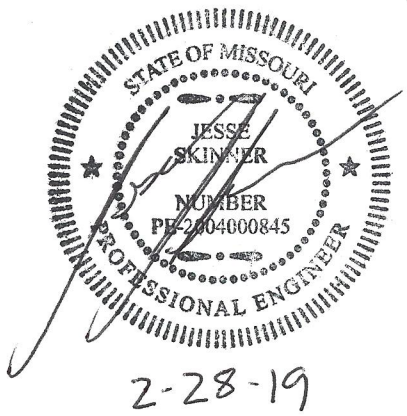
Lee's Summit Senior Living Community

TRAFFIC IMPACT STUDY

February 28, 2019

Prepared For:
Stark Wilson Duncan Architects, Inc.
315 Nichols Road, Suite 228
Kansas City, Missouri 64112

Prepared By:
Priority Engineers, Inc.
PO Box 563
Garden City, MO 64747



2-28-19

February 28, 2019

Mr. Scott Auman
Stark Wilson Duncan Architects, Inc.
315 Nichols Road, Suite 228
Kansas City, Missouri 64112

RE: 1811 Lee's Summit Senior Living Traffic Memo - 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
Garden City, MO 64747
816.738.4400

Table of Contents

1) INTRODUCTION

The purpose of this study is to examine the potential traffic impacts associated with the proposed Lee's Summit Senior Living Community development located south of SE Oldham Parkway and east of Ranson Road (Missouri Route RA) in Lee's Summit, Missouri.

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

2) EXISTING CONDITIONS

The property is currently undeveloped.

SE Oldham Parkway is a two-lane roadway adjacent to this property with a posted speed limit of 40 miles per hour. SE Oldham Parkway is classified as a Commercial or Industrial Collector by the City of Lee's Summit's *Thoroughfare Master Plan*. The Mid America Regional Council (MARC) has given this roadway a functional classification of Local Road. SE Oldham parkway currently terminates at a location approximately ¾ of a mile east of the intersection of SE Oldham Parkway and Ranson Road. SE Oldham Parkway is constructed with an asphaltic concrete driving surface with lanes 12-foot-wide, graded earthen shoulders and an open drainage system.

There are no developments currently constructed or under construction along this segment of SE Oldham Parkway. Adjacent parcels of land along SE Oldham Parkway are currently used for agricultural purposes.

Ranson Road (Missouri Route RA) is a two-lane road with a posted speed limit of 45 MPH south of the intersection with SE Oldham Parkway and a posted speed limit of 40 MPH north of the intersection with SE Oldham Parkway. Ranson Road is classified as a Major Arterial by the City of Lee's Summit. The Mid America Regional Council (MARC) has given this roadway a functional classification of Major Collector.

A twenty-four hour turning movement count was performed on the intersection of SE Oldham Parkway with Ranson Road on October 24th through October 25th of this year, during this time period, 19 vehicles entered the eastern segment of SE Oldham Road and 14 vehicles exited that segment of SE Oldham Road. The peak hours for the intersection were determined to be 7:30 to 8:30 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 4-8.

3) PROPOSED DEVELOPMENT

The proposed site plan is shown in Figure 2. The proposed development consists of a Senior Living complex that will include 91 units of Independent Living, 44 beds of Assisted Living and an 18 bed Memory Care unit.

The proposed development will have an entrance onto SE Oldham Parkway approximately 0.4 miles east of the intersection of Ranson Road and SE Oldham Parkway and three access points onto SE Princeton Drive. This will be the first development along this segment of SE Oldham Parkway. At this time, it is unknown when adjacent properties will be developed by others.

The proposed site plan includes a widening of SE Oldham Parkway discussed further in the report and the construction of the connection of SE Princeton Drive to SE Oldham Parkway.
The proposed development's drive onto SE Oldham Road exceeds the Lee's Summit 2018 Access Management Code in regards to throat length and width of the entrance. The entrances into the proposed development from SE Princeton Drive meet the minimum requirements for throat length and width. The spacing the north entrance onto SE Princeton appears to be less than the spacing requirement listed in the AMC for a Residential Collector (200'). Since it is Likely SE Princeton will be classified and constructed as a Local this entrance should be verified for spacing compliance with the appropriate Unified Development Ordinance (UDO).

Overall, the proposed site plan allows for good internal circulation.

4) TRIP GENERATION

The vehicle trips generated by the proposed development were estimated using the Institute of Transportation Engineers' Trip Generation, 10th Edition. Land Use 252, Senior Adult Housing Attached was used for the Independent Living housing. Land Use 254, Assisted Living, was used for the assisted living. Land Use 620. Nursing Home, was used for the Memory Care Unit. The estimated AM and PM peak hour traffic volumes associated with these uses are shown in Table 1.

Table 1: Trip Generation

			AM Peak Hour			PM Peak Hour		
Land Use	***Intensity***	***Daily***	***Total***	***In***	***Out***	***Total***	***In***	***Out***
Independent Living (Senior Adult Housing - Attached)	91 Units	337	18	6	12	24	13	11
Assisted Living	44 Beds	114	8	5	3	11	4	7
Memory Care (Nursing Home)	18 Beds	55	3	2	1	4	1	3
Total		**506**	**29**	**13**	**16**	**39**	**18**	**21**

5) TRIP DISTRIBUTION

Trips generated by the Lee's Summit Senior Living Community 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:

- 45 percent to/from the north on Ranson Road
- 40 percent to/from the south on Ranson Road
- 15 percent to/from the west via SE Oldham Parkway

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

6) SIGNAL WARRANTS

The Missouri Department of Transportation (MoDOT) Engineering Policy Guide (EPG) was consulted to evaluate if a Signal would be warranted under the existing traffic volumes at the stop-controlled intersection of SE Oldham Parkway and Ranson Road. Warrant One (Eight Hour Warrant) was 2 vehicles less than the required minor road approach volumes during the eight hours of this evaluation. If the 45 MPH speed limit on Ranson Road south of the intersection is used to apply a 70% condition to the warrant analysis, both Condition A and Condition B are exceeded.

Warrant Two (Four Hour Warrant) analysis is shown in Figures 12 and 13 of Appendix I. Warrant Two is met for the existing traffic volumes, for the 70 % condition factoring in the speed limit on Ranson Road but does not exceed the threshold of the full warrant yet.

Warrant Three (Peak Hour Warrant) is met with existing traffic volumes.

7) 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 6 and 7in Appendix I.

During the AM Peak Hour, the intersection of SE Oldham and Ranson 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 SE Oldham Parkway and Ranson Road experiences levels of service F for eastbound movements on SE Oldham Parkway with a maximum design queue length of 15.7 vehicles.

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Existing + Proposed Conditions
The levels of service and lane configuration, for the existing plus approved development scenario are shown in Figures 10 and 11 in Appendix I.

During the AM Peak Hour, the stop-controlled intersection of SE Oldham Parkway and Ranson Road meets the goals of the City's *Level of Service Policy* for all movements. During the PM Peak Hour, the goals stated in the City's *Level of Service Policy* are not met for movements on SE Oldham Parkway. Eastbound SE Oldham Parkway experiences a level of service F with a maximum design queue of 17.6 vehicles. Westbound SE Oldham Parkway experiences a level of service E with a maximum design queue length less than one vehicle.

8) UNIMPROVED ROAD POLICY

The Lee's Summit's current unimproved road policy defines unimproved roadways as "***generally defined as narrow in width (<22 feet of pavement) consistent with a rural character***". The City's 2015-2040 Thoroughfare Master Plan (TMP) further states "***Per this policy an unimproved roadway is an arterial or collector generally narrow in width (18-20 feet) with open drainage ditches adjacent to the roadway".*** Figure 14 of Appendix I is a portion of a survey dated December 28,2017, performed by Boundary & Construction Surveying, Inc. that describes SE Oldham Road as having a "24' Wide Asphalt Pavement". Given that the roadway's width is greater than the minimum specified in the 2015-2040 TMP (from the original 2005 Unimproved Road Policy) and is also greater in width than the current version of the Unimproved Road Policy this roadway does not meet the definition of an unimproved roadway.

The developer, however, has been in discussions with the City and intends to make improvements to SE Oldham Parkway adjacent to their proposed development. The proposed site plan includes a widening of SE Oldham Parkway adjacent to the proposed development the equivalent of an additional lane of pavement.

9) AUXILLARY LANES

MoDOT Engineering Policy Guide requirements for left and right turn lanes are not met by anticipated peak hour traffic volumes on SE Oldham Parkway.

The Lee's Summit AMC requires a left turn lane on collector streets with a volume of at least 30 vehicles per hour and states that they should be provided for volumes less than 30 vehicles per hour. This development is anticipated to have less than 30 vehicles turning left in the peak hour at any one entrance. The minimum length for left turn lanes on collectors is 150' plus taper. The proposed site plane is including a left turn lane as part of the improvements to SE Oldham Road.

The Lee's Summit AMC requires a right turn lane on collector streets that have connections that exceed 100 vehicles turning right. This development will not approach this threshold.

10) RECOMMENDATIONS & CONCLUSIONS

This study documents the impact of the proposed Lee's Summit Senior Living Community Development on the nearby intersection of SE Oldham Parkway and Ranson Road. The traffic impacts of this development are minimal.

The existing traffic volumes at the intersection of SE Oldham Parkway and Ranson Road meets the 70% Warrant One threshold and is within two vehicles of meeting the 100% Warrant One threshold. The existing traffic volumes also exceed the threshold of the 70 % Warrant Two and the threshold for Warrant Three. Additionally, the existing level of service for eastbound traffic on SE Oldham Parkway operates at a level of service F with significant queueing. The need for signalization is met with existing traffic volumes and is not a result of the proposed development.

