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ARDURRA

SERENITY AT EVERETT ROAD
TRAFFIC IMPACT STUDY

EVERETT ROAD
KNOX COUNTY, TN

ARDURRA PROJECT NO. 01948-0001.000

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April 24
2026

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1 EXECUTIVE SUMMARY

This report provides a summary of a traffic impact study that was performed for a proposed residential development to be located along Everett Road within the Hardin Valley community of Knox County, TN. The project site is located west of the unsignalized intersection of Yarnell Road at Everett Road. The conceptual plan for this project, Serenity at Everett Road, proposes a total of 144 Apartment Units.

The conceptual plan shows one site access onto Everett Road, approximately 180 feet west of Yarnell Road.

Within the vicinity of the proposed development, the Everett Woods Subdivision has approximately 108 single-family lots completed with 62 single-family lots that are to be constructed. Additionally, the Vintage Knoxville West development proposes the addition of 224 apartment units. Just east of the proposed development, the Everett Pointe development proposes 150 apartment units. With additional ongoing development occurring adjacent to the proposed development, it shall be considered when analyzing the impacts to traffic operation and safety.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed residential development upon roadways in the vicinity of the site. Of particular interest in this study are the proposed development access mentioned above as well as the unsignalized intersection of Yarnell Road at Everett Road. Appropriate intersection evaluations were conducted at these locations in order to determine the anticipated impacts and to establish recommended measures to mitigate these impacts. These evaluations included trip generation, trip distribution, capacity analyses, queue analyses, turn lane warrant analyses and sight distance assessments.

The primary conclusion of this study is that traffic generated from the proposed residential development and adjacent development in the area will have significant impacts to delay at the intersection of Everett Road and Yarnell Road. Under the proposed conditions evaluated, the Everett Road and Yarnell Road intersection was found to operate at a LOS “F”, while the proposed site access (Serenity Way) was found to operate at a LOS “B”. To mitigate the significant delays at the intersection of Everett Road at Yarnell Road, various intersection improvements were evaluated under proposed conditions. It was found that a roundabout at Everett Road and Yarnell Road would operate at a LOS “A” in both peak hours.

The following list is a summary of the improvements that are recommended to be implemented with the construction of this project:

1. Install STOP sign at unsignalized Site Access (Serenity Way) at Everett Road.

2. Clear vegetation looking right at the unsignalized Site Access (Serenity Way) at Everett Road in order to maintain adequate intersection sight distance.

3. Convert the intersection of Everett Road at Yarnell Road from side-street stop control to a single-lane roundabout.

2 INTRODUCTION & PURPOSE OF STUDY

This report provides a summary of a traffic impact study that was performed for a proposed residential development to be located along Everett Road within the community of Hardin Valley in Knox County, TN. The project site is located west of the unsignalized intersection of Yarnell Road at Everett Road. FIGURE 1 is a location map identifying the major roadways in the vicinity of the site.

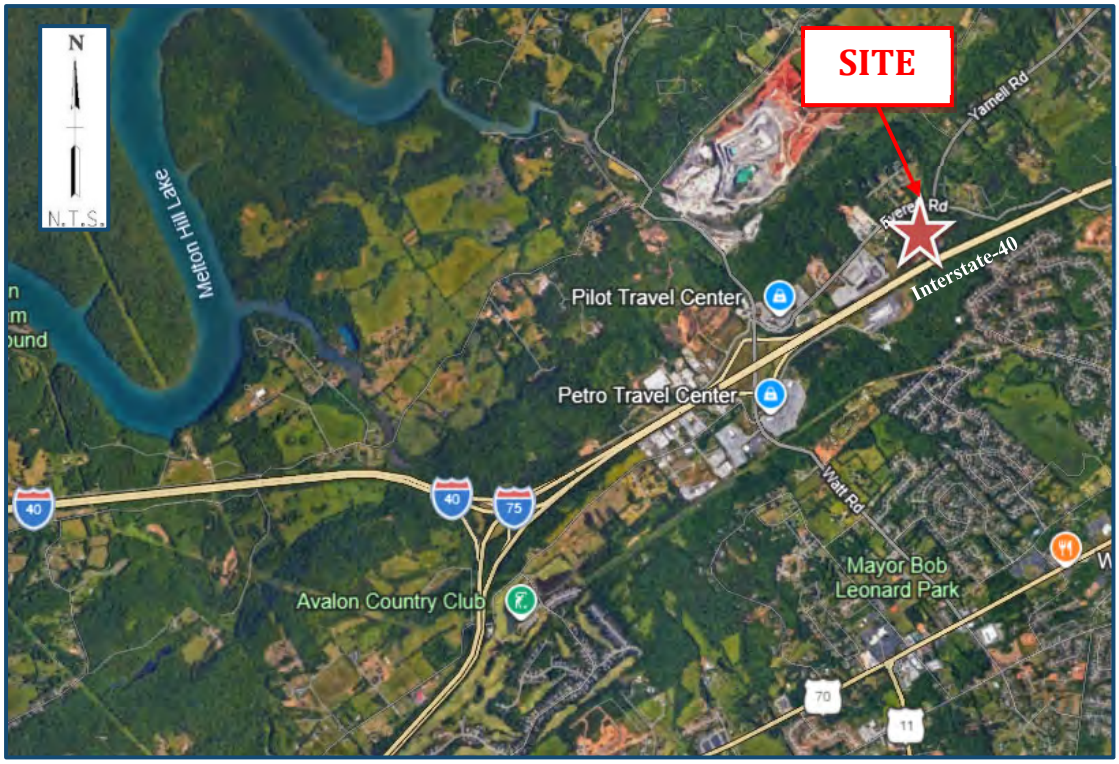


FIGURE 1
LOCATION MAP

The conceptual plan for this project, Serenity at Everett Road, proposes a residential development with 144 apartment units. The project is to have one site access onto Everett Road, approximately 180 feet west of Yarnell Road at Everett Road. FIGURE 2 is a Conceptual Site Plan which details the proposed site configuration.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed residential development upon roadways in the vicinity of the site. Of particular interest in this study are the proposed development accesses mentioned above. Appropriate intersection evaluations were conducted at these locations to determine the anticipated impacts and to establish recommended measures to mitigate these impacts. These evaluations included trip generation, trip distribution, capacity analyses, queue analysis, turn lane warrant analyses and sight distance assessments.

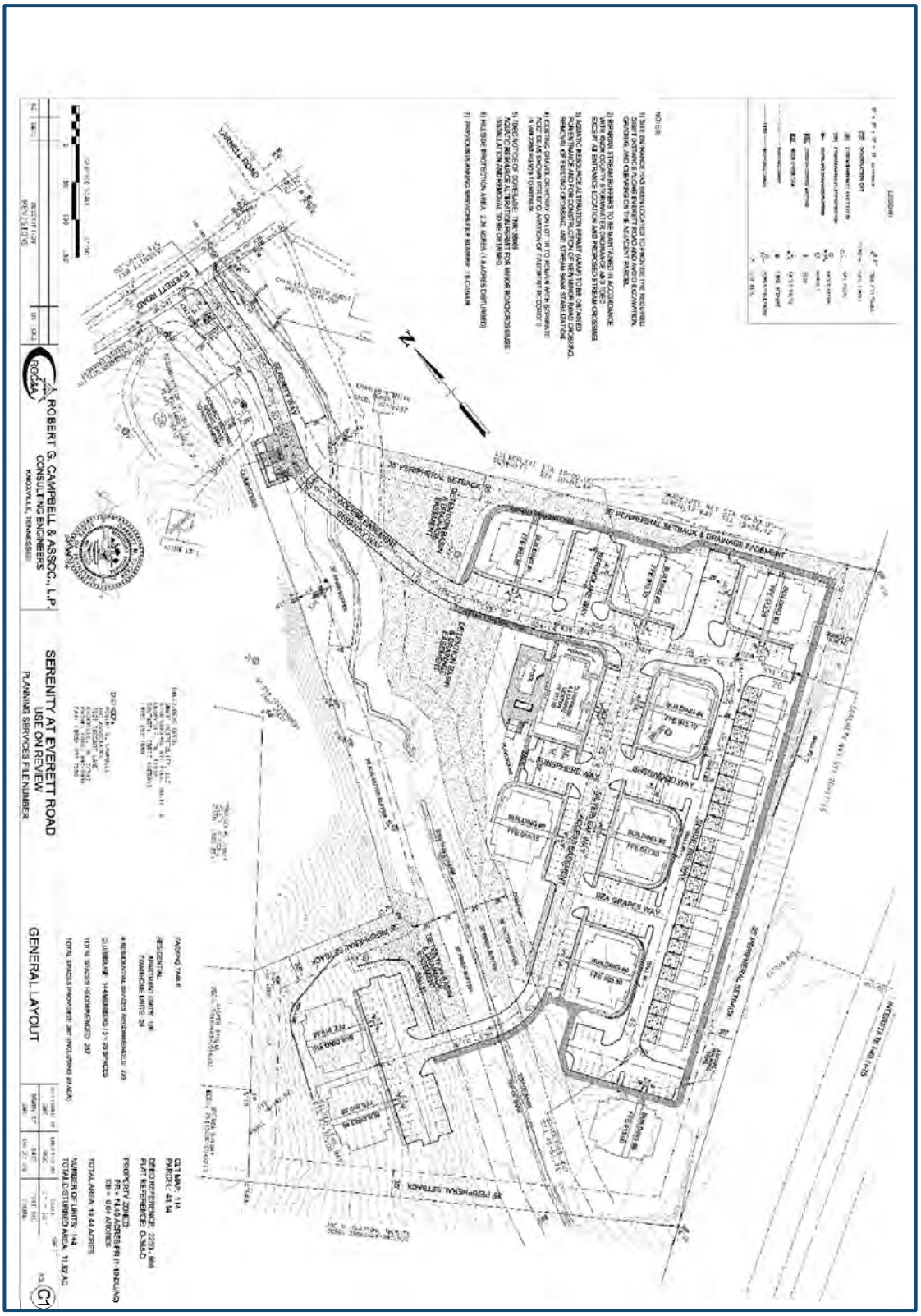


FIGURE 2
CONCEPTUAL SITE PLAN

3 EXISTING CONDITIONS

EXISTING ROADWAY CONDITIONS

According to the Knoxville-Knox County Major Road Plan Everett Road is a Major Collector between Watt Road and Farragut Town Line that provides east-west access in Knox County. Everett Road carries traffic to and from both residential and commercial areas. In the vicinity of the proposed development, the roadway consists of two 10-foot through travel lanes in each direction. No shoulder or sidewalks exist on either side of the roadway. The speed limit on Everett Road is posted as 30 mph. The 2024 ADT on Everett Road was 2,343 vpd.

According to the Knoxville-Knox County Major Road Plan Yarnell Road is a Major Collector between Everett Road and Lovell Road that provides east-west access in Knox County. Yarnell Road carries traffic to and from both residential and agricultural areas. In the vicinity of the proposed development, the roadway consists of two 11-foot through travel lanes in each direction. No shoulder or sidewalk exists on either side of the roadway. The posted speed limit on Yarnell Road is 40 mph. The 2024 ADT on Yarnell Road is 3,560 vpd.

EXISTING SITE CONDITIONS

The total site acreage for this project consists of approximately 14.45 acres located south of Everett Road. Knoxville is located to the east and Lenior City is located to the south-west of the proposed site. The site is primarily bordered by general agricultural and residential land uses.

FIGURE 3
EXISTING SITE CONDITIONS

EXISTING TRAFFIC DATA

Existing traffic data was gathered for this study. Annual average daily traffic data (AADT) collected by TDOT and the Knoxville Regional Transportation Planning Organization (TPO) on roadways in the area of the proposed development were utilized. Three count stations, one located on Everett Road west of Yarnell Road, one located on Everett Road east of Yarnell Road, and one located on Yarnell east of Marietta Church Road, were felt to have relevance for this study. The most currently available data from these count stations is contained in TABLE 1.

