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KORE KNOXVILLE APARTMENTS
TRAFFIC IMPACT STUDY

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KNOX COUNTY, TN

ARDURRA PROJECT NO. 02005-0001.000



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1 EXECUTIVE SUMMARY

This report provides a summary of a traffic impact study that was performed for a proposed Kore Knoxville Apartments to be located along Sherrill Boulevard within Knox County. The project site is located southeast of the intersection of Sherrill Boulevard at Mabry Hood Road. The conceptual plan for this project proposes a residential development with 292 apartment units.

The project is to have two site access locations, one site access onto Sherrill Boulevard and the second site access onto Sellers Lane, which is to be used as an exit only.

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 intersections of Sherrill Boulevard at Mabry Hood Road, Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp, Sherrill Boulevard at Sellers Lane and the proposed development access onto Sherrill Boulevard. 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 warrants, signal warrants, and sight distance assessments.

The primary conclusion of this study is that traffic generated from the proposed residential development will have minor impacts on the delay at the intersection of Dutchtown Road at Sherrill Boulevard. Since the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp will continue to operate at LOS “D” under 2029 combined conditions, no improvements to the existing signal timing are recommended. Sherrill Boulevard at Mabry Hood Road is already experiencing a LOS “F” during the AM peak hour and is anticipated to continue operating at a LOS “F” in the AM peak under 2029 combined traffic conditions. Mitigation efforts such as increasing the westbound left-turn lane storage capacity and signal warrants were evaluated for the intersection. It was found that the intersection did not warrant a signal and that the added storage capacity would have no effect on the expected delay of the westbound approach. Therefore, no improvements were recommended for the intersection of Sherrill Boulevard at Mabry Hood Road.

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 the unsignalized site access on Sherrill Boulevard.

2. Maintain and trim tree foliage and vegetation within the right-of-way to provide the required minimum intersection sight distance at the intersection of Sherrill Boulevard at Sellers Lane.

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 Sherrill Boulevard in Knox County. 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 proposes a residential development with 292 apartment units. The project is to have two site access locations, one site access onto Sherrill Boulevard and the second site access onto the existing roadway, Sellers Lane, which is to be used as an exit only. 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 intersections of Sherrill Boulevard at Mabry Hood Road and Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp, Sherrill Boulevard at Sellers Lane and the proposed development access onto Sherrill Boulevard. 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 warrants, signal warrants, and sight distance assessments.

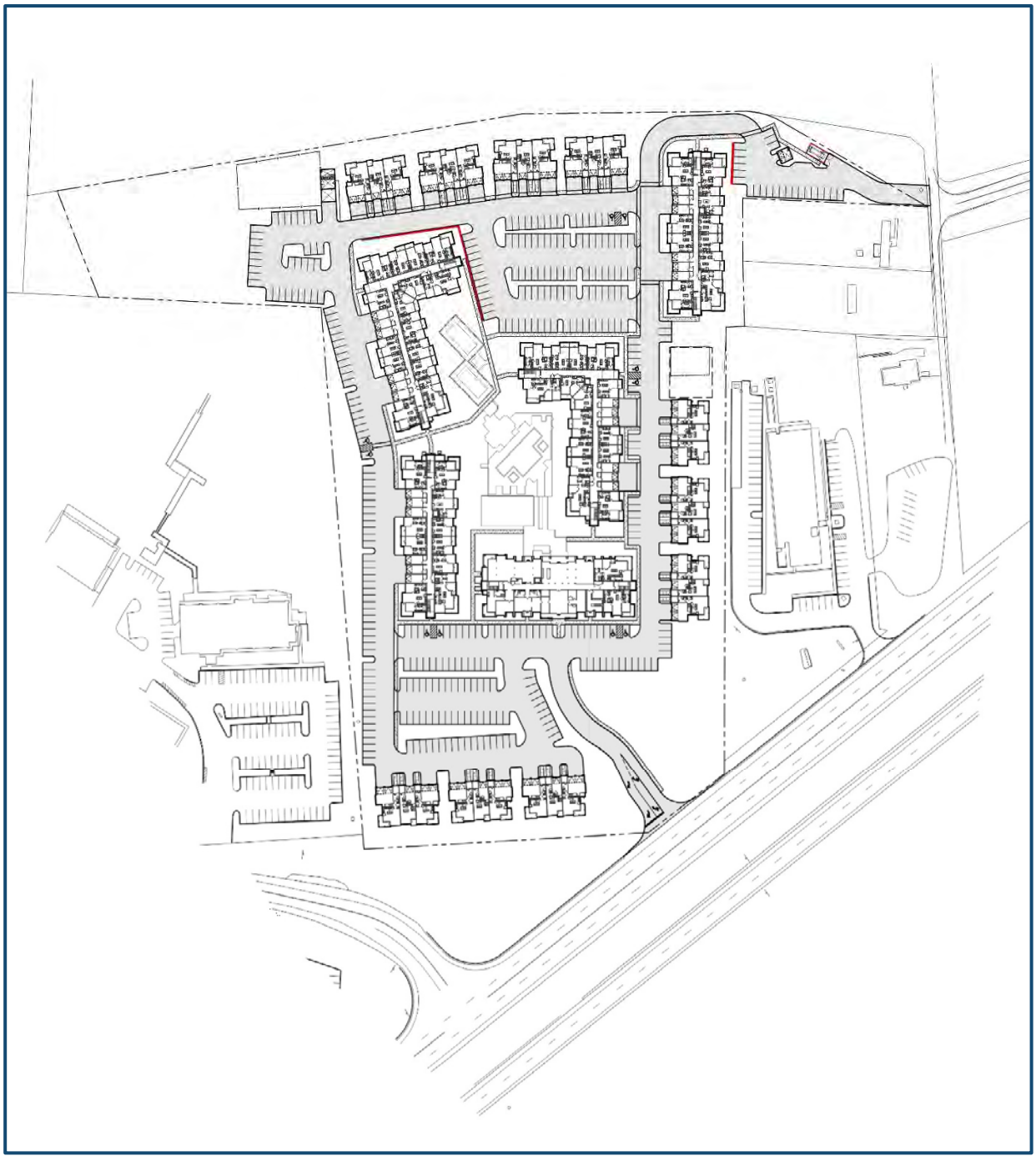


FIGURE 2
CONCEPTUAL SITE PLAN

3 EXISTING CONDITIONS

EXISTING ROADWAY CONDITIONS

According to the Tennessee Department of Transportation (TDOT) Functional Classification Maps Sherrill Boulevard is a Major Collector that provides north-south access in Knox County. Sherrill Boulevard mainly carries traffic to and from commercial areas. In the vicinity of the proposed development, the roadway consists of two 12-foot through travel lanes in each direction with shoulders that vary from 5 -10 ft on both sides of the road. The speed limit on Sherrill Boulevard is posted as 40 mph. The 2025 ADT on Sherrill Boulevard was 5,882 vpd.

Dutchtown Road is classified as a Major Collector, according to TDOT's Functional Classification Maps, that provides east-west access to Knox County. Dutchtown Road stretches from Murdock Drive in the west to Cedar Bluff Road in the east and carries traffic to and from residential and commercial areas. In the vicinity of the proposed development, the roadway consists of two 12-foot through travel lanes in each direction with additional turn lanes at all legs of the signalized intersection with Sherrill Boulevard / Pellissippi Parkway (SR 162) NB off-ramp. Sidewalks are present on both sides of the road east of the intersection of Sherrill Boulevard. The speed limit on Dutchtown Road is posted as 40 mph. The 2025 ADT on Dutchtown Road located west of Christian Academy Boulevard was 10,197 vpd.

According to the TDOT Major Road Plan, Mabry Hood Road is a Minor Collector in Knox County that provides access to residential and commercial developments as well as the Webb School of Knoxville. In the vicinity of the proposed development, the roadway consists of two 9-foot through travel lanes. The speed limit on Mabry Hood Road is posted as 30 mph. The 2025 ADT on Mabry Hood Road was 530 vpd.

Sellers Lane is classified as a local road according to the TDOT Major Road Plan. Sellers Lane primarily carries traffic to and from residential areas. In the vicinity of the proposed development, the roadway consists of two 12-foot through travel lanes with no shoulders. There is no posted speed limit on Sellers Lane, so a speed limit of 25 mph was assumed for this study.

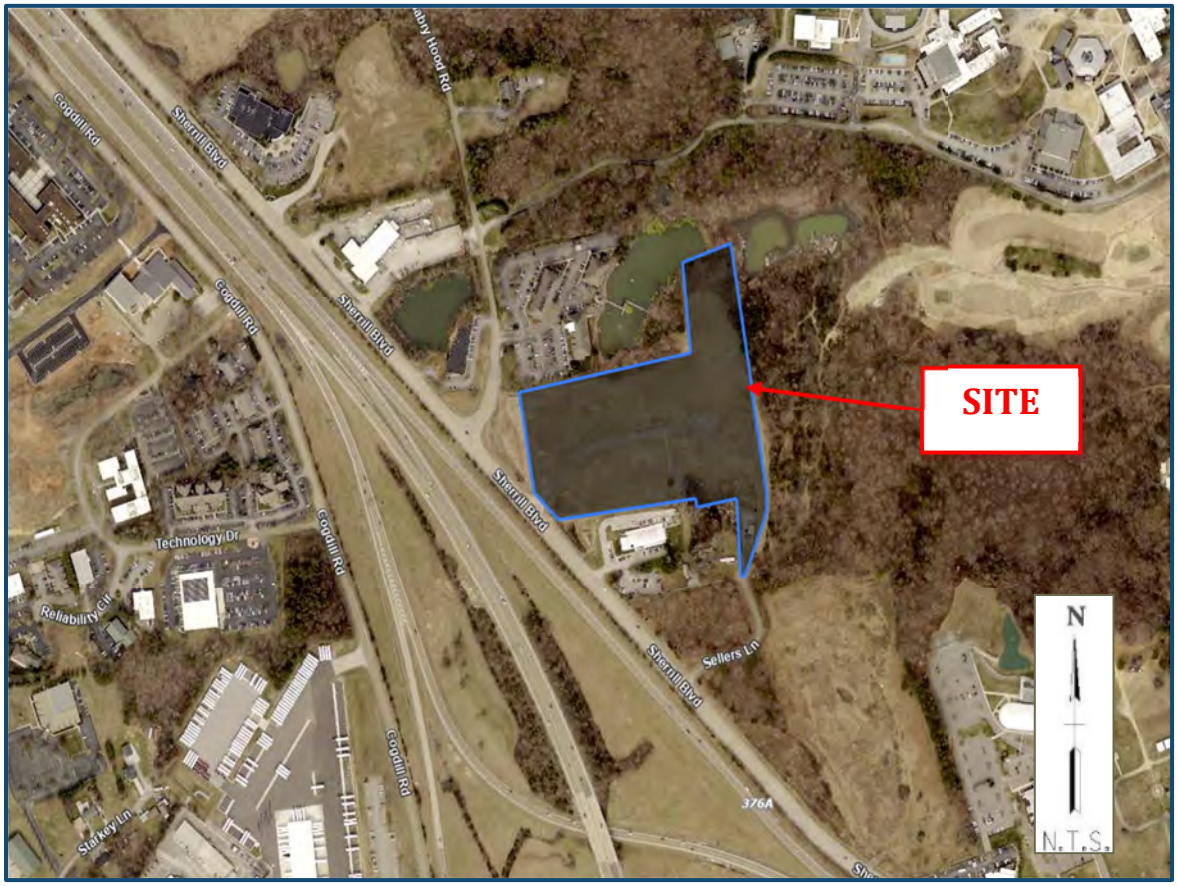


FIGURE 3
EXISTING SITE CONDITIONS

EXISTING TRAFFIC DATA

Existing traffic data was gathered for this study. Annual average daily traffic data (AADT) collected by TDOT on roadways in the area of the proposed development were utilized. Three count stations, one located on Sherrill Boulevard, one on Dutchtown Road, and one located on Mabry Hood, 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 intersections of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp and Sherrill Boulevard at Mabry Hood Road. The traffic counts were conducted in September 2026. The 2026 peak hour volumes from the existing traffic data 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 47000510 SHERRILL BOULEVARD	TDOT COUNT STATION 47000427 DUTCHTOWN ROAD	TDOT COUNT STATION 47000553 MABRY HOOD ROAD SOUTH OF DUTCHTOWN ROAD
2025	5,882	10,197	530
2024	5,140	8,276	519
2023	4,877	7,852	618
2022	8,911	9,155	476
2021	5,531	8,300	395
2020	6,327	8,530	517
2019	8,563	9,368	606
2018	4,954	9,938	424
2017	4,913	9,058	578
2016	5,087	8,285	500
2015	5,080	8,055	-
2014	4,494	7,469	-
2013	4,538	6,403	-
2012	4,884	6,007	-