It is recommended that this intersection be signalized

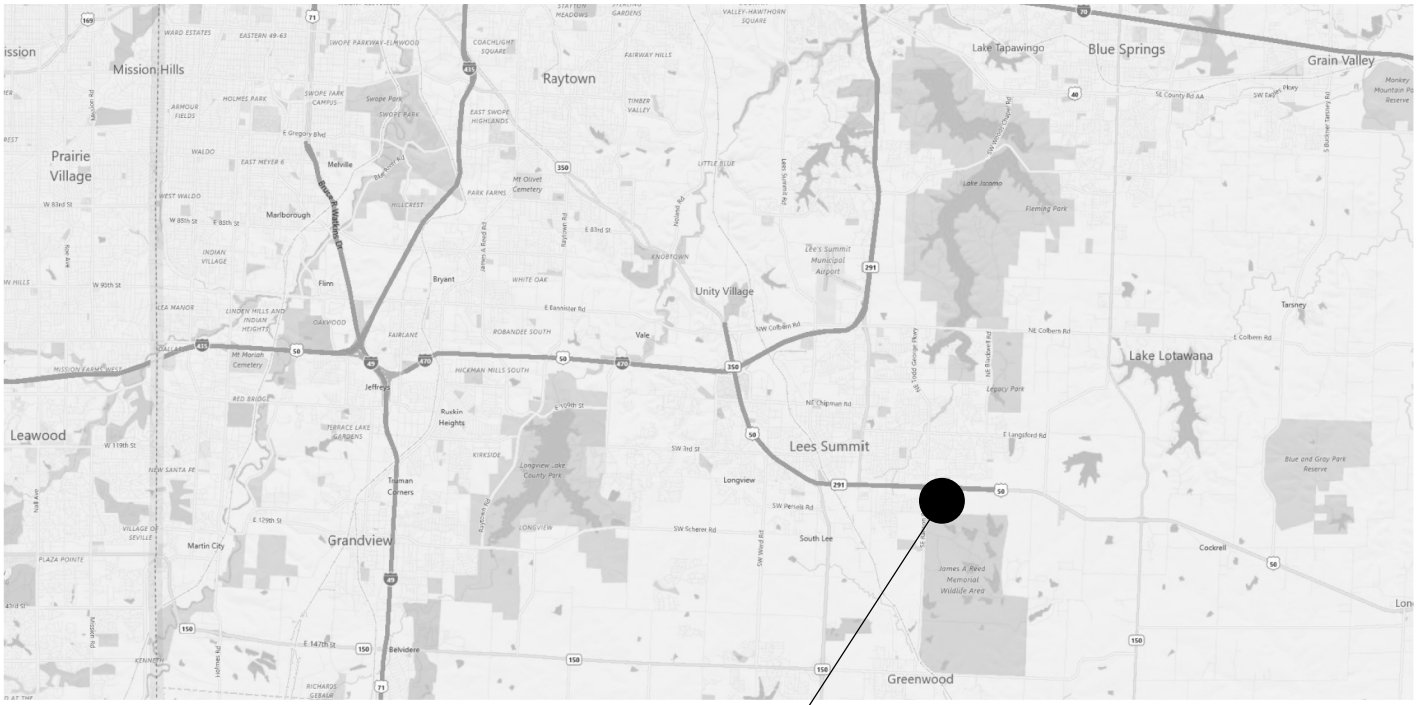
It is recommended that the developer work with the City to ensure that the improvements that are made adjacent to the proposed development on SE Oldham Parkway are compatible with any future anticipated cross sections.

It is recommended that the designer verify that the North entrance into the proposed development from SE Princeton meets UDO spacing requirements. If not met, the entrance location should be shifted south to meet spacing requirements or should be eliminated.

A left turn lane at the entrance into the development should be constructed by modifying the pavement markings on SE Oldham Parkway after SE Oldham Parkway has the additional lane of pavement added adjacent to the property.

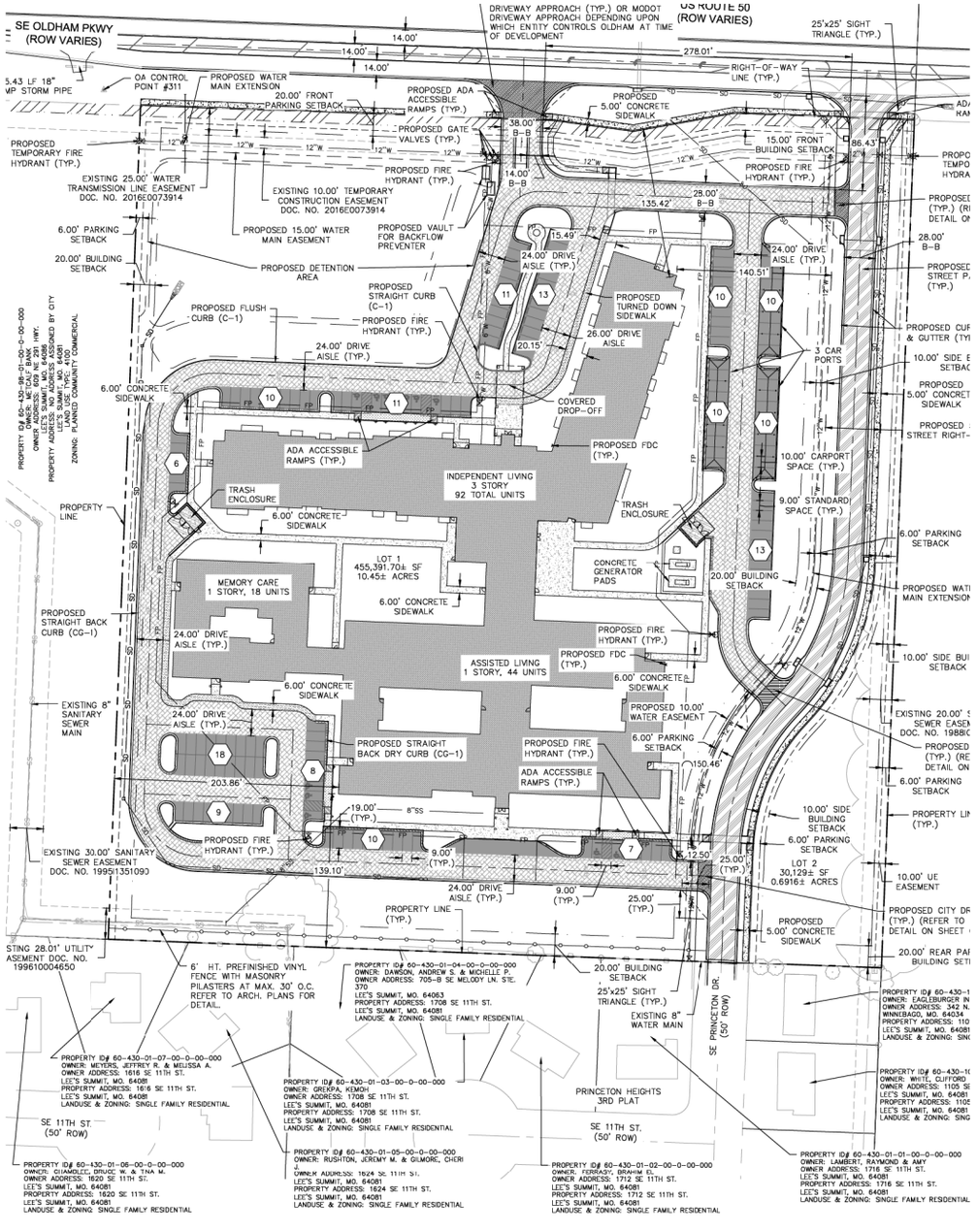
No additional improvements are necessary as a result of this development.

APPENDIX I



Project Location	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 1

priority ENGINEERS
PO Box 563
Garden City, MO 64747
816.738.4400



Site Plan

Lee's Summit
Senior Living Community
Lee's Summit, MO

No Scale

Figure 2

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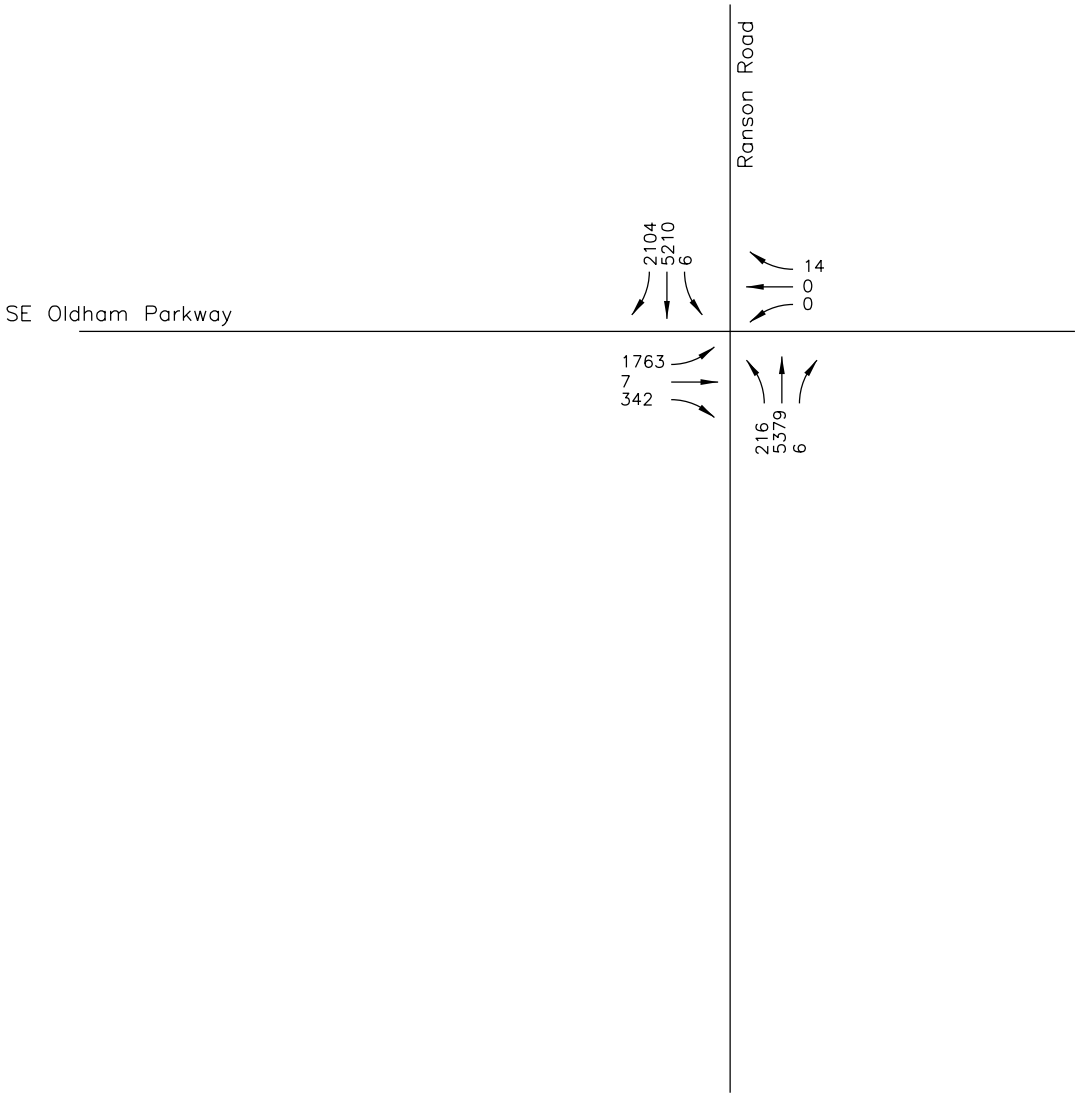