In addition to the available AADT data, intersection turning movement traffic counts were performed to determine the current AM and PM peak hour operating volumes at the intersection of Everett Road at Yarnell Road. The traffic count was conducted in October 2025. It should be noted that at the time the traffic count was conducted, the Everett Woods subdivision had not reached full build-out and only was partially occupied. Therefore, the intersection of Everett Road and Yarnell Road Drive did not include all the trips that would result from full build-out conditions. Thus, the background volumes were modified to account for full build-out. The 2025 peak hour volumes from the Everett Point Traffic Impact Study are shown in FIGURE 4, and the raw data traffic count summary sheets are contained in APPENDIX A.

TABLE 1 ANNUAL AVERAGE DAILY TRAFFIC COUNT SUMMARY			
COUNT YEAR	TDOT COUNT STATION 47000475 EVERETT ROAD WEST OF YARNELL ROAD	TDOT COUNT STATION 47000136 EVERETT ROAD EAST OF YARNELL ROAD	KNOX TPO COUNT STATION 093M384 YARNELL ROAD EAST OF MARIETTA CHURCH ROAD
2024	2,343	2,355	3,560
2023	2,223	1,959	-
2022	2,622	1,757	2,530
2021	1,894	1,114	-
2020	2,336	1,289	-
2019	1,585	1,239	2,070
2018	2,350	1,284	-
2017	2,551	927	-
2016	2,184	907	1,720
2015	2,128	906	-
2014	2,128	878	-
2013	1,752	764	-
2012	1,920	756	-
2011	1,664	718	-

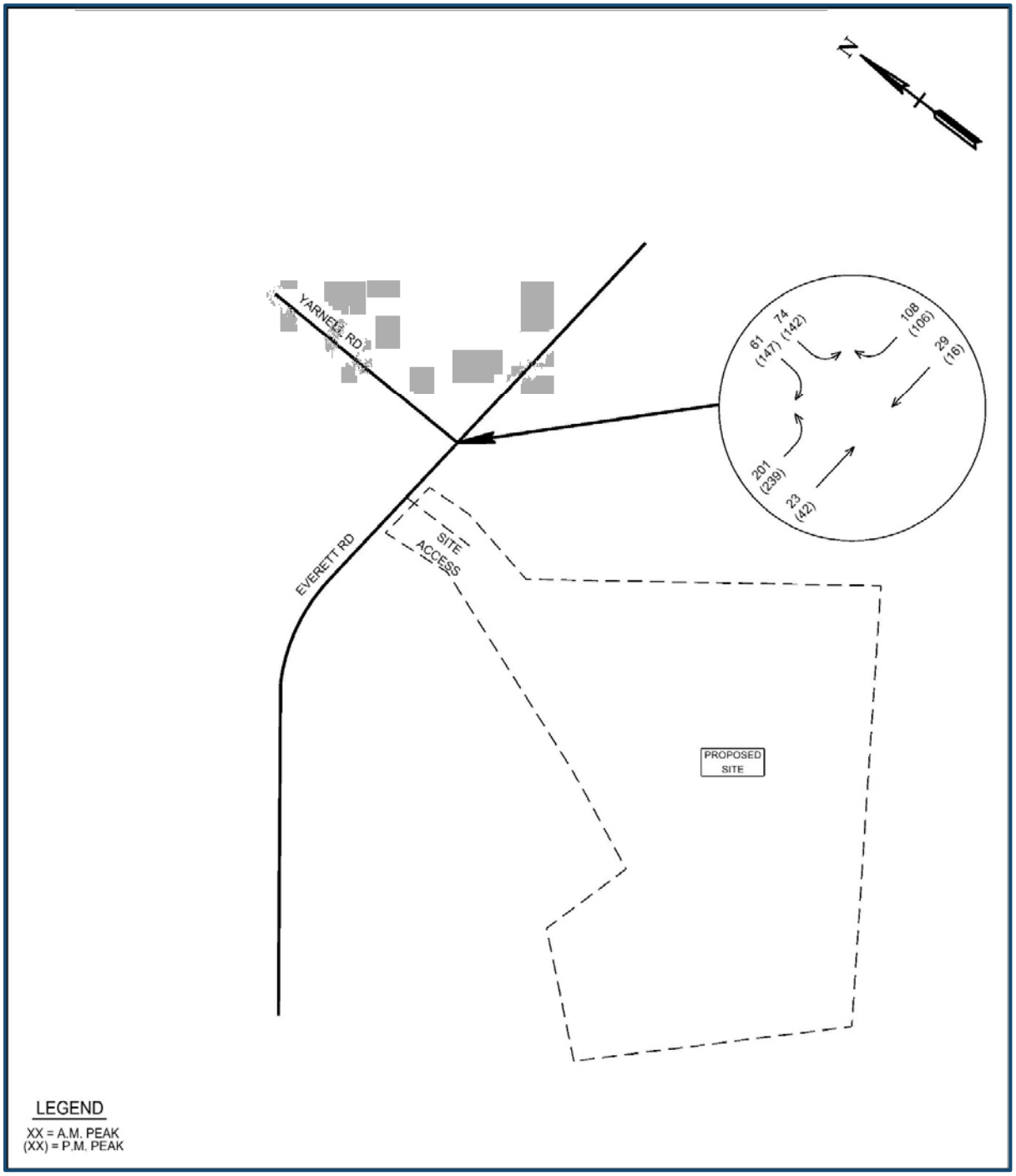


FIGURE 4
2025 EXISTING TRAFFIC VOLUMES

EXISTING CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses employing the methods of the Highway Capacity Manual (7th Edition) were conducted for the existing study intersection. The analyses were performed with the 2025 existing traffic volumes from the Everett Point Traffic Impact Study, existing intersection traffic control, and lane configurations. The intersection of Everette Road at Yarnell Road was found to operate at a Level-of-Service (LOS) "C" during the both the AM and PM peak hours with approach delays of 17.6 seconds and 23.1 seconds, respectively.

The EVALUATIONS section of this report may be referenced for tabular summaries and discussion of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C.

4 BACKGROUND CONDITIONS

BACKGROUND TRAFFIC GROWTH

To determine traffic volumes resulting solely from background traffic growth to year 2029, it was necessary to establish an annual growth rate for existing traffic. The ADT values previously discussed, as well as knowledge of the area, were used to determine an approximate annual growth rate. Based on the available data, a background annual growth rate of 5.0% was assumed. Existing volumes from the intersection of Everett Road and Yarnell Road were grown by 5.0% every year from the year 2025, when the counts were conducted, to the year 2029.

Anticipating the full build out of the Everett Woods subdivision, trip generation and trip assignment was conducted for the remainder of unoccupied lots. Trips generated for the proposed Everett Point and West Knoxville Vintage developments, were pulled from their respective Traffic Impact Study. The trips generated from each development were then combined with the background volumes that had been grown from the year 2025 to the year 2029. More detailed trip generation information is contained in APPENDIX B.

The background traffic volumes shown on FIGURE 5 represent the full build out of the Everett Woods Subdivision, the Vintage Knoxville West development, the Everett Pointe development, and the Year 2029 background growth conditions without traffic related to the proposed development.

BACKGROUND CAPACITY ANALYSES / LEVELS-OF-SERVICE

Appropriate capacity analyses as described in the Existing Conditions section of this report were conducted utilizing the Year 2029 background volumes shown in FIGURE 5. Under Year 2029 background conditions, without traffic related to the proposed development, the intersection of Everett Road and Yarnell Road was found to operate at a Level-of-Service (LOS) “F” during both the AM and PM peak hour with approach delays of 72.6 seconds and 274.0 seconds, respectively.

The EVALUATIONS section of this report may be referenced for tabular summaries and discussion of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C.

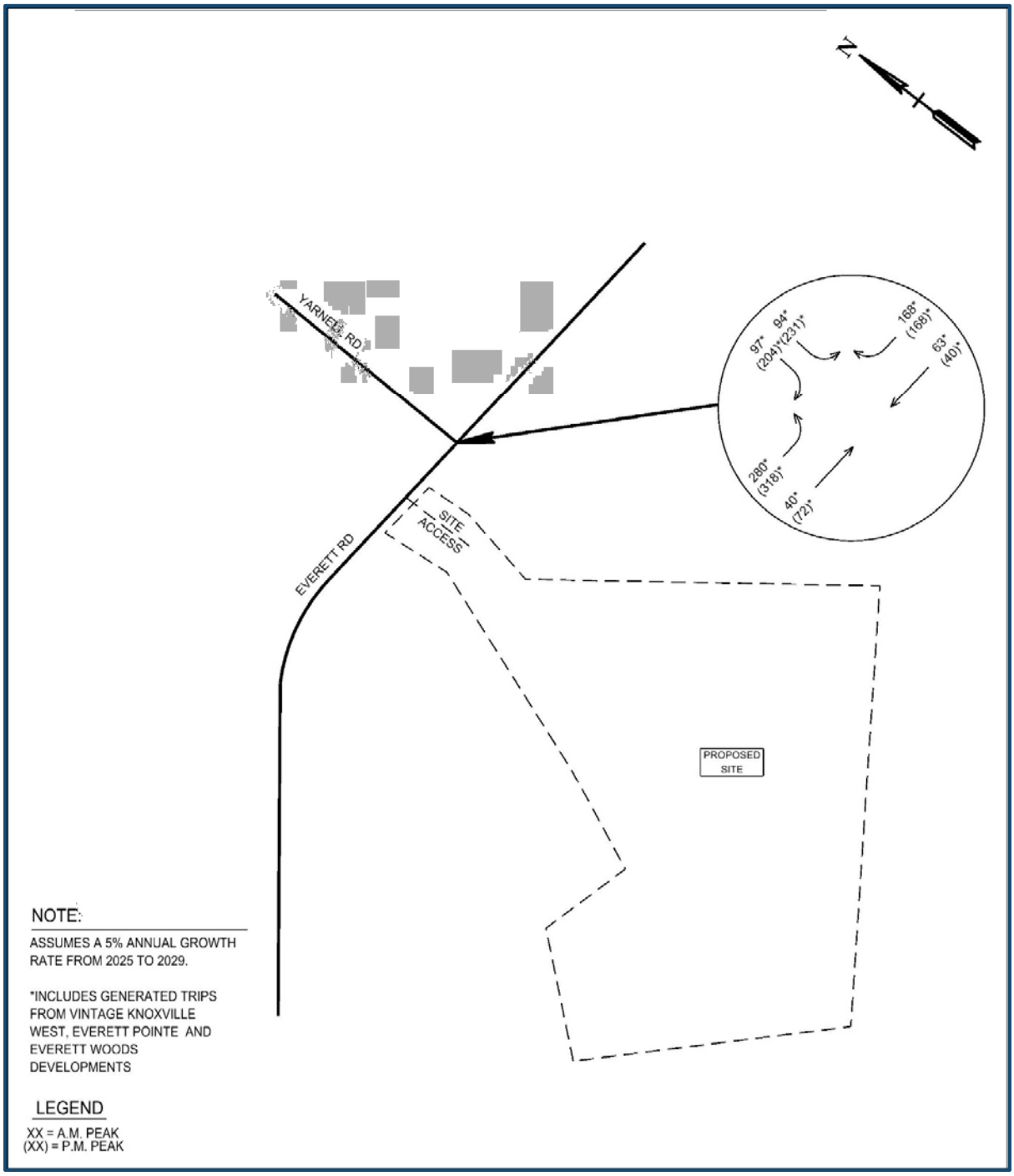


FIGURE 5
2029 BACKGROUND TRAFFIC VOLUMES

5 FUTURE CONDITIONS

TRIP GENERATION

In order to estimate the expected traffic volumes to be generated by the proposed development, the procedures recommended by the Institute of Transportation Engineers were utilized. Trip generation rates developed by the Institute of Transportation Engineers (Trip Generation, 12th Edition) were utilized to generate the estimated trips for the proposed development. The generated traffic volumes were determined based on the data for the weekday, AM peak hour and PM peak hour. Fitted curves were used for the trip generation calculations. Based on standard practices, if the "R-squared" value is 0.75 or greater the fitted curve equation is used for trip generation, otherwise the average rate is used. TABLE 2 provides a summary of the expected newly generated traffic for the development. More detailed information is contained in APPENDIX B.