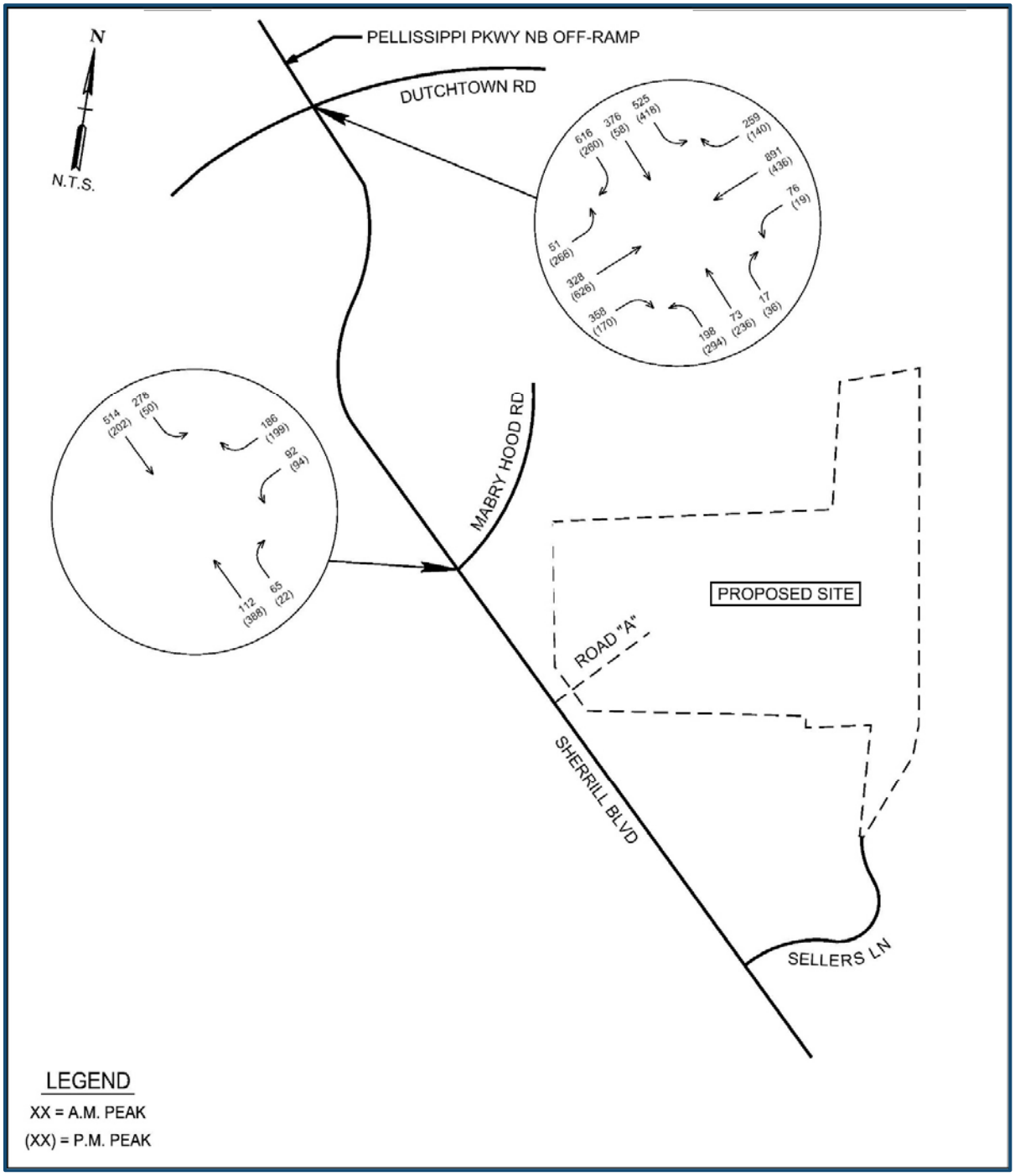


FIGURE 4
2026 EXISTING TRAFFIC VOLUMES

EXISTING CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses employing the methods of SYNCHRO And the Highway Capacity Manual (7th Edition) were conducted for the existing study intersections. The analyses were performed with the 2026 existing traffic volumes, existing intersection traffic control and lane configurations, and existing signal timing. The intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp was found to operate at a Level-of-Service (LOS) "D" during both the AM and PM peak hours with approach delay of 37.9 seconds and 41.5 seconds, respectively. The intersection of Sherrill Boulevard at Mabry Hood Road was found to operate at a LOS "F" during the AM peak hour and at a LOS "C" during the PM peak hour with approach delays of 52.5 seconds and 18.2 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 4.0% was assumed. Existing volumes from the intersections of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp and Sherrill Boulevard at Mabry Hood Road were grown by 4.0% every year from the year 2026, when the counts were conducted, to the year 2029.

The background traffic volumes shown in FIGURE 5 represents 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 existing signal timing and the Year 2029 background volumes shown in FIGURE 5. Under Year 2029 background conditions, without traffic related to the development, the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp was found to operate at a LOS “D” during both the AM and PM peak hours with an approach delay of 45.8 seconds and 49.7 seconds, respectively. The intersection of Sherrill Boulevard at Mabry Hood Road was found to operate at a LOS “F” during the AM peak hour and at a LOS “C” in the PM peak hour with an approach delay of 121.9 seconds and 23.8 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.

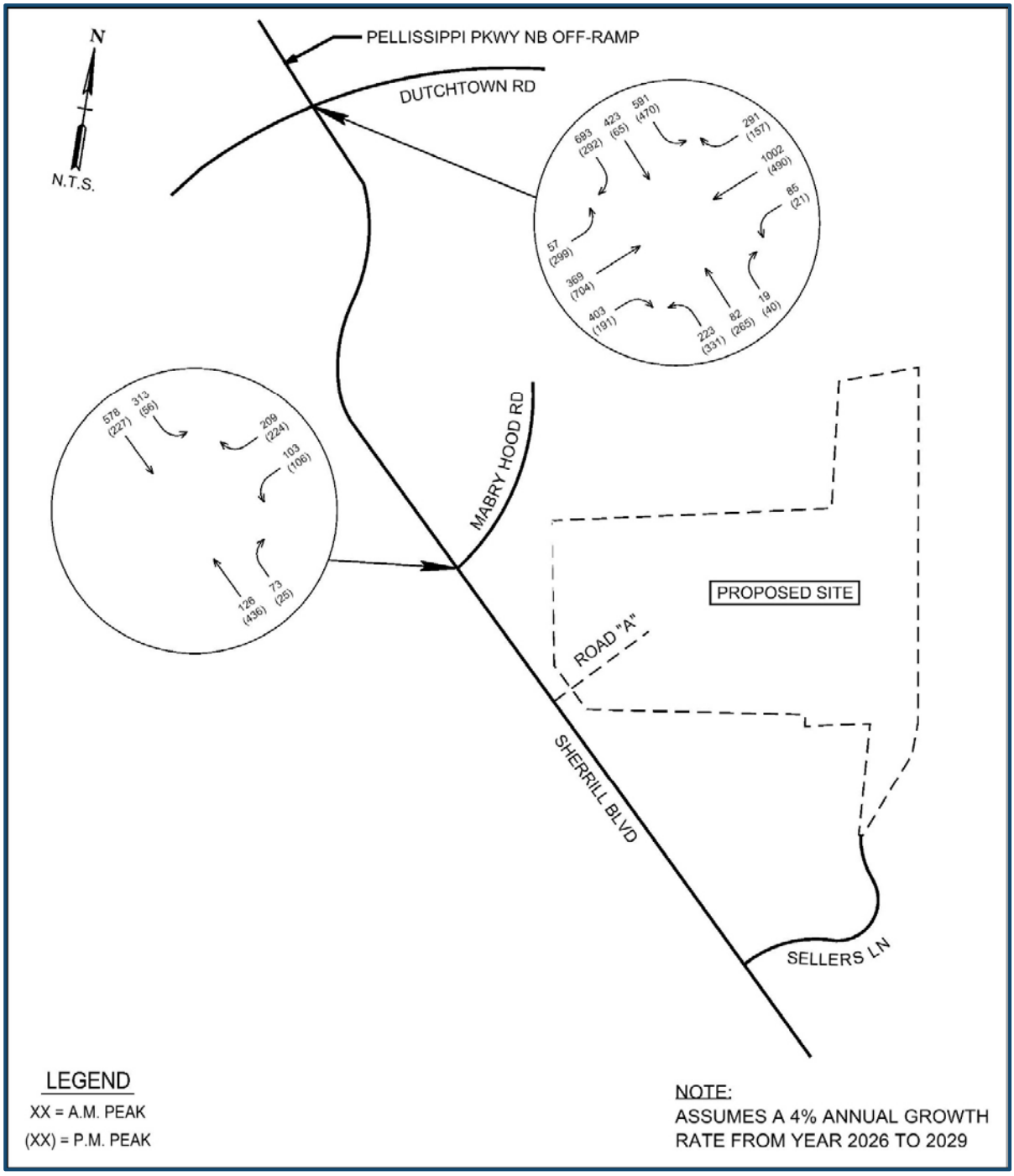


FIGURE 5
2029 BACKGROUND TRAFFIC VOLUMES

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 trips were determined based on the weekday AM and PM peak hour of adjacent street traffic trip generation rates for a Multifamily Housing (Low-Rise) (ITE Land Use Code 220). 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)
Multifamily Housing (Low-Rise)	220	292 Units			
Entering Trips			907	28	91
Exiting Trips			906	87	57
Total			1,813	115	148

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 intersections utilizing the trip generation data from TABLE 2 and the distribution patterns shown on FIGURE 6.

FIGURE 8 represents the 2029 combined traffic data which reflects the existing traffic, background growth and the 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.

Utilizing the existing signal timing and the 2029 combined volumes, the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp was found to continue operating at a LOS “D” during both the AM and PM peak hours with approach delays of 46.9 seconds and 50.6 seconds, respectively. The intersection of Sherrill Boulevard at Mabry Hood Road was found to operate at a LOS “F” during the AM peak hour and at a LOS “D” during the PM peak hour with an approach delay of 172.0 seconds and 29.0 seconds, respectively. The intersection of Sherrill Boulevard at the proposed site access was determined to operate at a LOS “B” during both AM and PM peak hours with approach delays of 10.8 seconds and 12.7 seconds, respectively. The intersection of Sherrill Boulevard at Sellers Lane was determined to operate at a LOS “B” during both the AM and PM peak hours with approach delays of 10.5 seconds and 11.7 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.

