol, veh/h	25	37	64	458	546	42
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	-	200	-	-	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	27	40	70	498	593	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1231	593	639	0	-	0
Stage 1	593	-	-	-	-	-
Stage 2	638	-	-	-	-	-
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	196	506	945	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	506	945	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	526	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.9	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	945	-	293	-	-
HCM Lane V/C Ratio	0.074	-	0.23	-	-
HCM Control Delay (s)	9.1	-	20.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	215	229	26	15	3
Future Vol, veh/h	5	215	229	26	15	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	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	234	249	28	16	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	277	0	-	0	493	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1286	-	-	-	535	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1286	-	-	-	533	790
Mov Cap-2 Maneuver	-	-	-	-	533	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1286	-	-	-	564
HCM Lane V/C Ratio	0.004	-	-	-	0.035
HCM Control Delay (s)	7.8	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	107.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	91	56	49	94	103	72	336	31	79	415	89
Future Vol, veh/h	83	91	56	49	94	103	72	336	31	79	415	89
Peak Hour Factor	0.79	0.63	0.75	0.50	0.69	0.83	0.50	0.91	0.66	0.64	0.78	0.71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	105	144	75	98	136	124	144	369	47	123	532	125
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	2
HCM Control Delay	28.9	34.9	104.8	174.8
HCM LOS	D	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	92%	0%	62%	0%	48%	0%	100%	0%
Vol Right, %	0%	8%	0%	38%	0%	52%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	367	83	147	49	197	79	415	89
LT Vol	72	0	83	0	49	0	79	0	0
Through Vol	0	336	0	91	0	94	0	415	0
RT Vol	0	31	0	56	0	103	0	0	89
Lane Flow Rate	144	416	105	219	98	260	123	532	125
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.424	1.16	0.328	0.637	0.302	0.74	0.356	1.458	0.319
Departure Headway (Hd)	11.508	10.918	12.464	11.655	12.302	11.39	10.899	10.375	9.642
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	315	337	290	311	294	320	332	356	375
Service Time	9.208	8.618	10.164	9.355	10.002	9.09	8.599	8.075	7.342
HCM Lane V/C Ratio	0.457	1.234	0.362	0.704	0.333	0.813	0.37	1.494	0.333
HCM Control Delay	22.4	133.3	21.1	32.7	20.2	40.5	19.5	248.1	16.8
HCM Lane LOS	C	F	C	D	C	E	C	F	C
HCM 95th-tile Q	2	15.7	1.4	4.1	1.2	5.5	1.6	26.9	1.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	209	213	19	11	2
Future Vol, veh/h	3	209	213	19	11	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	227	232	21	12	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	253	0	-	0	465	232
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	233	-
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	1312	-	-	-	556	807
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	806	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1312	-	-	-	554	807
Mov Cap-2 Maneuver	-	-	-	-	554	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	806	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1312	-	-	-	582
HCM Lane V/C Ratio	0.002	-	-	-	0.024
HCM Control Delay (s)	7.8	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1