TABLE 2 TRIP GENERATION SUMMARY

LAND USE	ITE CODE	SIZE	WEEKDAY (TRIPS/DAY)	AM PEAK HOUR (TRIPS/HR)	PM PEAK HOUR (TRIPS/HR)
Apartment	220	144 D.U.			
Entering Trips			448	15	48
Exiting Trips			447	49	29
Total			895	64	77

TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 6 provides a summary of the trip distribution patterns assumed for this study. These patterns were based on the existing traffic patterns derived from the traffic counts and knowledge of the area. FIGURE 7 provides a summary of the anticipated trips associated with the proposed development as assigned to the study intersection utilizing the trip generation data from TABLE 2 and the distribution patterns shown on FIGURE 6.

FIGURE 8 represents the 2029 combined traffic data with anticipated trips from the proposed development. The volumes shown in FIGURE 8 are the combined volumes used in the analysis of the future conditions.

FUTURE CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses as described in the Existing Conditions section of this report were conducted for 2029, full build-out conditions utilizing the Year 2029 combined volumes shown in FIGURE 8.

Under 2029 combined conditions, the intersection of Everett Road and the proposed site access (Serenity Way) was found to operate at a LOS “B” during both the AM and PM peaks with approach delays of 11.5 seconds and 12.7 seconds, respectively. The intersection of Everett Road at Yarnell Road was found to operate at a LOS “F” during both the AM and PM peaks with approach delays of 113.9 and 341.3 seconds, respectively.

The EVALUATIONS section of this report may be referenced for tabular summaries and discussion of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C.