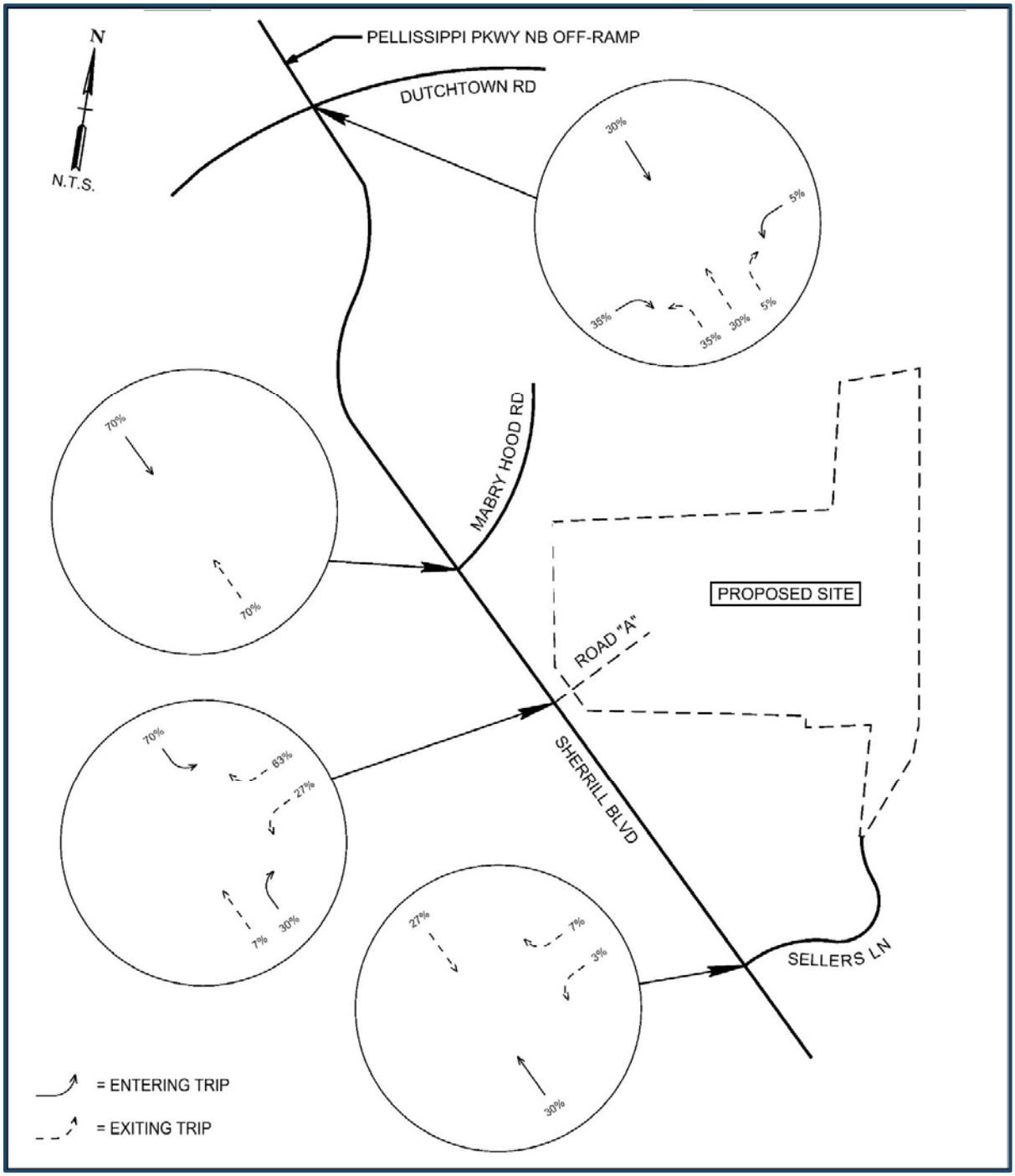


FIGURE 6
TRIP DISTRIBUTION

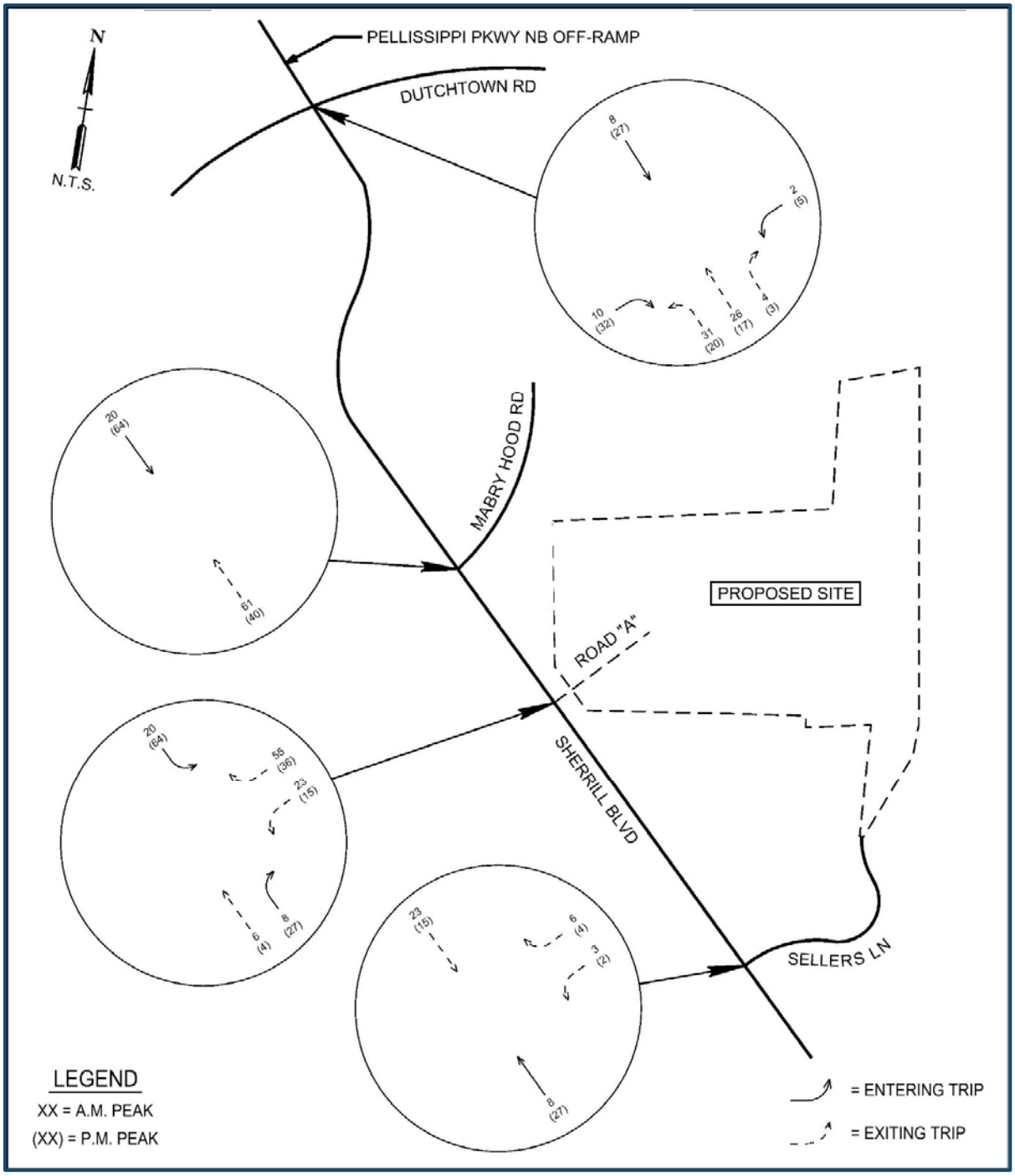


FIGURE 7
TRIP ASSIGNMENT

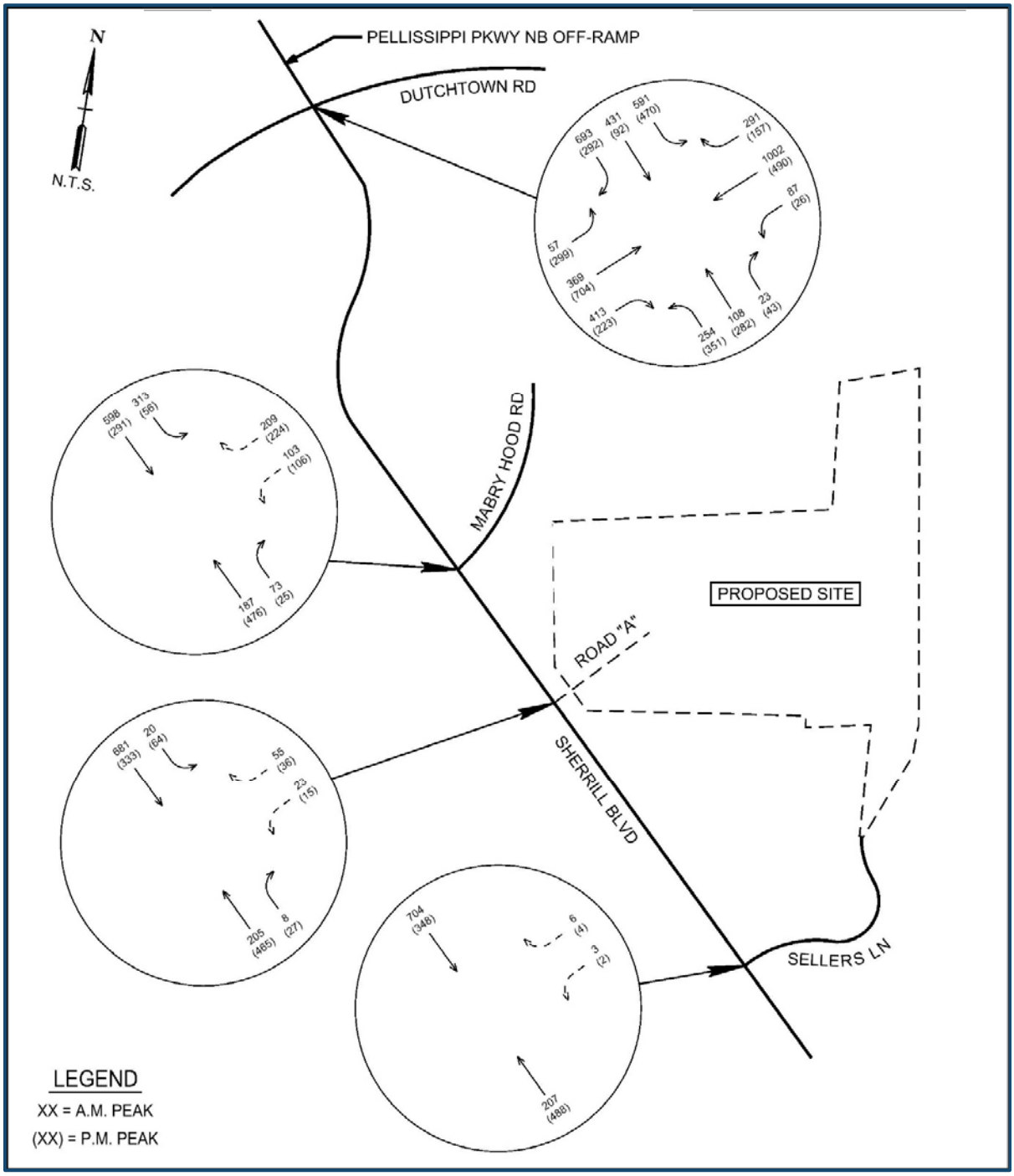


FIGURE 8
2029 COMBINED TRAFFIC VOLUMES

6 EVALUATIONS

TABLE 3
CAPACITY ANALYSIS SUMMARY

INTERSECTION	TIME PERIOD	YEAR 2026 EXISTING (LOS/DELAY)	YEAR 2029 BACKGROUND (LOS/DELAY)	YEAR 2029 COMBINED (LOS/DELAY)
Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB Off-Ramp (SIGNALIZED)[1]	A.M. P.M.	D 37.9 D 41.5	D 45.8 D 49.7	D 46.9 D 50.6
Sherrill Boulevard at Mabry Hood Road (SIDE STREET STOP)[2]	A.M. P.M.	F 52.5 C 18.2	F 121.9 C 23.8	F 172.0 D 29.0
Sherrill Boulevard at Site Access (SIDE STREET STOP)[2]	A.M. P.M.	- -	- -	B 10.8 B 12.7
Sherrill Boulevard at Sellers Lane (SIDE STREET STOP)[2]	A.M. P.M.	- -	- -	B 10.5 B 11.7

[1]SIGNALIZED CONTROL – Level-of-Service and Average Vehicular Delay (seconds) for the full intersection utilizing SYNCHRO methodology.

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

INTERSECTION CAPACITY ANALYSES

The results summarized in TABLE 3 indicate that all intersections are anticipated to operate at an acceptable LOS "D" or better during the AM and PM peak hours, except for the intersection of Sherrill Boulevard at Mabry Hood Road. The intersection of Sherrill Boulevard at Mabry Hood Road is anticipated to operate at a LOS "F" during the AM peak hour under existing, background and combined conditions.

QUEUEING ANALYSIS

A further look into queue lengths and storage capacities was completed to better understand how the additional traffic from the proposed development would affect the roadway network at the study intersections. TABLE 4 provides a summary of the queue analysis.

TABLE 4
QUEUE ANALYSIS SUMMARY

INTERSECTION	MOVEMENT	STORAGE CAPACITY (FT)	QUEUE LENGTH (FT)					
			YEAR 2026 EXISTING		YEAR 2029 BACKGROUND		YEAR 2029 COMBINED	
			AM	PM	AM	PM	AM	PM
Sherrill Boulevard at Mabry Hood Road	WBL	125	150	73	240	115	273	145
	SBL	N/A	28	5	33	5	35	5
Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB-off Ramp	NBL	340	122	165	134	185	150	195
	SBL	430	373	228	439	283	439	283
	EBL	450	84	343	91	410	91	410
	EBR	175	212	12	264	11	266	10

The westbound left movement at the intersection of Sherrill Boulevard at Mabry Hood Road was identified as the critical movement, as the 95th percentile queue length exceeded the available storage capacity during both the AM and PM peak hours for the 2029 combined scenario. Although the projected queue length exceeds available storage capacity, the spillback is not expected to block either of the driveways located north of the intersection along Mabry Hood Road. Additional analysis indicated that increasing the storage length of the left turn lane would not reduce delay experienced at the intersection.

Since no dedicated southbound left-turn lane exists on Sherrill Boulevard, a queue analysis was performed to verify that traffic generated by the proposed development would not create excessive queues or delays. The analysis found that the 95th percentile queue lengths during both the AM and PM peak hours of the 2029 combined scenario would be minimal and would not create excessive delays. Therefore, no improvements are recommended for the intersection of Sherrill Boulevard at Mabry Hood Road.

At the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp, the southbound left-turn queue length was projected to exceed the available storage capacity, primarily during the AM peak hour. However, the resulting spillback is not expected to restrict traffic flow or cause substantial delays. The eastbound right-turn movement queue length was also projected to exceed storage capacity during the AM peak hours. Due to geometric constraints, the right-turn lane storage capacity cannot be increased. Therefore, no improvements are recommended for the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp.

INTERSECTION SPACING

To ensure proper spacing between Mabry Hood Road and the proposed site access, Knox County's sub-division regulations were utilized. According to Knox County's subdivision regulations, the minimum spacing of intersections on a collector roadway is 300 feet. The distance measured from the centerline of Mabry Hood Road to the centerline of the proposed site access was found to be approximately 380 feet. Therefore, there are no recommendations to relocate the proposed site access.

SIGNAL ANALYSIS

A signal warrant analysis was completed for the intersection of Sherrill Boulevard and Mabry Hood Road using the following volume-based signal warrants from the Manual on Uniform Traffic Control Devices (MUTCD) 11th edition: Warrant 1 Eight-Hour Vehicular Volume, Warrant 2 Four-Hour Vehicular Volume, and Warrant 3 Peak Hour. The 2029 combined volumes were utilized for this analysis. Through analysis, it was found that the volume-based warrants analyzed did not meet the requirements under the 2029 combined conditions. Therefore, a signal is not recommended for the intersection of Sherrill Boulevard and Mabry Hood Road. The signal warrant analysis worksheet can be found in APPENDIX D.

TURN LANE ASSESSMENT

The proposed site access was evaluated for a left and right-turn lane warrants utilizing Knox County's Access Control and Driveway Design Policy Handbook turn lane volume thresholds for the proposed intersection. Combined conditions were evaluated as part of the assessment with the following results:

- Combined Peak Traffic Conditions
    - Sherrill Boulevard at Proposed Site Entrance
        - Left Turn Warrant – AM Peak: Not Met / PM Peak: Not Met
        - Right Turn Warrant – AM Peak: Not Met / PM Peak: Not Met

As indicated above, a right-turn lane or a left-turn lane is not warranted at the proposed intersection. The turn lane warrant analyses worksheets are in APPENDIX D.

SIGHT DISTANCE ASSESSMENT

Intersection sight distance was reviewed for the proposed site access at Sherrill Boulevard and the intersection of Sellers Lane and Sherrill Boulevard. The posted speed limit on Sherrill Boulevard is 40 mph. Based on the AASHTO sight distance requirements, the intersection sight distance is 470 feet for a left turning vehicle crossing two lanes of traffic on a 40-mph roadway.

Intersection sight distance was assessed via field measurements at the proposed site access on Sherrill Boulevard and at the intersection of Sellers Lane and Sherrill Boulevard in October 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 both intersections, Sherrill Boulevard at the proposed site access and Sherrill Boulevard at Sellers Lane, have adequate sight distance looking both left and right along Sherrill Boulevard.

It should be noted that vegetation located within the right-of-way and near the intersection of Sherrill Boulevard and Sellers Lane can partially block sight distance when looking in either direction, however, with proper trimming of the vegetation, the required sight distance can be provided. The sight distance observed from the field measurements can be seen in FIGURE 9 and FIGURE 10.