LEGEND

Total Volume

24 HR TRAFFIC VOLUMES	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 3

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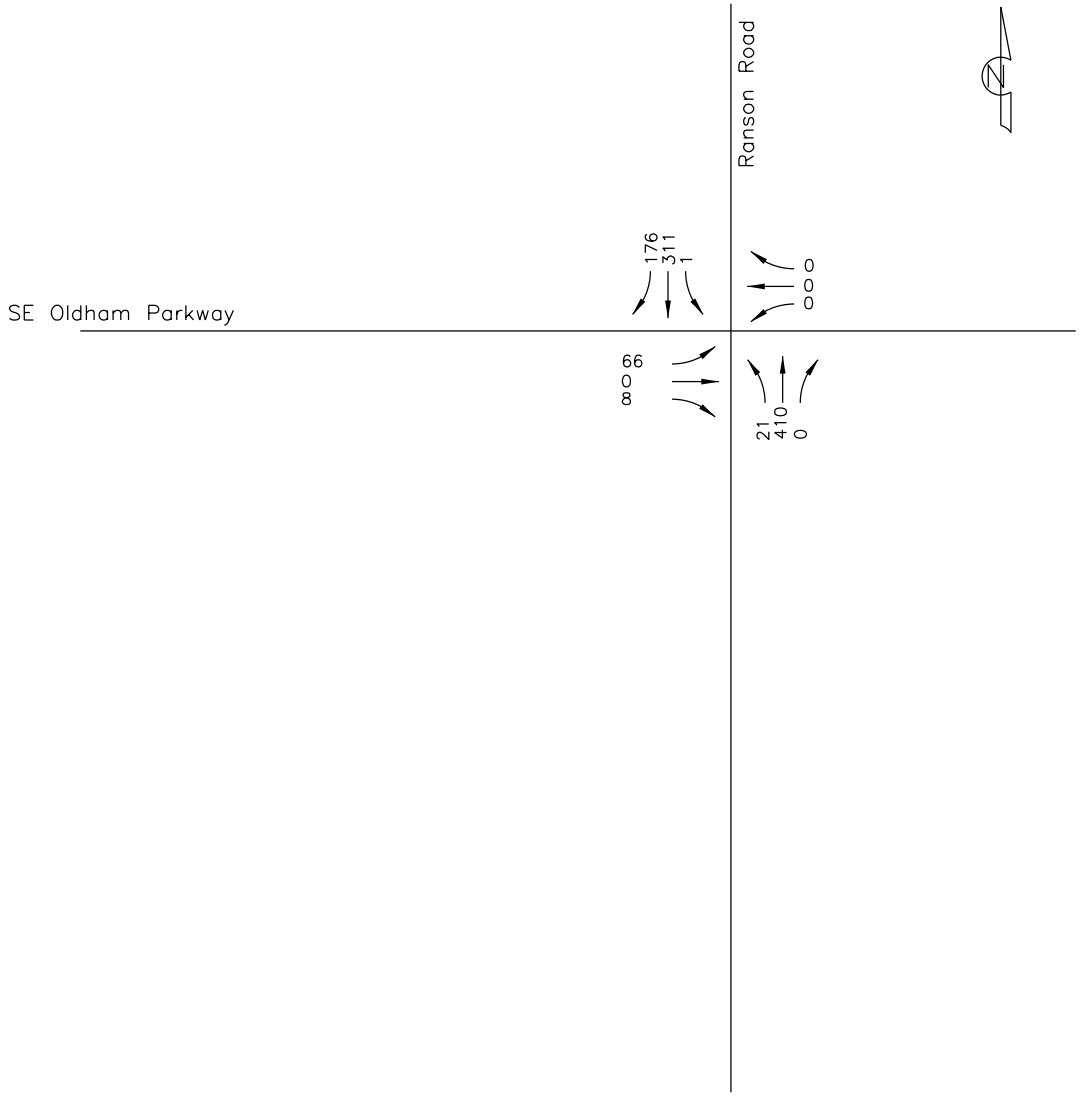
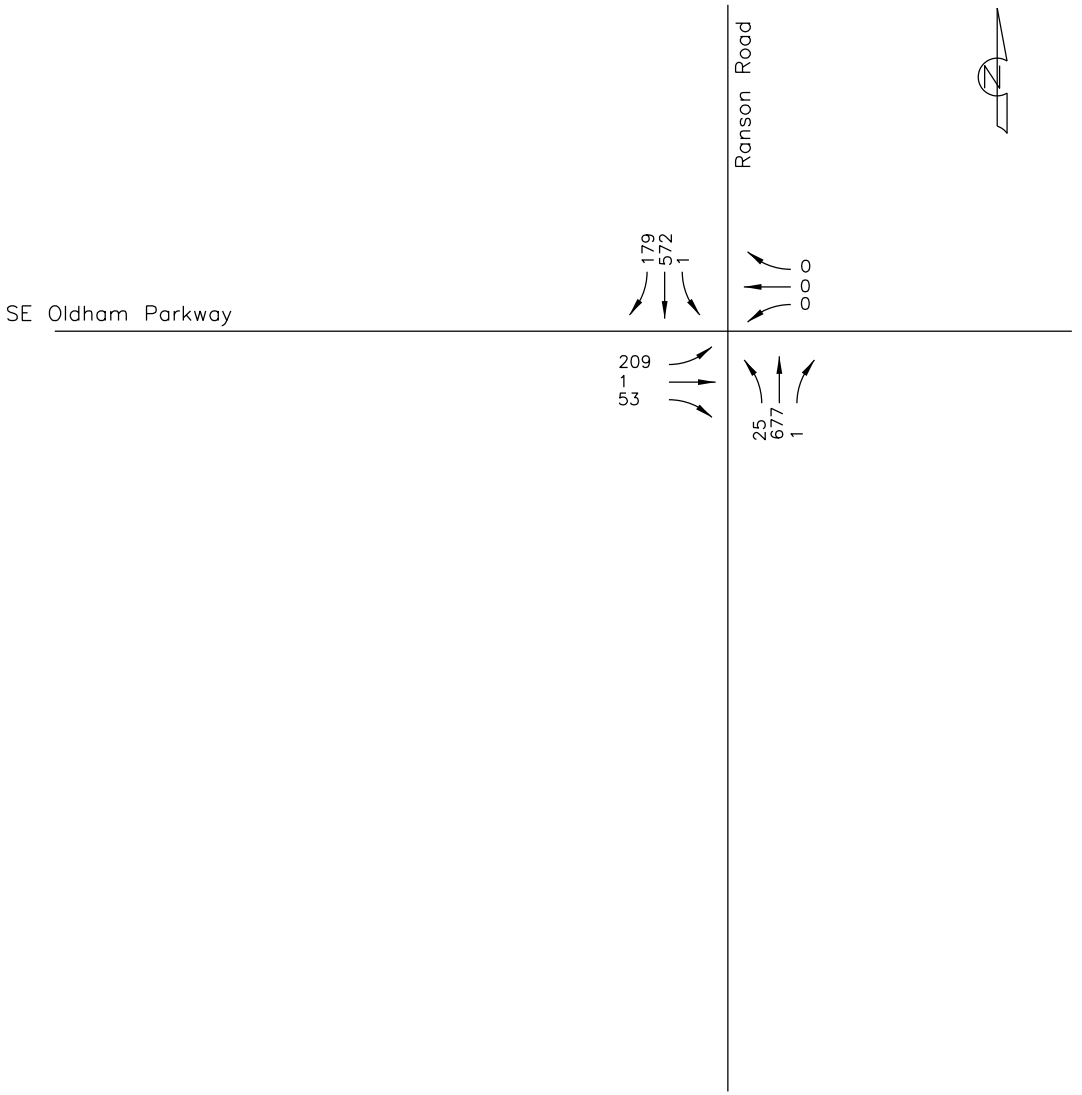


LEGEND

Total Volume

Existing AM Peak Hour Traffic Volumes	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 4	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

Total Volume

Existing PM Peak Hour Traffic Volumes	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale	Figure 5