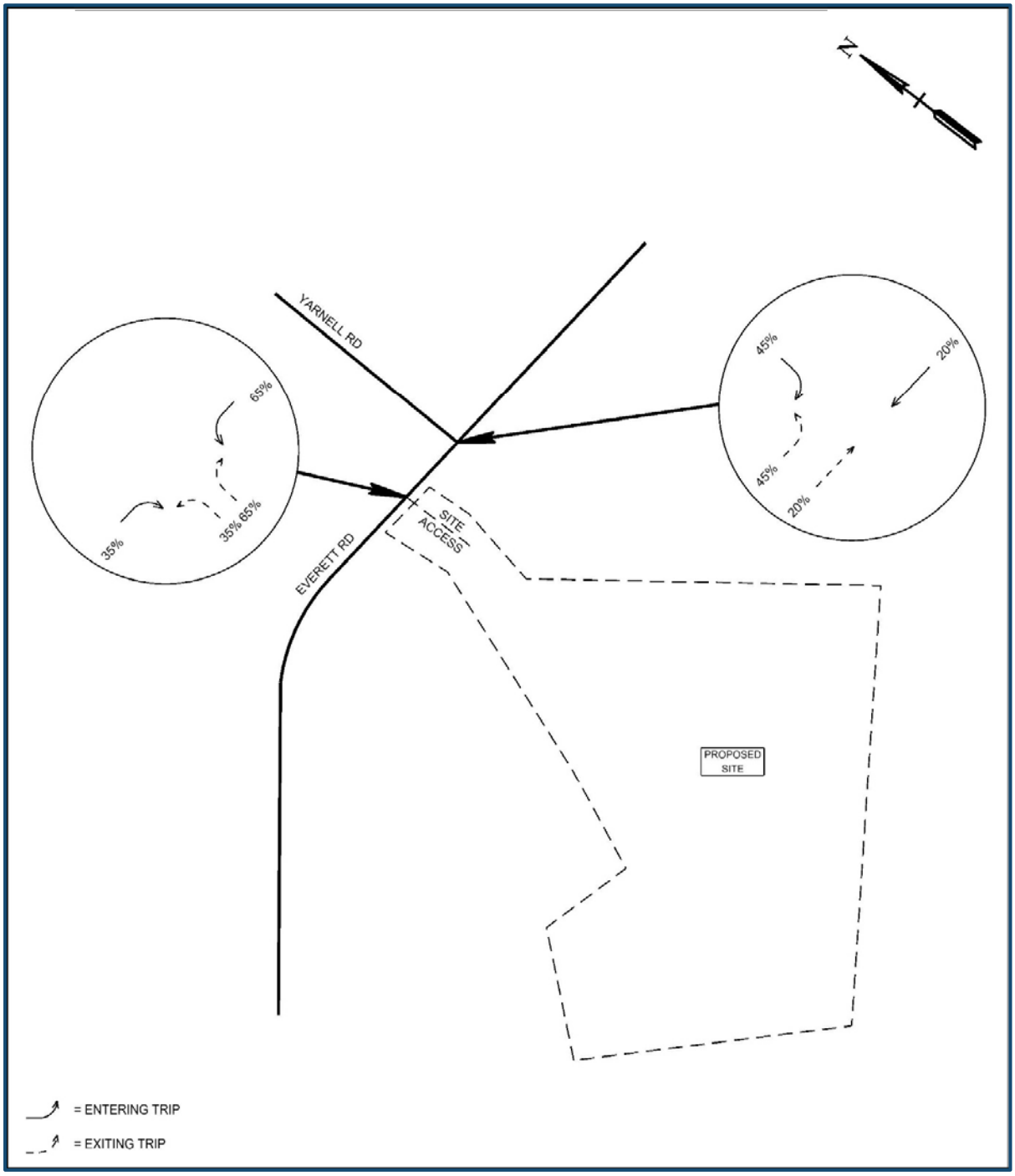


FIGURE 6
TRIP DISTRIBUTION PATTERNS

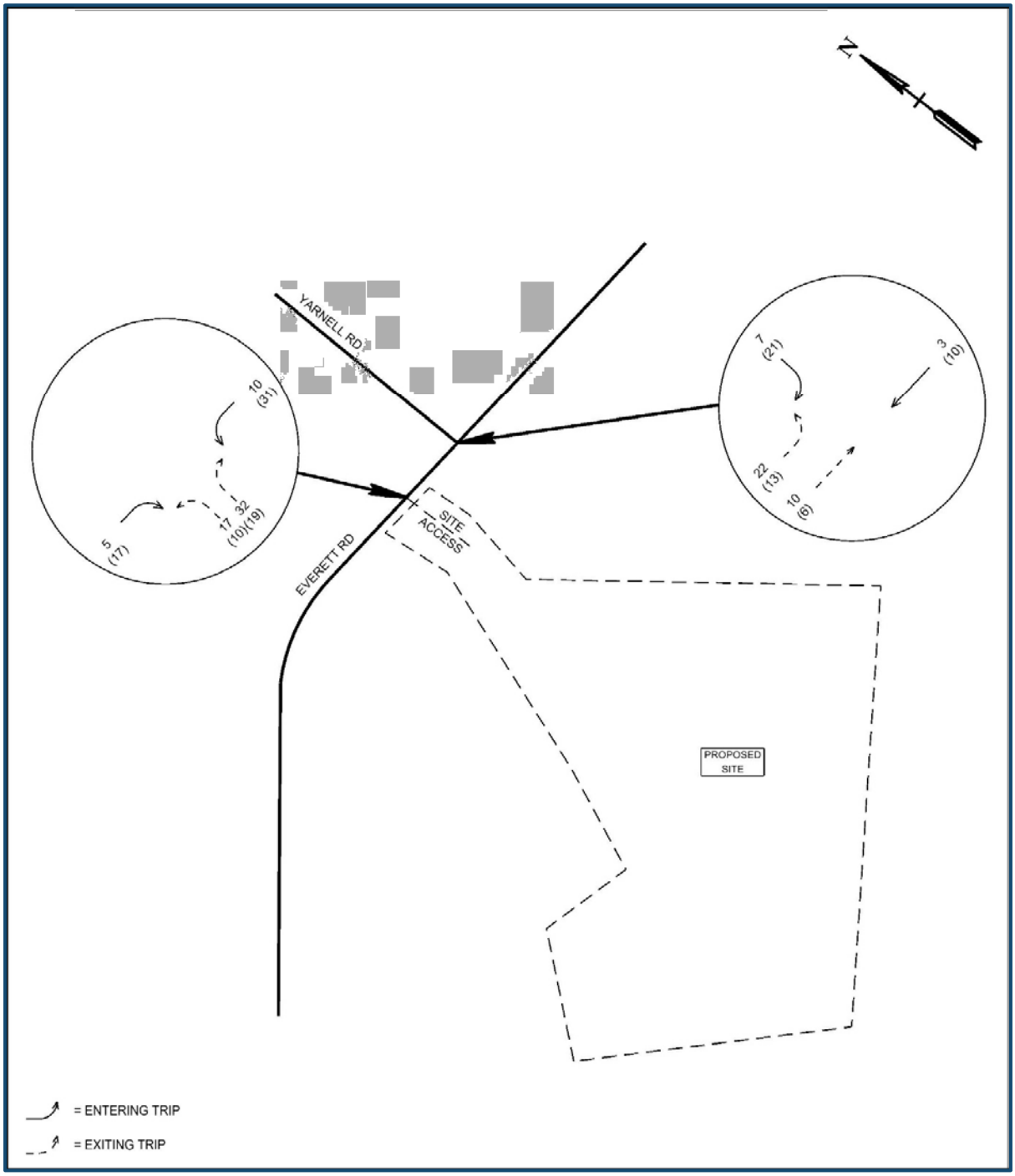


FIGURE 7
TRIP ASSIGNMENT

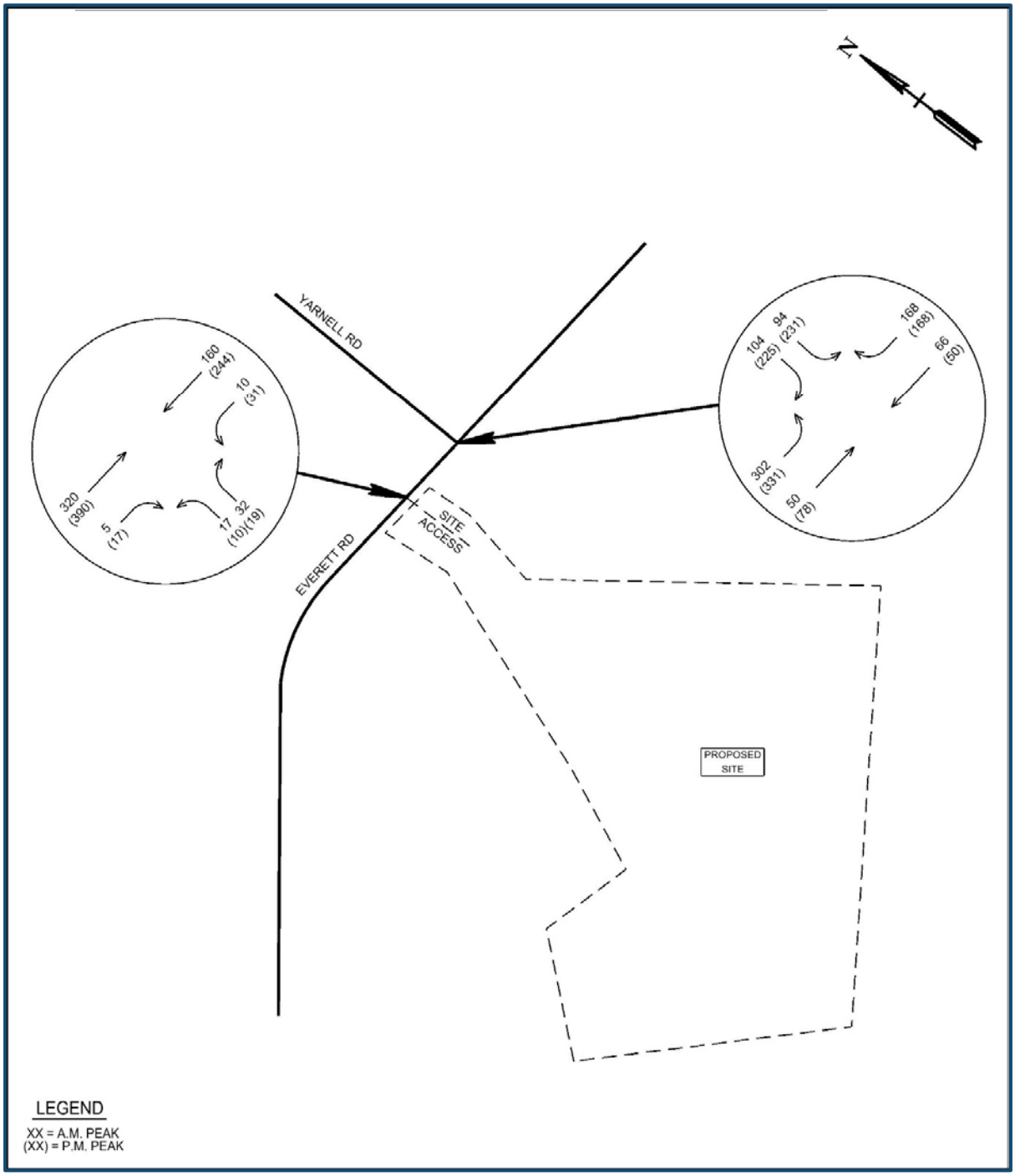


FIGURE 8
2029 COMBINED TRAFFIC VOLUMES

6 EVALUATIONS

INTERSECTION CAPACITY ANALYSES

TABLE 3
CAPACITY ANALYSIS SUMMARY

INTERSECTION	TIME PERIOD	YEAR 2025 EXISTING (LOS/DELAY)	YEAR 2029 BACKGROUND (LOS/DELAY)	YEAR 2029 COMBINED (LOS/DELAY)
Everette Road at Yarnell Road (SIDE STREET STOP)[1]	A.M. P.M.	C 17.6 C 23.1	F 72.6 F 274.0	F 113.9 F 341.3
Everette Road at Site Access (Serenity Way) (SIDE STREET STOP)[1]	A.M. P.M.	- -	- -	B 11.5 B 12.7

[1]SIDE STREET STOP CONTROL – Level-of-Service and Average Vehicular Delay (seconds) for side street approach utilizing HCM methodology.

The results summarized in TABLE 3 indicate that a LOS “F” can be anticipated at Everett Road and Yarnell Road under the future evaluated conditions. The anticipated delay for the intersection of the proposed site access (Serenity Way) and Everett Road will be approximately 11.5 seconds in the AM peak hour and 12.7 seconds in the PM Peak hour. The anticipated delay for the intersection of Everett Road and Yarnell Road will be approximately 113.9 seconds during the AM peak hour and 341.3 seconds during the PM peak hour.

To minimize the increase in delay at the Everett Road and Yarnell Road intersection as summarized in TABLE 3, various intersection improvements were evaluated under the 2029 combined conditions. The improvements evaluated include: adding an additional lane to the southbound approach of Yarnell Road, converting the intersection to an all-way stop intersection, or converting the intersection into a roundabout. The associated LOS for each improvement can be found in TABLE 4.

TABLE 4
EVERETT ROAD AT YARNELL ROAD
INTERSECTION IMPROVEMENTS

INTERSECTION	TIME PERIOD	2029 COMBINED (LOS/DELAY)
Everett Road at Yarnell Road (Two Lane Yarnell) (SIDE STREET STOP)[1]	A.M. P.M.	E 47.2 F 112.0
Everett Road at Yarnell Road (ALL WAY STOP)[2]	A.M. P.M.	C 20.4 E 44.1
Everett Road at Yarnell Road (ROUNDABOUT)[3]	A.M. P.M.	A 8.0 A 8.1

[1]SIDE STREET STOP CONTROL – Level-of-Service and Average Vehicular Delay (seconds) for side street approach utilizing HCM methodology.
[2]ALL WAY STOP CONTROL – Level-of-Service and Average Vehicular Delay (seconds) for full intersection utilizing HCM methodology.
[3]ROUNDABOUT CONTROL– Level-of-Service and Average Vehicular Delay (seconds) for full intersection utilizing HCM methodology.

The results summarized in TABLE 4 indicate that the intersection of Everett Road and Yarnell Road would operate at a LOS “E” during the AM peak hour and a LOS “F” during PM peak hour if an additional lane was added to the southbound approach of Yarnell Road with the existing side-street stop control. Under the all-way stop control, the intersection was found to operate at a LOS “C” in the AM peak hour and a LOS “E” in the PM peak hour. Everett Road at Yarnell Road was found to operate at a LOS “A” during both the AM and PM peak hours if converted to a roundabout.

QUEUE LENGTH ANALYSIS

Due to the close proximity of the proposed site access (Serenity Way), a queue analysis was performed to determine vehicle queue lengths at the proposed site access (Serenity Way) and the adjacent intersection of Everett Road and Yarnell Road. Each queue analysis utilized 2029 combined conditions. The queue analysis for Everett Road at Yarnell Road was conducted for the existing intersection geometry and each potential intersection improvement. The queue analysis for the proposed site access (Serenity Way) was conducted for the proposed intersection geometry.

TABLE 5
95TH PERCENTILE QUEUE LENGTH

INTERSECTION	APPROACH/MOVEMENT	95TH PERCENTILE QUEUE LENGTH (FT)	
		AM	PM
Everett Road at Yarnell Road **(Existing Geometry)**	EB Left SB Left/Right	43 300	30 870
Everett Road at Yarnell Road **(2-Lane Yarnell)**	EB Left SB Left SB Right	43 143 23	30 378 38
Everett Road at Yarnell Road **(All-Way Stop)**	EB WB SB	200 88 70	283 68 338
Everett Road at Yarnell Road **(Roundabout)**	EB WB SB	50 50 25	75 25 50
Everett Road at Site Access (Serenity Way) **(Proposed)**	NB Left/Right WB Left	8 0	5 3

The results summarized in TABLE 5 indicate that a significant queue will form along the southbound approach of the Everett Road and Yarnell Road intersection under the existing intersection geometry during both the AM and PM peak hours. When making the southbound approach of Yarnell two lanes, a significant queue was found to form for the left turn movement in both the AM and PM peak hours. Under the all-way stop control, a significant queue was found on the eastbound approach in both the AM and PM peak hours, while significant queues were found on the southbound approach in the PM peak hour. The queues utilizing a roundabout were found to be minimal on all approaches in both the AM and PM peak hours.

INTERSECTION SPACING ACCESSMENT

The conceptual plan shows one site access (Serenity Way) onto Everett Road, approximately 180 feet west of Yarnell Road. Per the Knoxville-Knox County Subdivision Regulations the minimum spacing between intersections on a Collector is 300 feet; therefore, the spacing for this proposed site access does not meet the minimum recommended spacing on a Collector.

TURN LANE ASSESSMENT

The proposed site accesses were evaluated for left and right-turn lane warrants utilizing the Knox County Department of Engineering and Public Works "Access Control and Driveway Design Policy" turn lane volume thresholds for the existing and proposed intersections. Combined conditions were evaluated as part of the assessment with the following results:

- Build-out Traffic
    - Everett Road at Proposed Site Access (Serenity Way)
        - Left Turn Warrant – AM Peak: Not Met / PM Peak: Not Met
        - Right Turn Warrant – PM Peak: Not Met / PM Peak: Not Met

Knox County recommends that turn lanes be installed when turn lane warrants are met during either the AM or PM peak hours at existing and proposed intersections. As indicated above, neither of the intersections warranted a left turn lane or right turn lane. The turn lane warrant analyses worksheets are in APPENDIX D.

SIGHT DISTANCE ASSESSMENT

Intersection sight distance was reviewed for the proposed site access at Everett Road. As stated previously, the posted speed limit within the project vicinity of 30 mph was utilized to determine the necessary sight distance for turning vehicles. Based on the Knox County Subdivision Regulations, the minimum sight distance at the intersection (in both directions along the major street) shall be ten (10) times the posted speed limit or 300 feet at the proposed site access to Everett Road.

Intersection sight distance was assessed via field measurements at the proposed site access to Everett Road in March 2026. The measurements were taken looking left and right from a point 15 feet from the edge of the major road and measured with a driver eye height of 3.5 feet and an object height of 3.5 feet above the driving surface of the major road.

The field measurements indicate that the intersection of Serenity Way at Everett Road has adequate sight distance looking left but that sight distance looking right is blocked by overgrown vegetation within the right-of-way. If the vegetation is cleared than an adequate sight distance should be achievable. The sight distance observed from the field measurements can be seen in FIGURE 9.

Looking left along Everett Road from the from the proposed site access.

Looking right along Everett Road from the proposed site access.

FIGURE 9
SIGHT DISTANCE ASSESSMENT

7 CONCLUSIONS & RECOMMENDATIONS

The primary conclusion of this study is that traffic generated from the proposed multi-family development will have significant impacts on delay at the intersection of Everett Road at Yarnell Road. Under the proposed conditions evaluated, the Everett Road and Yarnell Road intersection was found to operate at a LOS “F”, while the proposed site access (Serenity Way) was found to operate at a LOS “B”. In evaluating various intersection improvements, it was found that the intersection of Everett Road at Yarnell would operate at a LOS “A”, under 2029 combined conditions, as a roundabout. Therefore, it is recommended that the intersection of Everett Road at Yarnell Road should be converted to a single-lane roundabout.

The following list is a summary of the improvements that are recommended to be implemented with the construction of this project:

1. Install STOP sign at unsignalized Site Access (Serenity Way) at Everett Road.

2. Clear vegetation looking right at the unsignalized Site Access (Serenity Way) at Everett Road in order to maintain adequate intersection sight distance.

3. Convert the intersection of Everett Road at Yarnell Road from side-street stop control to a single-lane roundabout.

APPENDIX A | TRAFFIC DATA
APPENDIX B | TRIP GENERATION
APPENDIX C | CAPACITY ANALYSES
APPENDIX D | TURN LANE WARRANT EVALUATIONS

APPENDIX A | TRAFFIC DATA

TRAFFIC COUNT DATA

Major Street: Everett Road (WB & EB)
Minor Street: Yarnell Road (SB)
Traffic Control: Stop Sign on Minor Street