FIGURE 9
SIGHT DISTANCE ASSESSMENT





FIGURE 10
SIGHT DISTANCE ASSESSMENT

7 CONCLUSIONS & RECOMMENDATIONS

The primary conclusion of this study is that traffic generated from the proposed residential development will have minor impacts on the delay at the intersection of Dutchtown Road at Sherrill Boulevard. Since the intersection of Dutchtown Road at Sherrill Boulevard/Pellissippi Parkway (SR-162) NB off-ramp will continue to operate at LOS "D" under 2029 combined conditions, no improvements to the existing signal timing are recommended. Sherrill Boulevard at Mabry Hood Road is already experiencing a LOS "F" during the AM peak hour and is anticipated to continue operating at a LOS "F" in the AM peak under 2029 combined traffic conditions. Mitigation efforts, including increasing the westbound left-turn lane storage capacity and evaluating signal warrants were assessed for the intersection. It was found that the intersection did not warrant a signal and that the added storage capacity would have no effect on the expected delay of the westbound approach. Therefore, no improvements were recommended for the intersection of Sherrill Boulevard at Mabry Hood Road.

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 at Sherrill Boulevard.

2. Maintain and trim tree foliage and vegetation within the right-of-way to provide the required minimum intersection sight distance at the intersection of Sherrill Boulevard at Sellers Lane.

APPENDIX A | TRAFFIC DATA
APPENDIX B | TRIP GENERATION
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APPENDIX D | SIGNAL AND TURN LANE WARRANT EVALUATIONS

APPENDIX A | TRAFFIC DATA

Prepared by National Data & Surveying Services

SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd & Dutchtown Rd

Peak Hour Turning Movement Count

ID: 26-190041-001
City: Knoxville

Day: Thursday
Date: 9/17/2026

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	12:15 PM - 01:15 PM
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	7:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	2:00 PM - 07:00 PM

SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd — SOUTHBOUND

AM	616	376	525	0	383	AM
NOON	286	102	196	0	267	NOON
PM	260	58	418	1	643	PM
	2	1	2	0		

EASTBOUND — Dutchtown Rd

AM	NOON	PM	
1705	787	990	
0	0	0	0
51	118	266	1
328	234	626	2
358	141	170	1
AM	NOON	PM	

WESTBOUND — Dutchtown Rd

PM	NOON	AM	
140	72	259	1
436	382	891	2
19	15	76	1
0	0	0	0
1080	448	870	
PM	NOON	AM	

CONTROL: Signalized

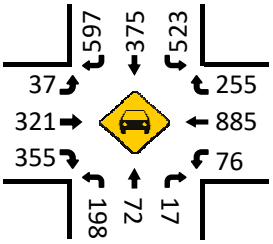
	3768	1760	2960
TEV	AM	NOON	PM
PHF	0.89	0.94	0.84

0 2 0.5 0.5

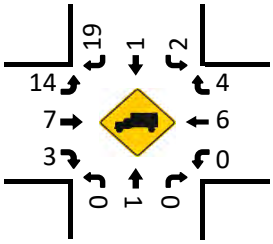
SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd — NORTHBOUND

PM	247	0	294	236	36	PM
NOON	258	0	119	77	18	NOON
AM	810	0	198	73	17	AM

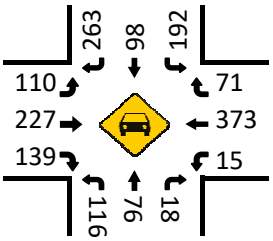
Cars (AM)



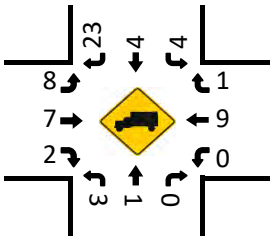
HT (AM)



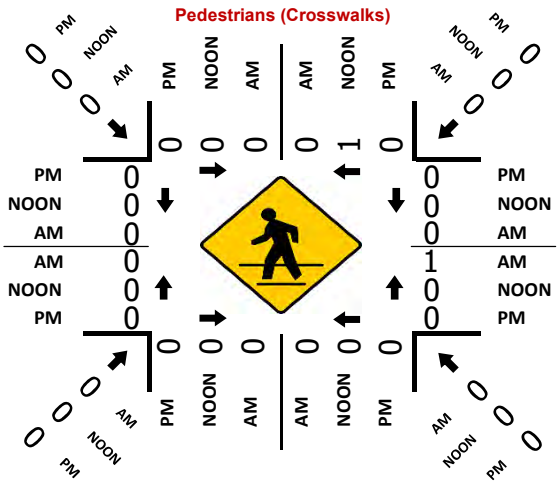
Cars (NOON)



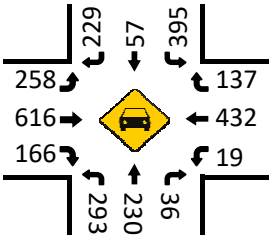
HT (NOON)



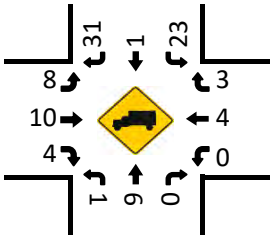
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd & Dutchtown Rd
City: Knoxville
Control: Signalized

Project ID: 26-190041-001
Date: 9/17/2026

Data - Total

NS/EW Streets:	SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd				SR 162/Pellissippi Pkwy NB Ramps/Sherrill Blvd				Dutchtown Rd				Dutchtown Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	0.5	0.5	0	2	1	2	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	6	0	0	53	37	118	0	12	31	49	0	1	102	44	0	460
7:15 AM	13	9	5	0	82	60	114	0	12	46	76	0	7	163	47	0	634
7:30 AM	58	8	2	0	140	86	171	0	10	52	78	0	17	223	53	0	898
7:45 AM	55	22	5	0	140	79	186	0	11	100	96	0	24	230	72	0	1020
8:00 AM	43	20	5	0	165	120	137	0	11	104	110	0	27	234	84	0	1060
8:15 AM	42	23	5	0	80	91	122	0	19	72	74	0	8	204	50	0	790
8:30 AM	21	13	0	0	52	45	126	0	22	57	72	0	7	124	40	0	579
8:45 AM	18	10	1	0	48	53	122	1	15	80	73	0	10	135	21	0	587
9:00 AM	23	10	3	0	30	46	99	0	16	40	53	0	2	103	32	0	457
9:15 AM	20	12	5	0	26	43	66	0	12	47	40	0	2	78	32	0	383
9:30 AM	17	10	1	0	32	27	78	0	16	52	54	0	2	87	28	0	404
9:45 AM	17	12	2	0	37	23	72	0	12	52	48	0	3	81	29	0	388
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	334	155	34	0	885	710	1411	1	168	733	823	0	110	1764	532	0	7660
APPROACH %'s :	63.86%	29.64%	6.50%	0.00%	29.43%	23.61%	46.92%	0.03%	9.74%	42.52%	47.74%	0.00%	4.57%	73.32%	22.11%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	198	73	17	0	525	376	616	0	51	328	358	0	76	891	259	0	3768
PEAK HR FACTOR :	0.853	0.793	0.850	0.000	0.795	0.783	0.828	0.000	0.671	0.788	0.814	0.000	0.704	0.952	0.771	0.000	0.889
	0.878				0.899				0.819				0.888				

NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	0.5	0.5	0	2	1	2	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	20	15	4	0	32	24	53	0	22	36	26	0	3	71	16	0	322
10:15 AM	32	13	6	0	38	35	57	0	16	43	34	0	2	67	15	0	358
10:30 AM	30	24	2	0	34	22	50	0	25	40	24	0	0	63	12	0	326
10:45 AM	26	14	6	0	47	22	64	0	24	41	28	0	1	58	14	0	345
11:00 AM	40	23	5	0	35	15	51	0	33	43	31	0	1	68	20	0	365
11:15 AM	24	20	4	0	28	11	58	0	14	49	26	0	2	61	16	0	313
11:30 AM	29	30	5	0	24	14	57	1	33	44	34	0	0	86	30	0	387
11:45 AM	33	19	3	0	29	15	66	0	37	69	30	0	2	86	31	0	420
12:00 PM	30	19	6	0	40	16	56	0	51	79	16	0	3	84	16	0	416
12:15 PM	26	20	8	0	47	18	67	0	35	54	33	0	8	89	22	0	427
12:30 PM	26	17	5	0	45	32	72	0	38	53	46	0	2	109	21	0	466
12:45 PM	32	23	5	0	65	26	77	0	17	71	31	0	4	88	9	0	448
1:00 PM	35	17	0	0	39	26	70	0	28	56	31	0	1	96	20	0	419
1:15 PM	34	16	2	0	44	25	68	0	22	63	39	0	2	79	22	0	416
1:30 PM	29	12	1	0	47	36	82	0	25	68	34	0	1	80	14	0	429
1:45 PM	26	28	6	0	49	27	67	0	23	64	30	0	4	73	15	0	412
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	472	310	68	0	643	364	1015	1	443	873	493	0	36	1258	293	0	6269
APPROACH %'s :	55.53%	36.47%	8.00%	0.00%	31.78%	17.99%	50.17%	0.05%	24.49%	48.26%	27.25%	0.00%	2.27%	79.27%	18.46%	0.00%	
PEAK HR :	12:15 PM - 01:15 PM																TOTAL
PEAK HR VOL :	119	77	18	0	196	102	286	0	118	234	141	0	15	382	72	0	1760
PEAK HR FACTOR :	0.850	0.837	0.563	0.000	0.754	0.797	0.929	0.000	0.776	0.824	0.766	0.000	0.469	0.876	0.818	0.000	0.944
	0.892				0.869				0.900				0.888				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	0.5	0.5	0	2	1	2	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	37	25	2	0	48	20	63	0	36	83	27	0	1	85	28	0	455
2:15 PM	35	17	5	0	63	14	53	0	43	81	38	0	1	92	20	0	462
2:30 PM	35	33	2	0	49	19	60	1	52	95	28	0	4	72	21	0	471
2:45 PM	62	40	4	0	88	24	69	0	26	49	36	0	1	77	13	0	489
3:00 PM	52	33	2	0	86	18	38	0	36	106	28	0	2	80	18	0	499
3:15 PM	72	34	10	0	112	30	59	0	37	81	42	0	7	105	21	0	610
3:30 PM	64	30	4	0	79	21	53	0	66	133	31	0	3	155	29	0	668
3:45 PM	125	33	8	0	93	27	56	0	29	87	29	0	3	133	31	0	654
4:00 PM	97	52	11	0	86	20	63	0	59	137	30	0	3	128	32	0	718
4:15 PM	87	49	8	0	107	17	65	1	62	129	44	0	4	112	33	0	718
4:30 PM	77	55	5	0	93	18	66	0	63	160	35	0	4	106	22	0	704
4:45 PM	54	72	9	0	107	12	69	0	38	116	44	0	5	88	41	0	655
5:00 PM	76	60	14	0	111	11	60	0	103	221	47	0	6	130	44	0	883
5:15 PM	79	60	8	0	101	15	38	0	43	148	61	0	2	115	39	0	709
5:30 PM	62	38	6	0	86	12	51	0	35	164	45	0	7	99	39	0	644
5:45 PM	53	44	8	0	87	15	51	0	26	126	27	0	4	91	24	0	556
6:00 PM	56	38	2	0	69	12	41	0	35	95	20	0	1	77	37	0	483
6:15 PM	38	23	3	0	70	10	35	0	23	81	18	0	0	86	16	0	403
6:30 PM	25	17	0	0	66	12	27	0	13	56	11	0	1	51	19	0	298
6:45 PM	28	20	3	0	50	4	19	0	8	52	10	0	2	74	10	0	280
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1214	773	114	0	1651	331	1036	2	833	2200	651	0	61	1956	537	0	11359
APPROACH %'s :	57.78%	36.79%	5.43%	0.00%	54.67%	10.96%	34.30%	0.07%	22.61%	59.72%	17.67%	0.00%	2.39%	76.59%	21.03%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	294	236	36	0	418	58	260	1	266	626	170	0	19	436	140	0	2960
PEAK HR FACTOR :	0.845	0.819	0.643	0.000	0.941	0.806	0.942	0.250	0.646	0.708	0.904	0.000	0.792	0.838	0.795	0.000	0.838
	0.943				0.970				0.716				0.826				

Prepared by National Data & Surveying Services

Sherrill Blvd & Mabry Hood Rd NW

Peak Hour Turning Movement Count

ID: 26-190041-002
City: Knoxville

Day: Thursday
Date: 9/17/2026

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	12:30 PM - 01:30 PM
PM	03:45 PM - 04:45 PM

COUNT PERIODS

AM	7:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	2:00 PM - 07:00 PM

SOUTHBOUND (Sherrill Blvd)

AM	0	514	278	0	298	AM
NOON	0	246	15	0	216	NOON
PM	0	202	50	0	587	PM

EASTBOUND (Mabry Hood Rd NW)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND (Mabry Hood Rd NW)

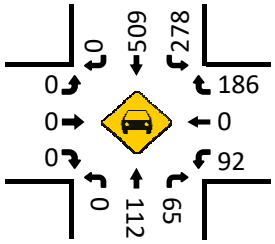
	PM	NOON	AM
0	199	9	186
1	0	0	0
1	94	14	92
0	0	0	0
	72	32	343
	PM	NOON	AM

NORTHBOUND (Sherrill Blvd)

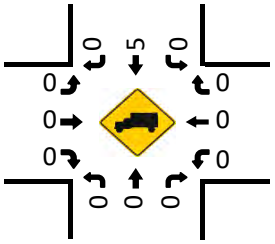
PM	296	0	0	388	22	PM
NOON	260	0	0	207	17	NOON
AM	606	0	0	112	65	AM

CONTROL			
1-Way Stop(WB)			
TEV	1247	508	955
	AM	NOON	PM
PHF	0.86	0.95	0.86

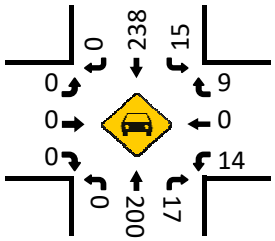
Cars (AM)



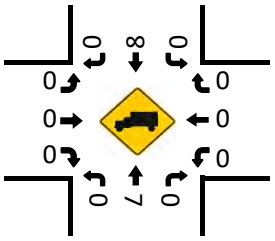
HT (AM)