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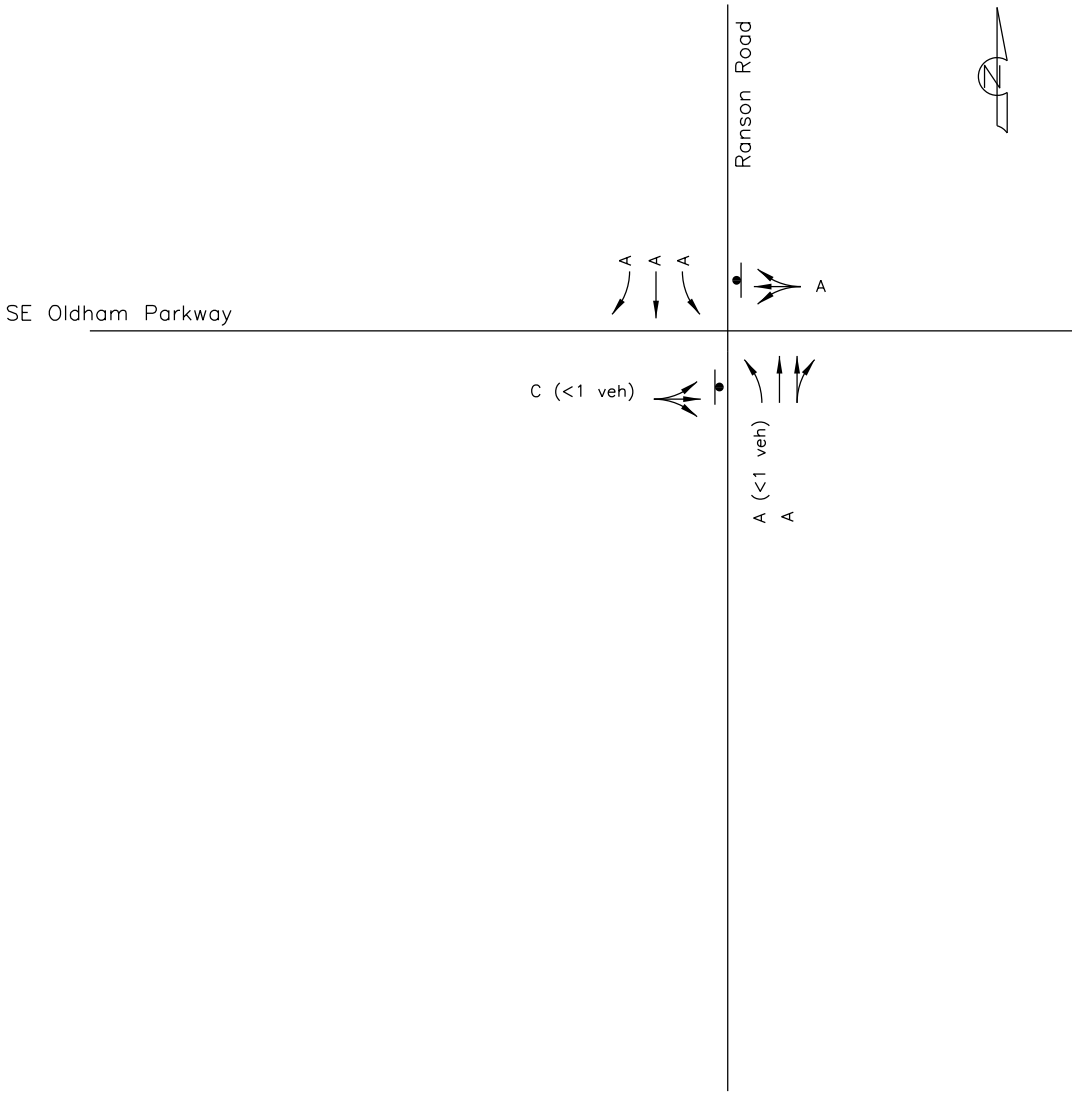


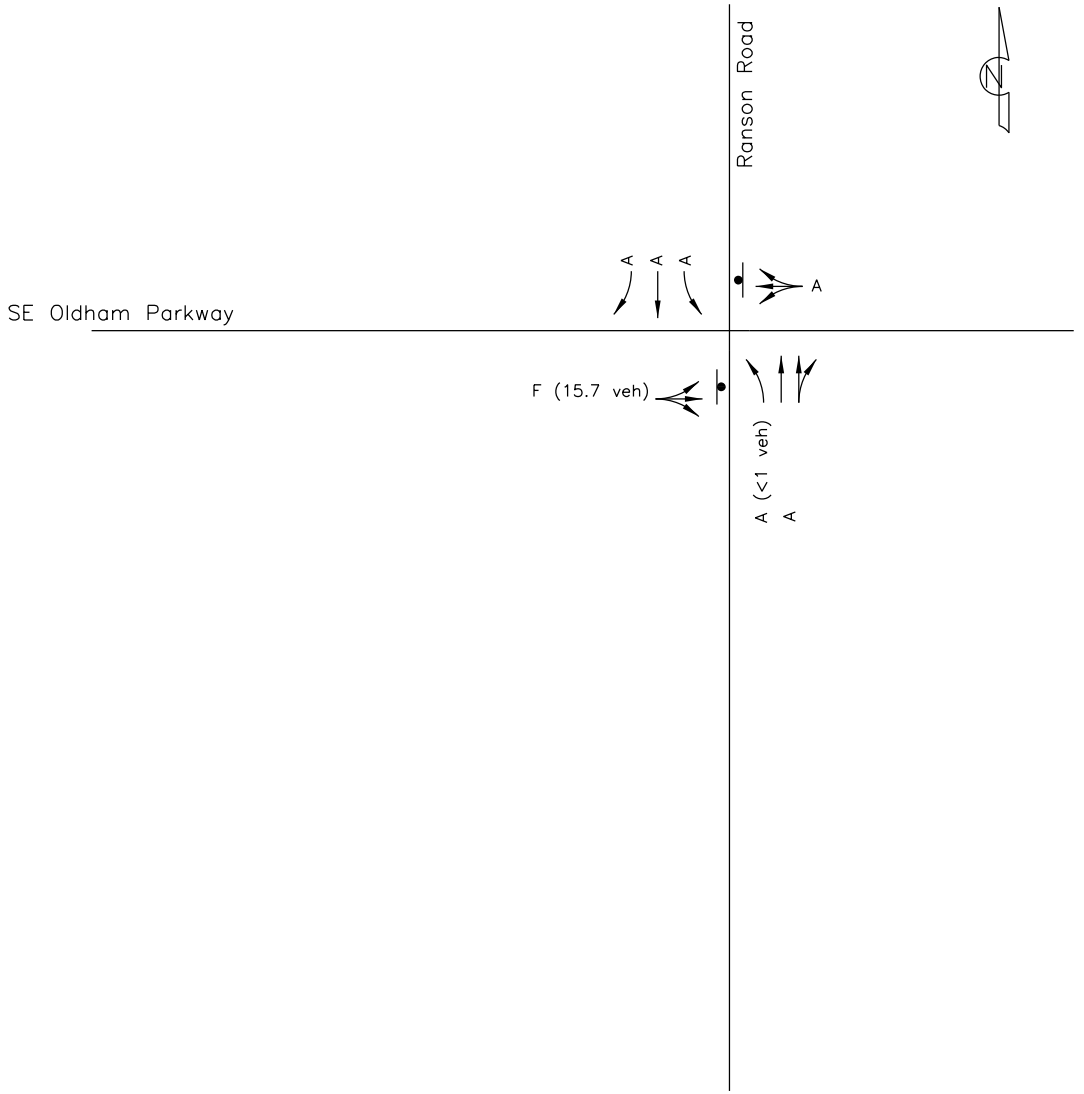
LEGEND

HCM LOS (95th Percentile Queue)

Stop Sign

Ⓐ Traffic Signal LOS

Existing AM Peak Hour Lane Configuration & Levels of Service	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 6	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	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 7

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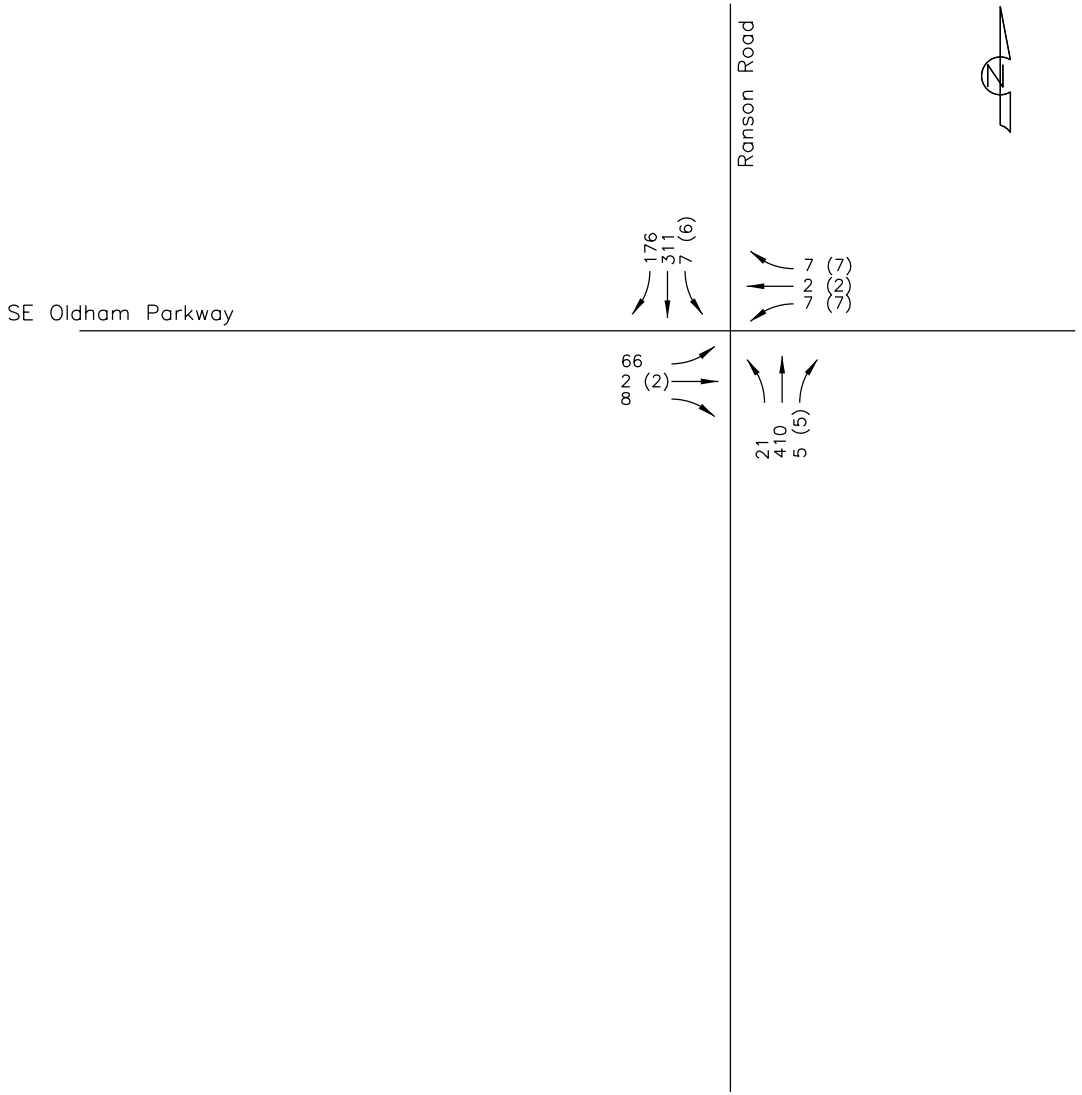