10/15/2025 (Wednesday)
Mostly Sunny and Mild
Conducted by: Ajax Engineering

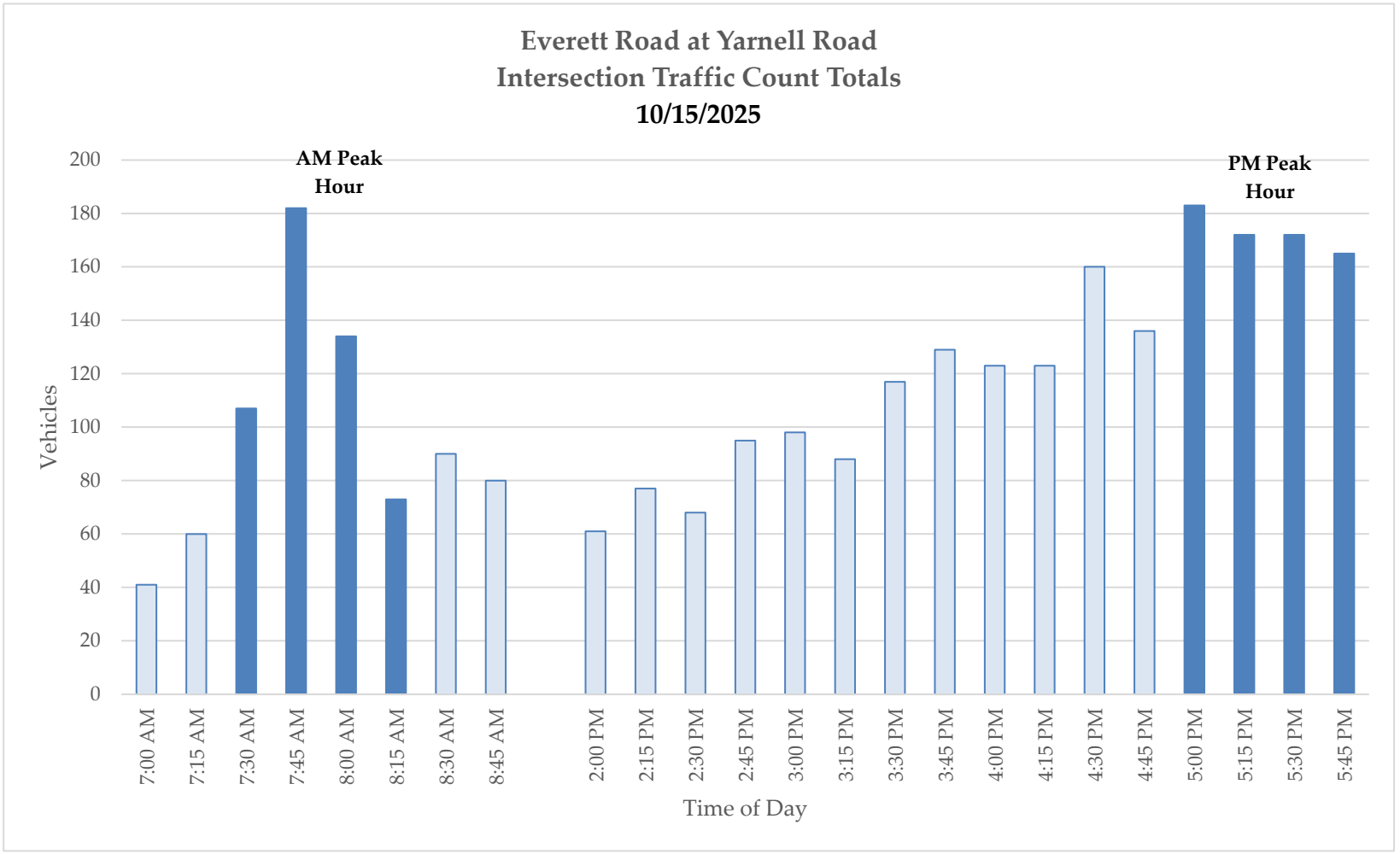
	Yarnell Road		Everett Road		Everett Road			
TIME	SOUTHBOUND		WESTBOUND		EASTBOUND		VEHICLE	PEAK
BEGIN	LT	RT	THRU	RT	LT	THRU	TOTAL	HOUR
7:00 AM	6	8	3	11	12	1	41	
7:15 AM	7	14	7	12	17	3	60	
7:30 AM	26	12	4	22	39	4	107	**7:30 AM - 8:30 AM**
7:45 AM	22	25	15	40	70	10	182	
8:00 AM	18	18	7	35	51	5	134	
8:15 AM	8	6	3	11	41	4	73	
8:30 AM	18	13	10	14	30	5	90	
8:45 AM	24	13	7	14	16	6	80	
TOTAL	129	109	56	159	276	38	767	
2:00 PM	11	14	7	12	15	2	61	
2:15 PM	14	16	3	19	20	5	77	
2:30 PM	7	13	6	17	22	3	68	
2:45 PM	21	13	4	14	37	6	95	
3:00 PM	16	22	5	10	39	6	98	
3:15 PM	19	11	4	14	35	5	88	
3:30 PM	19	22	7	20	43	6	117	
3:45 PM	19	15	4	26	62	3	129	
4:00 PM	22	11	3	21	56	10	123	
4:15 PM	21	25	8	12	52	5	123	
4:30 PM	31	14	2	28	70	15	160	
4:45 PM	27	19	7	22	49	12	136	
5:00 PM	28	34	4	31	69	17	183	**5:00 PM - 6:00 PM**
5:15 PM	42	31	6	24	65	4	172	
5:30 PM	34	33	4	28	63	10	172	
5:45 PM	38	49	2	23	42	11	165	
TOTAL	369	342	76	321	739	120	1967	

2025 AM Peak Hour **7:30 AM - 8:30 AM**

	Yarnell Road		Everett Road		Everett Road	
TIME	SOUTHBOUND		WESTBOUND		EASTBOUND	
BEGIN	LT	RT	THRU	RT	LT	THRU
7:30 AM	26	12	4	22	39	4
7:45 AM	22	25	15	40	70	10
8:00 AM	18	18	7	35	51	5
8:15 AM	8	6	3	11	41	4
TOTAL	**74**	**61**	**29**	**108**	**201**	**23**
TRUCK %	**2.7%**	**16.4%**	**0.0%**	**0.9%**	**5.5%**	**13.0%**
PHF $_{mvmt}$	**0.71**	**0.61**	**0.48**	**0.68**	**0.72**	**0.58**
PHF $_{app}$	**0.72**		**0.62**		**0.70**	
PHF $_{int}$	**0.68**					

2025 PM Peak Hour **5:00 PM - 6:00 PM**

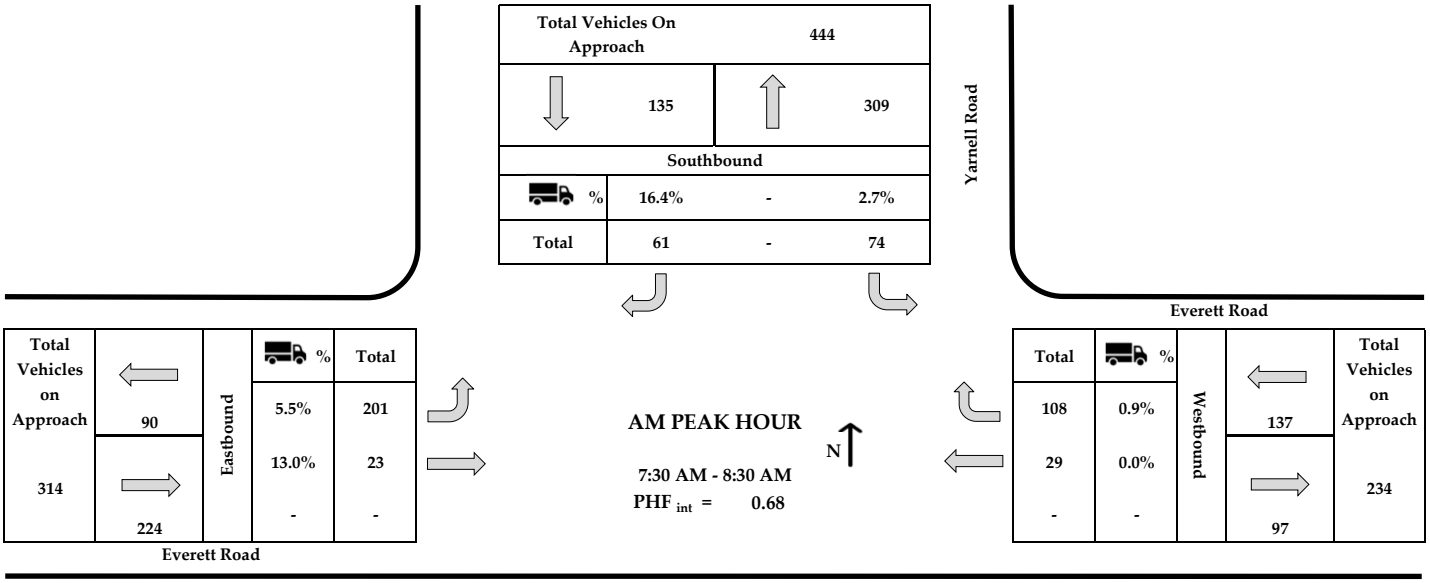
	Yarnell Road		Everett Road		Everett Road	
TIME	SOUTHBOUND		WESTBOUND		EASTBOUND	
BEGIN	LT	RT	THRU	RT	LT	THRU
5:00 PM	28	34	4	31	69	17
5:15 PM	42	31	6	24	65	4
5:30 PM	34	33	4	28	63	10
5:45 PM	38	49	2	23	42	11
TOTAL	**142**	**147**	**16**	**106**	**239**	**42**
TRUCK %	**0.0%**	**2.7%**	**6.3%**	**0.9%**	**0.8%**	**0.0%**
PHF $_{mvmt}$	**0.85**	**0.75**	**0.67**	**0.85**	**0.87**	**0.62**
PHF $_{app}$	**0.83**		**0.87**		**0.82**	
PHF $_{int}$	**0.95**					

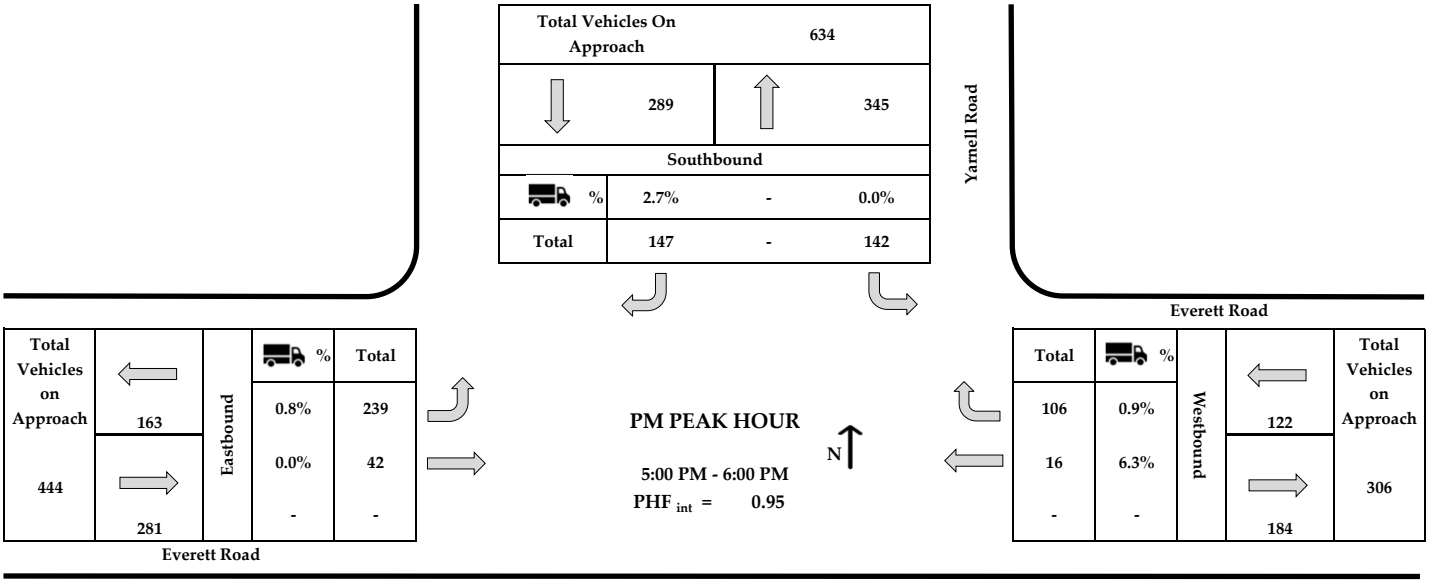

Everett Road at Yarnell Road
Intersection Traffic Count Totals
10/15/2025
AM Peak Hour
PM Peak Hour
Vehicles
200
180
160
140
120
100
80
60
40
20
0
7:00 AM
7:15 AM
7:30 AM
7:45 AM
8:00 AM
8:15 AM
8:30 AM
8:45 AM
2:00 PM
2:15 PM
2:30 PM
2:45 PM
3:00 PM
3:15 PM
3:30 PM
3:45 PM
4:00 PM
4:15 PM
4:30 PM
4:45 PM
5:00 PM
5:15 PM
5:30 PM
5:45 PM
Time of Day