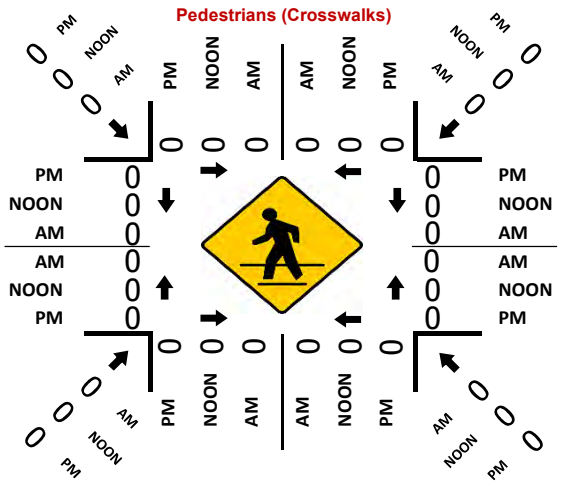
Cars (NOON)



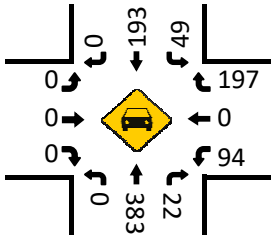
HT (NOON)



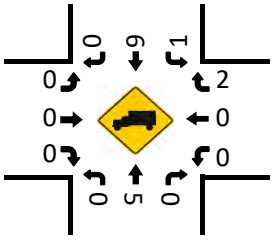
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Sherrill Blvd & Mabry Hood Rd NW
City: Knoxville
Control: 1-Way Stop(WB)

Project ID: 26-190041-002
Date: 9/17/2026

Data - Total

NS/EW Streets:	Sherrill Blvd				Sherrill Blvd				Mabry Hood Rd NW				Mabry Hood Rd NW				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	0	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	12	2	0	14	63	0	0	0	0	0	0	1	0	2	0	94
7:15 AM	0	23	7	0	44	84	0	0	0	0	0	0	8	0	9	0	175
7:30 AM	0	22	12	0	46	135	0	0	0	0	0	0	24	0	59	0	298
7:45 AM	0	23	9	0	55	128	0	0	0	0	0	0	28	0	51	0	294
8:00 AM	0	30	22	0	106	145	0	0	0	0	0	0	23	0	38	0	364
8:15 AM	0	37	22	0	71	106	0	0	0	0	0	0	17	0	38	0	291
8:30 AM	0	27	10	0	10	103	0	0	0	0	0	0	12	0	4	0	166
8:45 AM	0	30	6	0	17	121	0	0	0	0	0	0	10	0	2	0	186
9:00 AM	0	36	5	0	8	97	0	0	0	0	0	0	2	0	1	0	149
9:15 AM	0	40	2	0	12	69	0	0	0	0	0	0	3	0	0	0	126
9:30 AM	0	35	1	0	2	81	0	0	0	0	0	0	3	0	2	0	124
9:45 AM	0	33	2	0	11	67	0	0	0	0	0	0	8	0	2	0	123
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	348	100	0	396	1199	0	0	0	0	0	0	139	0	208	0	2390
APPROACH %'s :	0.00%	77.68%	22.32%	0.00%	24.83%	75.17%	0.00%	0.00%					40.06%	0.00%	59.94%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	112	65	0	278	514	0	0	0	0	0	0	92	0	186	0	1247
PEAK HR FACTOR :	0.000	0.757	0.739	0.000	0.656	0.886	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.000	0.788	0.000	0.856
		0.750				0.789								0.837			

NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	0	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	43	3	0	0	51	0	0	0	0	0	0	4	0	2	0	103
10:15 AM	0	52	4	0	7	57	0	0	0	0	0	0	3	0	2	0	125
10:30 AM	0	49	2	0	4	49	0	0	0	0	0	0	3	0	4	0	111
10:45 AM	0	45	4	0	4	47	0	0	0	0	0	0	3	0	5	0	108
11:00 AM	0	63	1	0	3	40	0	0	0	0	0	0	9	0	3	0	119
11:15 AM	0	57	1	0	4	40	0	0	0	0	0	0	3	0	0	0	105
11:30 AM	0	62	3	0	3	44	0	0	0	0	0	0	4	0	5	0	121
11:45 AM	0	50	5	0	4	46	0	0	0	0	0	0	8	0	3	0	116
12:00 PM	0	59	5	0	3	37	0	0	0	0	0	0	7	0	5	0	116
12:15 PM	0	40	8	0	2	54	0	0	0	0	0	0	3	0	6	0	113
12:30 PM	0	43	4	0	3	79	0	0	0	0	0	0	2	0	2	0	133
12:45 PM	0	54	3	0	2	57	0	0	0	0	0	0	5	0	3	0	124
1:00 PM	0	59	5	0	2	54	0	0	0	0	0	0	5	0	1	0	126
1:15 PM	0	51	5	0	8	56	0	0	0	0	0	0	2	0	3	0	125
1:30 PM	0	42	1	0	6	62	0	0	0	0	0	0	0	0	2	0	113
1:45 PM	0	56	5	0	5	50	0	0	0	0	0	0	0	0	4	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	825	59	0	60	823	0	0	0	0	0	0	61	0	50	0	1878
APPROACH %'s :	0.00%	93.33%	6.67%	0.00%	6.80%	93.20%	0.00%	0.00%					54.95%	0.00%	45.05%	0.00%	
PEAK HR :	12:30 PM - 01:30 PM																TOTAL
PEAK HR VOL :	0	207	17	0	15	246	0	0	0	0	0	0	14	0	9	0	508
PEAK HR FACTOR :	0.000	0.877	0.850	0.000	0.469	0.778	0.000	0.000	0.000	0.000	0.000	0.000	0.700	0.000	0.750	0.000	0.955
		0.875				0.796								0.719			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	0	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	0	60	5	0	2	48	0	0	0	0	0	0	3	0	6	0	124
2:15 PM	0	55	1	0	0	52	0	0	0	0	0	0	4	0	2	0	114
2:30 PM	0	70	2	0	4	47	0	0	0	0	0	0	12	0	10	0	145
2:45 PM	0	81	7	0	11	46	0	0	0	0	0	0	8	0	15	0	168
3:00 PM	0	81	5	0	5	43	0	0	0	0	0	0	4	0	6	0	144
3:15 PM	0	76	6	0	26	48	0	0	0	0	0	0	11	0	27	0	194
3:30 PM	0	83	6	0	16	45	0	0	0	0	0	0	7	0	17	0	174
3:45 PM	0	61	8	0	19	44	0	0	0	0	0	0	43	0	103	0	278
4:00 PM	0	107	5	0	11	47	0	0	0	0	0	0	21	0	47	0	238
4:15 PM	0	106	6	0	11	63	0	0	0	0	0	0	12	0	27	0	225
4:30 PM	0	114	3	0	9	48	0	0	0	0	0	0	18	0	22	0	214
4:45 PM	0	106	10	0	14	57	0	0	0	0	0	0	8	0	15	0	210
5:00 PM	0	125	6	0	6	61	0	0	0	0	0	0	17	0	37	0	252
5:15 PM	0	100	9	0	11	69	0	0	0	0	0	0	13	0	29	0	231
5:30 PM	0	79	3	0	17	49	0	0	0	0	0	0	17	0	34	0	199
5:45 PM	0	80	8	0	13	27	0	0	0	0	0	0	10	0	21	0	159
6:00 PM	0	57	7	0	10	32	0	0	0	0	0	0	12	0	30	0	148
6:15 PM	0	52	4	0	2	27	0	0	0	0	0	0	5	0	5	0	95
6:30 PM	0	33	4	0	3	20	0	0	0	0	0	0	6	0	11	0	77
6:45 PM	0	35	0	0	5	13	0	0	0	0	0	0	3	0	11	0	67
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1561	105	0	195	886	0	0	0	0	0	0	234	0	475	0	3456
APPROACH %'s :	0.00%	93.70%	6.30%	0.00%	18.04%	81.96%	0.00%	0.00%					33.00%	0.00%	67.00%	0.00%	
PEAK HR :	03:45 PM - 04:45 PM																TOTAL
PEAK HR VOL :	0	388	22	0	50	202	0	0	0	0	0	0	94	0	199	0	955
PEAK HR FACTOR :	0.000	0.851	0.688	0.000	0.658	0.802	0.000	0.000	0.000	0.000	0.000	0.000	0.547	0.000	0.483	0.000	0.859
		0.876				0.851								0.502			

McCain
A Company of the SWARCO Group
ATC eX Series

INTERSECTION NUMBER: 1

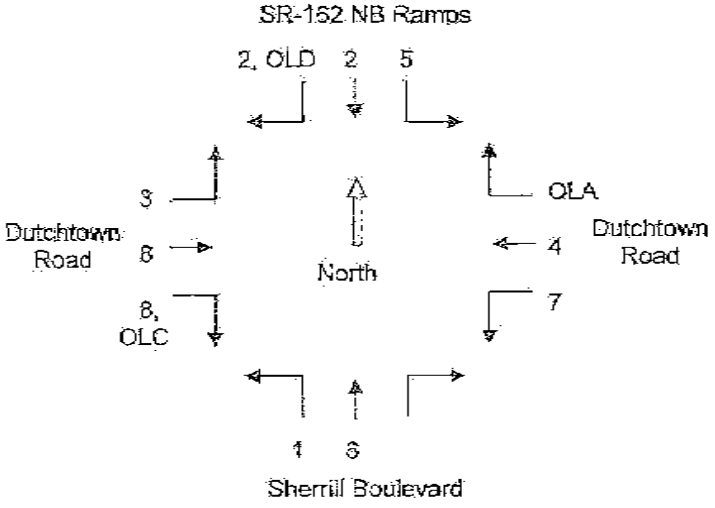
INTERSECTION: Dutchtown Road at Sherrill Boulevard / SR-162 NB On/Off Ramps

Date Prepared: 2/19/2021 By: EJW

Date Implemented: _____ By: _____

2.1 Phase Parameters	Set 1	1	2	3	4	5	6	7	8
Min. Green		6	8	6	20	6	8	5	20
Passage /10		15	35	15	35	15	35	15	35
Max. 1		15	40	15	35	15	40	15	35
Max. 2		15	45	15	45	15	45	15	45
Yel/10		40	40	45	45	30	40	40	45
Red/10		35	15	40	15	25	15	35	15
Walk							7		
Pedestrian Clear							26		
Walk									
Pedestrian Clear									
Add In/10									
Max. Initial									
TBR									
CBR									
TTR									
Reduce/10									
Min Gp/10									
DM Limit									
Dm Step/10									
Red Revert/10									
CS Min									
Alt Min Green									
Alt Passage/10									
Alt Walk									
Adv Walk									
Delay Walk									
St Dly/10									
Green Clr/10									

PHASING SCHEMATIC



Timing verified: ___/___/___

By: _____

McCain
A Company of the SWARCO Group
ATC eX Series

INTERSECTION NUMBER: 1

INTERSECTION: Dutchtown Road at Sherrill Boulevard / SR-162 NB On/Off Ramps

Date Prepared: 2/19/2021 By: EJW

Date Implemented: By:

5.1 Coordination Constants	
Correction Mode	Shortway
Max Cycles Trans	3
Coord Max Mode	Max Inhibit
Coord Force Mode	Fixed
Perm Strategy	Maximum
Omit Strategy	Minimum
Sync Point	End Green
No Early Return	Disable
Sync Ref Time	0

5.2 Pattern Parameters	1	2	3	4	5	6	7	8
Cycle Time	120	100	120	FREE				
Offset Time	116	67	46					
Split	1	2	3					
Sequence	1	1	1	1				
Phase Timing Set	1	1	1	1				
Phase Option Set	1	1	1	1				
Vehicle Overlap Set	1	1	1	1				
PED Overlap Set	1	1	1	1				
Transit Priority Set	1	1	1	1				
Vehicle Detector Set	1	1	1	1				
PED Detector Set	1	1	1	1				
Vehicle Det. Diag Set	1	1	1	1				
Ped Det. Diag Set	1	1	1	1				
Detector Reset								
Max 2 Phases								
Correction Mode								
Coord Max Mode								
Coord Force Mode								
Perm Strategy								
Omit Strategy								
No Early Return								
TX Diamond Type								

Split Change 8/14/25

McCain
A Company of the Siemens Group
ATC eX Series

INTERSECTION NUMBER: 1

INTERSECTION: Dutchtown Road at Sherrill Boulevard / SR-162 NB On/Off Ramps

Date Prepared: 2/19/2021 By: EJW

Date Implemented: By:

40, 25 ← Split Change

5.3 Split Table 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	24	41	15	40	X	X	15	40								
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase				X				X								
Manual Permit																
Manual Omit																

5.3 Split Table 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	15	39	15	31	15	39	15	31								
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase				X				X								
Manual Permit																
Manual Omit																

5.3 Split Table 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	28	33	33	26	25	36	15	44								
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase				X				X								
Manual Permit																
Manual Omit																

McCain
A Company of the SWARCO Group
ATC eX Series

INTERSECTION NUMBER: 1

INTERSECTION: Dutchtown Road at Sherrill Boulevard / SR-162 NB On/Off Ramps

Date Prepared: 2/19/2021 By: EJW

Date Implemented: By:

6.5 DayPlan	1		
Event	Hour	Minute	Action
1	0	0	4
2	6	15	2
3	7	0	1
4	9	0	2
5	14	30	3
6	18	0	2
7	19	30	4
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

6.5 DayPlan	2		
Event	Hour	Minute	Action
1	0	0	4
2	9	0	2
3	19	0	4
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

6.5 DayPlan			
Event	Hour	Minute	Action
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
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31			
32			

APPENDIX B | TRIP GENERATION

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)