LEGEND

Total Volume (Site Generated)[Pass-By]

Existing + Proposed AM Peak Hour Traffic Volumes	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 8

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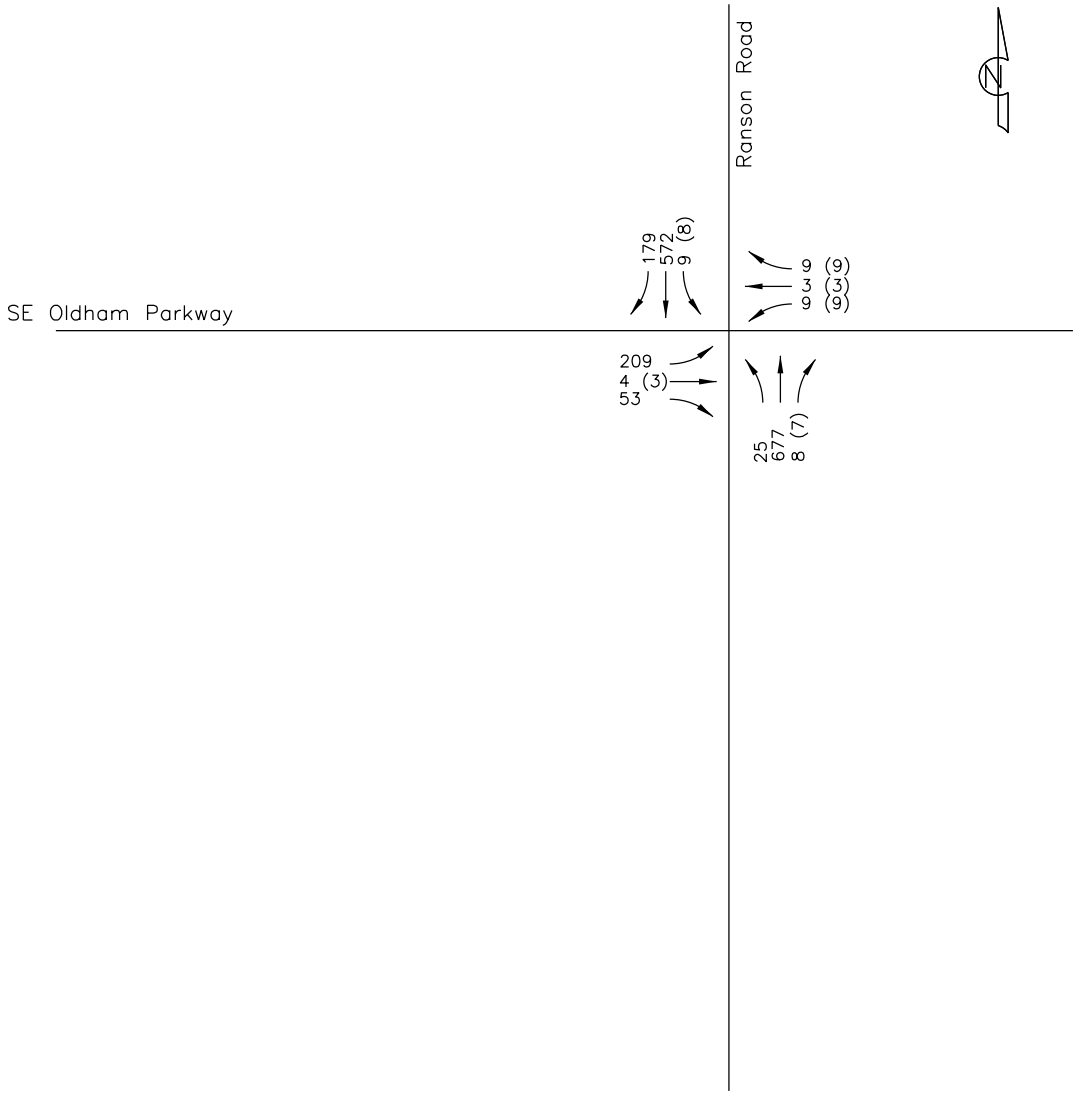
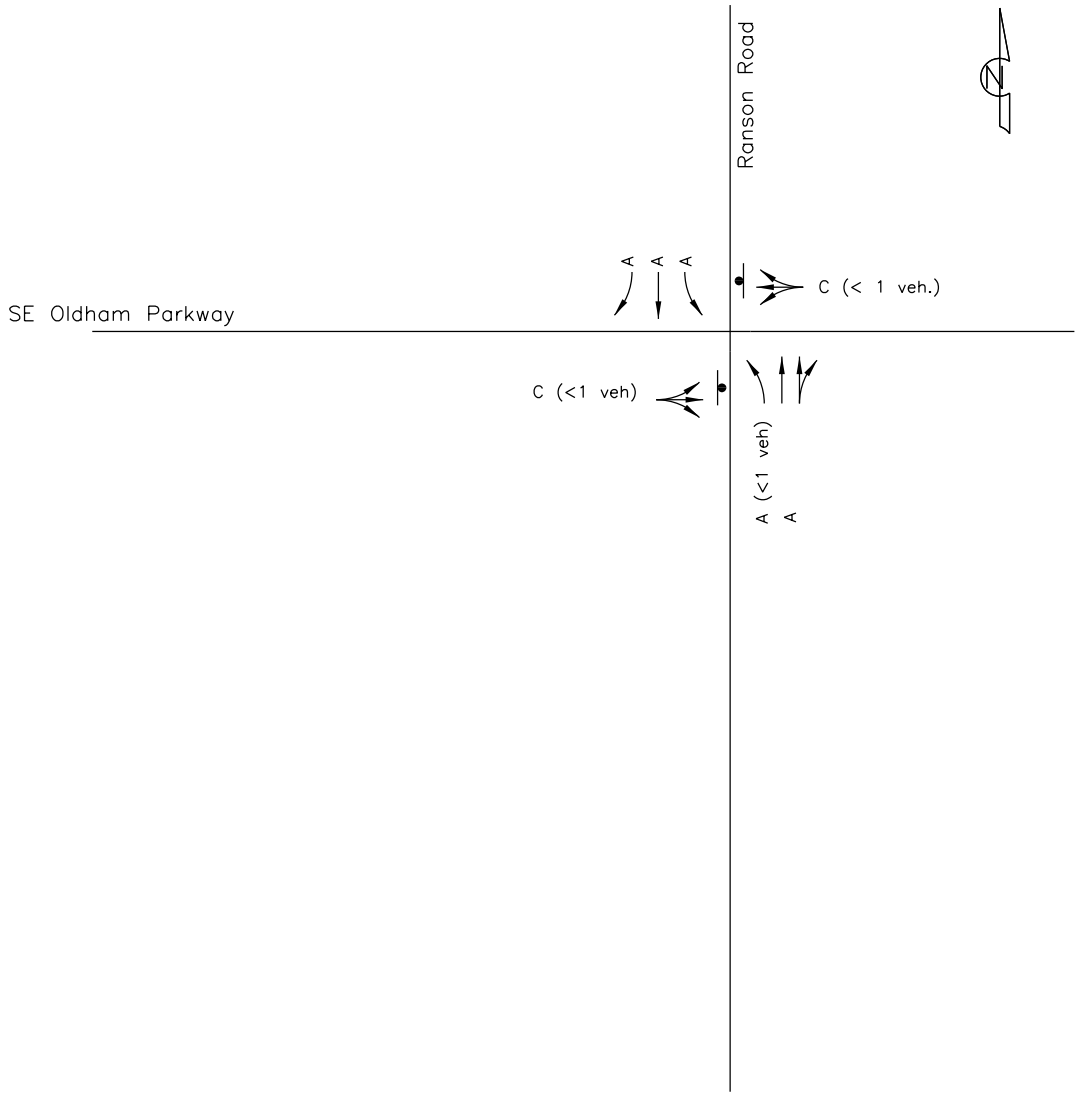


LEGEND

Total Volume (Site Generated)[Pass-By]

Existing + Proposed PM Peak Hour Traffic Volumes	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 9	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

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

Existing + Proposed AM Peak Hour Lane Configuration & Levels of Service	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 10