PEAK HOUR DATA

Major Street: Everett Road (WB & EB)
Minor Street: Yarnell Road (SB)
Traffic Control: Stop Sign on Minor Street

10/15/2025 (Wednesday)
Mostly Sunny and Mild
Conducted by: Ajax Engineering





TRAFFIC COUNT DATA

Major Street: Everett Road (WB & EB)
In Front of Premier Truck Group of Knoxville

10/15/2025 (Wednesday)
Mostly Sunny and Mild
Conducted by: Ajax Engineering

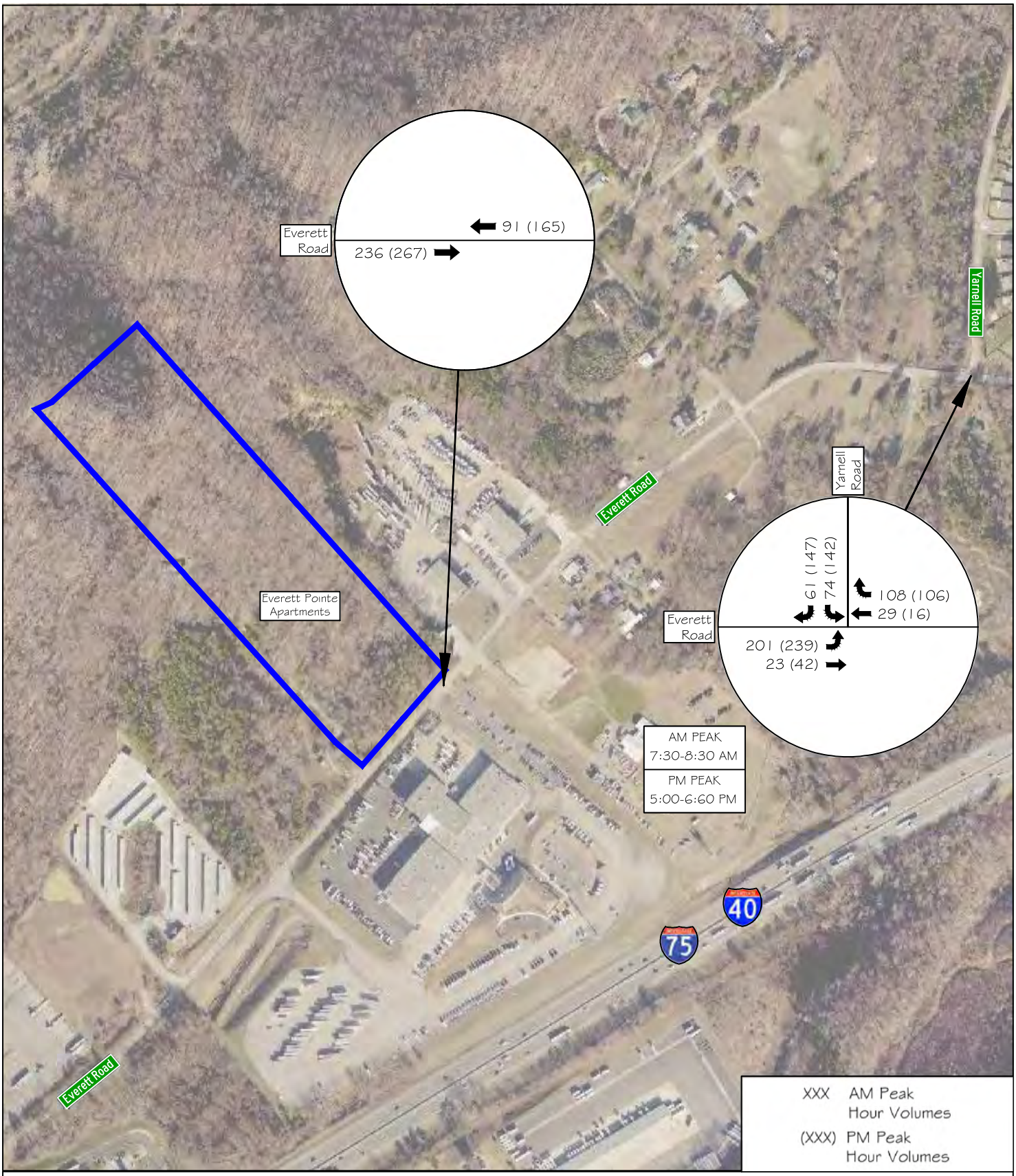
TIME BEGIN	Everett Road WESTBOUND THRU	Everett Road EASTBOUND THRU	VEHICLE TOTAL	PEAK HOUR
7:00 AM				
7:15 AM				
7:30 AM	15	46	61	**7:30 AM - 8:30 AM**
7:45 AM	32	80	112	
8:00 AM	31	61	92	
8:15 AM	13	49	62	
8:30 AM				
8:45 AM				
TOTAL	91	236	327	
2:00 PM				
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM				
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM				
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	38	80	118	**5:00 PM - 6:00 PM**
5:15 PM	38	64	102	
5:30 PM	41	70	111	
5:45 PM	48	53	101	
TOTAL	165	267	432	

2025 AM Peak Hour **7:30 AM - 8:30 AM**

TIME BEGIN	Everett Road WESTBOUND THRU	Everett Road EASTBOUND THRU
7:30 AM	15	46
7:45 AM	32	80
8:00 AM	31	61
8:15 AM	13	49
TOTAL	**91**	**236**
PHF	**0.71**	**0.74**
Truck %	**5.5%**	**1.7%**

2025 PM Peak Hour **5:00 PM - 6:00 PM**

TIME BEGIN	Everett Road WESTBOUND THRU	Everett Road EASTBOUND THRU
5:00 PM	38	80
5:15 PM	38	64
5:30 PM	41	70
5:45 PM	48	53
TOTAL	**165**	**267**
PHF	**0.86**	**0.83**
Truck %	**1.2%**	**1.5%**



AJAX ENGINEERING
11812 Black Road
Knoxville, TN 37932
Phone: (865) 556-0042
Email: ajaxengineering@gmail.com

NOT TO SCALE

NORTH

FIGURE 4

Everett Pointe Apartments

2025 Peak Hour Traffic Volumes - Existing Traffic Conditions

APPENDIX B | TRIP GENERATION

Project: Serenity at Everett Road
Date Conducted: 3/3/26

Multifamily Housing (Low-Rise) (220)
144 Apartment Units

Average Daily Traffic
T = 6.21 (X)
T = 6.21(144)
T = 895

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.
T = 0.35(X) + 12.93
T = 0.35(144) + 12.93
T = 64

Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.
T = 0.48(X) - 7.35
T = 0.48(144) - 7.35
T = 77

Time Period	Total Trips	Percent		Number	
		Enter	Exit	Enter	Exit
Weekday (24 hours)	895	50%	50%	448	448
AM Peak Hour	64	24%	76%	15	49
PM Peak Hour	77	62%	38%	48	29

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing is a residential building with two or three floors (levels) of residences. Various configurations fit this description, including the following:

- Walk-up apartment or multiplex—access to the individual dwelling units is typically internal to the structure and provided through a shared entry, stairway, and hallway.
- Mansion apartment with several dwelling units within what appears from the outside to be a single-family dwelling unit.
- Stacked townhouse designed to match the external appearance of a townhouse, but which has dwelling units that share both floors and walls and with access through a central entry and stairway.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there was an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Arizona, British Columbia (CAN), California, Delaware, Florida, Illinois, Maine, Massachusetts, Minnesota, New Jersey, New York, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, and Washington.

Source Numbers

357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076, 1219, 1236, 1265, 1267

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

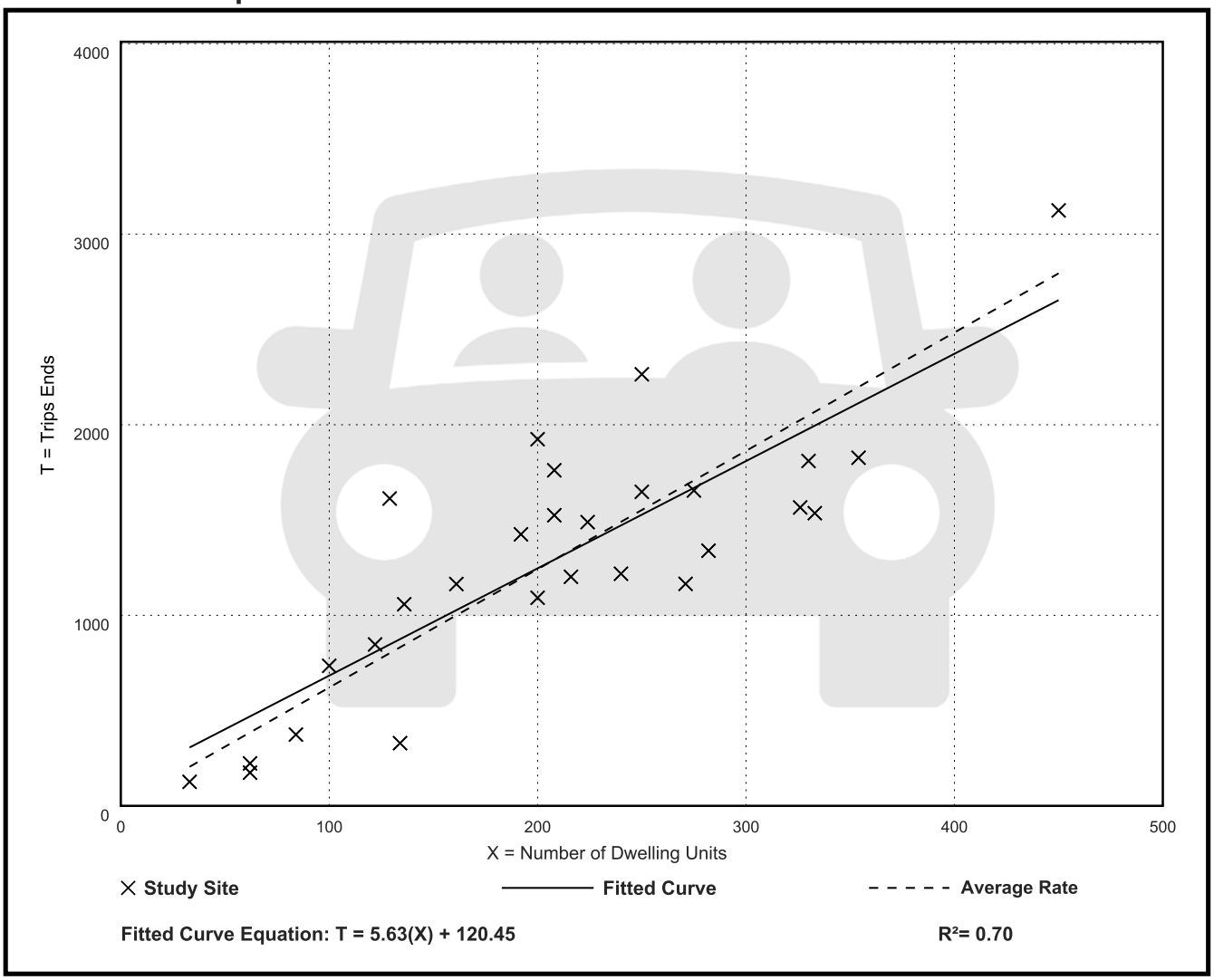
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. Num. of Dwelling Units: 208
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.21	2.46 - 12.50	1.87