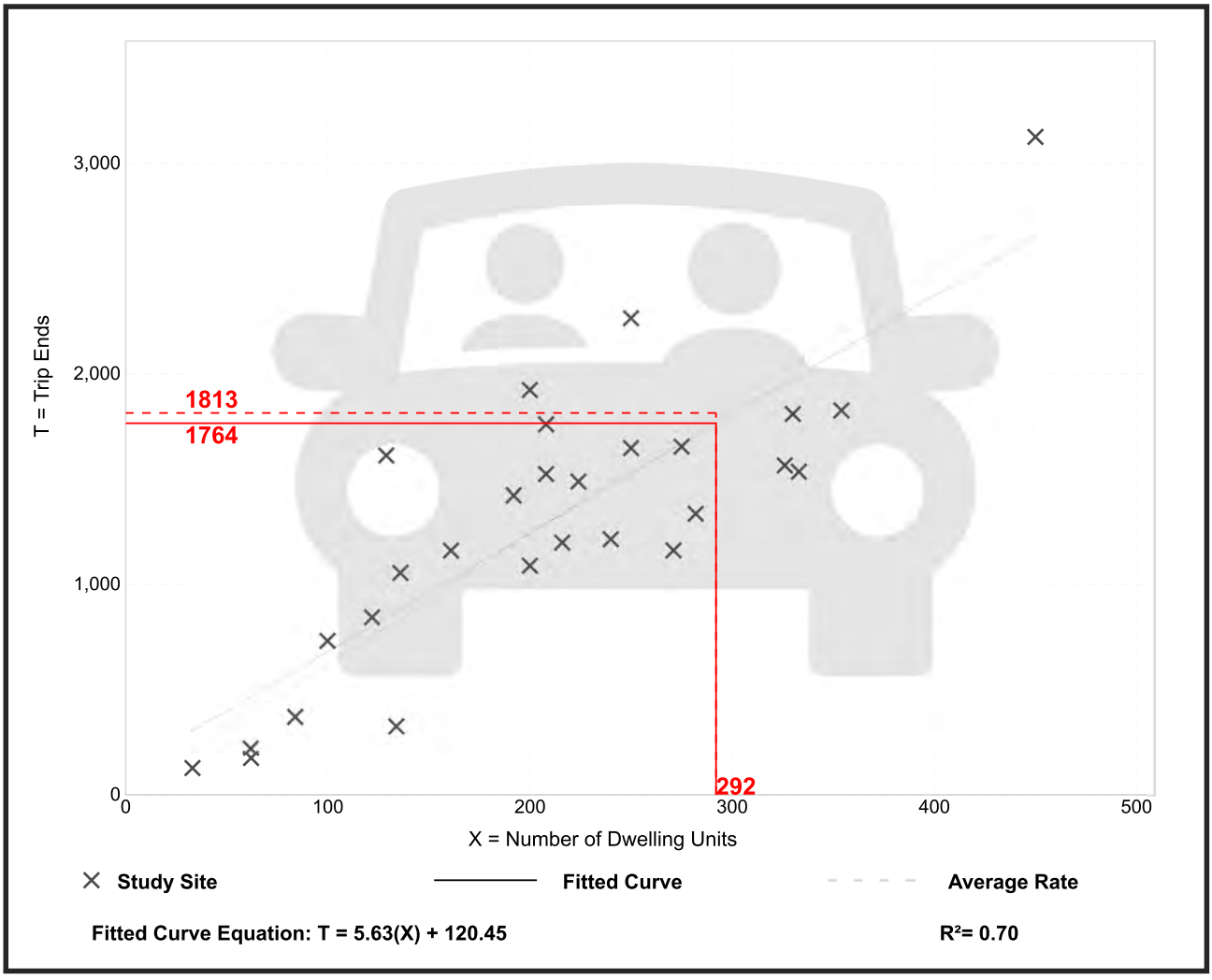
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

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



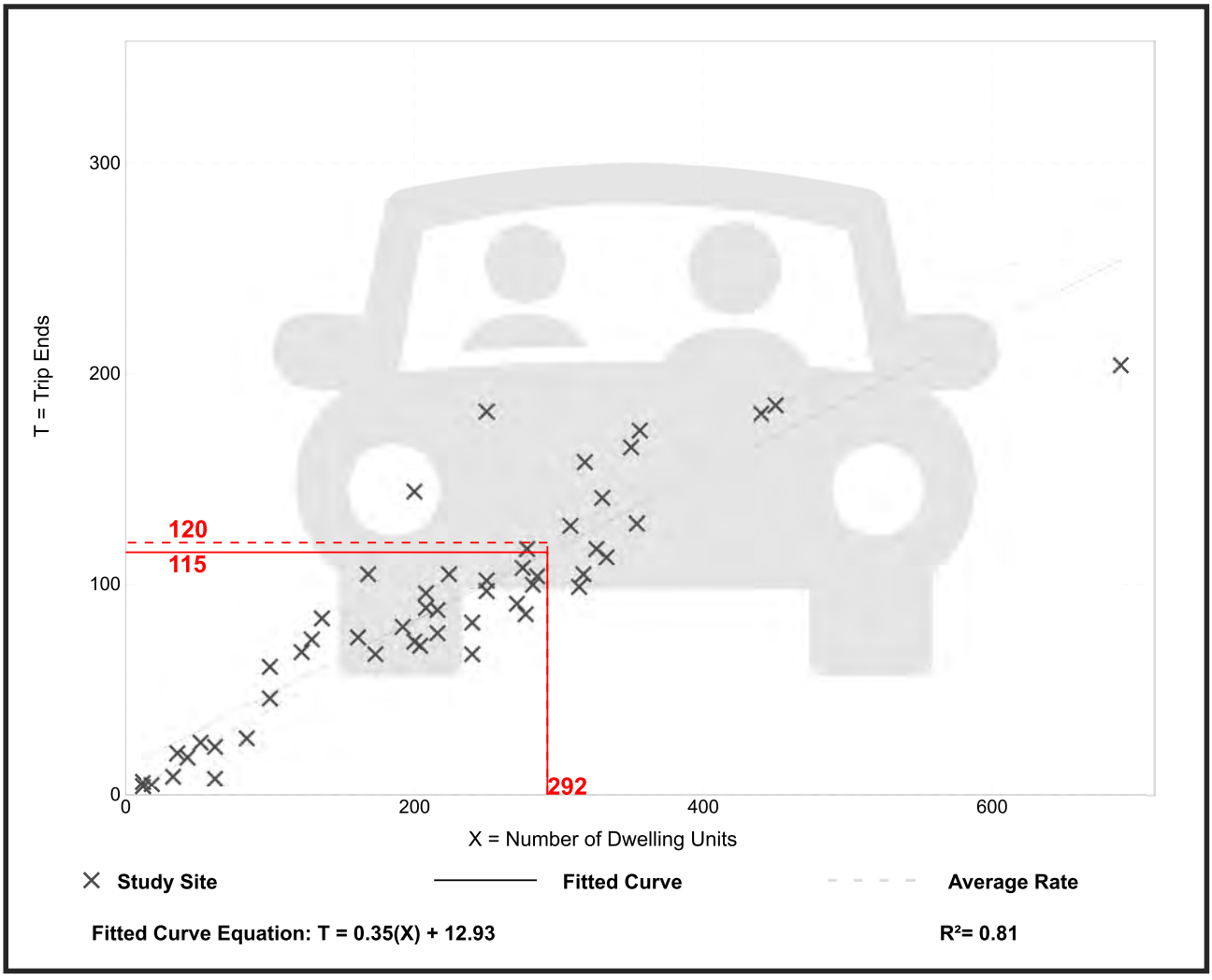
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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



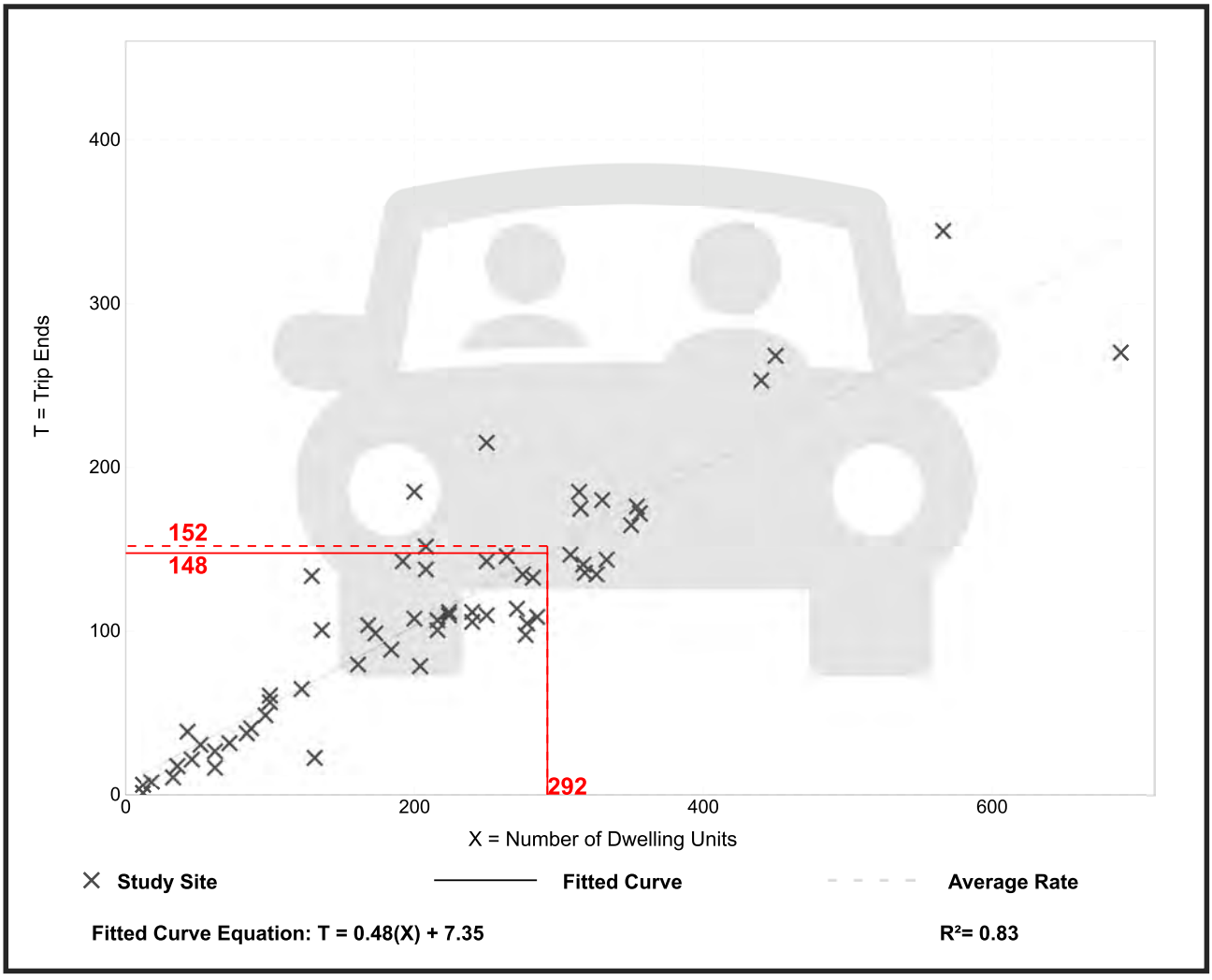
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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



Project: Kore Knoxville Apartments
Date Conducted: 9/30/26

Multifamily Housing (Low-Rise) (220)
292 units

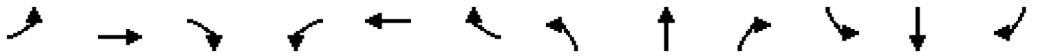
Average Daily Traffic
T = 6.21(X)
T = 6.21(292)
T =1813

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.
T = 0.35(X) + 12.93
T = 0.35(292) + 12.93
T = 115

Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.
T = 0.48(X) + 7.35
T = 0.48(292) + 7.35
T = 148

Time Period	Total Trips	Percent		Number	
		Enter	Exit	Enter	Exit
Weekday (24 hours)	1813	50%	50%	907	906
AM Peak Hour	115	24%	76%	28	87
PM Peak Hour	148	62%	38%	91	57

APPENDIX C | CAPACITY ANALYSES

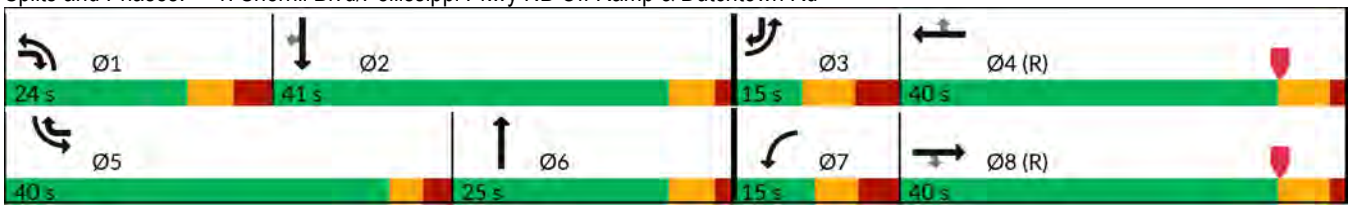


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	328	358	76	891	259	198	73	17	525	376	616
Future Volume (vph)	51	328	358	76	891	259	198	73	17	525	376	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1811	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1811	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			291		8				95
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	400	437	85	1001	291	225	102	0	583	418	684
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	6.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	14.5
Total Split (s)	15.0	40.0	24.0	15.0	40.0	40.0	24.0	25.0		40.0	41.0	15.0
Total Split (%)	12.5%	33.3%	20.0%	12.5%	33.3%	33.3%	20.0%	20.8%		33.3%	34.2%	12.5%
Maximum Green (s)	6.5	34.0	16.5	7.5	34.0	34.5	16.5	19.5		34.5	35.5	6.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.5
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	8.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	1.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	7.5	38.9	56.9	8.6	39.0	79.5	12.0	13.5		34.5	34.0	47.0
Actuated g/C Ratio	0.06	0.32	0.47	0.07	0.33	0.66	0.10	0.11		0.29	0.28	0.39
v/c Ratio	0.56	0.35	0.52	0.67	0.87	0.25	0.66	0.49		0.59	0.79	0.60
Control Delay (s/veh)	74.2	33.0	15.5	79.9	48.4	1.6	61.1	52.7		39.6	51.8	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	74.2	33.0	15.5	79.9	48.4	1.6	61.1	52.7		39.6	51.8	26.8
LOS	E	C	B	E	D	A	E	D		D	D	C
Approach Delay (s/veh)		27.3			40.4			58.4			37.5	
Approach LOS		C			D			E			D	
Queue Length 50th (ft)	47	126	139	65	392	0	89	71		203	309	204
Queue Length 95th (ft)	#100	163	194	#155	#554	31	124	119		263	422	273
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	112	1148	894	130	1150	1147	472	300		986	555	1151
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.55	0.35	0.49	0.65	0.87	0.25	0.48	0.34		0.59	0.75	0.59

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 37.9		Intersection LOS: D	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



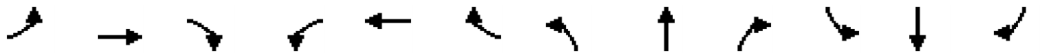
Intersection	
Int Delay, s/veh	13.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	92	186	112	65	278	514
Future Vol, veh/h	92	186	112	65	278	514
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	75	75	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	110	221	149	87	352	651

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1222	118	0	0	236	0
Stage 1	193	-	-	-	-	-
Stage 2	1029	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	172	912	-	-	1328	-
Stage 1	821	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	912	-	-	1328	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	207	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	52.48	0	3.92
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	116	912	1088	-
HCM Lane V/C Ratio	-	-	0.941	0.243	0.265	-
HCM Ctrl Dly (s/v)	-	-	137.9	10.2	8.7	1.3
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	6	1	1.1	-

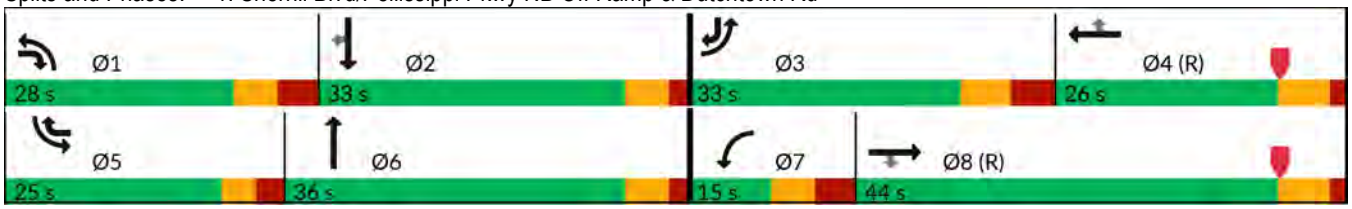


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	626	170	19	436	140	294	236	36	418	58	260
Future Volume (vph)	266	626	170	19	436	140	294	236	36	418	58	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			236			169		6				96
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.72	0.72	0.72	0.83	0.83	0.83	0.94	0.94	0.94	0.97	0.97	0.97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	869	236	23	525	169	313	289	0	431	60	268
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	6.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	14.5
Total Split (s)	33.0	44.0	28.0	15.0	26.0	25.0	28.0	36.0		25.0	33.0	33.0
Total Split (%)	27.5%	36.7%	23.3%	12.5%	21.7%	20.8%	23.3%	30.0%		20.8%	27.5%	27.5%
Maximum Green (s)	24.5	38.0	20.5	7.5	20.0	19.5	20.5	30.5		19.5	27.5	24.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.5
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	8.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	1.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	29.1	50.9	79.3	6.4	21.8	47.3	20.9	24.1		19.5	23.4	55.3
Actuated g/C Ratio	0.24	0.42	0.66	0.05	0.18	0.39	0.17	0.20		0.16	0.20	0.46
v/c Ratio	0.86	0.58	0.21	0.24	0.82	0.23	0.52	0.78		0.77	0.17	0.20
Control Delay (s/veh)	64.4	30.7	2.2	60.7	59.0	4.5	50.3	58.9		58.6	38.5	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	64.4	30.7	2.2	60.7	59.0	4.5	50.3	58.9		58.6	38.5	11.3
LOS	E	C	A	E	E	A	D	E		E	D	B
Approach Delay (s/veh)		34.6			46.2			54.4			40.3	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	274	292	0	18	215	0	124	212		169	38	37
Queue Length 95th (ft)	#343	300	12	43	#268	34	165	295		228	76	69
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	429	1502	1165	110	643	727	696	468		557	430	1335
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.58	0.20	0.21	0.82	0.23	0.45	0.62		0.77	0.14	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 41.5		Intersection LOS: D	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



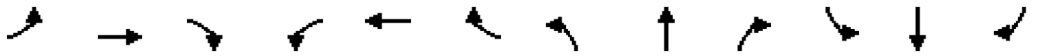
Intersection	
Int Delay, s/veh	8.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	94	199	388	22	50	202
Future Vol, veh/h	94	199	388	22	50	202
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	88	88	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	398	441	25	59	238

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	690	233	0	0	466	0
Stage 1	453	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	379	769	-	-	1092	-
Stage 1	607	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	357	769	-	-	1092	-
Mov Cap-2 Maneuver	357	-	-	-	-	-
Stage 1	607	-	-	-	-	-
Stage 2	736	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	18.17	0	1.95
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	357	769	714	-
HCM Lane V/C Ratio	-	-	0.526	0.518	0.054	-
HCM Ctrl Dly (s/v)	-	-	25.7	14.6	8.5	0.3
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	2.9	3	0.2	-

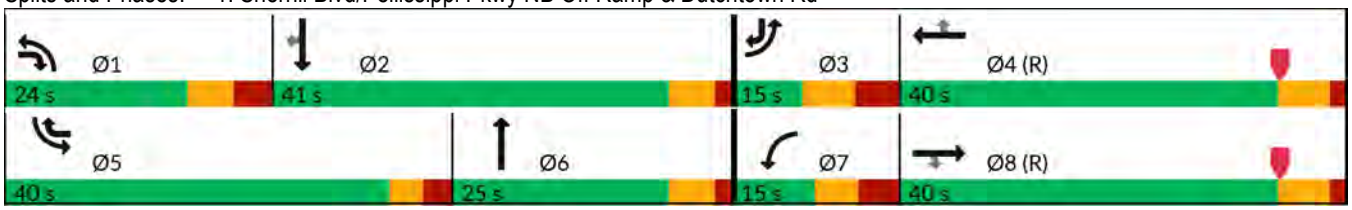


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	369	403	85	1002	291	223	82	19	591	423	693
Future Volume (vph)	57	369	403	85	1002	291	223	82	19	591	423	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1809	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1809	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			327		8				95
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	450	491	96	1126	327	253	115	0	657	470	770
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4						2
Detector Phase	3	8	1	7	4	5	1	6		5	2	3
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	6.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	14.5
Total Split (s)	15.0	40.0	24.0	15.0	40.0	40.0	24.0	25.0		40.0	41.0	15.0
Total Split (%)	12.5%	33.3%	20.0%	12.5%	33.3%	33.3%	20.0%	20.8%		33.3%	34.2%	12.5%
Maximum Green (s)	6.5	34.0	16.5	7.5	34.0	34.5	16.5	19.5		34.5	35.5	6.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.5
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	8.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	1.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	7.3	37.2	56.2	8.6	37.5	78.0	12.9	15.2		34.5	34.8	47.5
Actuated g/C Ratio	0.06	0.31	0.47	0.07	0.31	0.65	0.11	0.13		0.29	0.29	0.40
v/c Ratio	0.65	0.41	0.60	0.76	1.02	0.29	0.68	0.49		0.67	0.87	0.66
Control Delay (s/veh)	83.3	35.0	19.5	90.4	73.2	1.7	61.0	51.2		41.6	58.3	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	83.3	35.0	19.5	90.4	73.2	1.7	61.0	51.2		41.6	58.3	28.8
LOS	F	C	B	F	E	A	E	D		D	E	C
Approach Delay (s/veh)		30.8			59.1			57.9			40.5	
Approach LOS		C			E			E			D	
Queue Length 50th (ft)	54	153	205	75	~538	0	100	77		235	341	231
Queue Length 95th (ft)	#116	183	254	#178	#663	33	137	133		301	#530	323
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	108	1098	863	126	1106	1143	472	300		986	559	1163
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.65	0.41	0.57	0.76	1.02	0.29	0.54	0.38		0.67	0.84	0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay (s/veh): 45.8		Intersection LOS: D	
Intersection Capacity Utilization 82.9%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



Intersection	
Int Delay, s/veh	28.4

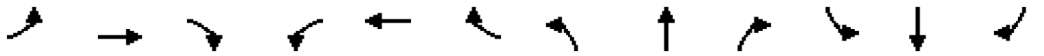
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	103	209	126	73	313	578
Future Vol, veh/h	103	209	126	73	313	578
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	75	75	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	249	168	97	396	732

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1375	133	0	0	265	0
Stage 1	217	-	-	-	-	-
Stage 2	1158	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	136	892	-	-	1296	-
Stage 1	799	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 84	892	-	-	1296	-
Mov Cap-2 Maneuver	~ 84	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	161	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	121.91	0	4.24
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	84	892	1032	-
HCM Lane V/C Ratio	-	-	1.458	0.279	0.306	-
HCM Ctrl Dly (s/v)	-	-	$ 347.8	10.6	9	1.7
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	9.6	1.1	1.3	-

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	704	191	21	490	157	331	265	40	470	65	292
Future Volume (vph)	299	704	191	21	490	157	331	265	40	470	65	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			265			186		6				301
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.72	0.72	0.72	0.83	0.83	0.83	0.94	0.94	0.94	0.97	0.97	0.97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	415	978	265	25	590	189	352	325	0	485	67	301
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	custom
Protected Phases	3	8	1	7	4	5	1	6		5	2	2
Permitted Phases			8			4						5
Detector Phase	3	8	1	7	4	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	13.5
Total Split (s)	33.0	44.0	28.0	15.0	26.0	25.0	28.0	36.0		25.0	33.0	33.0
Total Split (%)	27.5%	36.7%	23.3%	12.5%	21.7%	20.8%	23.3%	30.0%		20.8%	27.5%	27.5%
Maximum Green (s)	24.5	38.0	20.5	7.5	20.0	19.5	20.5	30.5		19.5	27.5	27.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	3.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	29.2	49.2	71.4	6.4	20.0	45.5	16.2	25.8		19.5	27.1	46.5
Actuated g/C Ratio	0.24	0.41	0.60	0.05	0.17	0.38	0.14	0.22		0.16	0.23	0.39
v/c Ratio	0.97	0.67	0.25	0.27	1.00	0.26	0.76	0.82		0.87	0.16	0.24
Control Delay (s/veh)	81.4	34.2	2.3	61.4	87.6	4.7	60.8	60.6		66.2	38.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	81.4	34.2	2.3	61.4	87.6	4.7	60.8	60.6		66.2	38.0	2.6
LOS	F	C	A	E	F	A	E	E		E	D	A
Approach Delay (s/veh)		40.9			67.3			60.7			41.5	
Approach LOS		D			E			E			D	
Queue Length 50th (ft)	328	354	0	19	~247	1	139	239		194	42	0
Queue Length 95th (ft)	#410	344	11	45	#324	38	185	335		#283	83	26
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	430	1449	1095	110	589	715	586	468		557	433	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.97	0.67	0.24	0.23	1.00	0.26	0.60	0.69		0.87	0.15	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 49.7		Intersection LOS: D	
Intersection Capacity Utilization 84.3%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



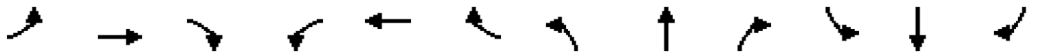
Intersection	
Int Delay, s/veh	10.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	106	224	436	25	56	227
Future Vol, veh/h	106	224	436	25	56	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	88	88	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	448	495	28	66	267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	775	262	0	0	524	0
Stage 1	510	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	335	737	-	-	1039	-
Stage 1	568	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	312	737	-	-	1039	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	703	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	23.84	0	2.04
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	312	737	712	-
HCM Lane V/C Ratio	-	-	0.68	0.608	0.063	-
HCM Ctrl Dly (s/v)	-	-	37.9	17.2	8.7	0.4
HCM Lane LOS	-	-	E	C	A	A
HCM 95th %tile Q(veh)	-	-	4.6	4.2	0.2	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	369	413	87	1002	291	254	108	23	591	431	693
Future Volume (vph)	57	369	413	87	1002	291	254	108	23	591	431	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1814	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1814	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			327		8				315
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	450	504	98	1126	327	289	149	0	657	479	770
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	custom
Protected Phases	3	8	1	7	4	5	1	6		5	2	2
Permitted Phases			8			4						5
Detector Phase	3	8	1	7	4	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	13.5
Total Split (s)	15.0	40.0	24.0	15.0	40.0	40.0	24.0	25.0		40.0	41.0	41.0
Total Split (%)	12.5%	33.3%	20.0%	12.5%	33.3%	33.3%	20.0%	20.8%		33.3%	34.2%	34.2%
Maximum Green (s)	6.5	34.0	16.5	7.5	34.0	34.5	16.5	19.5		34.5	35.5	35.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	3.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	6.6	35.9	55.9	7.8	36.1	76.6	14.0	17.4		34.5	35.8	57.4
Actuated g/C Ratio	0.06	0.30	0.47	0.07	0.30	0.64	0.12	0.15		0.29	0.30	0.48
v/c Ratio	0.73	0.43	0.62	0.86	1.06	0.29	0.72	0.55		0.67	0.86	0.51
Control Delay (s/veh)	94.8	35.9	20.1	108.9	85.6	1.7	61.4	52.6		41.6	56.5	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	94.8	35.9	20.1	108.9	85.6	1.7	61.4	52.6		41.6	56.5	13.0
LOS	F	D	C	F	F	A	E	D		D	E	B
Approach Delay (s/veh)		32.2			69.4			58.4			33.8	
Approach LOS		C			E			E			C	
Queue Length 50th (ft)	55	153	207	78	~538	0	113	102		235	350	126
Queue Length 95th (ft)	#116	183	265	#181	#663	33	155	167		301	#544	185
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	97	1057	846	114	1063	1128	472	301		986	566	1510
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.72	0.43	0.60	0.86	1.06	0.29	0.61	0.50		0.67	0.85	0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 46.9		Intersection LOS: D	
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



Intersection	
Int Delay, s/veh	36.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	103	209	187	73	313	598
Future Vol, veh/h	103	209	187	73	313	598
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	75	75	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	249	249	97	396	757

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1469	173	0	0	347	0
Stage 1	298	-	-	-	-	-
Stage 2	1171	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 118	840	-	-	1209	-
Stage 1	727	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 69	840	-	-	1209	-
Mov Cap-2 Maneuver	~ 69	-	-	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	150	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	172	0	4.49
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	69	840	955	-
HCM Lane V/C Ratio	-	-	1.772	0.296	0.328	-
HCM Ctrl Dly (s/v)	-	-	$ 498.5	11.1	9.4	1.9
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	10.9	1.2	1.4	-

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

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	55	205	8	20	681
Future Vol, veh/h	23	55	205	8	20	681
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	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	25	60	223	9	22	740

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	641	116	0	0	232	0
Stage 1	227	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	407	915	-	-	1333	-
Stage 1	789	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	399	915	-	-	1333	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	623	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.81	0	0.37
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	399	915	103	-
HCM Lane V/C Ratio	-	-	0.063	0.065	0.016	-
HCM Ctrl Dly (s/v)	-	-	14.6	9.2	7.7	0.2
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0	-

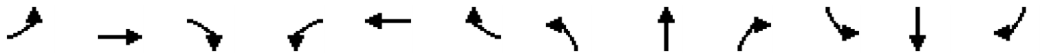
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	6	207	0	0	704
Future Vol, veh/h	3	6	207	0	0	704
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	-	-	-	-	-
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	7	225	0	0	765

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	608	113	0	0	225	0
Stage 1	225	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	428	919	-	-	1341	-
Stage 1	791	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	428	919	-	-	1341	-
Mov Cap-2 Maneuver	428	-	-	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	664	1341	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Ctrl Dly (s/v)	-	-	10.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	704	223	26	490	157	351	282	43	470	92	292
Future Volume (vph)	299	704	223	26	490	157	351	282	43	470	92	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		175	75		300	170		0	215		245
Storage Lanes	1		1	1		1	1		0	1		2
Taper Length (ft)	100			60			175			205		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	1825	0	3433	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			310			172		6				301
Link Speed (mph)		40			40			40			30	
Link Distance (ft)		1176			1110			398			468	
Travel Time (s)		20.0			18.9			6.8			10.6	
Peak Hour Factor	0.72	0.72	0.72	0.83	0.83	0.83	0.94	0.94	0.94	0.97	0.97	0.97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	415	978	310	31	590	189	373	346	0	485	95	301
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	custom
Protected Phases	3	8	1	7	4	5	1	6		5	2	2
Permitted Phases			8			4						5
Detector Phase	3	8	1	7	4	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0	6.0	6.0	8.0		6.0	8.0	8.0
Minimum Split (s)	14.5	26.0	13.5	13.5	26.0	23.5	13.5	13.5		23.5	13.5	13.5
Total Split (s)	33.0	44.0	28.0	15.0	26.0	25.0	28.0	36.0		25.0	33.0	33.0
Total Split (%)	27.5%	36.7%	23.3%	12.5%	21.7%	20.8%	23.3%	30.0%		20.8%	27.5%	27.5%
Maximum Green (s)	24.5	38.0	20.5	7.5	20.0	19.5	20.5	30.5		19.5	27.5	27.5
Yellow Time (s)	4.5	4.5	4.0	4.0	4.5	3.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	4.0	1.5	3.5	3.5	1.5	2.5	3.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.5	6.0	7.5	7.5	6.0	5.5	7.5	5.5		5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5	1.5	1.5	3.5		1.5	3.5	3.5
Recall Mode	None	C-Max	None	None	C-Max	Max	None	None		Max	None	None
Act Effct Green (s)	28.3	48.1	71.0	6.6	20.0	45.5	16.9	26.7		19.5	27.3	46.8
Actuated g/C Ratio	0.24	0.40	0.59	0.06	0.17	0.38	0.14	0.22		0.16	0.23	0.39
v/c Ratio	1.00	0.69	0.29	0.32	1.00	0.27	0.77	0.84		0.87	0.22	0.24
Control Delay (s/veh)	90.1	35.2	2.3	63.4	87.6	5.8	60.7	62.1		66.2	39.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	90.1	35.2	2.3	63.4	87.6	5.8	60.7	62.1		66.2	39.1	2.5
LOS	F	D	A	E	F	A	E	E		E	D	A
Approach Delay (s/veh)		42.6			67.6			61.4			41.5	
Approach LOS		D			E			E			D	
Queue Length 50th (ft)	~355	362	0	24	~247	8	147	254		194	60	0
Queue Length 95th (ft)	#410	344	10	52	#324	45	195	361		#283	110	26
Internal Link Dist (ft)		1096			1030			318			388	
Turn Bay Length (ft)	450		175	75		300	170			215		245

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	416	1418	1101	110	589	707	586	468		557	432	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.00	0.69	0.28	0.28	1.00	0.27	0.64	0.74		0.87	0.22	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:WBT and 8:EBT, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 50.6		Intersection LOS: D	
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Sherrill Blvd/Pellissippi Pkwy NB Off Ramp & Dutchtown Rd



Intersection	
Int Delay, s/veh	12.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	106	224	476	25	56	291
Future Vol, veh/h	106	224	476	25	56	291
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	88	88	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	448	541	28	66	342

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	858	285	0	0	569	0
Stage 1	555	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	296	712	-	-	999	-
Stage 1	539	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	274	712	-	-	999	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	28.97	0	1.82
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	274	712	581	-
HCM Lane V/C Ratio	-	-	0.773	0.629	0.066	-
HCM Ctrl Dly (s/v)	-	-	51.7	18.2	8.9	0.5
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	5.8	4.5	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	36	465	27	64	333
Future Vol, veh/h	15	36	465	27	64	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	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	16	39	505	29	70	362

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	840	267	0	0	535	0
Stage 1	520	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	304	731	-	-	1029	-
Stage 1	561	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	281	731	-	-	1029	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.67	0	1.81
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	281	731	580	-
HCM Lane V/C Ratio	-	-	0.058	0.054	0.068	-
HCM Ctrl Dly (s/v)	-	-	18.6	10.2	8.8	0.5
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	4	488	0	0	348
Future Vol, veh/h	2	4	488	0	0	348
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	-	-	-	-	-
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	2	4	530	0	0	378

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	720	265	0	0	530	0
Stage 1	530	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	363	733	-	-	1033	-
Stage 1	554	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	363	733	-	-	1033	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.66	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	547	1033	-
HCM Lane V/C Ratio	-	-	0.012	-	-
HCM Ctrl Dly (s/v)	-	-	11.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

APPENDIX D |SIGNAL AND TURN LANE WARRANT EVALUATIONS

TABLE 5A KNOX COUNTY LEFT-TURN LANE VOLUME THRESHOLDS FOR 2-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH	Project No: 02005-0001 Project Name: Kore Knoxville Notes:

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

OPPOSING	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
VOLUME	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149	250	180	140	110	80	70
150 - 199	200	140	105	90	70	60
200 - 249	160	115	85	75	65	55
250 - 299	130	100	75	65	60	50
300 - 349	110	90	70	60	55	45
350 - 399	100	80	65	55	50	40
400 - 449	90	70	60	50	45	35
450 - 499	80	65	55	45	40	30
500 - 549	70	60	45	35	35	25
550 - 599	65	55	40	35	30	25
600 - 649	60	45	35	30	25	25
650 - 699	55	35	35	30	25	20
700 - 749	50	35	30	25	20	20
750 or More	45	35	25	25	20	20

OPPOSING	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
VOLUME	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	= / > 600
100 - 149	70	60	50	45	40	35
150 - 199	60	55	45	40	35	30
200 - 249	55	50	40	35	30	30
250 - 299	50	45	35	30	30	30
300 - 349	45	40	35	30	25	25
350 - 399	40	35	30	25	25	20
400 - 449	35	30	30	25	20	20
450 - 499	30	25	25	20	20	20
500 - 549	25	25	20	20	20	15
550 - 599	25	20	20	20	20	15
600 - 649	25	20	20	20	20	15
650 - 699	20	20	20	20	20	15
700 - 749	20	20	20	15	15	15
750 or More	20	20	20	15	15	15

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

Intersection	Time Period	Opposing Volume	**Single Lane Opposing Volume Equiv.	Through Volume	**Single Lane Through Volume Equiv.	Left-Turn Volume	Warrant Threshold	Left-Turn Lane Warranted (Yes / No)
Sherrill Blvd at Site Access	2029 AM	213	112	681	358	20	**70**	No
Sherrill Blvd at Site Access	2029 PM	492	258	333	175	64	**100**	No

**** Single lane equivalent for multi-lane approach = (Through Volume x 1.05) / 2**

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

TABLE 5B KNOX COUNTY RIGHT-TURN LANE VOLUME THRESHOLDS FOR 2-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH	Project No: 02005-0001 Project Name: Kore Knoxville 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						Yes
250 - 299					Yes	Yes
300 - 349				Yes	Yes	Yes
350 - 399			Yes	Yes	Yes	Yes
400 - 449			Yes	Yes	Yes	Yes
450 - 499		Yes	Yes	Yes	Yes	Yes
500 - 549		Yes	Yes	Yes	Yes	Yes
550 - 599	Yes	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	Yes
50 - 99				Yes	Yes	Yes
100 - 149			Yes	Yes	Yes	Yes
150 - 199		Yes	Yes	Yes	Yes	Yes
200 - 249	Yes	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	** Single Lane Through Volume Equiv.	Right-Turn Volume	Right-Turn Lane Warranted (Yes / No)
Sherrill Blvd at Site Access	2029 AM	205	108	8	No
Sherrill Blvd at Site Access	2029 PM	465	244	27	No

**** Single lane equivalent for multi-lane approach = (Through Volume x 1.05) / 2**

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

TRAFFIC SIGNAL WARRANT ANALYSIS - VOLUME WARRANTS

Intersection: Sherrill Boulevard at Mabry Hood Road
City or County: Knoxville
State: Tennessee
Date of Count: Year 2029 Combined
Day of Week of Count: Average Weekday

Are warranting volumes to be adjusted for speeds or built up area? . . . . . No
Adjustment factor for day of week and month of year of count 1.00
Number of Lanes: Major Street . . 4 Minor Street . . . 2

Time Beginning	Major Street Approach	Major Street Actual Volume	Major Street Adjusted Total Volume	Minor Street Actual Volume	Minor Street Adjusted Total Volume
6:00 am	0	0	0	0	0
7:00	764	764	764	236	236
8:00	971	971	971	199	199
9:00 am	564	564	564	51	51
10:00	474	474	474	54	54
11:00	479	479	479	66	66
12:00 noon	510	510	510	71	71
1:00	525	525	525	47	47
2:00	552	552	552	94	94
3:00 pm	643	643	643	276	276
4:00	807	807	807	224	224
5:00	746	746	746	232	232
6:00 pm	342	342	342	116	116
7:00					
8:00					

Time Beginning	Warrant #1A (8 Hr. - Min. Vol.) Percent of Warrant Major	Warrant #1A Minor	Warrant #1B (8 Hr. - Interruption) Percent of Warrant Major	Warrant #1B Minor	Combination (Warrants 1A & 1B) Percent of Warrant Major	Combination Minor	Warrant #2 (Four Hour Vols.) Warrant Volume	Warrant #2 Percent of Warrant	Warrant #3 (Peak Hour Vols.) Warrant Volume	Warrant #3 Percent of Warrant
6:00 am	0	0	0	0	0	0	0	*****	0	*****
7:00	127	118	85	236	106	148	290	81	490	48
8:00	162	100	108	199	135	124	200	100	380	52
9:00 am	94	26	63	51	78	32	400	13	0	*****
10:00	79	27	53	54	66	34	470	11	0	*****
11:00	80	33	53	66	67	41	470	14	0	*****
12:00 noon	85	36	57	71	71	44	440	16	0	*****
1:00	88	24	58	47	73	29	430	11	0	*****
2:00	92	47	61	94	77	59	410	23	0	*****
3:00 pm	107	138	71	276	89	173	350	79	570	48
4:00	135	112	90	224	112	140	270	83	470	48
5:00	124	116	83	232	104	145	300	77	500	46
6:00 pm	57	58	38	116	48	73	0	*****	0	*****
7:00	0	0	0	0	0	0	0	*****	0	*****
8:00	0	0	0	0	0	0	0	*****	0	*****
Warranting Volumes	600	200	900	100	720	160	From MUTCD Fig. 4-7		From MUTCD Fig. 4-5	
Total Hours Meeting Warrant =	5		1		4		0		0	
Warrant Met	No		No		No		No		No	

Note: , Nc ment made
– Where more than one minor approach exists use the higher approach volume
. Number of hours shown is the minimum meeting the MUTCD requirements. Additional hours outside of the count period may meet the MUTCD specified volume levels.

***** Major Street volume is so low that no Minor Street warrant exists

Comments:

Major Approach considered four lane
Minor Approach considered two lane

Analysis Prepar Ardurra Group

Date: 10/20/26
Time: 12:21

Developed by: T. Darcy Sullivan, P.E. VC/R1
Distributed by: Tennessee Transportation Assistance Program (TTAP)