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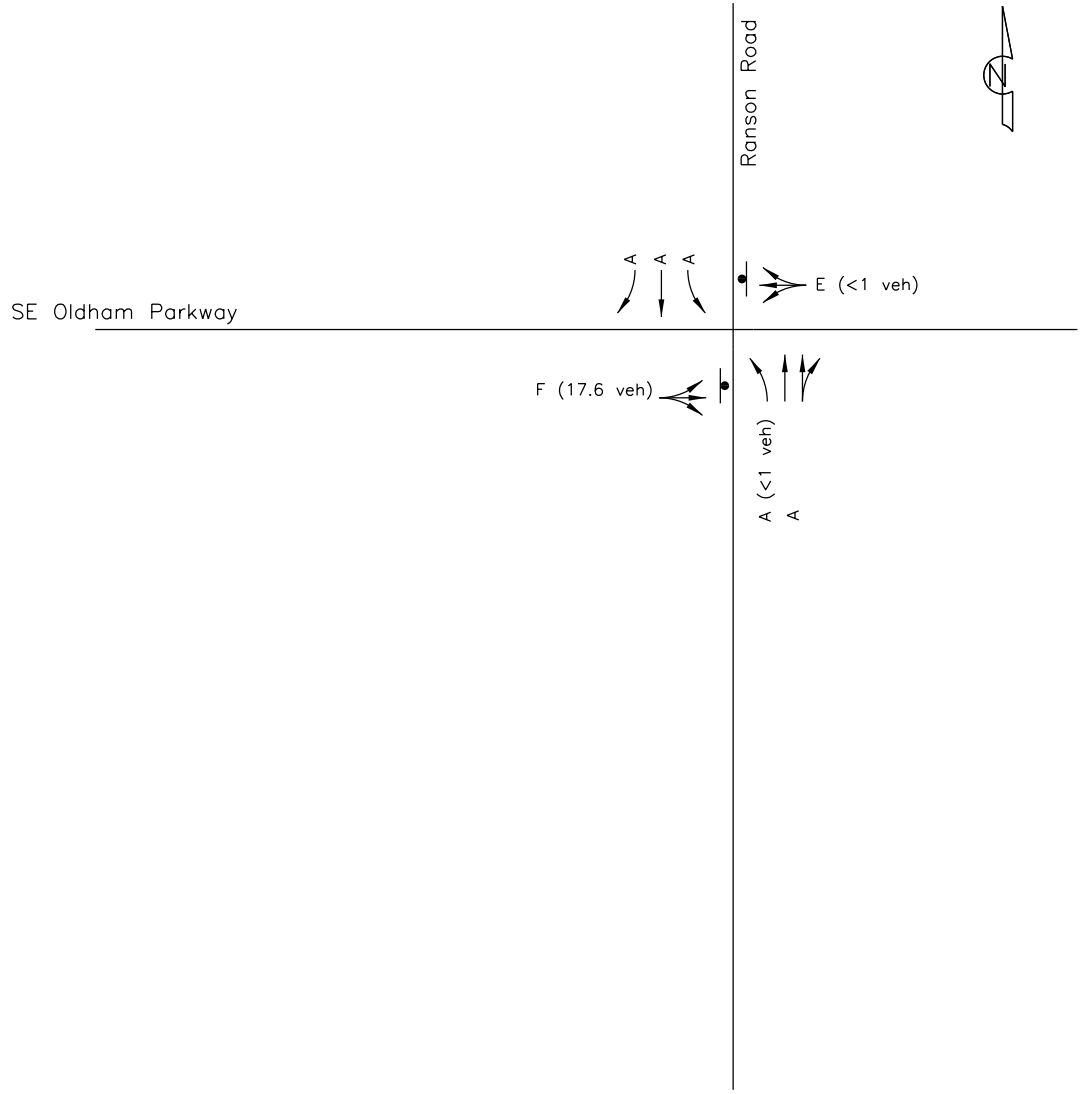
816.738.4400



LEGEND

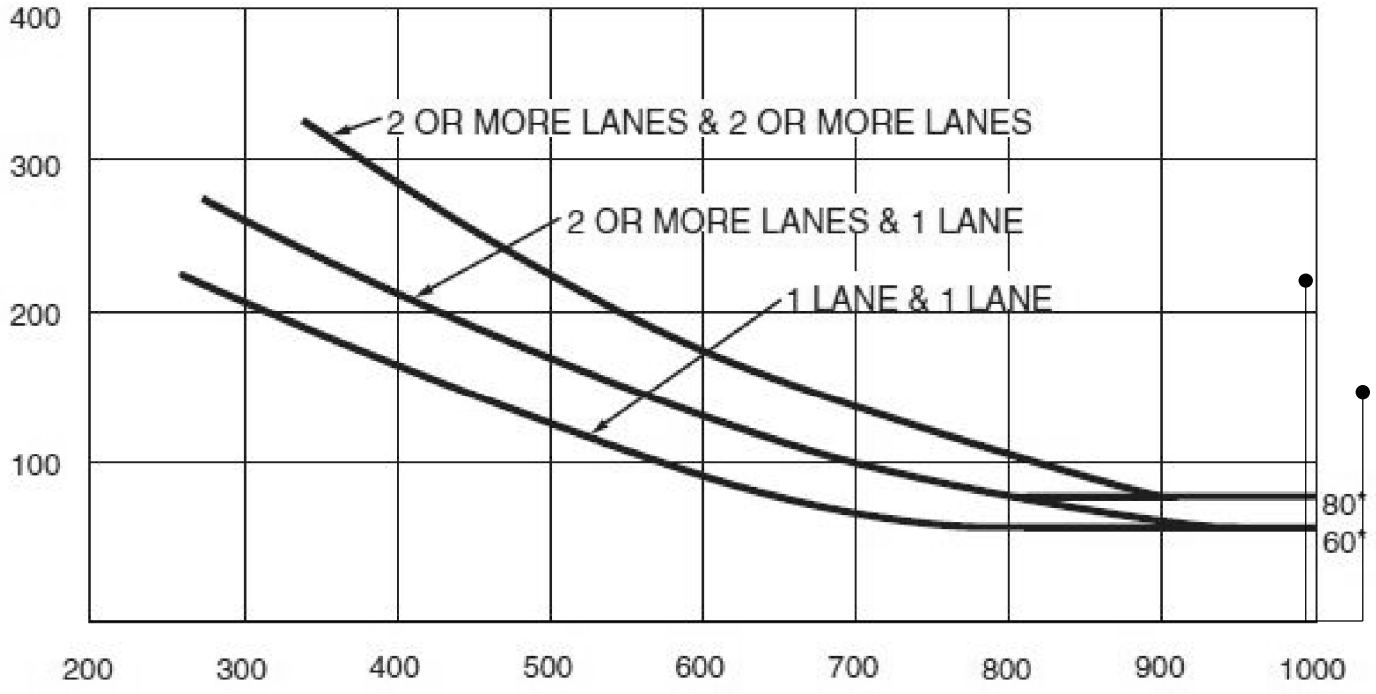
HCM LOS (95th Percentile Queue)

Stop Sign

Ⓐ Traffic Signal LOS

Existing + Proposed PM Peak Hour Lane Configuration & Levels of Service	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 11	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400

EXISTING 4 HR SIGNAL WARRANT (100 %)	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 12	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



EXISTING 4 HOUR SIGNAL WARRANT
(70 %)

Lee's Summit
Senior Living Community
Lee's Summit, MO

No Scale

Figure 13

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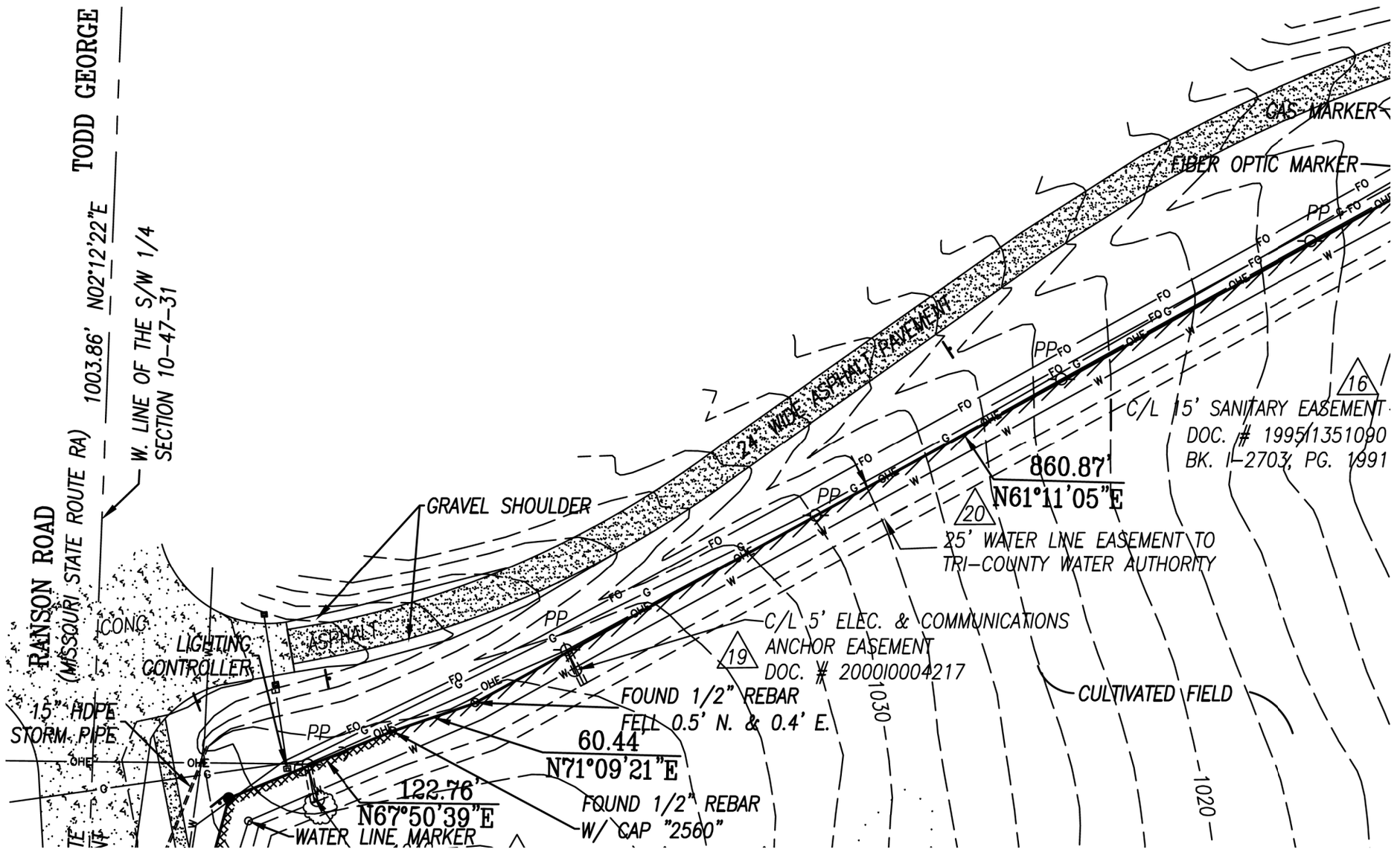