Data Plot and Equation



Fitted Curve Equation: T = 5.63(X) + 120.45

R^2= 0.70

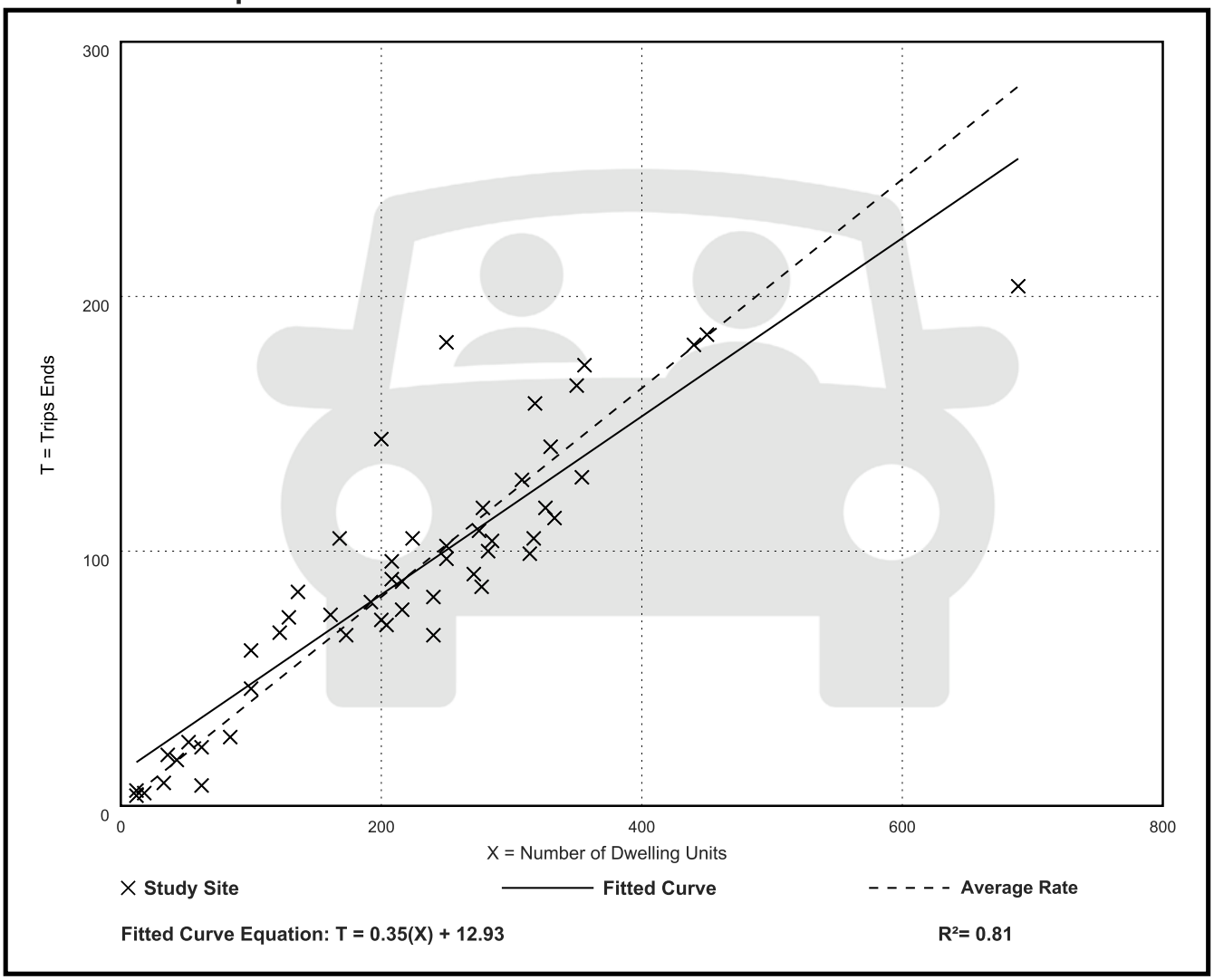
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	51
Avg. Num. of Dwelling Units:	219
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



Fitted Curve Equation: T = 0.35(X) + 12.93

R^2= 0.81

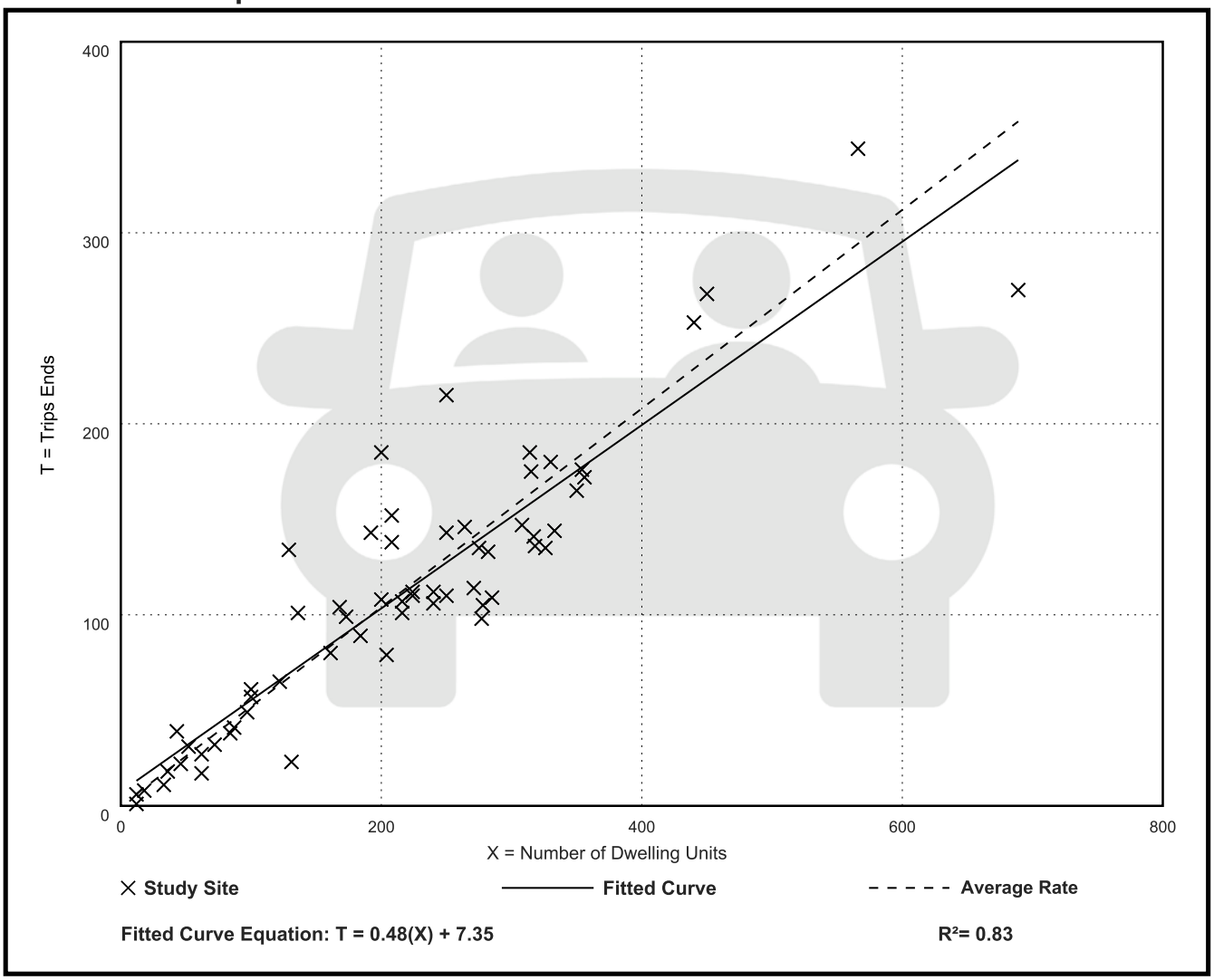
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	61
Avg. Num. of Dwelling Units:	215
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 7.35

R^2= 0.83

APPENDIX C | CAPACITY ANALYSES

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	201	23	29	108	74	61
Future Vol, veh/h	201	23	29	108	74	61
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, %	-	2	-4	-	-3	-
Peak Hour Factor	72	58	48	68	71	61
Heavy Vehicles, %	6	13	0	1	3	16
Mvmt Flow	279	40	60	159	104	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	219	0	-	0	738	140
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	598	-
Critical Hdwy	4.16	-	-	-	5.83	6.06
Critical Hdwy Stg 1	-	-	-	-	4.83	-
Critical Hdwy Stg 2	-	-	-	-	4.83	-
Follow-up Hdwy	2.254	-	-	-	3.527	3.444
Pot Cap-1 Maneuver	1327	-	-	-	434	883
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1327	-	-	-	341	883
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	7.39	0	17.62
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	487
HCM Lane V/C Ratio	0.21	-	-	-	0.419
HCM Ctrl Dly (s/v)	8.4	0	-	-	17.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	2

Intersection	
Int Delay, s/veh	12.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	239	42	16	106	142	147
Future Vol, veh/h	239	42	16	106	142	147
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, %	-	2	-4	-	-3	-
Peak Hour Factor	87	62	67	85	85	75
Heavy Vehicles, %	1	0	6	1	0	3
Mvmt Flow	275	68	24	125	167	196

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	149	0	-	0	703	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	617	-
Critical Hdwy	4.11	-	-	-	5.8	5.93
Critical Hdwy Stg 1	-	-	-	-	4.8	-
Critical Hdwy Stg 2	-	-	-	-	4.8	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1439	-	-	-	457	977
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1439	-	-	-	367	977
Mov Cap-2 Maneuver	-	-	-	-	367	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	601	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	6.49	0	23.08
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1385	-	-	-	553
HCM Lane V/C Ratio	0.191	-	-	-	0.656
HCM Ctrl Dly (s/v)	8.1	0	-	-	23.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4.8

Intersection	
Int Delay, s/veh	22.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	280	40	63	168	94	97
Future Vol, veh/h	280	40	63	168	94	97
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, %	-	2	-4	-	-3	-
Peak Hour Factor	72	58	48	68	71	61
Heavy Vehicles, %	6	13	0	1	3	16
Mvmt Flow	389	69	131	247	132	159

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	378	0	-	0	1102	255
Stage 1	-	-	-	-	255	-
Stage 2	-	-	-	-	847	-
Critical Hdwy	4.16	-	-	-	5.83	6.06
Critical Hdwy Stg 1	-	-	-	-	4.83	-
Critical Hdwy Stg 2	-	-	-	-	4.83	-
Follow-up Hdwy	2.254	-	-	-	3.527	3.444
Pot Cap-1 Maneuver	1159	-	-	-	280	767
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	482	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1159	-	-	-	182	767
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	482	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	8.21	0	72.59
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1114	-	-	-	312
HCM Lane V/C Ratio	0.336	-	-	-	0.933
HCM Ctrl Dly (s/v)	9.7	0	-	-	72.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.5	-	-	-	9.2

Intersection	
Int Delay, s/veh	118.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	318	72	40	168	231	204
Future Vol, veh/h	318	72	40	168	231	204
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, %	-	2	-4	-	-3	-
Peak Hour Factor	87	62	67	85	85	75
Heavy Vehicles, %	1	0	6	1	0	3
Mvmt Flow	366	116	60	198	272	272

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	257	0	-	0	1006	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	847	-
Critical Hdwy	4.11	-	-	-	5.8	5.93
Critical Hdwy Stg 1	-	-	-	-	4.8	-
Critical Hdwy Stg 2	-	-	-	-	4.8	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1313	-	-	-	319	896
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	488	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1313	-	-	-	~ 224	896
Mov Cap-2 Maneuver	-	-	-	-	~ 224	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	488	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	6.67	0	273.96
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1229	-	-	-	359
HCM Lane V/C Ratio	0.278	-	-	-	1.517
HCM Ctrl Dly (s/v)	8.8	0	-	-	274
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.1	-	-	-	30

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

Intersection	
Int Delay, s/veh	32.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	50	66	168	94	104
Future Vol, veh/h	302	50	66	168	94	104
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, %	-	2	-4	-	-3	-
Peak Hour Factor	72	58	48	68	71	61
Heavy Vehicles, %	6	13	0	1	3	16
Mvmt Flow	419	86	138	247	132	170

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	1186	261
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	925	-
Critical Hdwy	4.16	-	-	-	5.83	6.06
Critical Hdwy Stg 1	-	-	-	-	4.83	-
Critical Hdwy Stg 2	-	-	-	-	4.83	-
Follow-up Hdwy	2.254	-	-	-	3.527	3.444
Pot Cap-1 Maneuver	1152	-	-	-	253	761
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	156	761
Mov Cap-2 Maneuver	-	-	-	-	156	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	8.21	0	113.88
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1097	-	-	-	283
HCM Lane V/C Ratio	0.364	-	-	-	1.072
HCM Ctrl Dly (s/v)	9.9	0	-	-	113.9
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.7	-	-	-	12

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	320	5	10	160	17	32
Future Vol, veh/h	320	5	10	160	17	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	348	5	11	174	18	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	353	0	546	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	196	-
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	-	-	1205	-	499	693
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1205	-	494	693
Mov Cap-2 Maneuver	-	-	-	-	494	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.47	11.49
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	-	-	106	-
HCM Lane V/C Ratio	0.088	-	-	0.009	-
HCM Ctrl Dly (s/v)	11.5	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	147

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	331	78	50	168	231	225
Future Vol, veh/h	331	78	50	168	231	225
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, %	-	2	-4	-	-3	-
Peak Hour Factor	87	62	67	85	85	75
Heavy Vehicles, %	1	0	6	1	0	3
Mvmt Flow	380	126	75	198	272	300

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	272	0	-	0	1060	173
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	887	-
Critical Hdwy	4.11	-	-	-	5.8	5.93
Critical Hdwy Stg 1	-	-	-	-	4.8	-
Critical Hdwy Stg 2	-	-	-	-	4.8	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1297	-	-	-	299	880
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	471	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1297	-	-	-	~ 204	880
Mov Cap-2 Maneuver	-	-	-	-	~ 204	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	6.71	0	$ 341.29
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1206	-	-	-	342
HCM Lane V/C Ratio	0.293	-	-	-	1.67
HCM Ctrl Dly (s/v)	8.9	0	-	-	-$ 341.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.2	-	-	-	34.8

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	390	17	31	244	10	19
Future Vol, veh/h	390	17	31	244	10	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	424	18	34	265	11	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	442	0	766	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	333	-
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	-	-	1118	-	371	623
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	726	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1118	-	358	623
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	701	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.94	12.75
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	496	-	-	203	-
HCM Lane V/C Ratio	0.064	-	-	0.03	-
HCM Ctrl Dly (s/v)	12.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	15.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	50	66	168	94	104
Future Vol, veh/h	302	50	66	168	94	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-4	-	-3	-
Peak Hour Factor	72	58	48	68	71	61
Heavy Vehicles, %	6	13	0	1	3	16
Mvmt Flow	419	86	138	247	132	170

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	1186	261
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	925	-
Critical Hdwy	4.16	-	-	-	5.83	6.06
Critical Hdwy Stg 1	-	-	-	-	4.83	-
Critical Hdwy Stg 2	-	-	-	-	4.83	-
Follow-up Hdwy	2.254	-	-	-	3.527	3.444
Pot Cap-1 Maneuver	1152	-	-	-	253	761
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	156	761
Mov Cap-2 Maneuver	-	-	-	-	156	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	8.21	0	47.16
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1097	-	-	-	156	761
HCM Lane V/C Ratio	0.364	-	-	-	0.848	0.224
HCM Ctrl Dly (s/v)	9.9	0	-	-	93.6	11.1
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	1.7	-	-	-	5.7	0.9

Intersection	
Int Delay, s/veh	49.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	331	78	50	168	231	225
Future Vol, veh/h	331	78	50	168	231	225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-4	-	-3	-
Peak Hour Factor	87	62	67	85	85	75
Heavy Vehicles, %	1	0	6	1	0	3
Mvmt Flow	380	126	75	198	272	300

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	272	0	-	0	1060	173
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	887	-
Critical Hdwy	4.11	-	-	-	5.8	5.93
Critical Hdwy Stg 1	-	-	-	-	4.8	-
Critical Hdwy Stg 2	-	-	-	-	4.8	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1297	-	-	-	299	880
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	471	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1297	-	-	-	~ 204	880
Mov Cap-2 Maneuver	-	-	-	-	~ 204	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	6.71	0	111.97
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1206	-	-	-	204	880
HCM Lane V/C Ratio	0.293	-	-	-	1.329	0.341
HCM Ctrl Dly (s/v)	8.9	0	-	-	223.2	11.2
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	1.2	-	-	-	15.1	1.5

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

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	50	66	168	94	104
Future Vol, veh/h	302	50	66	168	94	104
Peak Hour Factor	0.72	0.58	0.48	0.68	0.71	0.61
Heavy Vehicles, %	6	13	0	1	3	16
Mvmt Flow	419	86	138	247	132	170
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	27.9	14.8	15.1
HCM LOS	D	B	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	86%	0%	47%
Vol Thru, %	14%	28%	0%
Vol Right, %	0%	72%	53%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	352	234	198
LT Vol	302	0	94
Through Vol	50	66	0
RT Vol	0	168	104
Lane Flow Rate	506	385	303
Geometry Grp	1	1	1
Degree of Util (X)	0.801	0.559	0.505
Departure Headway (Hd)	5.7	5.23	6.007
Convergence, Y/N	Yes	Yes	Yes
Cap	632	685	597
Service Time	3.76	3.297	4.077
HCM Lane V/C Ratio	0.801	0.562	0.508
HCM Control Delay, s/veh	27.9	14.8	15.1
HCM Lane LOS	D	B	C
HCM 95th-tile Q	8	3.5	2.8

Intersection	
Intersection Delay, s/veh	44.1
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	331	78	50	168	231	225
Future Vol, veh/h	331	78	50	168	231	225
Peak Hour Factor	0.87	0.62	0.67	0.85	0.85	0.75
Heavy Vehicles, %	1	0	6	1	0	3
Mvmt Flow	380	126	75	198	272	300
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	47.3	15.9	54.7
HCM LOS	E	C	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	81%	0%	51%
Vol Thru, %	19%	23%	0%
Vol Right, %	0%	77%	49%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	409	218	456
LT Vol	331	0	231
Through Vol	78	50	0
RT Vol	0	168	225
Lane Flow Rate	506	272	572
Geometry Grp	1	1	1
Degree of Util (X)	0.922	0.494	0.97
Departure Headway (Hd)	6.557	6.526	6.109
Convergence, Y/N	Yes	Yes	Yes
Cap	552	550	595
Service Time	4.612	4.591	4.155
HCM Lane V/C Ratio	0.917	0.495	0.961
HCM Control Delay, s/veh	47.3	15.9	54.7
HCM Lane LOS	E	C	F
HCM 95th-tile Q	11.3	2.7	13.5

Intersection	
Intersection Delay, s/veh	8.0
Intersection LOS	A

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	505	385	302
Demand Flow Rate, veh/h	541	387	333
Vehicles Circulating, veh/h	136	444	138
Vehicles Exiting, veh/h	335	233	693
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.1	9.5	6.0
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	541	387	333
Cap Entry Lane, veh/h	1201	877	1199
Entry HV Adj Factor	0.933	0.995	0.907
Flow Entry, veh/h	505	385	302
Cap Entry, veh/h	1121	873	1087
V/C Ratio	0.450	0.441	0.278
Control Delay, s/veh	8.1	9.5	6.0
LOS	A	A	A
95th %tile Queue, veh	2	2	1

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	506	273	572
Demand Flow Rate, veh/h	510	280	581
Vehicles Circulating, veh/h	272	384	80
Vehicles Exiting, veh/h	389	398	584
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.2	7.1	7.6
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	510	280	581
Cap Entry Lane, veh/h	1046	933	1272
Entry HV Adj Factor	0.992	0.977	0.985
Flow Entry, veh/h	506	273	572
Cap Entry, veh/h	1037	911	1252
V/C Ratio	0.488	0.300	0.457
Control Delay, s/veh	9.2	7.1	7.6
LOS	A	A	A
95th %tile Queue, veh	3	1	2

APPENDIX D | TURN LANE WARRANT EVALUATIONS

TABLE 4A KNOX COUNTY LEFT-TURN LANE VOLUME THRESHOLDS FOR 2-LANE ROADWAYS WITH A PREVAILING SPEED OF 0 TO 35 MPH	Project No: 01948-0001 Project Name: Serenity TIS Notes:

(If the left-turn volume exceeds the table value a left-turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149	300	235	185	145	120	100
150 - 199	245	200	160	130	110	90
200 - 249	205	170	140	115	100	80
250 - 299	175	150	125	105	90	70
300 - 349	155	135	110	95	80	65
350 - 399	135	120	100	85	70	60
400 - 449	120	105	90	75	65	55
450 - 499	105	90	80	70	60	50
500 - 549	95	80	70	65	55	50
550 - 599	85	70	65	60	50	45
600 - 649	75	65	60	55	45	40
650 - 699	70	60	55	50	40	35
700 - 749	65	55	50	45	35	30
750 or More	60	50	45	40	35	30

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	= / > 600
100 - 149	100	80	70	60	55	50
150 - 199	90	75	65	55	50	45
200 - 249	80	72	60	55	50	45
250 - 299	70	65	55	50	45	40
300 - 349	65	60	50	50	45	40
350 - 399	60	55	50	45	40	40
400 - 449	55	50	45	45	40	35
450 - 499	50	45	45	40	35	35
500 - 549	50	45	40	40	35	35
550 - 599	45	40	40	35	35	35
600 - 649	40	35	35	35	35	30
650 - 699	35	35	35	30	30	30
700 - 749	30	30	30	30	30	30
750 or More	30	30	30	30	30	30

* Or through volume only if a right-turn lane exists

Intersection	Time Period	Opposing Volume	Through Volume	Left-Turn Volume	Warrant Threshold	Left-Turn Lane Warranted (Yes / No)
Site Access	2029 AM	325	160	10	**135**	No
Site Access	2029 PM	407	244	31	**90**	No

Source: Knox County Department of Engineering and Public Works "Access Control and Driveway Design Policy"

TABLE 4B KNOX COUNTY RIGHT-TURN LANE VOLUME THRESHOLDS FOR 2-LANE ROADWAYS WITH A PREVAILING SPEED OF 0 TO 35 MPH	Project No: 01948-0001 Project Name: Serenity TIS Notes:

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	< 100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25						
25 - 49						
50 - 99						
100 - 149						
150 - 199						
200 - 249						
250 - 299						Yes
300 - 349					Yes	Yes
350 - 399				Yes	Yes	Yes
400 - 449			Yes	Yes	Yes	Yes
450 - 499			Yes	Yes	Yes	Yes
500 - 549		Yes	Yes	Yes	Yes	Yes
550 - 599		Yes	Yes	Yes	Yes	Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	= / > 600
Fewer Than 25						
25 - 49						Yes
50 - 99					Yes	Yes
100 - 149				Yes	Yes	Yes
150 - 199			Yes	Yes	Yes	Yes
200 - 249		Yes	Yes	Yes	Yes	Yes
250 - 299	Yes	Yes	Yes	Yes	Yes	Yes
300 - 349	Yes	Yes	Yes	Yes	Yes	Yes
350 - 399	Yes	Yes	Yes	Yes	Yes	Yes
400 - 449	Yes	Yes	Yes	Yes	Yes	Yes
450 - 499	Yes	Yes	Yes	Yes	Yes	Yes
500 - 549	Yes	Yes	Yes	Yes	Yes	Yes
550 - 599	Yes	Yes	Yes	Yes	Yes	Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists

Intersection	Time Period	Through Volume	Right-Turn Volume	Right-Turn Lane Warranted (Yes / No)
Site Access	2029 AM	320	5	No
Site Access	2029 PM	390	17	No

Source: Knox County Department of Engineering and Public Works "Access Control and Driveway Design Policy"