Survey	Lee's Summit Senior Living Community Lee's Summit, MO	No Scale Figure 14	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400

APPENDIX II

Peak Hour Traffic Counts

24 Hour Turning Movement Count

Synchro Reports

Time	Peds	SB Right	SB Thru	SB Left	SB UTrn	Bike	Peds	WB Right	WB Thru	WB Left	WB Utrn	Bike	Peds	NB Right	NB Thru	NB Left	NB UTrn	Bike	Peds	EB Right	EB Thru	EB Left	EB UTrn	Bike		
07:00	0	41	43	0	0	0	0	0	0	0	0	0	0	0	103	5	0	0	0	0	0	10	0	0	202	
07:15	0	49	59	0	0	0	0	0	0	0	0	0	0	0	107	6	0	0	0	3	0	13	0	0	237	
07:30	0	47	82	0	0	0	0	0	0	0	0	0	0	0	124	5	0	0	0	0	0	19	0	0	277	
07:45	0	43	80	0	0	0	0	0	0	0	0	0	0	0	92	7	0	0	1	1	0	19	0	0	242	958
08:00	0	41	76	0	0	0	0	0	0	0	0	0	0	0	100	6	0	0	0	2	0	13	0	0	238	994
08:15	0	45	73	1	0	0	0	0	0	0	0	0	0	0	94	3	0	0	0	5	0	15	0	0	236	993
08:30	0	46	57	1	0	0	1	0	0	0	0	0	0	0	108	4	0	0	0	2	1	20	0	0	239	955
08:45	0	47	81	0	0	0	0	2	0	0	0	0	0	0	110	3	0	0	0	1	0	16	0	0	260	973
TOTAL		176	311	1	0	0	0	0	0	0	0	0	0	0	410	21	0	0	0	1	8	0	66	0	0	0	993	

Time	Peds	SB Right	SB Thru	SB Left	SB UTrn	Bike	Peds	WB Right	WB Thru	WB Left	WB Utrn	Bike	Peds	NB Right	NB Thru	NB Left	NB UTrn	Bike	Peds	EB Right	EB Thru	EB Left	EB UTrn	Bike		
16:00	0	44	124	0	0	0	2	0	0	0	0	0	0	0	129	5	0	0	0	9	0	40	0	0	351	
16:15	0	53	127	0	1	0	0	0	0	0	0	0	0	0	136	2	0	0	0	10	0	52	0	0	381	
16:30	0	58	138	0	0	0	1	0	0	0	0	0	0	0	115	4	0	0	0	9	0	53	0	0	377	
16:45	0	53	139	0	1	0	1	0	0	0	0	0	0	1	151	6	0	0	0	12	0	55	0	0	418	1527
17:00	0	50	131	1	0	0	2	0	0	0	0	0	0	0	184	10	0	0	0	19	1	54	0	0	450	1626
17:15	0	42	145	0	0	0	0	0	0	0	0	0	0	0	199	3	0	0	0	14	0	50	0	0	453	1698
17:30	0	34	157	0	0	0	0	0	0	0	0	0	0	0	143	6	0	0	0	8	0	50	0	0	398	1719
17:45	0	38	115	0	0	0	0	0	0	0	0	0	0	0	132	1	0	0	0	5	0	45	0	0	336	1637
Total	0	179	572	1	1	0	3	0	0	0	0	0	0	1	677	25	0	0	0	53	1	209	0	0	1719	

Time	Peds	SB Right	SB Thru	SB Left	SB UTrn	Bike	Peds	WB Right	WB Thru	WB Left	WB Utrn	Bike	Peds	NB Right	NB Thru	NB Left	NB UTrn	Bike	Peds	EB Right	EB Thru	EB Left	EB UTrn	Bike
00:00	0	0	8	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0
00:15	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
00:30	0	0	5	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
00:45	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
01:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
01:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
01:30	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
01:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
02:15	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
02:30	0	0	4	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
02:45	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
03:00	0	0	3	1	0	0	0	4	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0
03:15	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
03:30	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
03:45	0	1	2	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
04:00	0	0	2	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0
04:15	0	0	4	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	1	0	0
04:30	0	1	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
04:45	0	6	9	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	1	0	0	0	0
05:00	0	4	13	0	1	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	2	0	0
05:15	0	7	19	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	1	0	0
05:30	0	4	25	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0
05:45	0	9	30	0	0	0	0	0	0	0	0	0	0	0	43	0	0	0	0	0	0	2	0	0
06:00	0	7	27	0	0	0	0	0	0	0	0	0	0	0	64	1	0	0	0	0	0	3	0	0
06:15	0	13	31	0	0	0	0	0	0	0	0	0	0	0	94	0	0	0	0	1	0	7	0	0
06:30	0	21	48	0	0	0	0	0	0	0	0	0	0	0	84	3	0	0	0	2	0	3	0	0
06:45	0	23	76	0	0	0	0	0	0	0	0	0	0	0	109	3	0	0	0	0	0	10	0	0
07:00	0	41	43	0	0	0	0	0	0	0	0	0	0	0	103	5	0	0	0	0	0	10	0	0
07:15	0	49	59	0	0	0	0	0	0	0	0	0	0	0	107	6	0	0	0	3	0	13	0	0
07:30	0	47	82	0	0	0	0	0	0	0	0	0	0	0	124	5	0	0	0	0	0	19	0	0
07:45	0	43	80	0	0	0	0	0	0	0	0	0	0	0	92	7	0	0	1	1	0	19	0	0
08:00	0	41	76	0	0	0	0	0	0	0	0	0	0	0	100	6	0	0	0	2	0	13	0	0
08:15	0	45	73	1	0	0	0	0	0	0	0	0	0	0	94	3	0	0	0	5	0	15	0	0
08:30	0	46	57	1	0	0	1	0	0	0	0	0	0	0	108	4	0	0	0	2	1	20	0	0
08:45	0	47	81	0	0	0	0	2	0	0	0	0	0	0	110	3	0	0	0	1	0	16	0	0
09:00	0	46	52	0	0	0	0	0	0	0	0	0	0	0	87	9	0	0	0	4	0	28	0	0
09:15	0	43	42	0	0	0	0	0	0	0	0	0	0	0	72	10	0	0	0	7	0	26	0	0
09:30	0	29	43	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	2	0	25	0	0
09:45	0	35	42	0	0	0	0	0	0	0	0	0	0	0	62	5	0	0	0	3	0	26	0	0
10:00	0	27	29	0	0	0	0	0	0	0	0	0	0	0	59	3	0	0	0	8	0	24	0	0
10:15	0	41	41	0	0	0	0	0	0	0	0	0	0	0	42	3	0	0	0	7	0	22	0	0
10:30	0	26	49	0	0	0	0	0	0	0	0	0	0	0	55	4	0	0	0	5	0	30	1	0
10:45	0	40	58	0	0	0	0	0	0	0	0	0	0	0	53	8	0	0	0	4	1	22	0	0
11:00	0	26	42	1	0	0	0	2	0	0	0	0	0	0	69	5	0	0	0	4	0	35	0	0
11:15	0	37	63	0	0	0	0	0	0	0	0	0	0	0	59	3	0	0	0	5	0	41	0	0
11:30	0	35	58	0	0	0	0	0	0	0	0	0	0	0	61	2	1	0	0	6	1	37	0	0
11:45	0	36	45	0	0	0	0	2	0	0	0	0	0	1	73	6	0	0	1	11	0	29	0	0
12:00	0	42	85	0	0	0	0	0	0	0	0	0	0	0	68	4	0	0	0	4	0	25	0	0
12:15	0	35	58	0	0	0	0	0	0	0	0	0	0	0	54	3	0	0	0	11	0	35	0	0
12:30	0	50	68	0	0	0	1	0	0	0	0	0	0	0	68	2	0	0	0	8	0	36	0	0
12:45	0	45	72	0	0	0	0	0	0	0	0	0	0	0	60	4	0	0	0	6	0	25	0	0
13:00	0	40	65	0	0	0	0	0	0	0	0	0	0	1	54	6	0	0	0	4	0	42	0	0
13:15	0	35	78	0	0	0	0	0	0	0	0	0	0	0	74	2	0	0	0	6	0	24	0	0
13:30	0	32	66	0	0	0	0	0	0	0	0	0	0	0	67	4	0	0	0	9	0	48	0	0
13:45	0	32	70	0	0	0	0	0	0	0	0	0	0	0	54	2	0	0	0	4	0	27	0	0
14:00	0	31	68	0	0	0	0	0	0	0	0	0	0	0	81	4	0	0	0	5	0	40	0	0
14:15	0	28	63	0	0	0	0	0	0	0	0	0	0	0	60	3	0	0	0	8	0	18	0	0
14:30	0	45	94	0	0	0	0	0	0	0	0	0	0	0	55	4	0	0	0	9	0	23	0	0
14:45	0	48	85	1	0	0	0	0	0	0	0	0	0	0	65	3	0	0	0	9	1	42	0	0
15:00	0	40	96	0	0	0	0	0	0	0	0	0	0	1	80	3	0	0	0	11	1	42	0	0
15:15	0	41	91	0	0	0	0	0	0	0	0	0	0	0	83	2	0	0	0	11	0	50	0	0
15:30	0	51	107	0	0	0	0	0	0	0	0	0	0	0	104	5	0	0	0	11	0	44	0	0
15:45	0	42	145	0	0	1	0	0	0	0	0	0	0	0	99	3	0	0	0	10	0	33	0	0
16:00	0	44	124	0	0	0	2	0	0	0	0	0	0	0	129	5	0	0	0	9	0	40	0	0
16:15	0	53	127	0	1	0	0	0	0	0	0	0	0	0	136	2	0	0	0	10	0	52	0	0
16:30	0	58	138	0	0	0	1	0	0	0	0	0	0	0	115	4	0	0	0	9	0	53	0	0
16:45	0	53	139	0	1	0	1	0	0	0	0	0	0	1	151	6	0	0	0	12	0	55	0	0
17:00	0	50	131	1	0	0	2	0	0	0	0	0	0	0	184	10	0	0	0	19	1	54	0	0
17:15	0	42	145	0	0	0	0	0	0	0	0	0	0	0	199	3	0	0	0	14	0	50	0	0
17:30	0	34	157	0	0	0	0	0	0	0	0	0	0	0	143	6	0	0	0	8	0	50	0	0
17:45	0	38	115	0	0	0	0	0	0	0	0	0	0	0	132	1	0	0	0	5	0	45	0	0
18:00	0	26	137	0	0	0	0	0	0	0	0	0	0	0	94	3	0	0	0	5	0	56	0	0
18:15	0	38	127	0	0	0	0	0	0	0	0	0	0	0	104	2	0	0	0	3	0	27	0	0
18:30	0	26	134	0	0	0	0	0	0	0	0	0	0	0	110	1	0	0	0	10	1	23	0	0
18:45	0	26	115	0	0	0	0	0	0	0	0	0	0	0	85	2	0	0	0	1	0	17	0	0
19:00	0	12	80	0	0	0	0	0	0	0	0	0	0	0	73	1	0	0	0	4	0	34	0	0
19:15	0	13	92	0	0	0	0	0	0	0	0	0	0	0	65	2	0	0	0	3	0	28	0	0
19:30	0	6	77	0	0	0	0	0	0	0	0	0	0	0	45	3	0	0	0	1	0	17	0	0
19:45	0	15	63	0	0	0	0	0	0	0	0	0	0	0	60	3	0	0	0	4	0	14	0	0
20:00	0	9	73	0	0	0	0	0	0	0	0	0	0	0	56	0	0	0	0	2	0	19	0	0
20:15	0	11	62	0	0	0	0	0	0	0	0	0	0	0	47	1	0	0	0	3	0	15	0	0

20:30	0	9	53	0	0	0		0	0	0	0	0	0		0	1	54	2	0	0		0	1	0	17	0	0
20:45	0	6	61	0	0	0		0	2	0	0	0	0		0	0	30	1	0	0		0	1	0	10	0	0
21:00	0	5	55	0	0	0		0	0	0	0	0	0		0	0	32	0	0	0		0	1	0	11	0	0
21:15	0	5	52	0	0	0		0	0	0	0	0	0		0	0	22	0	0	0		0	2	0	3	0	0
21:30	0	1	44	0	0	0		0	0	0	0	0	0		0	0	19	0	0	0		0	2	0	3	0	0
21:45	0	2	28	0	0	0		0	0	0	0	0	0		0	0	21	0	0	0		0	0	0	4	0	0
22:00	0	0	21	0	0	0		0	0	0	0	0	0		0	0	12	0	0	0		0	0	0	2	0	0
22:15	0	1	29	0	0	0		0	0	0	0	0	0		0	0	13	0	0	0		0	0	0	1	0	0
22:30	0	1	24	0	0	0		0	0	0	0	0	0		0	0	8	0	0	0		0	1	0	4	0	0
22:45	0	0	13	0	0	0		0	0	0	0	0	0		0	0	7	0	0	0		0	0	0	0	0	0
23:00	0	1	6	0	0	0		0	0	0	0	0	0		0	0	10	0	0	0		0	0	0	2	0	0
23:15	0	1	10	0	0	0		0	0	0	0	0	0		0	0	7	0	0	0		0	0	0	0	0	0
23:30	0	1	11	0	0	0		0	0	0	0	0	0		0	0	2	0	0	0		0	0	0	0	0	0
23:45	0	0	10	0	0	0		0	0	0	0	0	0		0	0	5	0	0	0		0	0	0	0	0	0
Total	0	2104	5210	6	5	1	0	8	14	0	0	0	0	0	0	6	5379	216	1	0	0	2	342	7	1763	1	0

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	66	0	8	0	0	0	21	410	0	1	311	176
Future Vol, veh/h	66	0	8	0	0	0	21	410	0	1	311	176
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	-	-	-	-	-	-	100	-	100	150	-	150
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	72	0	9	0	0	0	23	446	0	1	338	191

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	609	832	338	932	1023	223	529	0	0	446	0	0
Stage 1	340	340	-	492	492	-	-	-	-	-	-	-
Stage 2	269	492	-	440	531	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	393	304	703	234	235	781	1036	-	-	1112	-	-
Stage 1	674	639	-	528	547	-	-	-	-	-	-	-
Stage 2	714	547	-	595	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	386	297	703	227	230	781	1036	-	-	1112	-	-
Mov Cap-2 Maneuver	386	297	-	227	230	-	-	-	-	-	-	-
Stage 1	659	638	-	516	535	-	-	-	-	-	-	-
Stage 2	698	535	-	587	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	0	0.4	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1036	-	-	406	-	1112	-	-
HCM Lane V/C Ratio	0.022	-	-	0.198	-	0.001	-	-
HCM Control Delay (s)	8.6	-	-	16	0	8.2	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	-	0	-	-

Intersection	
Int Delay, s/veh	33.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	209	1	53	0	0	0	25	677	1	1	572	179
Future Vol, veh/h	209	1	53	0	0	0	25	677	1	1	572	179
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	-	-	-	-	-	-	100	-	100	150	-	0
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	227	1	58	0	0	0	27	736	1	1	622	195

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1046	1415	622	1542	1610	369	817	0	0	737	0	0
Stage 1	624	624	-	791	791	-	-	-	-	-	-	-
Stage 2	422	791	-	751	819	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	~ 194	137	486	86	104	629	809	-	-	867	-	-
Stage 1	472	477	-	350	400	-	-	-	-	-	-	-
Stage 2	581	400	-	402	388	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 189	132	486	73	100	629	809	-	-	867	-	-
Mov Cap-2 Maneuver	~ 189	132	-	73	100	-	-	-	-	-	-	-
Stage 1	456	477	-	338	387	-	-	-	-	-	-	-
Stage 2	562	387	-	353	388	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	220.5	0	0.3	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	809	-	-	215	-	867	-	-
HCM Lane V/C Ratio	0.034	-	-	1.33	-	0.001	-	-
HCM Control Delay (s)	9.6	-	-	220.5	0	9.2	-	-
HCM Lane LOS	A	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	15.7	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	2	8	7	2	7	21	410	5	7	311	176
Future Vol, veh/h	66	2	8	7	2	7	21	410	5	7	311	176
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	-	-	-	-	-	-	100	-	100	150	-	0
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	72	2	9	8	2	8	23	446	5	8	338	191

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	624	851	338	950	1040	226	529	0	0	451	0	0
Stage 1	354	354	-	495	495	-	-	-	-	-	-	-
Stage 2	270	497	-	455	545	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	384	296	703	227	230	778	1036	-	-	1108	-	-
Stage 1	662	630	-	526	545	-	-	-	-	-	-	-
Stage 2	713	544	-	584	518	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	369	287	703	218	223	778	1036	-	-	1108	-	-
Mov Cap-2 Maneuver	369	287	-	218	223	-	-	-	-	-	-	-
Stage 1	647	626	-	514	533	-	-	-	-	-	-	-
Stage 2	688	532	-	571	514	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.9	16.9	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1036	-	-	385	320	1108	-	-
HCM Lane V/C Ratio	0.022	-	-	0.215	0.054	0.007	-	-
HCM Control Delay (s)	8.6	-	-	16.9	16.9	8.3	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.2	0	-	-

Intersection	
Int Delay, s/veh	42.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	209	4	53	9	3	9	25	677	8	9	572	179
Future Vol, veh/h	209	4	53	9	3	9	25	677	8	9	572	179
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	-	-	-	-	-	-	100	-	100	150	-	0
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	227	4	58	10	3	10	27	736	9	10	622	195

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1066	1441	622	1566	1632	373	817	0	0	745	0	0
Stage 1	642	642	-	795	795	-	-	-	-	-	-	-
Stage 2	424	799	-	771	837	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	~ 188	132	486	82	101	625	809	-	-	861	-	-
Stage 1	462	468	-	348	398	-	-	-	-	-	-	-
Stage 2	579	397	-	392	381	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 174	126	486	68	96	625	809	-	-	861	-	-
Mov Cap-2 Maneuver	~ 174	126	-	68	96	-	-	-	-	-	-	-
Stage 1	447	462	-	337	385	-	-	-	-	-	-	-
Stage 2	546	384	-	338	376	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	277.3	42.7	0.3	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	809	-	-	198	118	861	-	-
HCM Lane V/C Ratio	0.034	-	-	1.46	0.193	0.011	-	-
HCM Control Delay (s)	9.6	-	-	277.3	42.7	9.2	-	-
HCM Lane LOS	A	-	-	F	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	17.6	0.7	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon