



VINTAGE KNOXVILLE WEST ***Knox County, Tennessee***

TRAFFIC IMPACT STUDY

Prepared for
VINTAGE KNOXVILLE WEST LLC

Prepared by



November 2021
Revised December 2021

VINTAGE KNOXVILLE WEST
KNOX COUNTY, TENNESSEE
TRAFFIC IMPACT STUDY

Prepared for

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November 2021
Revised December 2021

Prepared by

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Project No. 267601

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INTRODUCTION

CDM Smith is pleased to submit this report to address any traffic impact and access of the Vintage Knoxville West residential development located on Everett Road in west Knox County. This study is a Level 1 study of the multi-family development previously studied as part of the Hickory Creek Residential development studied in April 2016. This traffic study required the collection of traffic data, generation of anticipated traffic volumes for the proposed site and development of projected traffic volumes for normal growth and for buildout of the Everett Woods subdivision. Analyses of the resulting traffic projections were conducted to determine the capacity and levels of service for the site accesses to Everett Road and its adjacent intersection with Yarnell Road. This study will evaluate the development's impact and determine if any mitigation measures are necessary to minimize the traffic impact including improved roadway geometrics and traffic control devices.

Project Description

The Vintage Knoxville West is a multi-family development on approximately 40 acres. The current zoning of Planned Residential (PR) permits up to 5 residential units per acre. The development is for 224 multi-family units accessing Everett Road with two accesses, one opposite Yellow Glen Boulevard and another 250-feet from Yarnell Road. **Figure 1** shows the proposed site plan. Current zoning for the site and its vicinity is illustrated in **Figure 2**.

Site Location

The location of the proposed residential development is south of Everett Road and east of Yarnell Road. This site is north of Interstate 40/75 in west Knox County, Tennessee, near Loudon County. **Figure 3** illustrates the site location relative to local and regional access. The roadway classifications in the site vicinity are illustrated in **Figure 4**.

SITE PLAN

Vintage Knoxville
West

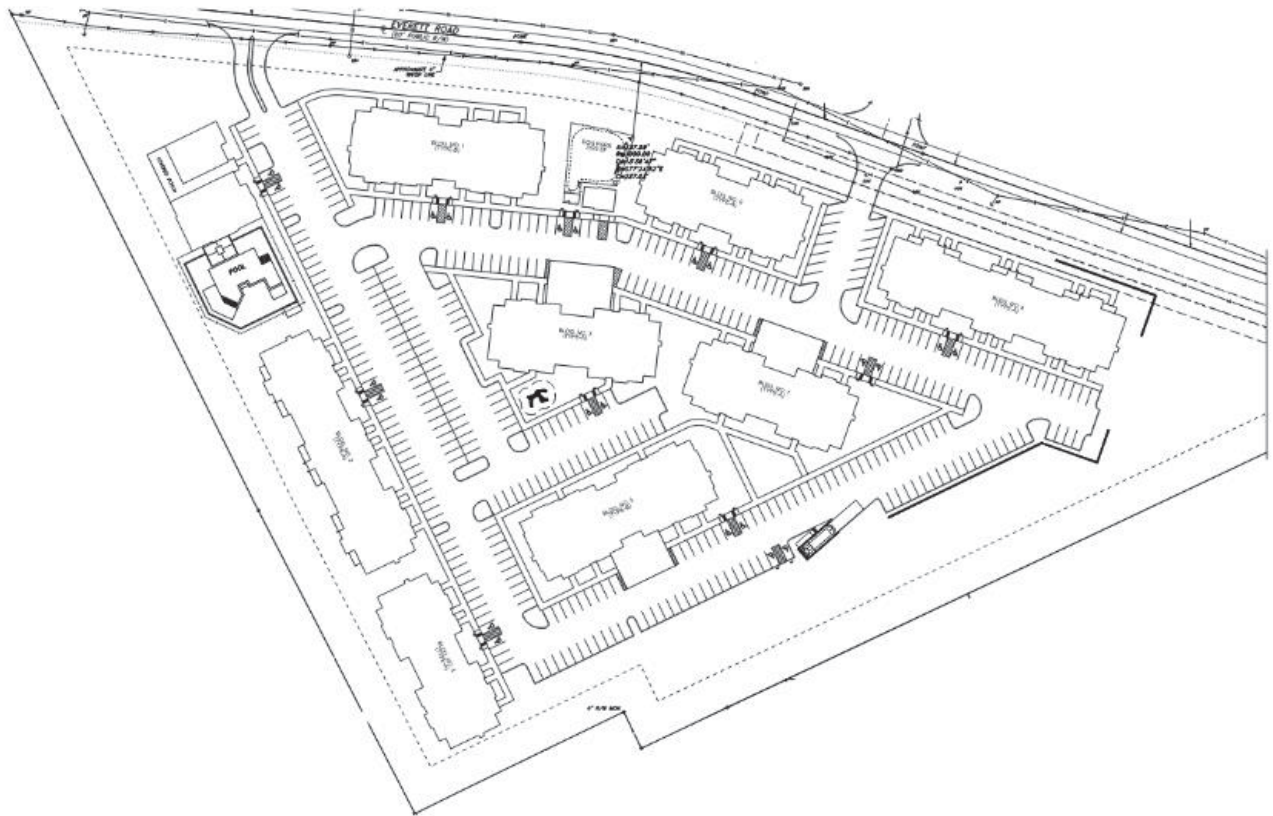


Figure 1

ZONING

Vintage Knoxville West

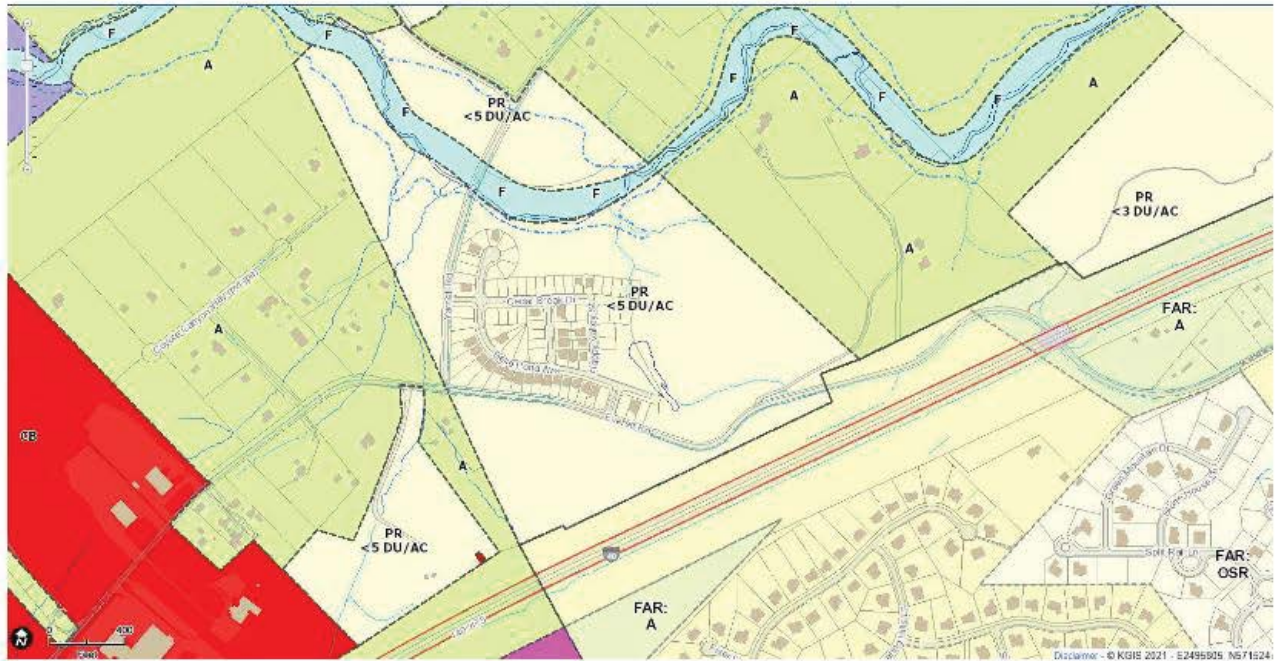


Figure 2

VICINITY MAP Vintage Knoxville West

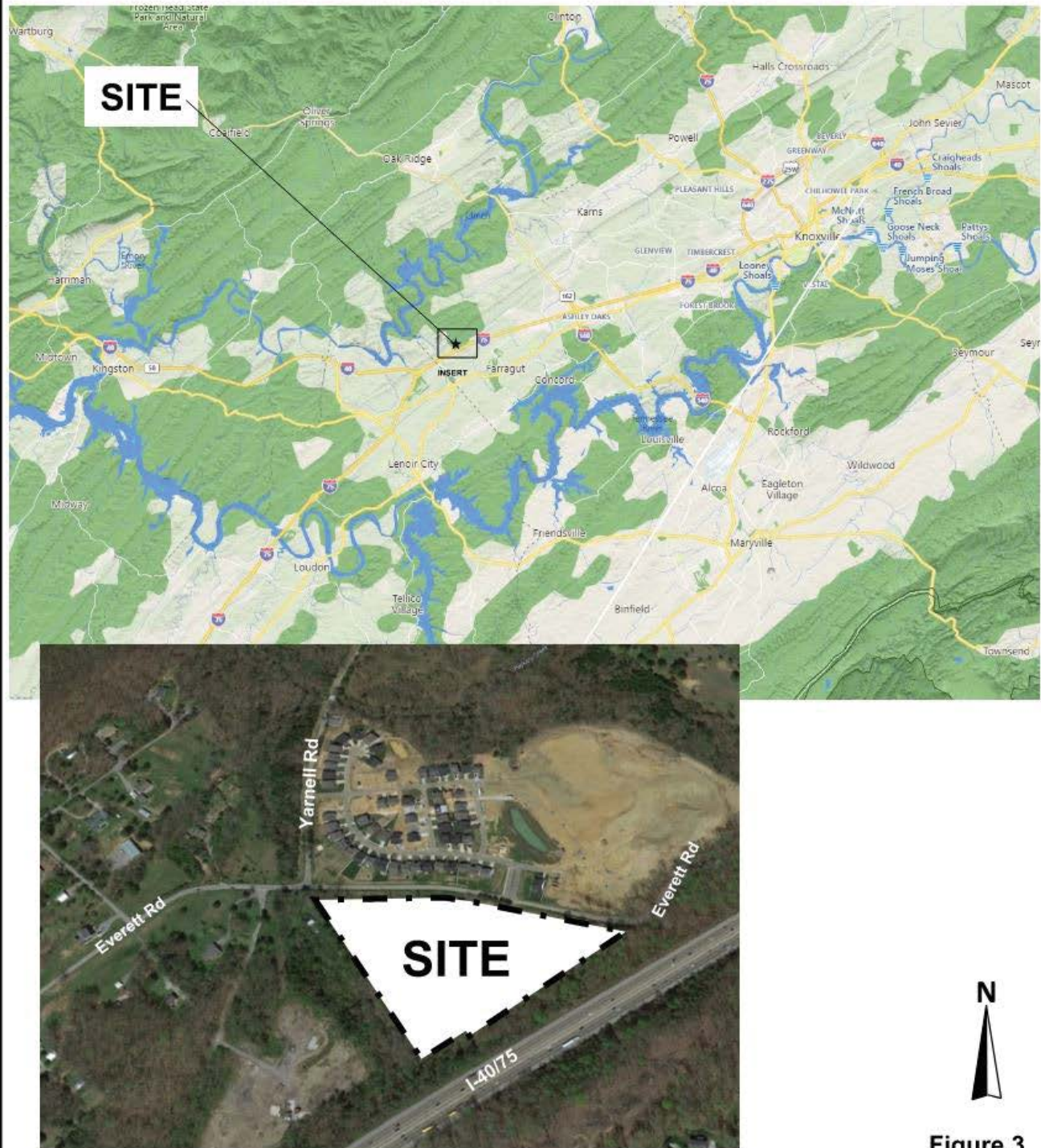


Figure 3



LOCAL AND REGIONAL ACCESS

Local Access

The proposed local access is to Everett Road, a classified Major Collector intersecting Yarnell Road to the west of the site. Everett Road extends west to Watt Road, and Yarnell Road extends to the east intersecting Marietta Church Road, Campbell Station Road, and Lovell Road (SR 131), providing access to the north and Hardin Valley. To the south, Everett Road enters the Town of Farragut and intersects Smith Road, Union Road, and Kingston Pike (US 11/70). The street facility adjacent to the site is approximately 18 feet wide. This width of the roadway is not to current standards but is the minimum section considered acceptable to the County. Much of the traffic on Everett Road, west of the site, currently turns to Yarnell Road, thereby reflecting a significant reduction of traffic on Everett Road to the east. Everett Road has a 2020 Tennessee Department of Transportation (TDOT) average daily traffic (ADT) of approximately 1,290 vehicles per day (vpd) east of the site. West of the site on Everett Road, the 2020 TDOT ADT was approximately 2,340vpd.

There are not any KAT services in the site vicinity. Neither sidewalks nor bike facilities are available in the site vicinity.

Regional Access

Regional access to this site is from Watt Road, Campbell Station Road, Lovell Road (SR 131), Hardin Valley Road, and Kingston Pike (US 11/70). Watt Road extends north from Kingston Pike intersecting I-40 interchange and Everett Road. Both Campbell Station Road and Lovell Road (SR 131) are classified Minor Arterials extending north and south providing access to the Hardin Valley area with the Kingston Pike (US 11/70) corridor. Kingston Pike (US 11/70) intersects Everett Road south of the site. Kingston Pike is a five-lane major arterial extending through Farragut, between Knoxville to the east and the Knox County line to the west, where U.S. 11 and 70 split and extend into Lenoir City and Loudon County. The 2020 average daily traffic (ADT) on Kingston Pike is 19,420 east of Everett Road and 14,380 to the west of Watt Road.

Interstate 40/75 access is provided from Campbell Station Road and Watt Road, east and west of the proposed development site, respectively. Interstate 40 is an east and west six-lane facility running through Knoxville to the east and Nashville to the west. Interstate 75 extends north to Lexington, Kentucky, and to the west, I-75 turns south to Chattanooga, Tennessee. The Interstate 40/75 facility has a 2020 ADT of 75,795 east of Watt Road and south of the site.

EXISTING TRAFFIC CONDITIONS

Existing Traffic Control and Geometry

The proposed site access is to Everett Road north of the I-40/75 overpass. The posted speed limit for Everett Road is 30mph. Yarnell Road has a posted speed of 30mph. Yarnell Road is STOP controlled at Everett Road. **Figure 5** illustrates the intersection geometry and traffic control in the site vicinity.

Existing Traffic Volumes

CDM Smith had peak-hour turning movement counts conducted November 18, 2021. The AM and PM peak hours are between 7:30 to 8:30a.m. and 4:45 to 5:45p.m. **Figure 6A** illustrates the AM and PM peak-hour turning movement counts conducted for the Everett Road intersections in the vicinity of the site. Because the Cedar Breaks Drive closure to Yarnell Road, traffic was reassigned assuming it's open, thereby reflecting conditions more representative of the Everett Woods subdivision access. **Figure 6B** illustrates this reassignment of the Everett Woods subdivision. This reassignment is based on the current turning movements for the Everett Road with Yarnell Road and Yellow Glen Boulevard intersections. Many of trips currently entering and exiting the subdivision are construction related.

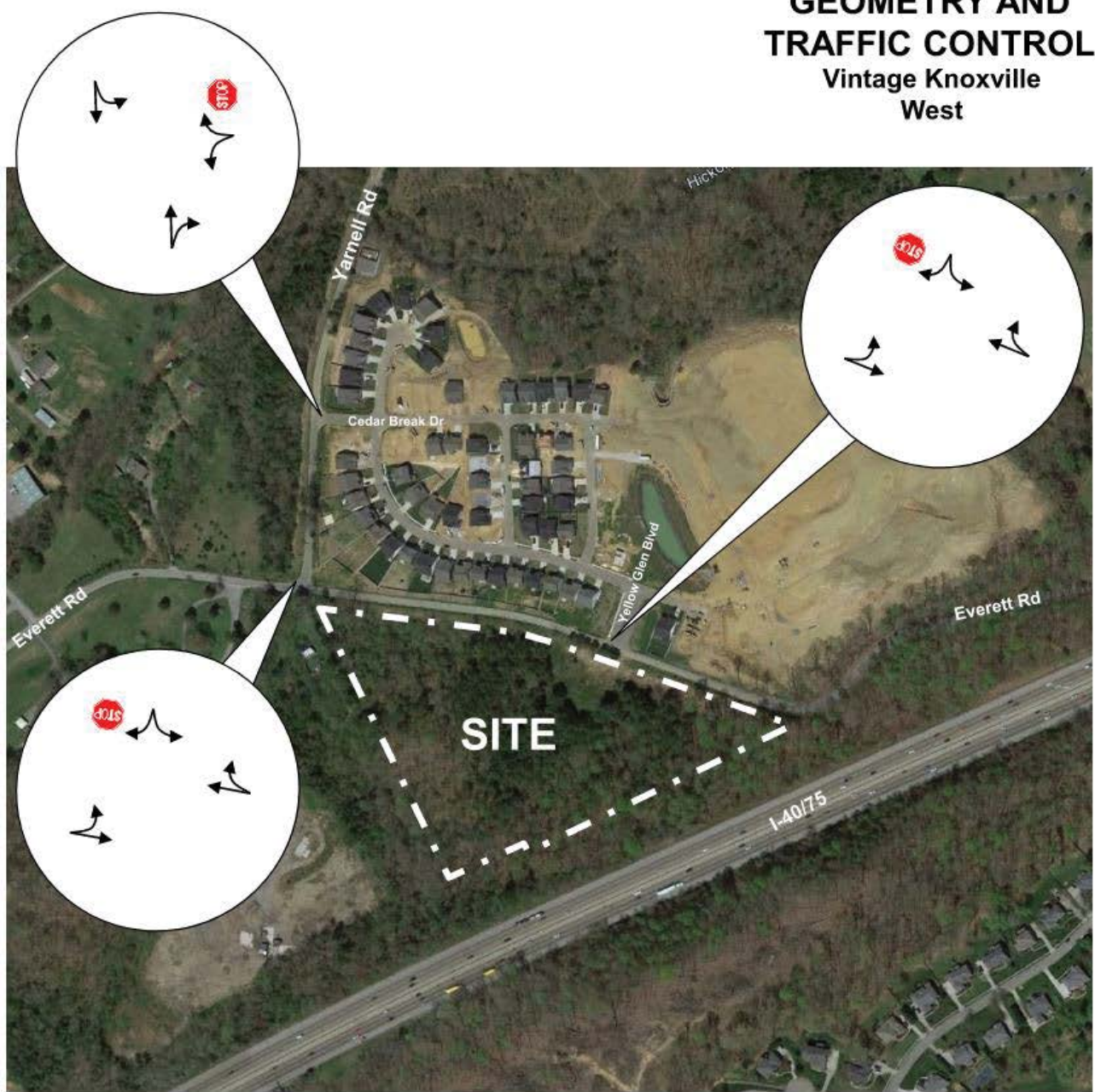
Existing Capacity and Level of Service

In order to evaluate the current operations of the traffic control devices, capacity and level of service were calculated using the **Highway Capacity Manual, Special Report 209** published by the Transportation Research Board (TRB). Signalized and unsignalized intersections are evaluated based on estimated intersection delays, which are related to level of service (LOS).

Level of service and capacity are measurements of an intersection's ability to accommodate traffic volumes. Levels of service for intersections range from A to F. LOS A is the best, and LOS F is failing. For unsignalized intersections, LOS A has an average estimated delay of less than 10 seconds per vehicle, and LOS F has an estimated delay of greater than 50 seconds. LOS C and D are typical design values. Within urban areas, LOS E (delay between 35 and 55 seconds) can be considered acceptable for unsignalized intersections.

Full level of service descriptions for unsignalized and signalized intersections are presented in **Table 1**.

**2021
GEOMETRY AND
TRAFFIC CONTROL**
Vintage Knoxville
West

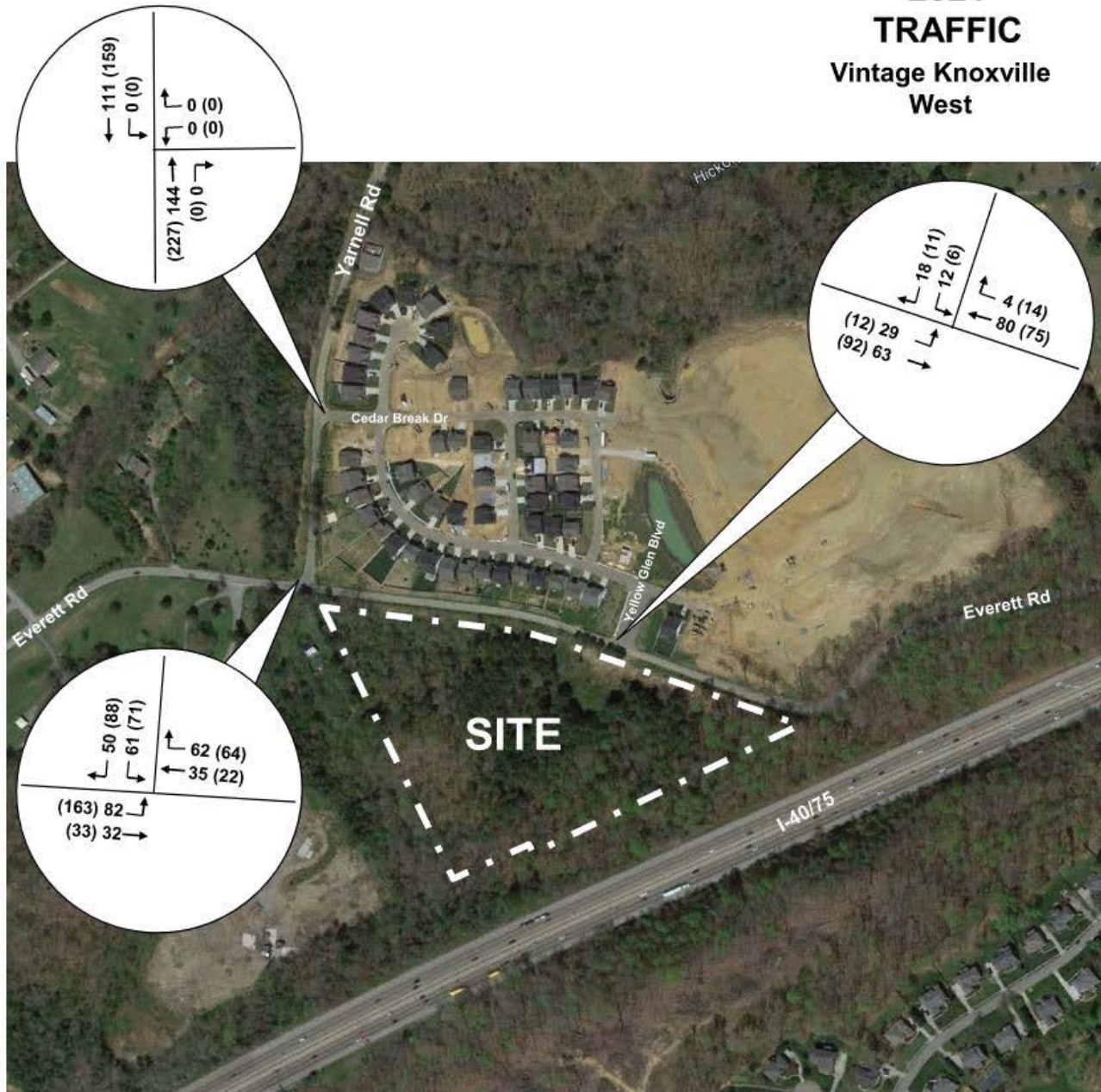


LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 5

2021 TRAFFIC Vintage Knoxville West

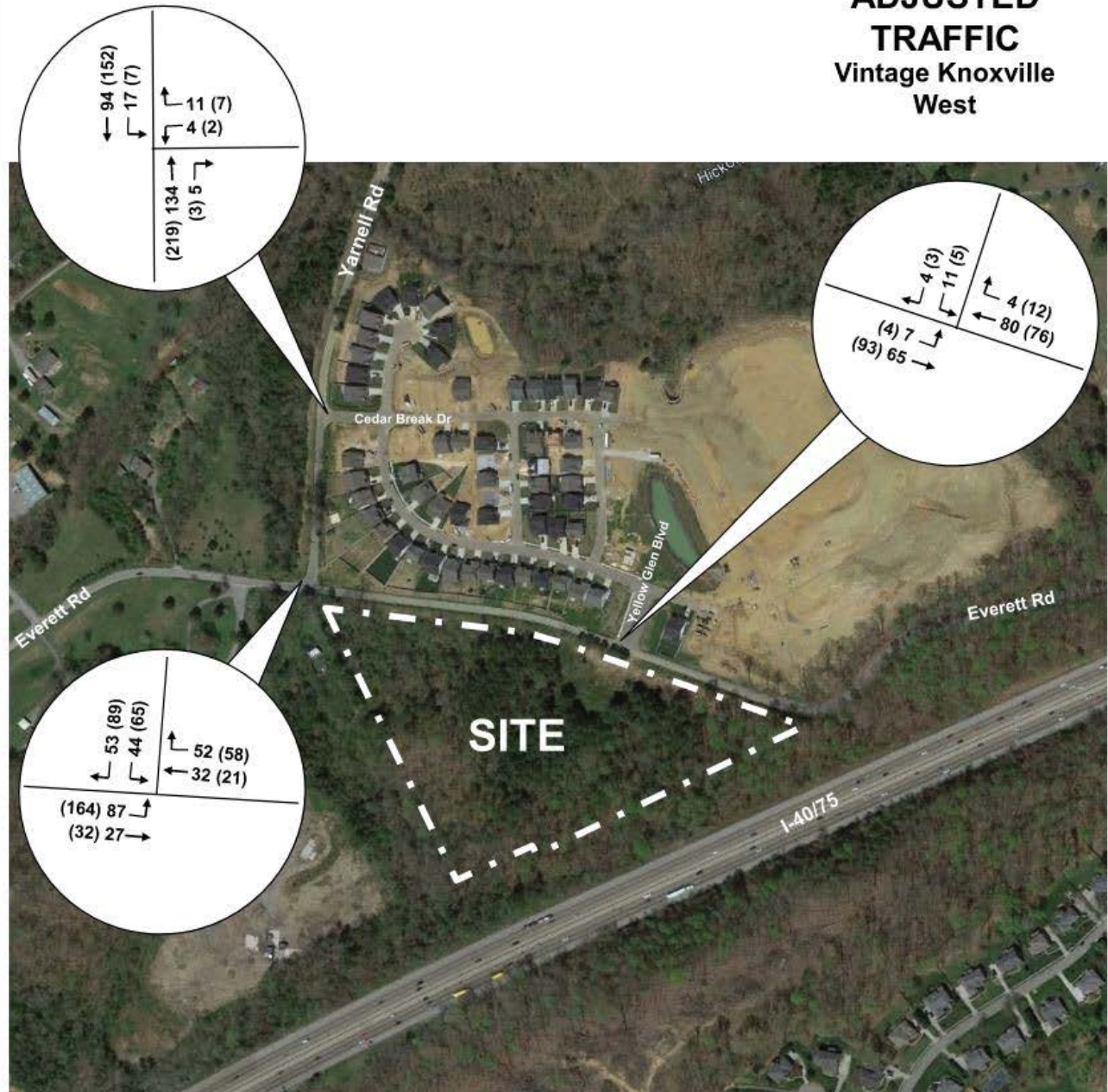


LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 6A

**2021
ADJUSTED
TRAFFIC**
Vintage Knoxville
West



LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 6B

Table 1
SERVICE (LOS) DESCRIPTION
FOR TWO-WAY STOP INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (seconds)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

SOURCE: Highway Capacity Manual, TRB Special Report 209

Analyses were conducted using the **Synchro** Software, developed by Trafficware. **Table 2** presents the analyses conducted for the 2021 traffic conditions. Current conditions at all intersections are LOS B or better.

TABLE 2
2021 EXISTING
CAPACITY AND LEVEL OF SERVICE

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Everett Road & Yarnell Road	STOP	AM	0.19	11.1	B
	SB	PM	0.37	14.8	B
Everett Road & Yellow Glen Blvd/Apt Access E	STOP	AM	0.02	9.3	A
	SB	PM	0.01	9.3	A
Yarnell Road & Cedar Break Drive	STOP	AM	0.02	9.5	A
	WB	PM	0.01	9.9	A

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

BACKGROUND TRAFFIC CONDITIONS

Background traffic is traffic that can be anticipated regardless of the proposed development. Traffic within the study area should continue to grow due to other development. This background traffic is projected for the purpose of establishing a baseline.

Background Traffic Volumes

Historical traffic data was reviewed to determine traffic growth trends in the study area. Using the TDOT count station 136 on Everett Road west of the site, the annual growth from 2010 reflects a rate of 2.9-percent. Background traffic for this study, therefore, assumes an annual growth rate of 3.0-percent. Background traffic is projected for the year 2025, thereby reflecting a 12.0-percent growth (3.0-percent for 4 years) for the study intersections. Build-out of the site is planned in the next few years. Actual build-out, however, will largely depend on the housing market.

The Everett Woods subdivision, part of the original Hickory Creek development with 169 single-family units located north of Everett Road is currently under construction. Background traffic conditions need to reflect its buildout. A third of the single-family units are constructed and partly occupied. The projected Everett Woods trips are presented in **Table 3**.

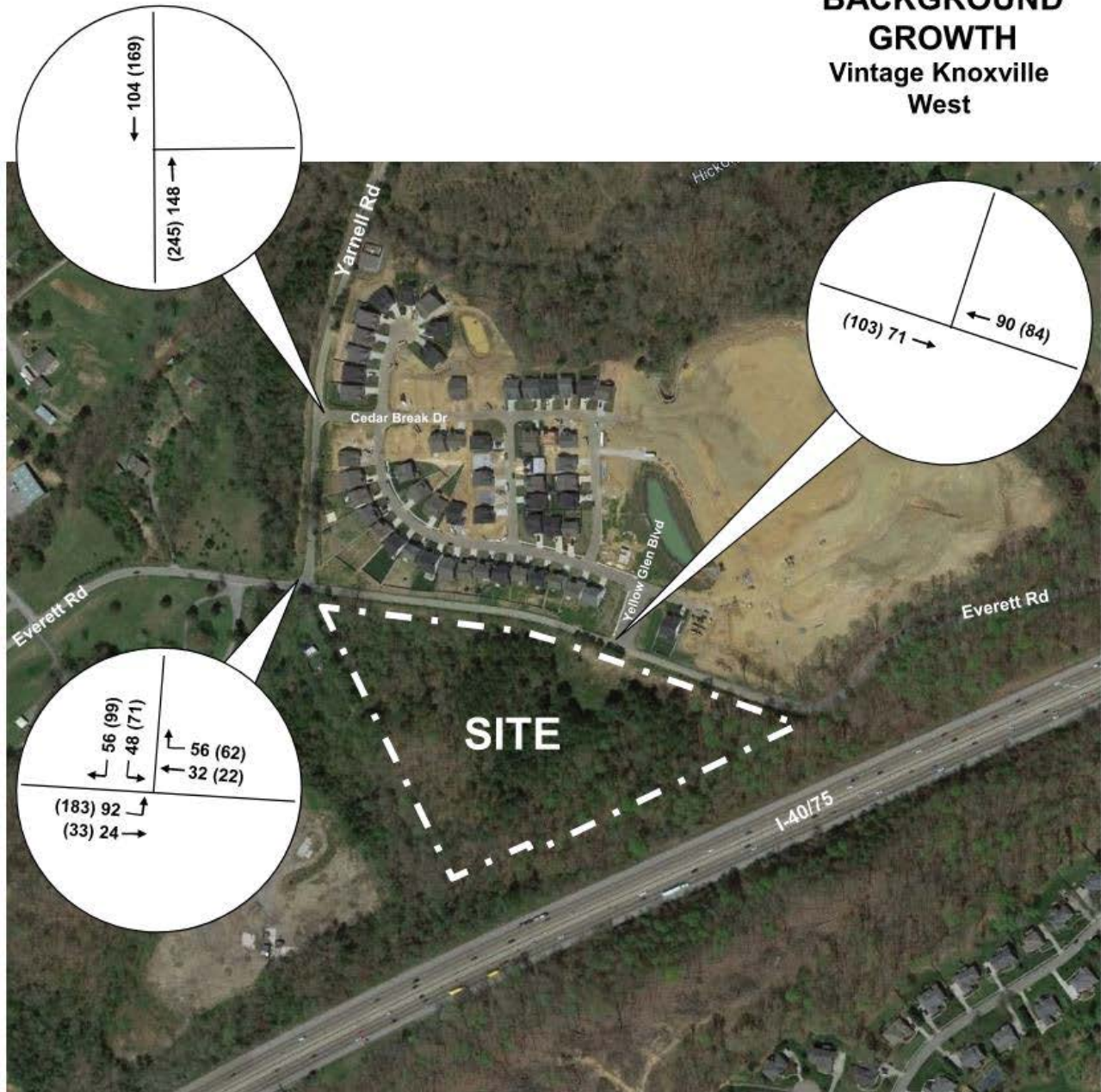
TABLE 3. BACKGROUND TRIPS

Land Use	Land-Use Code	Units	Daily Trips	AM Peak-Hour Trips		PM Peak-Hour Trips	
				Enter	Exit	Enter	Exit
Single-Family	210	169	1635	31	89	103	60

Reference: Institute of Transportation Engineers TRIP GENERATION, 11th Edition

Figure 7A illustrates the grown 2025 background traffic reflecting the adjusted traffic volumes increased by a factor of 1.12-percent without the Everett Woods traffic, figure provided in the report appendix. **Figure 7B** illustrates the buildout assignment of the Everett Woods trips. The Everett Woods buildout trips were added to the background traffic growth to estimate the total background traffic for the study intersections and are illustrated in **Figure 8**.

2025 BACKGROUND GROWTH Vintage Knoxville West



Traffic projections based on a 3.0% annual growth rate (Factor of 1.12)

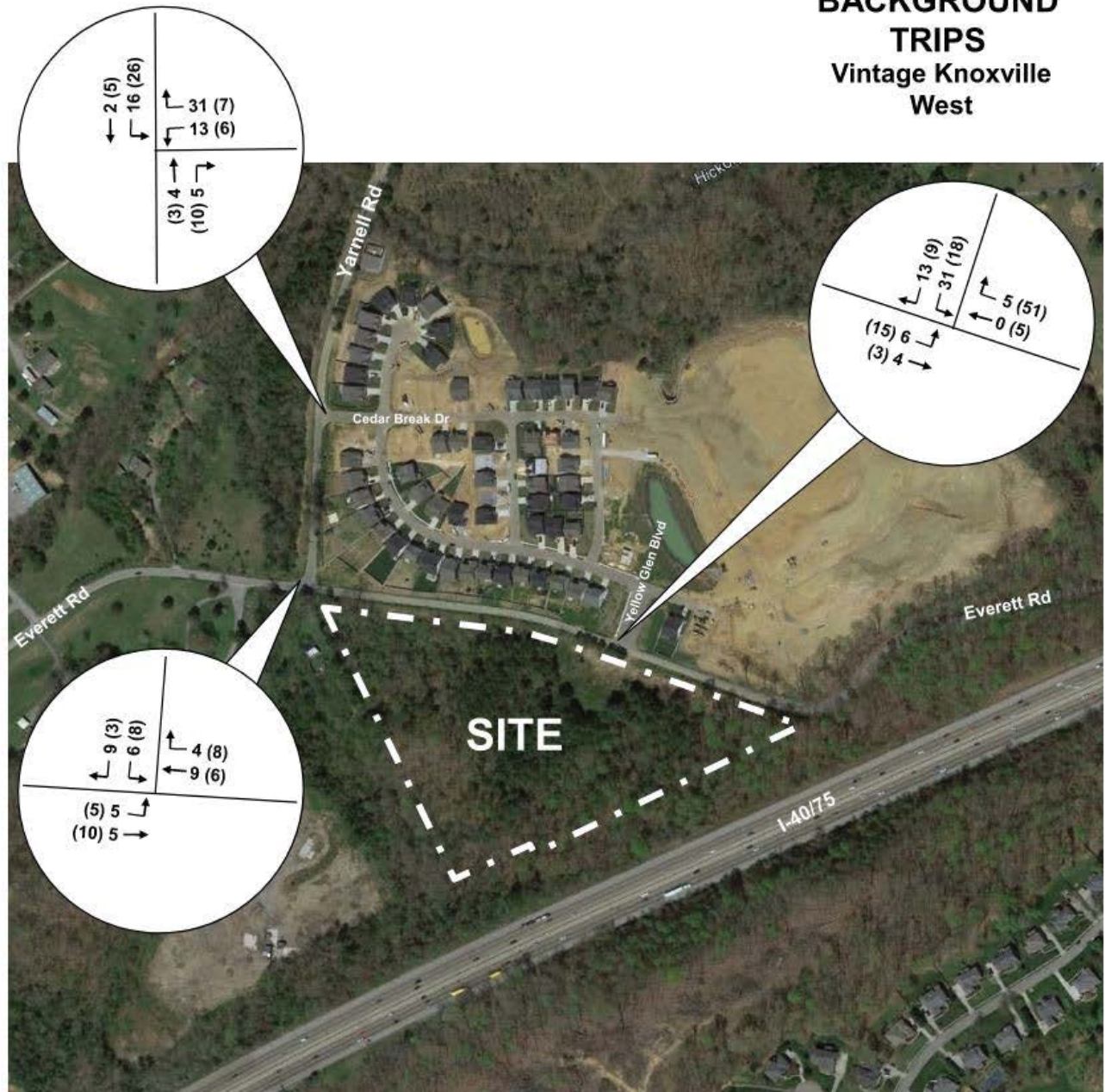
LEGEND

XXX AM PEAK
(XXX) PM PEAK



Figure 7A

2025 BACKGROUND TRIPS Vintage Knoxville West

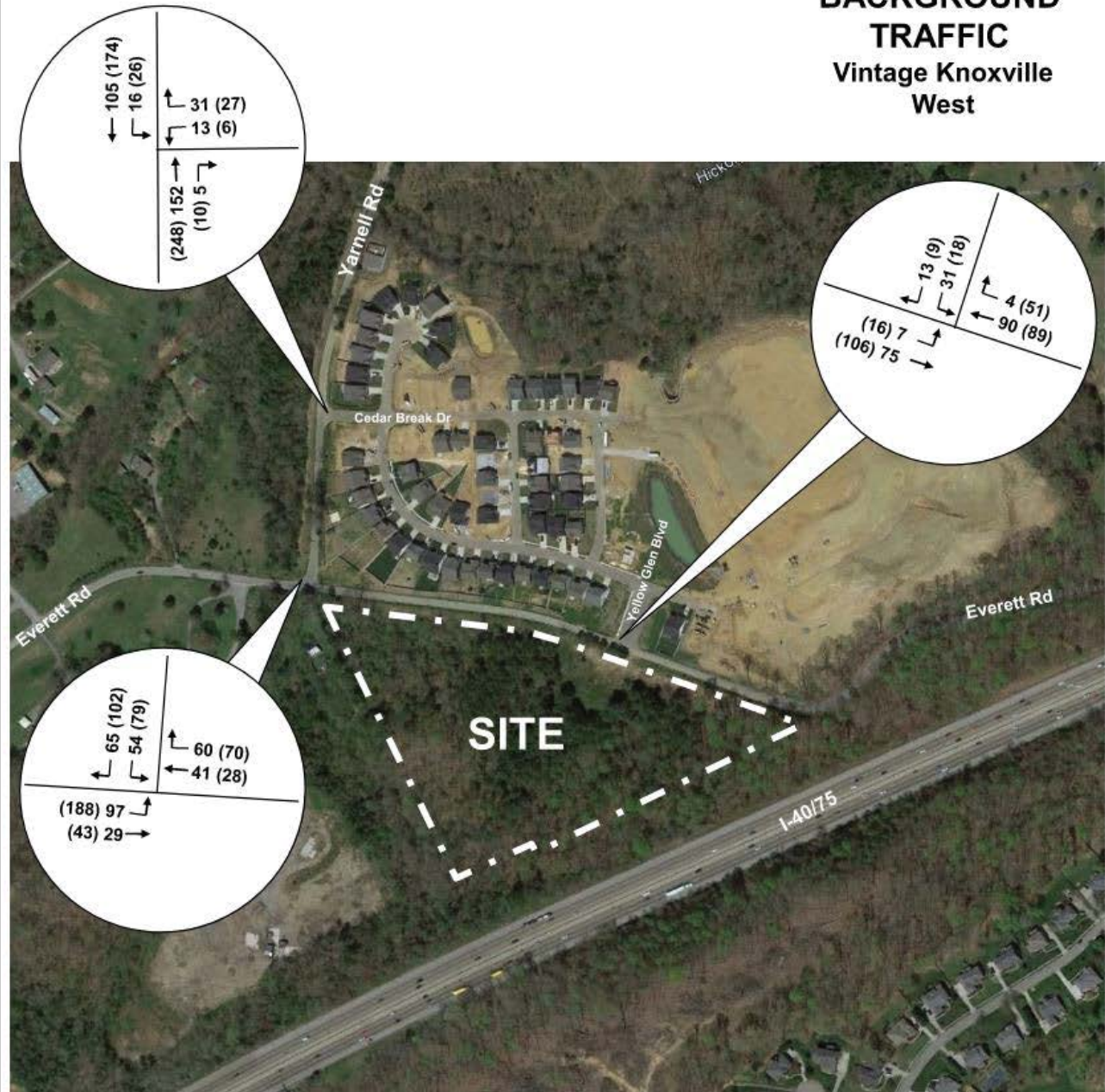


LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 7B

2025 TOTAL BACKGROUND TRAFFIC Vintage Knoxville West



LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 8

Background Capacity and Level of Service

Analyses are performed for the background conditions including the buildout of the Everett Woods subdivision. The results of these analyses are presented in **Table 4**. The levels of service for Year 2025 remain acceptable with a minimum LOS C. The LOS for the Yarnell Road approach to Everett Road may operate at a LOS C from a LOS B identified for the existing traffic conditions.

**TABLE 4
2025 BACKGROUND
CAPACITY AND LEVEL OF SERVICE**

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Everett Road & Yarnell Road	STOP	AM	0.25	12.0	B
	SB	PM	0.51	19.3	C
Everett Road & Yellow Glen Blvd/Apt Access E	STOP	AM	0.06	9.6	A
	SB	PM	0.04	9.9	A
Yarnell Road & Cedar Break Drive	STOP	AM	0.06	9.8	A
	WB	PM	0.05	9.7	A

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

PROJECT IMPACTS

Project conditions are developed by generating traffic based on the proposed land use, distributing the trips to the transportation network, and conducting analyses for capacity and level of service.

Trip Generation

Trips generated for the multi-family development was determined using local trip generation rates adopted by the Knoxville-Knox County Metropolitan Planning Commission in July of 2000 for multi-family developments. Local trip rates were studied in accordance with the publication, **Trip Generation, 6th Edition**. The local trip generation rates are relatively consistent with the rates published by ITE with the exception of exiting trips for the PM peak hour, which is higher with the local rates utilized. Daily trips generated could be approximately 1,970. **Table 5** presents the trip generation for this proposed site.

TABLE 5. TRIP GENERATION

Land Use	Land-Use Code	Units	Daily Trips	AM Peak-Hour Trips		PM Peak-Hour Trips	
				Enter	Exit	Enter	Exit
Multi-Family	220	224	1,970	25	88	88	72

Reference: Knoxville/Knox Co. MPC trip rates adopted in July of 2000

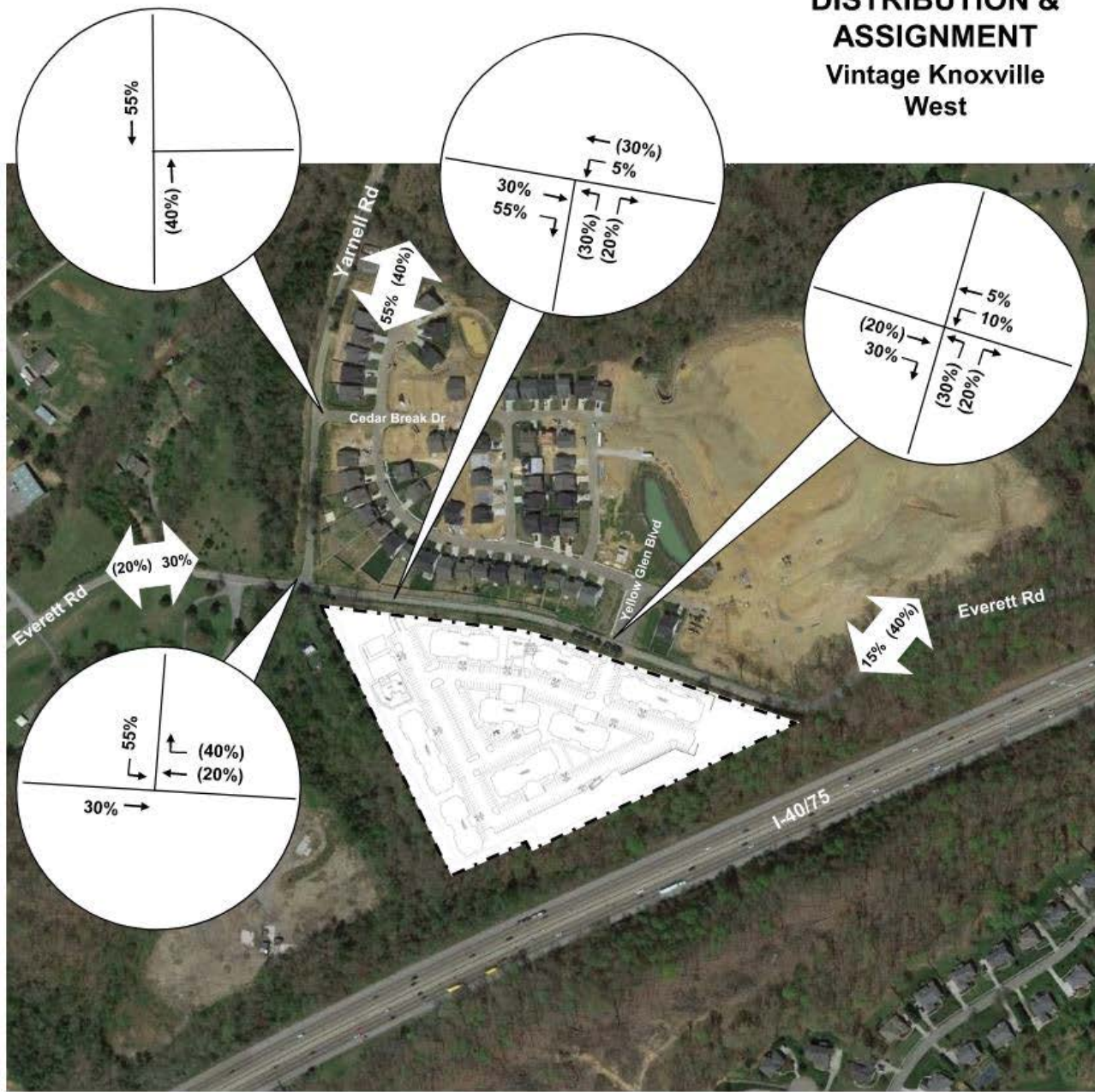
Trip Distribution and Assignment

The assumed trip distribution used the Everett Woods subdivision distribution and assignment and the local and regional roadway network. This distribution and assignment varied for the AM and PM peak hours. **Figures 9A and 9B** illustrate this distribution and assignments for the Vintage Knoxville West multi-family residential development for the AM and PM peak hours, respectively. Site driveway assignments were assumed based on the internal accessibility for apartment buildings and the distribution assumed the adjacent road network.

Project Traffic Volumes

By multiplying the trips generated by the distribution percentages, the project traffic volumes are determined. **Figure 10** illustrate the resulting peak hour assignment of the Vintage Knoxville West trips.

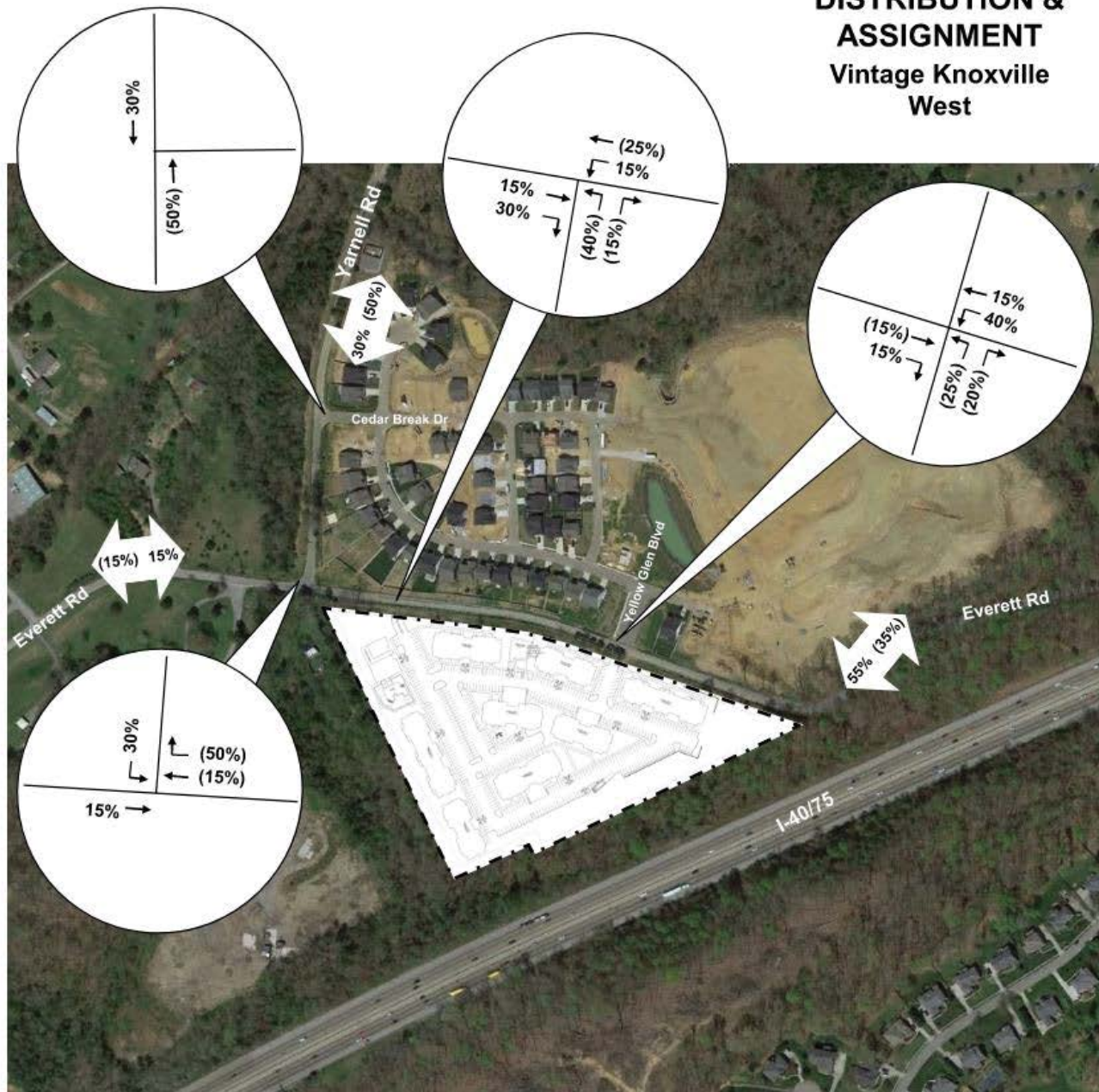
AM PEAK-HOUR TRIP DISTRIBUTION & ASSIGNMENT Vintage Knoxville West



LEGEND
XX% Entering Trips
(XX%) Exiting Trips

N
Figure 9A

PM PEAK-HOUR TRIP DISTRIBUTION & ASSIGNMENT Vintage Knoxville West



LEGEND

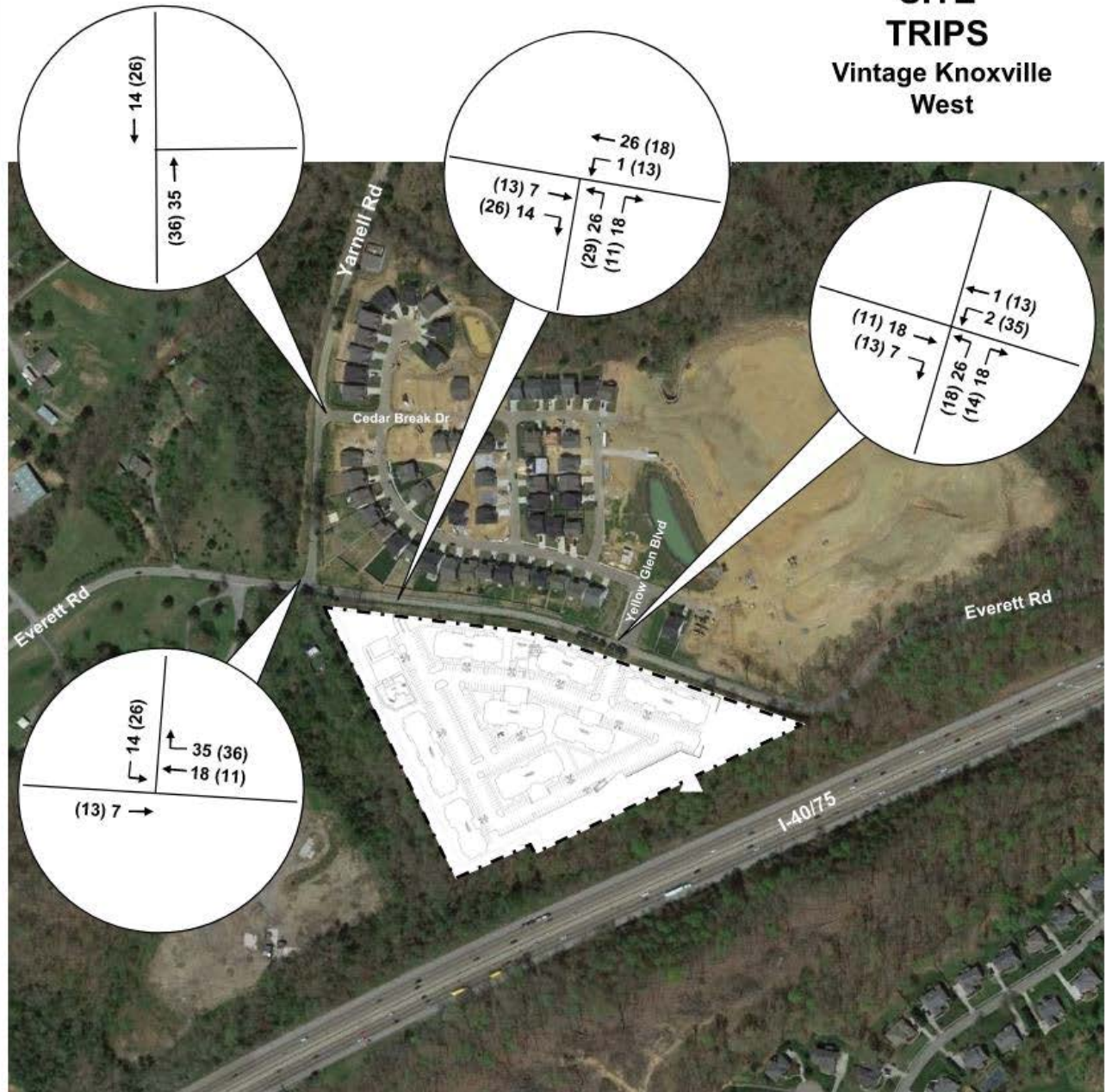
XX% Entering Trips
(XX%) Exiting Trips



Figure 9B

SITE TRIPS

Vintage Knoxville West



LEGEND
 XXX AM PEAK
 (XXX) PM PEAK



Figure 10

Total Projected Traffic Volumes

The Vintage Knoxville West trips were added to the 2025 background traffic for post-development traffic volumes for the year 2025. **Figure 11** illustrates this 2025 traffic projections. Using Knox County's Access Control and Driveway Design Policy, the review and evaluation of the projected traffic volumes did not determine any requirement of left- or right-turn lanes for the proposed site accesses.

Projected Capacity and Level of Service

Analyses were again conducted finding that the study intersections are expected to operate at acceptable levels of service with the existing traffic control and intersection geometrics. **Table 6** presents the capacity and levels of service for the study intersections. A summary of the capacity and LOS analyses is presented in **Table 7**. A minimum LOS D can be achieved with the development of Vintage Knoxville West multi-family units.

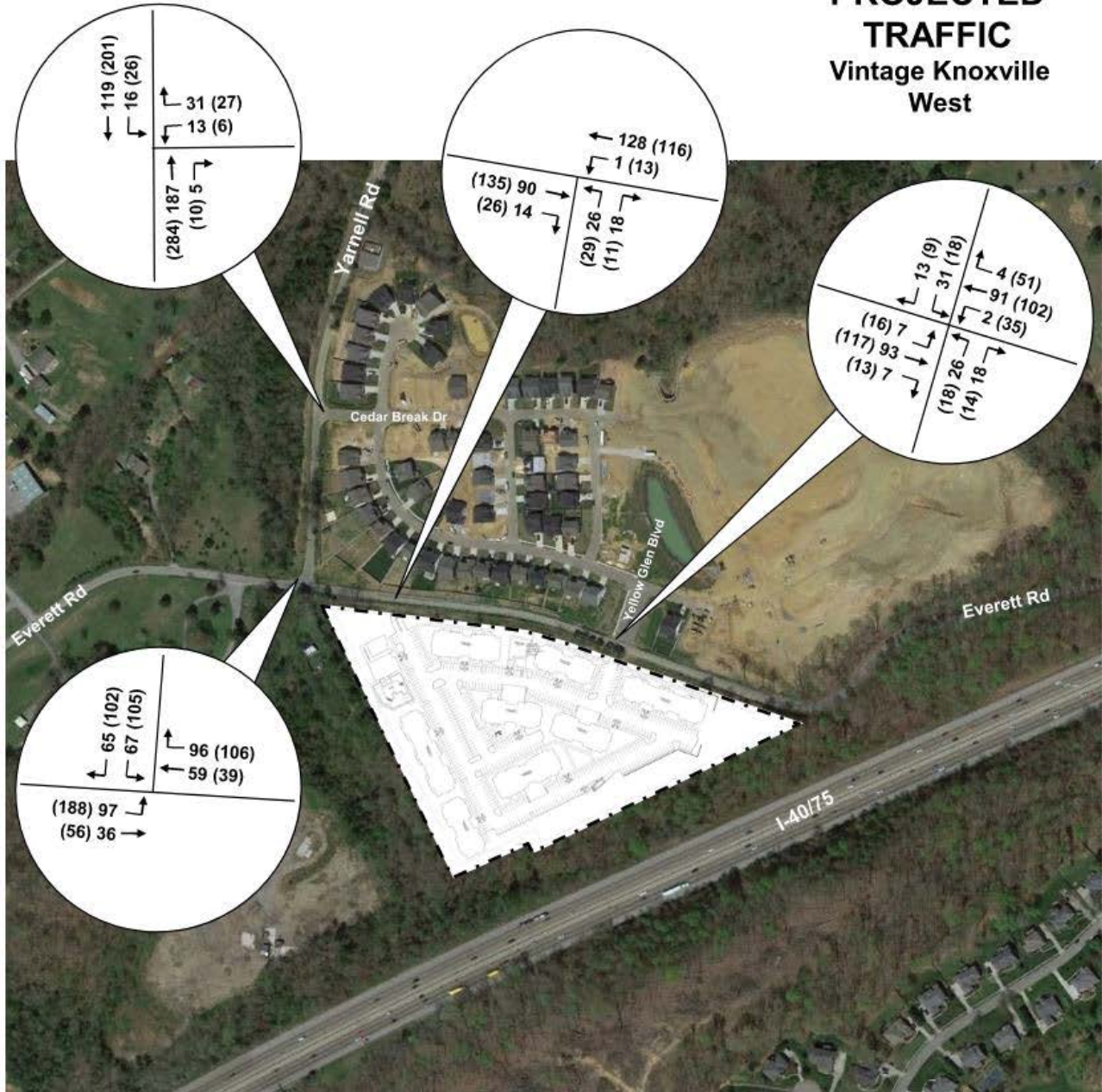
Sight Distance

The proposed accesses to Everett Road with the posted 30mph posted speed limit requires 300 feet of corner sight-distance by Knox County. The AASHTO minimum stopping sight distance is 200 feet. The sight distances for the proposed western access exceeds 500-feet east and west, thereby providing for acceptable lines of sight. The eastern access, opposite Yellow Glen Boulevard, has the minimum line of sight to the east but is currently limited to the west with a line of sight of 275-feet restricted by the vegetation adjacent to Everett Road. This vegetation would be removed in clearing the property. The current lines of sight are provided in the Appendix of this report.

Proposed Site Access

The proposed site western access is currently proposed 250-feet from Yarnell Road; this distance will need to increase to 300 feet for conformance to Knoxville/Knox County Planning minimum spacing for intersections for a collector facility. The eastern access, aligned with Yellow Glen Boulevard, should provide an acceptable operation. The boulevard section for the Yellow Glen Boulevard section should not present any adverse operating condition as the projected traffic is low and any thru volumes between the multi-family and the single-family residential uses should be negligible. In addition, assuming a crossing speed of 20mph from a STOP and an 8-foot offset, the distance across the intersection should be acceptable, approximately 50-foot transition.

2025 PROJECTED TRAFFIC Vintage Knoxville West



LEGEND
XXX AM PEAK
(XXX) PM PEAK



Figure 11

**Table 6
2025 PROJECTED
CAPACITY AND LEVEL OF SERVICE**

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Everett Road & Yarnell Road	STOP	AM	0.31	13.6	B
	SB	PM	0.69	30.2	D
Everett Road & Yellow Glen Blvd/Apt Access E	STOP	AM	0.06 / 0.07	9.9 / 10.1	A / B
	NB/SB	PM	0.06 / 0.05	10.8 / 11.1	B / B
Yarnell Road & Cedar Break Drive	STOP	AM	0.06	10.1	B
	WB	PM	0.06	10.8	B
Everett Road & Apt Access W	STOP	AM	0.06	10.1	B
	NB	PM	0.06	10.3	B

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

The proposed minimum 50-foot throat lengths of the driveways and the projected level of service provide for sufficient storage onsite and a sufficient distance for entering vehicles to avoid conflict with parking vehicles. A 50-foot throat length is a minimum recommended for a collector street access.

**TABLE 7
CAPACITY AND LEVEL OF SERVICE SUMMARY**

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	2021 EXISTING			2025 BACKGROUND			2025 PROJECTED		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Everett Road & Yarnell Road	STOP	AM	0.19	11.1	B	0.25	12.0	B	0.31	13.6	B
	SB	PM	0.37	14.8	B	0.51	19.3	C	0.69	30.2	D
Everett Road & Yellow Glen Blvd/Apt Access E	STOP	AM	- / 0.02	- / 9.3	A / A	- / 0.06	- / 9.6	A / A	0.06 / 0.07	9.9 / 10.1	A / B
	NB/SB	PM	- / 0.01	- / 9.3	A / A	- / 0.04	- / 9.9	A / A	0.06 / 0.05	10.8 / 11.1	B / B
Yarnell Road & Cedar Break Drive	STOP	AM	0.02	9.5	A	0.06	9.8	A	0.06	10.1	B
	WB	PM	0.01	9.9	A	0.05	9.7	A	0.06	10.8	B
Everett Road & Apt Access W	STOP	AM	-	-	-	-	-	-	0.06	9.7	A
	NB	PM	-	-	-	-	-	-	0.06	10.3	B

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

The proposed 50-foot throat lengths of the driveways and the projected level of service provide for sufficient storage onsite and a sufficient distance for entering vehicles to avoid conflict with parking vehicles. This 50-foot throat length meets the minimum requirements of the Knoxville/Knox County Planning subdivision regulations.

RECOMMENDATIONS

The analyses conducted and the review of the traffic volumes identified the following recommendations:

- Minimize landscaping, using low growing vegetation, and signing at the Vintage Knoxville West access to Everett Road to insure that safe sight distance is maintained.
- Provide a minimum 300-foot spacing between the proposed western access and Yarnell Road.
- Develop the site accesses with a minimum 300-foot corner sight-distance.
- Post STOP signs (R1-1) for the proposed site access approaches to Everett Road.

Intersection design should conform to the recommended standards and practices of the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and the Knox County Engineering and Public Works Department.

CONCLUSION

The study of this proposed residential development evaluated the projected traffic conditions. Background traffic was determined using a 3.0-percent annual growth rate until the horizon year 2025. Traffic associated with the Vintage Knoxville West development was then generated and distributed to the proposed site access. Using the identified turning movements for the projected traffic conditions, unsignalized capacity and level of service analyses were conducted using the **Highway Capacity Manual**. Capacity and levels of service are found to be acceptable for the projected traffic conditions.

With the recommendations of this report, the efficient and safe flow of traffic should be maintained with the development of the Vintage Knoxville West development.

APPENDIX

Trip Generation

Turn Lane Evaluations

Access Sight Distances

HCS Unsignalized Analyses

Traffic Count Data

TRIP GENERATION

29-Nov-21

			AVERAGE						
LAND USE	L.U.C	SIZE	DAILY	AM PEAK			PM PEAK		
			TRAFFIC	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	169	1,594	31	88	118	100	59	159
KNOX CO MULTI-FAMILY	225	224	2,023	27	96	123	89	73	161
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
			3,616	58	184	242	189	131	320

			REGRESSION						
LAND USE	L.U.C	SIZE	DAILY	AM PEAK			PM PEAK		
			TRAFFIC	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	169	1,635	31	89	120	103	60	163
KNOX CO MULTI-FAMILY	225	224	1,970	25	88	113	88	72	160
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
			3,605	56	177	233	190	132	323

			SATURDAY				SUNDAY			
LAND USE	L.U.C	SIZE	DAILY	PEAK			DAILY	PEAK		
			TRAFFIC	ENTER	EXIT	TOTAL	TRAFFIC	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	169	1,597	84	71	155	1,427	74	66	140
KNOX CO MULTI-FAMILY	225	224	1,431	57	59	116	131	59	55	114
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
			3,029	141	131	272	1,559	134	121	254



MEMORANDUM

To: Traffic Impact Study Reviewers and Preparers (see attached list)

From: Mike Conger *MC*

Date: August 14, 2000

Subject: Local Trip Generation Rates for Multi-Family Residential Uses

Attached please find a summary of the final report with data plots for the Knox County Local Apartment Trip Generation Study. As you will recall, this report was discussed when the traffic impact study group last convened this past February. A consensus was reached at that meeting that the trip generation rates developed in the local study should be used for new apartment complexes and any other "multi-family" residential uses that are being proposed.

The MPC voted at its July 2000 meeting to officially amend the Traffic Impact Study Guidelines with language which reads that "trip generation rates for proposed uses shall be calculated using the latest edition of the ITE Trip Generation Manual, or using local data when it is available". This amendment allows the full implementation of the new rates, and they should be used for future proposed multi-family developments unless it can be demonstrated otherwise.

Thanks for your assistance and cooperation in this matter, if there are any questions or comments, please let me know.



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KNOX COUNTY

LOCAL APARTMENT TRIP GENERATION STUDY

PURPOSE

A Traffic Impact Study (TIS) is currently required in Knox County when a proposed development is projected to generate in excess of 750 trips per day. The determinations of when the threshold is met as well as all subsequent analyses in the TIS are performed using the rates and equations given in the Institute of Transportation Engineers (ITE) Trip Generation Manual. Local governmental agencies rely heavily on the accuracy of these trip generation rates in order to correctly predict the impacts of a proposed development on the transportation system. Therefore, in certain instances, it is logical to verify whether the "national" rates and equations given in the ITE Trip Generation Manual are appropriate for use in a specific local area or region.

The decision was made to study the local trip-making characteristics of apartments because of the discrepancy between the trip generation rates for apartments and single family residential land uses as given in the ITE Trip Generation Manual. While these two land uses are similar in nature, the Trip Generation Manual predicts about three less trips per dwelling unit generated by apartments for the average weekday. Additionally the Trip Generation Manual points out that due to the age of their database, which dates back to the 1960's, "the rates for apartments probably had changed over time". It is also assumed that some of the ITE data had come from larger metropolitan areas with denser development and greater transit use than Knox County, which would contribute to lower trip generation rates. Therefore, this study will be used to either verify the rates given in the Trip Generation Manual or generate new ones that can be applied to locally proposed apartment developments.

PROCEDURE

The procedures recommended by ITE in conducting local trip generation studies were generally followed for this study, along with some important assumptions that have made. ITE has published a proposed recommended practice entitled "Trip Generation Handbook" which specifically outlines procedures for conducting local trip generation studies and establishing new rates and equations.

The first step in the study was to define the number and location of the sites to be studied, as well as the counting methodology. Initially 14 sites were selected, although one apartment complex – the College Park Apartments – was later omitted due to uncharacteristically high traffic generation numbers. The number of sites used in this study far exceeds the recommended minimum amount suggested by ITE, which is five sites. Traffic counts were taken for week-long periods at 15-minute intervals between July 22, 1996 and August 9, 1996 at the access points to the apartment complexes. A Technical Appendix to this report contains the traffic count data collected at each apartment complex.

RESULTS

The traffic count data was analyzed using spreadsheets in order to determine the weighted average rates and regression equations. In order to be considered valid, the local rates and equations for each time period of analysis that were generated must meet certain statistical criteria. First, the standard deviation of the independent variable (dwelling units) should be no more than 110 percent of the weighted average rate; and secondly, the regression equations require a computed coefficient of determination (R^2) value of at least 0.75 before good data fit is indicated. This statistical criteria is met by the local data results, and in fact it often exceeds the level of data fit given by their counterparts in the ITE Trip Generation Manual. Finally, in order to simplify the use of the local data, plots were generated that appear identical to the actual ones in the ITE Trip Generation Manual.

The resulting rates and equations calculated from the local data indicate that the average weekday trip generation of apartments in this area is well above the national rates reported in the ITE manual. For example, the locally computed average rate for number of trips generated during a weekday is 35% higher than the rate given by ITE (increase from 6.63 trips per dwelling unit to 9.03 trips per dwelling unit). The trip generation rates do not increase as much for the AM and PM peak hours however. The local rate is roughly 8% higher for the AM peak, and 16% higher for the PM peak. The plots from the ITE Trip Generation Manual are included in the Technical Appendix for comparison purposes.

ASSUMPTIONS MADE

Some important assumptions have been made which may affect the results of the local data that was collected:

- It is important to note that the local trip generation rates were computed for the *total* number of dwelling units in the apartment complex, and not necessarily for the number of *occupied* dwelling units. There are several reasons why this was done, chiefly because of the need for comparability with the rates given in ITE Trip Generation Manual, as it does not specify whether the dwelling units are occupied. According to ITE procedures the selected sites must only be of “reasonably full occupancy (i.e. at least 85%)”. The Apartment Association of Greater Knoxville (AAGK) publishes quarterly reports on occupancy levels of apartment complexes, and the report covering the period of the data collection was reviewed to determine occupancy levels. According to the AAGK report from July 1, 1996 – September 30, 1996 all of the apartment complexes surveyed in this study met the minimum 85% occupancy level, with an average occupancy rate for all sites studied of 94%.
- The count data that was collected at each apartment complex was used “raw” meaning that it was not factored for possible daily or seasonal variations. Once again, according to an ITE representative it is not known whether the data used in the Trip Generation Manual was factored or not, so therefore in order to be able to compare

local rates to those in the manual you must assume that count data should not be factored. Additionally, it was felt that apartment complexes would generally not be as susceptible to major seasonal fluctuations as other land uses might be. The local rates were also developed using count data that was collected and averaged over an entire week, which should limit some of the daily variations. Finally, reliable local daily and seasonal variation factors do not truly exist.

CONCLUSION

The local apartment study methodology and results were distributed for comment to a group of local transportation professionals who are directly responsible for either preparing or reviewing traffic impact studies. A meeting was held between this group on February 16, 2000 in order to gather comments and discuss the study in greater detail. The following conclusions are based on the discussion and consensus reached at this meeting:

1. The trip generation rates and equations meet statistical requirements and resulted from a study that followed accepted procedures; therefore they should be adopted for future use. Furthermore, the rates and equations are recommended for use in reviewing the traffic impact of any development termed as “multi-family”, such as townhouse and condominium developments due to their similarity to apartment complexes.
2. The Traffic Access and Impact Study Guidelines and Procedures adopted by MPC should be amended with the language that local data should be used when available, which will allow the implementation of these new multi-family trip generation rates.
3. The following suggestions were made for future consideration:
 - This study should be updated with data collected from local townhouse and condominium developments in order to further justify the use of the new trip generation rates.
 - A statistical comparison should be made between any newly developed rates and the ITE single family trip generation rates to determine if there is a significant difference. If there is no difference then perhaps ITE single-family rates could be used for any residential development proposed in Knox County.

Local Apartment Trip Generation Study

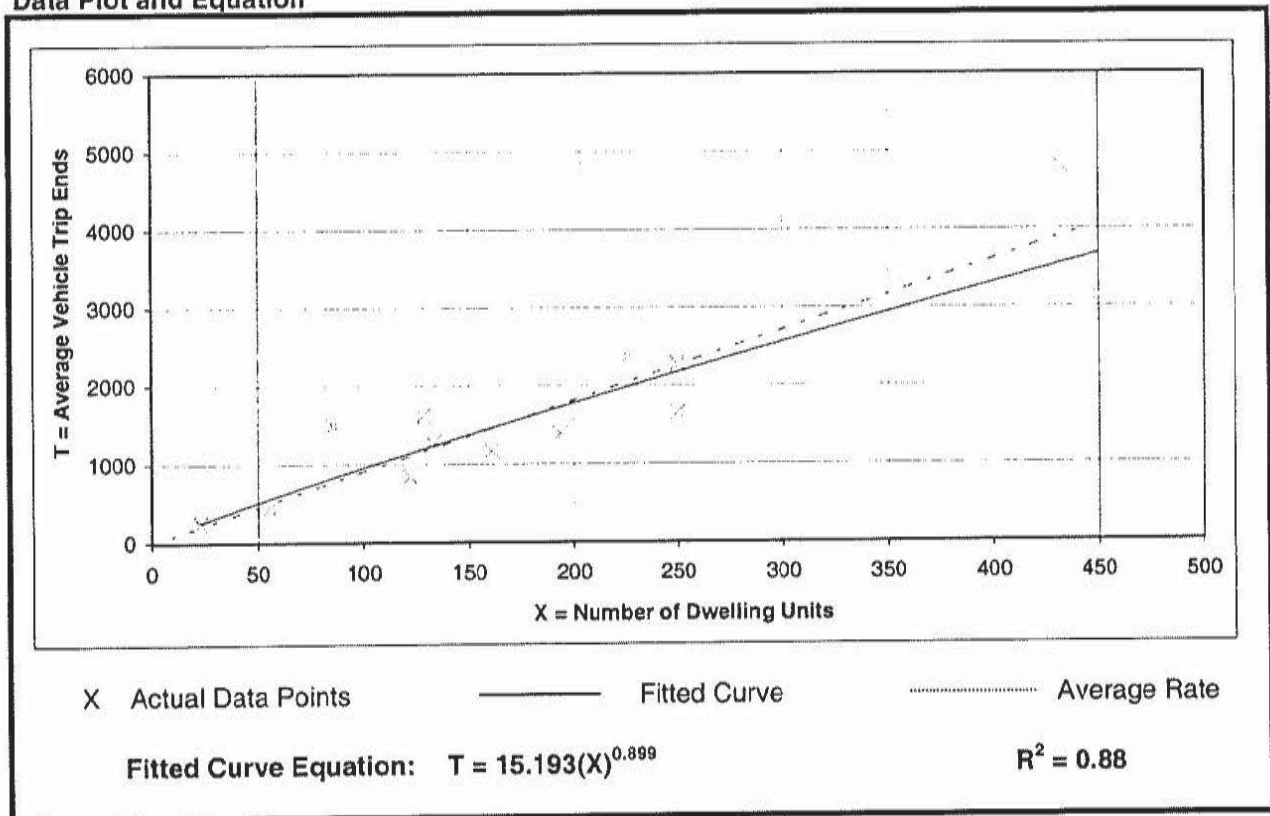
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Number of Studies: 13
Average Number of Dwelling Units: 193
Directional Distribution: 50% entering, 50% exiting

Trip Generation Per Dwelling Unit

Average Rate	Ranges of Rates	Standard Deviation
9.03	6.59 - 17.41	2.47

Data Plot and Equation



Local Apartment Trip Generation Study

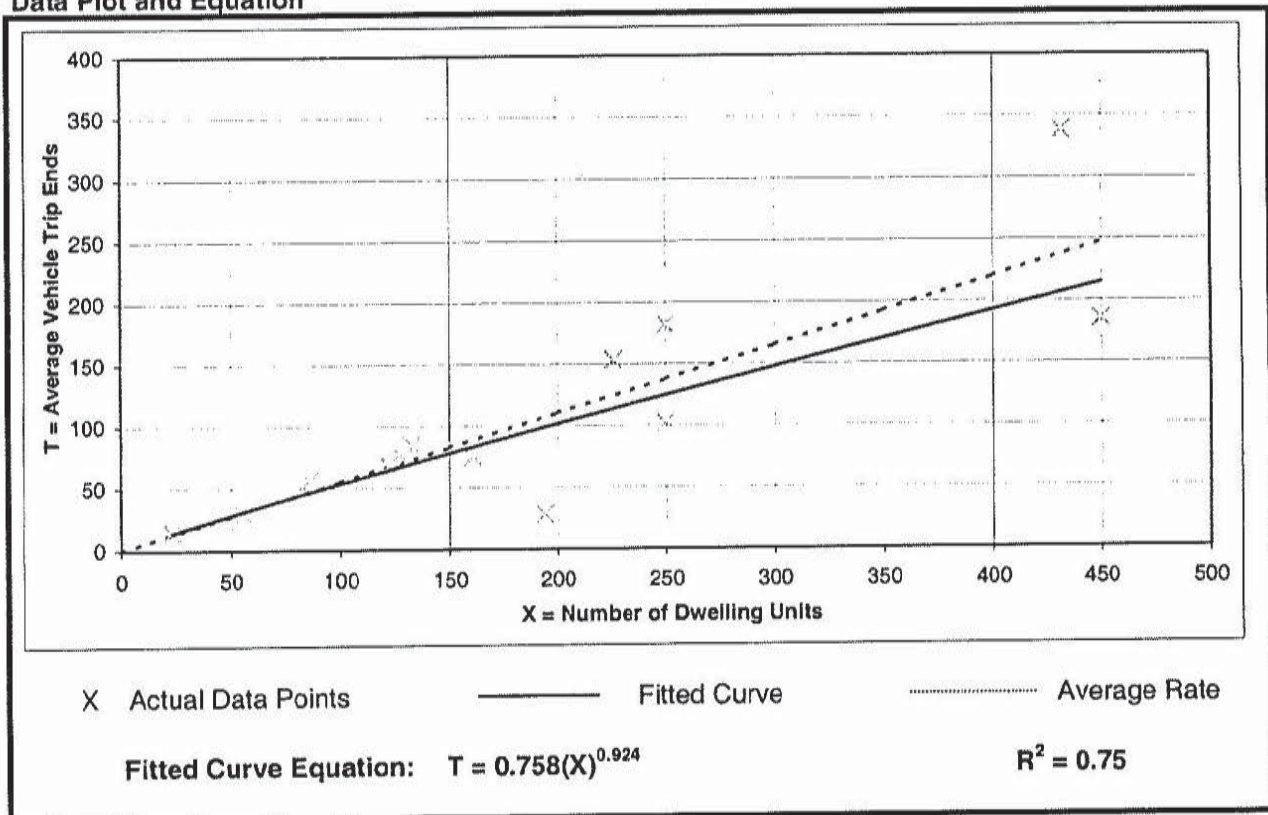
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 13
Average Number of Dwelling Units: 193
Directional Distribution: 22% entering, 78% exiting

Trip Generation Per Dwelling Unit

Average Rate	Ranges of Rates	Standard Deviation
0.55	0.14 - 0.78	0.18

Data Plot and Equation



Local Apartment Trip Generation Study

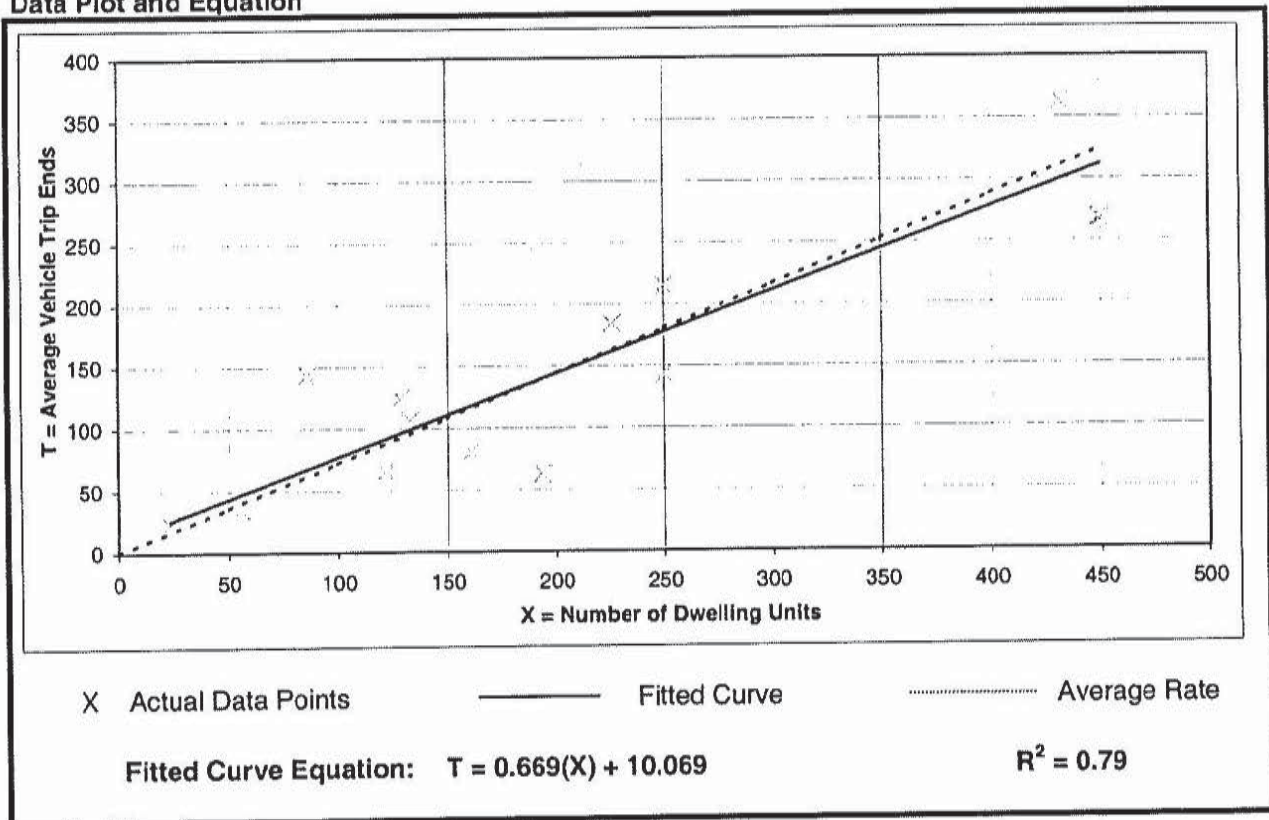
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 13
Average Number of Dwelling Units: 193
Directional Distribution: 55% entering, 45% exiting

Trip Generation Per Dwelling Unit

Average Rate	Ranges of Rates	Standard Deviation
0.72	0.32 - 1.66	0.25

Data Plot and Equation



TRIP GENERATION

MULTI-FAMILY RESIDENTIAL (224 UNITS)-Knoxville-Knox County Planning 2000

DAILY TRIPS

$$T=15.193(X)^{0.899}$$

$$T=15.193(224)^{0.899}$$

$$\mathbf{T=1,970}$$

AM PEAK HOUR OF ADJACENT STREET

$$T=0.758(X)^{0.924}$$

$$T=0.758(224)^{0.924}$$

$$\mathbf{T=113}$$

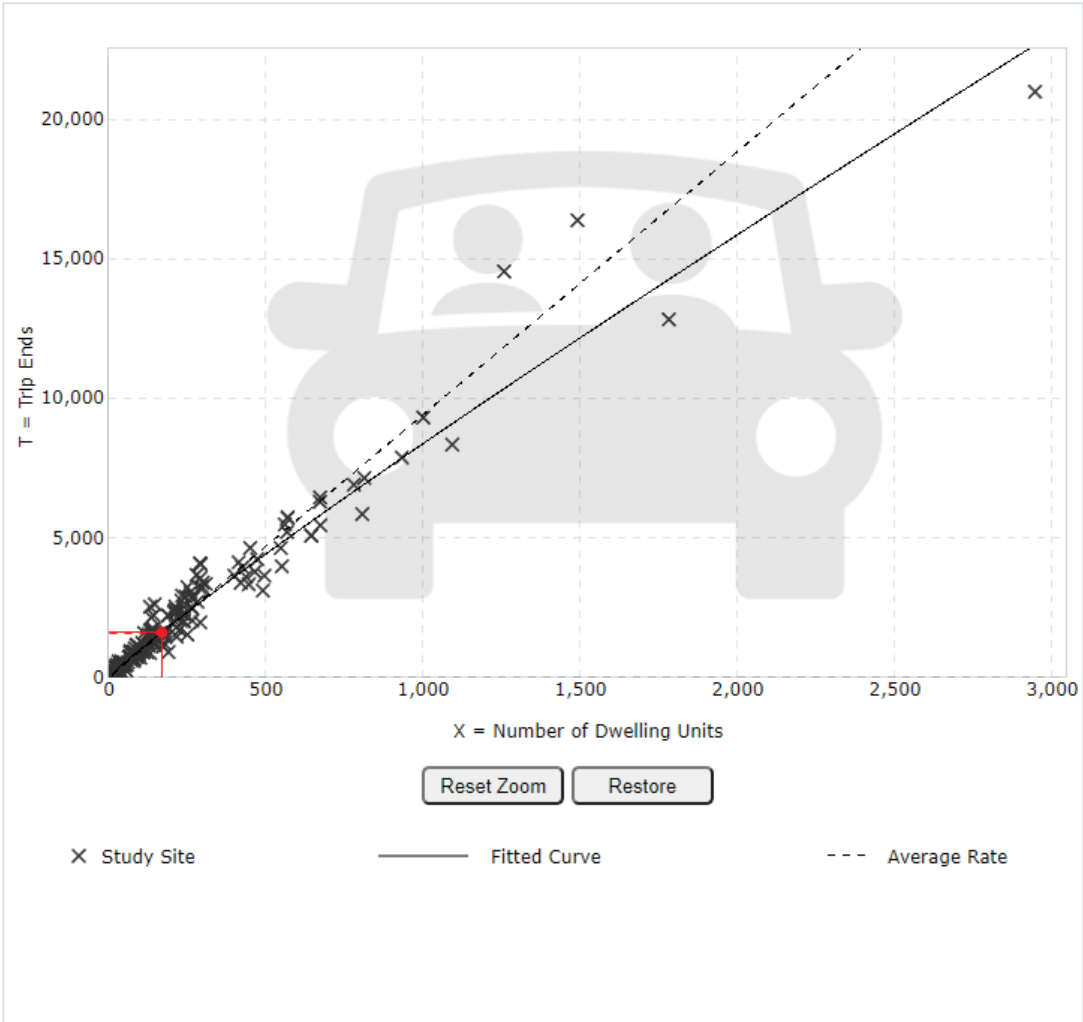
PM PEAK HOUR OF ADJACENT STREET

$$T=0.669(X)+10.069$$

$$T=0.669(224)+10.069$$

$$\mathbf{T=160}$$

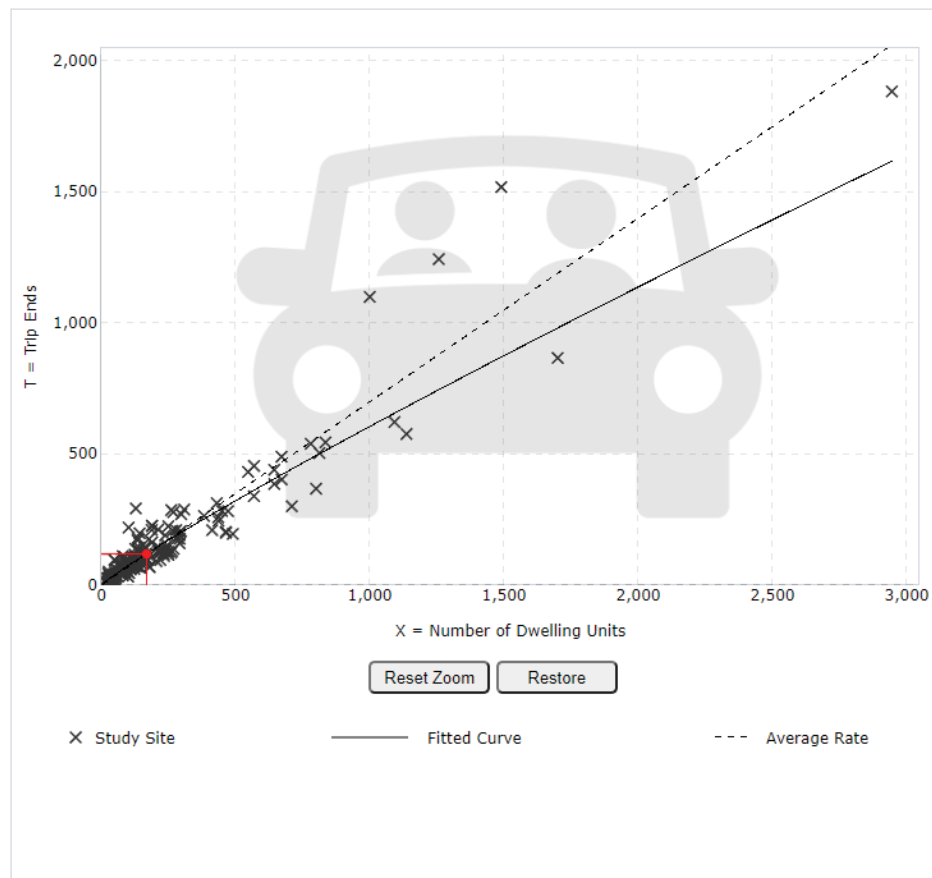
Data Plot and Equation



DATA STATISTICS

Land Use:	Single-Family Detached Housing (210) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	174
Avg. Num. of Dwelling Units:	246
Average Rate:	9.43
Range of Rates:	4.45 - 22.61
Standard Deviation:	2.13
Fitted Curve Equation:	$\ln(T) = 0.92 \ln(X) + 2.68$
R ² :	0.95
Directional Distribution:	50% entering, 50% exiting
Calculated Trip Ends:	Average Rate: 1594 (Total), 797 (Entry), 797 (Exit) Fitted Curve: 1635 (Total), 817 (Entry), 818 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:

Single-Family Detached Housing (210) [Click for Description and Data Plots](#)

Independent Variable:

Dwelling Units

Time Period:

Weekday
 Peak Hour of Adjacent Street Traffic
 One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

192

Avg. Num. of Dwelling Units:

226

Average Rate:

0.70

Range of Rates:

0.27 - 2.27

Standard Deviation:

0.24

Fitted Curve Equation:

$\ln(T) = 0.91 \ln(X) + 0.12$

R²:

0.90

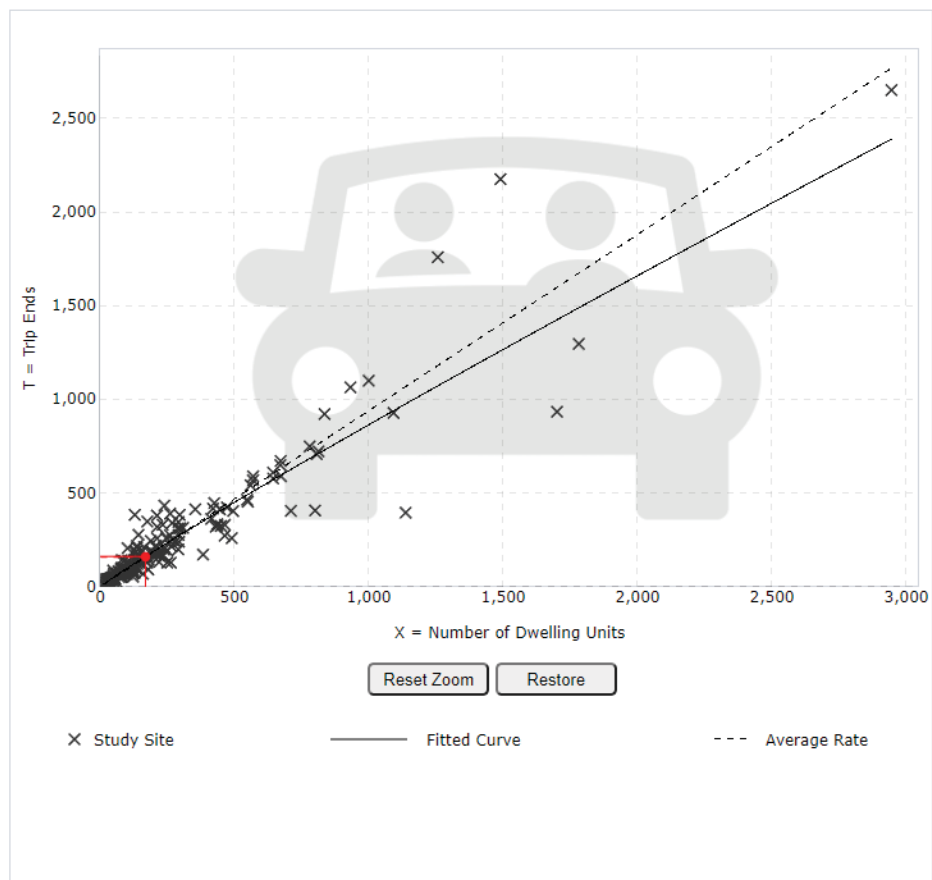
Directional Distribution:

26% entering, 74% exiting

Calculated Trip Ends:

Average Rate: 118 (Total), 30 (Entry), 88 (Exit)
 Fitted Curve: 120 (Total), 31 (Entry), 89 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:

Single-Family Detached Housing (210) [Click for Description and Data Plots](#)

Independent Variable:

Dwelling Units

Time Period:

Weekday
 Peak Hour of Adjacent Street Traffic
 One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

208

Avg. Num. of Dwelling Units:

248

Average Rate:

0.94

Range of Rates:

0.35 - 2.98

Standard Deviation:

0.31

Fitted Curve Equation:

$\ln(T) = 0.94 \ln(X) + 0.27$

R²:

0.92

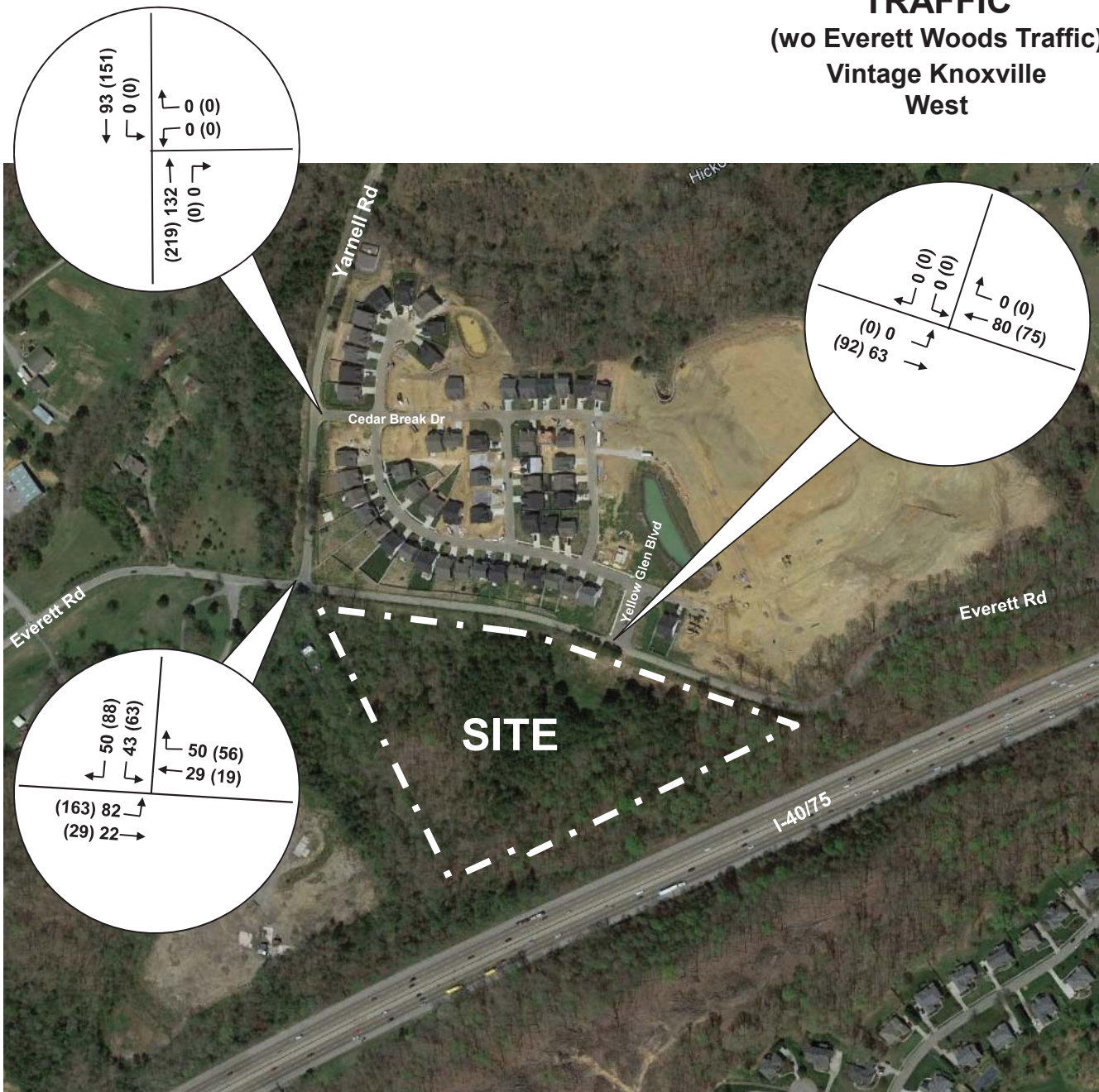
Directional Distribution:

63% entering, 37% exiting

Calculated Trip Ends:

Average Rate: 159 (Total), 100 (Entry), 59 (Exit)
 Fitted Curve: 163 (Total), 103 (Entry), 60 (Exit)

2021 TRAFFIC (wo Everett Woods Traffic) Vintage Knoxville West



LEGEND
 XXX AM PEAK
 (XXX) PM PEAK



EVERETT ROAD LEFT-TURN LANE FOR THE WESTBOUND APPROACH TO PROPOSED APPARTMENT ACCESSSES

TABLE 4A

**LEFT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS**

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

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	116 100 - 149	153 150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
130 100 - 149	300	35 235	185	145	120	100
161 150 - 199	13 245	200	160	130	110	90
200 - 249	205	170	140	115	100	80
250 - 299	175	150	125	105	90	70
300 - 349	155	135	110	95	80	65
350 - 399	135	120	100	85	70	60
400 - 449	120	105	90	75	65	55
450 - 499	105	90	80	70	60	50
500 - 549	95	80	70	65	55	50
550 - 599	85	70	65	60	50	45
600 - 649	75	65	60	55	45	40
650 - 699	70	60	55	50	40	35
700 - 749	65	55	50	45	35	30
750 or More	60	50	45	40	35	30

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

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

EVERETT ROAD RIGHT-TURN LANE FOR THE EASTBOUND APPROACH TO PROPOSED APPARTMENT ACCESSSES

TABLE 4B
RIGHT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	133 135 100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
13 Fewer Than 25 26 25 - 49 50 - 99		NO				
100 - 149 150 - 199						
200 - 249 250 - 299						Yes
300 - 349 350 - 399				Yes	Yes Yes	Yes Yes
400 - 449 450 - 499			Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599		Yes Yes	Yes Yes	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 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99					Yes	Yes Yes
100 - 149 150 - 199			Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	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.

**SIGHT
DISTANCE
Western Access
Vintage Knoxville
West**



**Line of Sight
Looking to the East
>500-ft**



**Line of Sight
Looking to the West
>500-ft**

**SIGHT
DISTANCE
Eastern Access
Vintage Knoxville
West**



**Line of Sight
Looking to the East
Approx. 550-ft**






**Line of Sight
Looking to the West
Approx. 275-ft**

Clear Vegetation

HCM 6th TWSC

3: Everett Road & Yarnell Road

12/20/2021




Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	27	32	52	44	53
Future Vol, veh/h	87	27	32	52	44	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	40	50	81	62	75
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	131	0	-	0	391	91
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	300	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1454	-	-	-	613	967
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1454	-	-	-	557	967
Mov Cap-2 Maneuver	-	-	-	-	557	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	752	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.9	0		11.1		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1454	-	-	-	725	
HCM Lane V/C Ratio	0.089	-	-	-	0.188	
HCM Control Delay (s)	7.7	0	-	-	11.1	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7	

HCM 6th TWSC
5: Everett Road & Yellow Glen Blvd

12/20/2021

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	65	80	4	11	4
Future Vol, veh/h	7	65	80	4	11	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	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	8	71	87	4	12	4




Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	91	0	0 176 89
Stage 1	-	-	- 89 -
Stage 2	-	-	- 87 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1504	-	- 814 969
Stage 1	-	-	- 934 -
Stage 2	-	-	- 936 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1504	-	- 809 969
Mov Cap-2 Maneuver	-	-	- 809 -
Stage 1	-	-	- 928 -
Stage 2	-	-	- 936 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1504	-	-	-	846
HCM Lane V/C Ratio	0.005	-	-	-	0.019
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive




12/20/2021

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	11	134	5	17	94
Future Vol, veh/h	5	11	134	5	17	94
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	5	12	146	5	18	102
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	287	149	0	0	151	0
Stage 1	149	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	703	898	-	-	1430	-
Stage 1	879	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	694	898	-	-	1430	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.5	0	1.2			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	822	1430	-	
HCM Lane V/C Ratio	-	-	0.021	0.013	-	
HCM Control Delay (s)	-	-	9.5	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

HCM 6th TWSC




3: Everett Road & Yarnell Road

12/20/2021

Intersection						
Int Delay, s/veh	8.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	164	32	21	58	65	89
Future Vol, veh/h	164	32	21	58	65	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	245	48	33	91	92	125
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	124	0	-	0	617	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	538	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1463	-	-	-	453	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	585	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	375	981
Mov Cap-2 Maneuver	-	-	-	-	375	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	585	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.7	0		14.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1463	-	-	-	583	
HCM Lane V/C Ratio	0.167	-	-	-	0.372	
HCM Control Delay (s)	8	0	-	-	14.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.6	-	-	-	1.7	

HCM 6th TWSC
5: Everett Road & Yellow Glen Blvd

12/20/2021

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	93	76	12	5	3
Future Vol, veh/h	4	93	76	12	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	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	4	101	83	13	5	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	96	0	-	0	199	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	109	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1498	-	-	-	790	968
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	788	968
Mov Cap-2 Maneuver	-	-	-	-	788	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	916	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		9.3		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1498	-	-	-	847	
HCM Lane V/C Ratio	0.003	-	-	-	0.01	
HCM Control Delay (s)	7.4	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive

12/20/2021

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	2	2	2	2	2	2
Traffic Vol, veh/h	2	7	219	3	7	152
Future Vol, veh/h	2	7	219	3	7	152
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	8	238	3	8	165
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	421	240	0	0	241	0
Stage 1	240	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	589	799	-	-	1326	-
Stage 1	800	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	585	799	-	-	1326	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.9	0	0.3			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	739	1326	-	
HCM Lane V/C Ratio	-	-	0.013	0.006	-	
HCM Control Delay (s)	-	-	9.9	7.7	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	




HCM 6th TWSC

3: Everett Road & Yarnell Road

12/20/2021

Intersection

Int Delay, s/veh 6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	97	29	41	60	54	65
Future Vol, veh/h	97	29	41	60	54	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	43	64	94	76	92

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	158	0	0 444 111
Stage 1	-	-	- 111 -
Stage 2	-	-	- 333 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1422	-	- 571 942
Stage 1	-	-	- 914 -
Stage 2	-	-	- 726 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1422	-	- 512 942
Mov Cap-2 Maneuver	-	-	- 512 -
Stage 1	-	-	- 819 -
Stage 2	-	-	- 726 -

Approach	EB	WB	SB
HCM Control Delay, s	6	0	12
HCM LOS			B




Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1422	-	-	-	682
HCM Lane V/C Ratio	0.102	-	-	-	0.246
HCM Control Delay (s)	7.8	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1

HCM 6th TWSC
5: Everett Road & Yellow Glen Blvd

12/20/2021

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	75	90	4	31	13
Future Vol, veh/h	7	75	90	4	31	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	82	98	4	34	14

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	102	0	0 198 100
Stage 1	-	-	- 100 -
Stage 2	-	-	- 98 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1490	-	- 791 956
Stage 1	-	-	- 924 -
Stage 2	-	-	- 926 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1490	-	- 786 956
Mov Cap-2 Maneuver	-	-	- 786 -
Stage 1	-	-	- 918 -
Stage 2	-	-	- 926 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.6
HCM LOS			A




Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1490	-	-	-	830
HCM Lane V/C Ratio	0.005	-	-	-	0.058
HCM Control Delay (s)	7.4	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive

12/20/2021

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	31	152	5	16	105
Future Vol, veh/h	13	31	152	5	16	105
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	14	34	165	5	17	114

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	316	168	0
Stage 1	168	-	-
Stage 2	148	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	677	876	1407
Stage 1	862	-	-
Stage 2	880	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	668	876	1407
Mov Cap-2 Maneuver	668	-	-
Stage 1	851	-	-
Stage 2	880	-	-




Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	802	1407
HCM Lane V/C Ratio	-	-	0.06	0.012
HCM Control Delay (s)	-	-	9.8	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th TWSC




3: Everett Road & Yarnell Road

12/20/2021

Intersection						
Int Delay, s/veh	9.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	188	43	28	70	79	102
Future Vol, veh/h	188	43	28	70	79	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	281	64	44	109	111	144
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	153	0	-	0	725	99
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	626	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1428	-	-	-	392	957
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	533	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1428	-	-	-	312	957
Mov Cap-2 Maneuver	-	-	-	-	312	-
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	533	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.6	0		19.3		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1428	-	-	-	503	
HCM Lane V/C Ratio	0.196	-	-	-	0.507	
HCM Control Delay (s)	8.1	0	-	-	19.3	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.7	-	-	-	2.8	

HCM 6th TWSC
5: Everett Road & Yellow Glen Blvd

12/20/2021




Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	106	89	51	18	9
Future Vol, veh/h	16	106	89	51	18	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	115	97	55	20	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	152	0	-	0	274	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1429	-	-	-	716	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1429	-	-	-	707	926
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	879	-
Approach	EB	WB		SB		
HCM Control Delay, s	1	0		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1429	-	-	-	768	
HCM Lane V/C Ratio	0.012	-	-	-	0.038	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive

12/20/2021

Intersection

Int Delay, s/veh 1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	27	152	5	26	174
Future Vol, veh/h	6	27	152	5	26	174
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	7	29	165	5	28	189

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	413	168	0
Stage 1	168	-	-
Stage 2	245	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	595	876	1407
Stage 1	862	-	-
Stage 2	796	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	582	876	1407
Mov Cap-2 Maneuver	582	-	-
Stage 1	843	-	-
Stage 2	796	-	-




Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	802	1407	-
HCM Lane V/C Ratio	-	0.045	0.02	-
HCM Control Delay (s)	-	9.7	7.6	0
HCM Lane LOS	-	A	A	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-

HCM 6th TWSC

3: Everett Road & Yarnell Road




12/20/2021

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	97	36	59	96	67	65
Future Vol, veh/h	97	36	59	96	67	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	54	92	150	94	92
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	242	0	-	0	511	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	344	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1324	-	-	-	523	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	718	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1324	-	-	-	464	877
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	765	-
Stage 2	-	-	-	-	718	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.9	0		13.6		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1324	-	-	-	604	
HCM Lane V/C Ratio	0.109	-	-	-	0.308	
HCM Control Delay (s)	8.1	0	-	-	13.6	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.4	-	-	-	1.3	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	93	7	2	91	4	26	1	18	31	1	13
Future Vol, veh/h	7	93	7	2	91	4	26	1	18	31	1	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	101	8	2	99	4	28	1	20	34	1	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	109	0	0	234	228	105	237	230	101
Stage 1	-	-	-	-	-	-	121	121	-	105	105	-
Stage 2	-	-	-	-	-	-	113	107	-	132	125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1489	-	-	1481	-	-	721	671	949	717	670	954
Stage 1	-	-	-	-	-	-	883	796	-	901	808	-
Stage 2	-	-	-	-	-	-	892	807	-	871	792	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1489	-	-	1481	-	-	706	666	949	698	665	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	706	666	-	698	665	-
Stage 1	-	-	-	-	-	-	878	791	-	896	807	-
Stage 2	-	-	-	-	-	-	877	806	-	847	787	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.2			9.9			10.1		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	785	1489	-	-	1481	-	-	756				
HCM Lane V/C Ratio	0.062	0.005	-	-	0.001	-	-	0.065				
HCM Control Delay (s)	9.9	7.4	0	-	7.4	0	-	10.1				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				




HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive

12/20/2021

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	31	187	5	16	119
Future Vol, veh/h	13	31	187	5	16	119
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	14	34	203	5	17	129
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	369	206	0	0	208	0
Stage 1	206	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	631	835	-	-	1363	-
Stage 1	829	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	623	835	-	-	1363	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.1	0	0.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	759	1363	-	
HCM Lane V/C Ratio	-	-	0.063	0.013	-	
HCM Control Delay (s)	-	-	10.1	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

HCM 6th TWSC
25: Vintage Knoxville West W Access & Everett Road




12/20/2021





Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	90	14	1	128	26	18
Future Vol, veh/h	90	14	1	128	26	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	15	1	139	28	20
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	113	0	247	106
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1476	-	741	948
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1476	-	740	948
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	886	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		9.7	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	813	-	-	1476	-	
HCM Lane V/C Ratio	0.059	-	-	0.001	-	
HCM Control Delay (s)	9.7	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

HCM 6th TWSC

3: Everett Road & Yarnell Road

12/20/2021

Intersection						
Int Delay, s/veh	12.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	188	56	39	106	105	102
Future Vol, veh/h	188	56	39	106	105	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	64	64	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	281	84	61	166	148	144
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	227	0	-	0	790	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	646	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1341	-	-	-	359	903
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1341	-	-	-	280	903
Mov Cap-2 Maneuver	-	-	-	-	280	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	522	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.5	0		30.2		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1341	-	-	-	424	
HCM Lane V/C Ratio	0.209	-	-	-	0.688	
HCM Control Delay (s)	8.4	0	-	-	30.2	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0.8	-	-	-	5.1	




Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	117	13	35	102	51	18	1	14	18	1	9
Future Vol, veh/h	16	117	13	35	102	51	18	1	14	18	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	127	14	38	111	55	20	1	15	20	1	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	166	0	0	141	0	0	388	410	134	391	390	139
Stage 1	-	-	-	-	-	-	168	168	-	215	215	-
Stage 2	-	-	-	-	-	-	220	242	-	176	175	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1412	-	-	1442	-	-	571	531	915	568	545	909
Stage 1	-	-	-	-	-	-	834	759	-	787	725	-
Stage 2	-	-	-	-	-	-	782	705	-	826	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1442	-	-	546	509	915	540	522	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	546	509	-	540	522	-
Stage 1	-	-	-	-	-	-	823	749	-	777	704	-
Stage 2	-	-	-	-	-	-	750	685	-	801	744	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1.4			10.8			11.1		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	657	1412	-	-	1442	-	-	620				
HCM Lane V/C Ratio	0.055	0.012	-	-	0.026	-	-	0.049				
HCM Control Delay (s)	10.8	7.6	0	-	7.6	0	-	11.1				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2				

HCM 6th TWSC
7: Yarnell Road & Cedar Break Drive

12/20/2021

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	27	284	10	26	201
Future Vol, veh/h	6	27	284	10	26	201
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	7	29	309	11	28	218




Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	589	315	0
Stage 1	315	-	-
Stage 2	274	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	471	725	-
Stage 1	740	-	-
Stage 2	772	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	459	725	-
Mov Cap-2 Maneuver	459	-	-
Stage 1	721	-	-
Stage 2	772	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	1240
HCM Lane V/C Ratio	-	-	0.055	0.023
HCM Control Delay (s)	-	-	10.8	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
25: Vintage Knoxville West W Access & Everett Road

12/20/2021

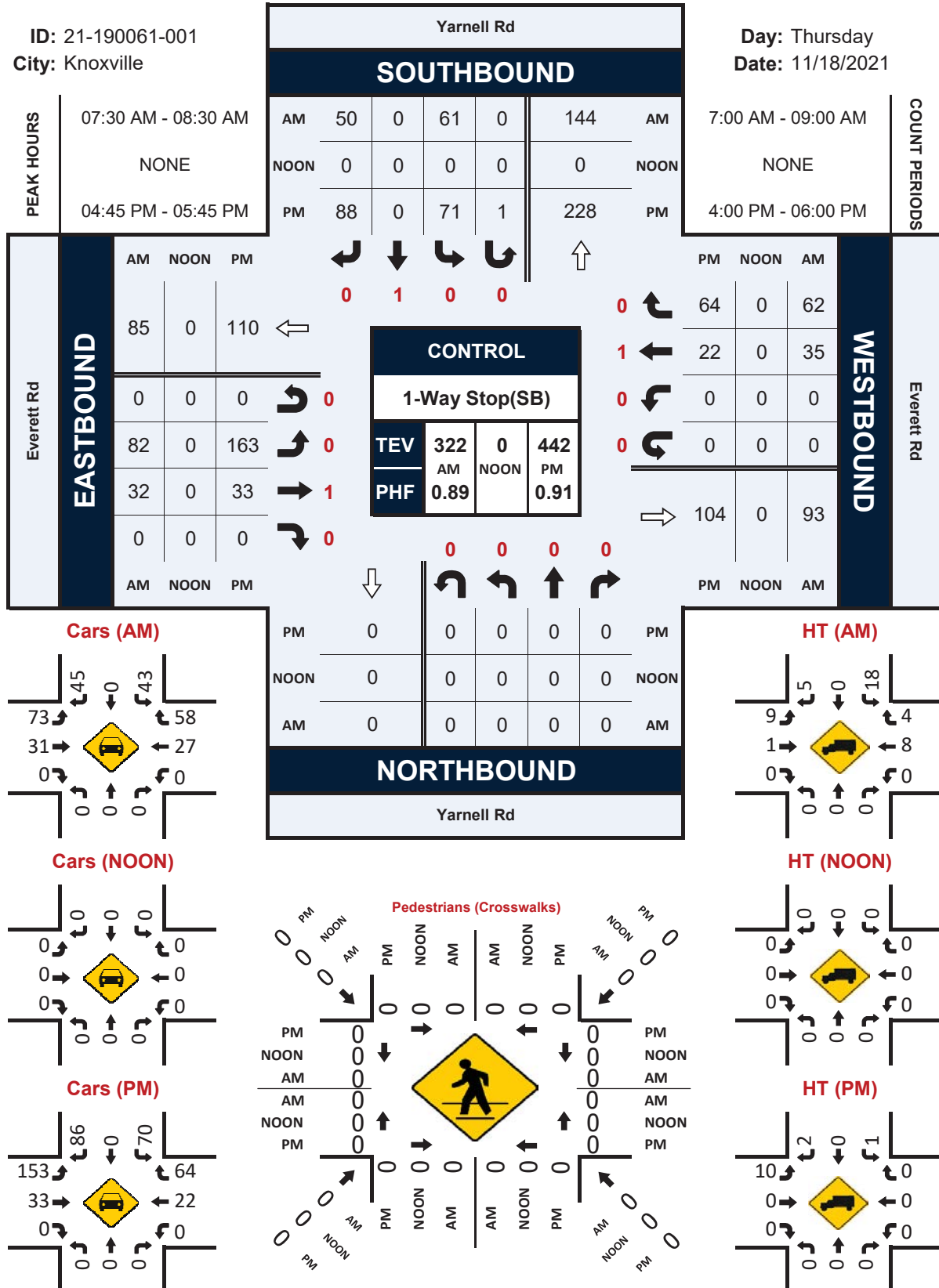
Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	26	13	116	29	11
Future Vol, veh/h	135	26	13	116	29	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	28	14	126	32	12
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	175	0	315	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1401	-	678	884
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1401	-	671	884
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	874	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.8		10.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	719	-	-	1401	-	
HCM Lane V/C Ratio	0.06	-	-	0.01	-	
HCM Control Delay (s)	10.3	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Yarnell Rd & Everett Rd

Peak Hour Turning Movement Count

ID: 21-190061-001
City: Knoxville

Day: Thursday
Date: 11/18/2021



Day: Thursday
Date: 11/18/2021

4:00 PM	0	0	0	0	0	15	0	17	0	32	33	9	0	0	0	47	0	3	9	0	12	89
4:15 PM	0	0	0	0	0	14	0	18	0	32	37	10	0	0	0	42	0	7	3	0	10	89
4:30 PM	0	0	0	0	0	13	0	20	0	31	37	3	0	0	0	40	0	7	10	0	17	88
4:45 PM	0	0	0	0	0	15	0	20	1	0	36	41	7	0	0	48	0	3	11	0	14	98
Total	0	0	0	0	0	57	0	73	1	0	131	148	29	0	0	177	0	20	33	0	53	361
5:00 PM	0	0	0	0	0	18	0	23	0	41	53	13	0	0	0	66	0	3	12	0	15	122
5:15 PM	0	0	0	0	0	20	0	20	0	40	34	6	0	0	0	40	0	11	19	0	30	110
5:30 PM	0	0	0	0	0	18	0	25	0	43	35	7	0	0	0	42	0	5	22	0	27	112
5:45 PM	0	0	0	0	0	9	0	17	0	0	26	18	7	0	0	25	0	14	6	0	20	71
Total	0	0	0	0	0	65	0	85	0	0	150	140	33	0	0	173	0	33	59	0	92	415
Grand Total	0	0	0	0	0	232	0	245	1	0	478	415	112	0	0	527	0	126	191	0	317	1322
Approach %	0	0	0	0	0	48.5	0	51.3	0.2	0	0	78.7	21.3	0	0	0	0	39.7	60.3	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	36.2	31.4	8.5	0	0	0	9.5	14.4	0	0	24.0
Cars, PU, Vans	0	0	0	0	0	193	0	218	1	0	412	374	110	0	0	484	0	112	186	0	298	1194
% Cars, PU, Vans	0	0	0	0	0	83.2	0	89.0	100.0	0	86.2	90.1	98.2	0	0	91.8	0	88.9	97.4	0	94.0	90.3
Heavy trucks	0	0	0	0	0	39	0	27	0	0	66	41	2	0	0	43	0	14	5	0	19	128
%Heavy trucks	0	0	0	0	0	16.8	0	11.0	0.0	0	13.8	9.9	1.8	0.0	0.0	8.2	0.0	11.1	2.6	0.0	9.7	9.7

Day: Thursday
Date: 11/18/2021

AM

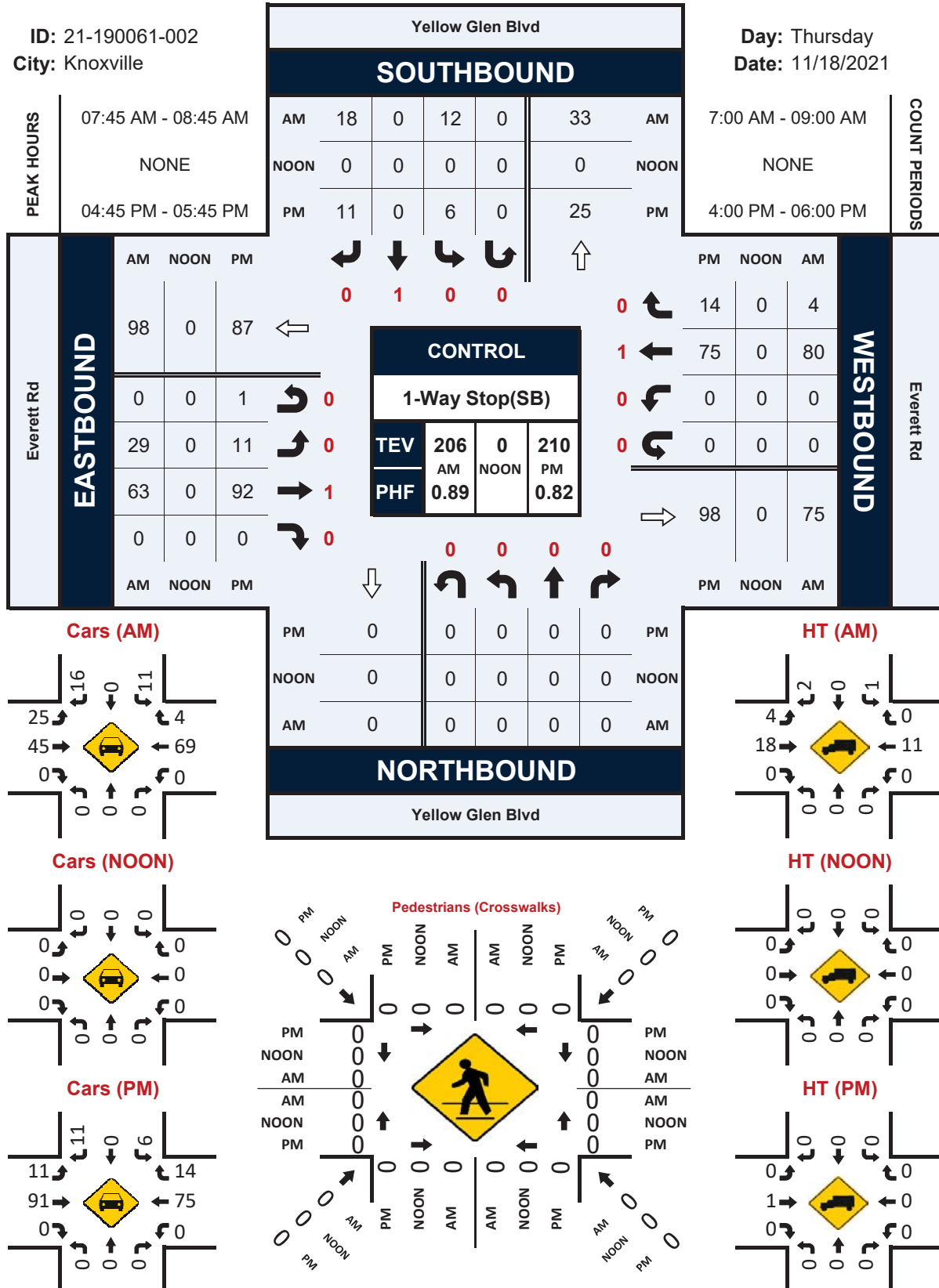
PM	Start Time	Yamell Rd Northbound					Yamell Rd Southbound					Everett Rd Eastbound					Everett Rd Westbound					Int. Total
		Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	
Peak Hour Analysis from 04:00 PM - 06:00 PM																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
	4:45 PM	0	0	0	0	0	15	0	20	1	36	41	7	0	0	48	0	3	11	0	14	98
	5:00 PM	0	0	0	0	0	18	0	23	0	41	53	13	0	0	66	0	3	12	0	15	122
	5:15 PM	0	0	0	0	0	20	0	20	0	40	34	6	0	0	40	0	11	19	0	30	110
	5:30 PM	0	0	0	0	0	18	0	25	0	43	35	7	0	0	42	0	5	22	0	27	112
	Total Volume	0	0	0	0	0	71	0	88	1	160	163	33	0	0	196	0	22	64	0	86	442
	% App. Total	0	0	0	0	0	44.4	0.0	55.0	0.6	100	83.2	16.8	0.0	0.0	100	0.0	25.6	74.4	0.0	100	100
	PHF									0.9300						0.742					0.717	0.906
	Cars, PU, Vans	0	0	0	0	0	70	0	86	1	157	153	33	0	0	186	0	22	64	0	86	429
	% Cars, PU, Vans	0.0	0.0	0.0	0.0	0.0	98.6	0.0	97.7	100.0	98.1	93.9	100.0	0.0	0.0	94.9	0.0	100.0	100.0	0.0	100.0	97.1
	Heavy trucks	0	0	0	0	0	1	0	2	0	3	10	0	0	0	10	0	0	0	0	0	13
	%Heavy trucks	0.0	0.0	0.0	0.0	0.0	1.4	0.0	2.3	0.0	1.9	6.1	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	2.9

Yellow Glen Blvd & Everett Rd

Peak Hour Turning Movement Count

ID: 21-190061-002
City: Knoxville

Day: Thursday
Date: 11/18/2021



Start Time	Yellow Glen Blvd Northbound						Yellow Glen Blvd Southbound						Everett Rd Eastbound						Everett Rd Westbound							
	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total		
7:00 AM	0	0	0	0	0	0	2	0	7	0	0	9	2	5	0	0	0	7	0	8	0	0	0	8		
7:15 AM	0	0	0	0	0	0	1	0	8	0	0	9	1	11	0	0	0	12	0	11	3	0	0	14		
7:30 AM	0	0	0	0	0	0	4	0	6	0	0	10	7	20	0	0	0	27	0	16	0	0	0	16		
7:45 AM	0	0	0	0	0	0	3	0	2	0	0	5	9	17	0	0	0	26	0	26	1	0	0	27		
Total	0	0	0	0	0	0	10	0	23	0	0	33	19	53	0	0	0	72	0	61	4	0	0	65		
8:00 AM	0	0	0	0	0	0	1	0	5	0	0	6	6	12	0	0	0	18	0	24	1	0	0	25		
8:15 AM	0	0	0	0	0	0	4	0	5	0	0	9	5	15	0	0	0	20	0	14	1	0	0	15		
8:30 AM	0	0	0	0	0	0	4	0	6	0	0	10	9	19	0	0	0	28	0	16	1	0	0	17		
8:45 AM	0	0	0	0	0	0	0	0	8	0	0	8	4	16	0	0	0	20	0	11	0	0	0	11		
Total	0	0	0	0	0	0	9	0	24	0	0	33	24	62	0	0	0	86	0	65	3	0	0	68		
BREAK																										

4:00 PM	0	0	0	0	0	0	0	2	0	4	0	0	6	1	22	0	0	0	24	0	8	0	0	0	0	0	8	3	0	0	3
4:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	4	1	21	0	0	0	22	0	9	3	0	0	0	0	12	38	0	0	12
4:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	4	2	16	0	0	0	18	0	14	1	0	0	0	15	37	0	0	15	
4:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	2	19	0	0	0	21	0	14	4	0	0	0	18	41	0	0	18	
Total	0	0	0	0	0	0	0	8	0	8	0	0	16	7	78	0	0	0	85	0	45	8	0	0	0	53	154	0	0	53	
5:00 PM	0	0	0	0	0	0	0	1	0	2	0	0	3	2	26	0	0	0	28	0	15	4	0	0	0	19	50	0	0	19	
5:15 PM	0	0	0	0	0	0	0	3	0	7	0	0	10	4	24	0	1	0	29	0	20	5	0	0	0	25	64	0	0	25	
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	2	3	23	0	0	0	26	0	26	1	0	0	0	27	55	0	0	27	
5:45 PM	0	0	0	0	0	0	0	1	0	2	0	0	3	4	10	0	0	0	14	0	17	5	0	0	0	22	39	0	0	22	
Total	0	0	0	0	0	0	0	5	0	13	0	0	18	13	83	0	1	0	97	0	78	15	0	0	0	93	208	0	0	93	
Grand Total	0	0	0	0	0	0	0	32	0	68	0	0	100	63	276	0	1	0	340	0	249	30	0	0	0	279	719	0	0	279	
Apprch %	0	0	0	0	0	0	0	32.0	0	68.0	0	0	0	18.5	81.2	0	0	0	0	0	89.2	10.8	0	0	0	0	89.2	0	0	89.2	
Total %	0	0	0	0	0	0	0	4.5	0	9.5	0	0	0	13.9	8.8	38.4	0	0	0	0	34.6	4.2	0	0	0	38.8	660	0	0	38.8	
Cars, PU, Vans	0	0	0	0	0	0	0	31	0	64	0	95	57	243	0	1	301	0	234	30	0	264	30	0	0	264	660	0	0	264	
% Cars, PU, Vans	0	0	0	0	0	0	0	96.9	0	94.1	0	95.0	90.5	88.0	0	100.0	88.5	0	94.0	100.0	0	94.6	100.0	0	0	94.6	91.8	0	0	91.8	
Heavy trucks	0	0	0	0	0	0	0	1	0	4	0	5	6	33	0	0	39	0	15	0	0	15	0	0	0	15	59	0	0	15	
% Heavy trucks	0	0	0	0	0	0	0	3.1	0	5.9	0	5.0	9.5	12.0	0	0	11.5	0	6.0	0	0	6.0	0	0	0	5.4	8.2	0	0	5.4	

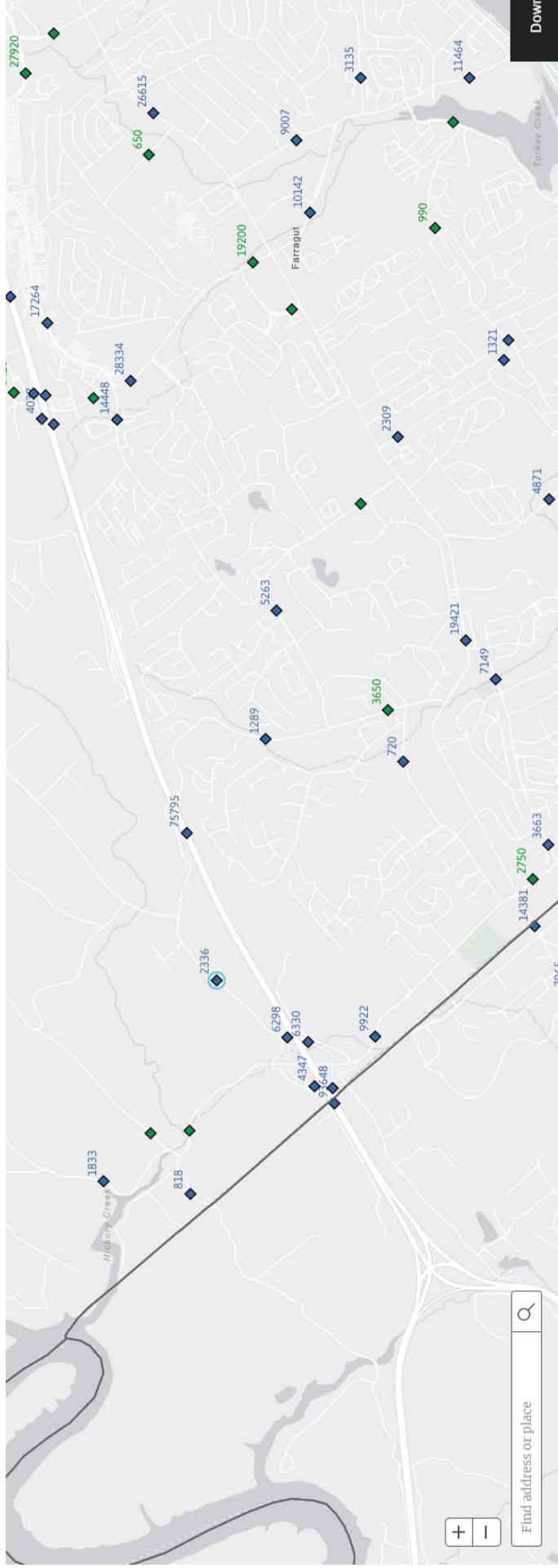
PEAK HOURS

AM

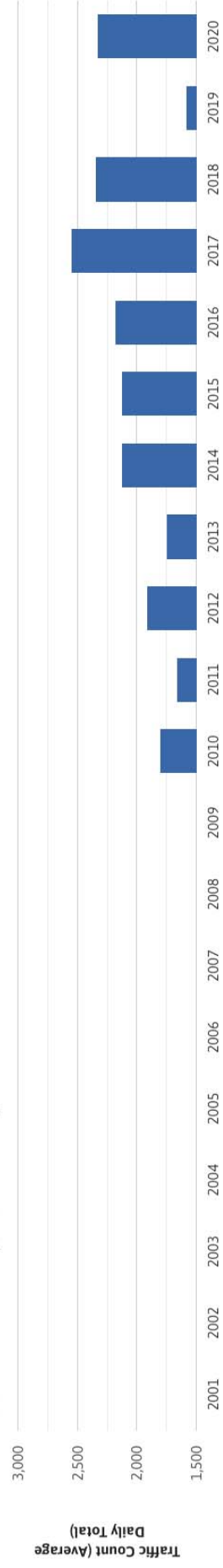
Start Time	Yellow Glen Blvd Northbound						Yellow Glen Blvd Southbound						Everett Rd Westbound						Everett Rd Eastbound														
	Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total				
Peak Hour Analysis from 07:00 AM - 09:00 AM																																	
Peak Hour for Entire Intersection Begins at 07:45 AM																																	
7:45 AM	0	0	0	0	0		3	0	2	0	5	9	17	0	0	26	0	26	1	0	27	58	0	0	0	27	58	0	0	27			
8:00 AM	0	0	0	0	0		1	0	5	0	6	6	12	0	0	18	0	18	0	24	1	0	25	49	0	0	25	49	0	0	25		
8:15 AM	0	0	0	0	0		4	0	5	0	9	5	15	0	0	20	0	20	0	14	1	0	15	44	0	0	15	44	0	0	15		
8:30 AM	0	0	0	0	0		4	0	6	0	10	9	19	0	0	28	0	28	0	16	1	0	17	55	0	0	17	55	0	0	17		
Total Volume	0	0	0	0	0		12	0	18	0	30	29	63	0	0	92	0	92	0	60	4	0	84	206	0	0	84	206	0	0	84		
% App. Total	0.0	0.0	0.0	0.0	0.0		40.0	0.0	60.0	0.0	100	31.5	68.5	0.0	0.0	100	0.0	100	0.0	95.2	4.8	0.0	100	0.0	0.0	100	0.0	0.0	100	0.0	0.0	100	
PHF							0.750						0.821						0.778						0.888								
Cars, PU, Vans	0	0	0	0	0		11	0	16	0	27	25	45	0	0	70	0	70	4	0	73	170	0	0	73	170	0	0	73	170	0	0	73
% Cars, PU, Vans	0.0	0.0	0.0	0.0	0.0		91.7	0.0	88.9	0.0	90.0	86.2	71.4	0.0	0.0	76.1	0.0	76.1	100.0	0.0	86.3	100.0	0.0	86.9	82.5	0.0	0.0	86.9	82.5	0.0	0.0	86.9	
Heavy trucks	0	0	0	0	0		1	0	2	0	3	4	18	0	0	22	0	22	0	11	0	0	11	36	0	0	11	36	0	0	11		
% Heavy trucks	0.0	0.0	0.0	0.0	0.0		8.3	0.0	11.1	0.0	10.0	13.8	28.6	0.0	0.0	23.9	0.0	23.9	0.0	13.8	0.0	0.0	13.1	17.5	0.0	0.0	13.1	17.5	0.0	0.0	13.1		

PM

Start Time	Yellow Glen Blvd Northbound						Yellow Glen Blvd Southbound						Everett Rd Westbound						Everett Rd Eastbound											
	Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total		Left	Thru	Rgt	Ulm	App. Total							
Peak Hour Analysis from 04:00 PM - 06:00 PM																														
Peak Hour for Entire Intersection Begins at 04:45 PM																														
4:45 PM	0	0	0	0	0		2	0	0	0	2		2	19	0	0	21		0	14	4	0	18							
5:00 PM	0	0	0	0	0		1	0	2	0	3		2	26	0	0	28		0	15	4	0	19							
5:15 PM	0	0	0	0	0		3	0	7	0	10		4	24	0	1	29		0	20	5	0	25							
5:30 PM	0	0	0	0	0		0	0	2	0	2		3	23	0	0	26		0	26	1	0	27							
Total Volume	0	0	0	0	0		6	0	11	0	17		11	92	0	1	104		0	75	14	0	89							
% App. Total	0.0	0.0	0.0	0.0	0.0		35.3	0.0	64.7	0.0	100		10.6	88.5	0.0	1.0	100		0.0	84.3	15.7	0.0	100							
PHF							0.425						0.897						0.824						0.820					
Cars, PU, Vans	0	0	0	0	0		6	0	11	0	17		11	91	0	1	103		0	75	14	0	89							
% Cars, PU, Vans	0.0	0.0	0.0	0.0	0.0		100.0	0.0	100.0	0.0	100.0		100.0	98.9	0.0	100.0	99.0		0.0	100.0	100.0	0.0	100.0							
Heavy Trucks	0	0	0	0	0		0	0	0	0	0		0	1	0	0	1		0	0	0	0	1							
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	1.1	0.0	0.0	1.0		0.0	0.0	0.0	0.0	0.5							



Everett Rd - E of N Watt Rd (Station ID: 47000475)





**CDM
Smith**





Via Email: gouldjf@cdmsmith.com

DECEMBER 13, 2021

John F. Gould, P.E.
CDM Smith
1100 Marion St., Suite 300
Knoxville, TN 37921

RE: Vintage Knoxville West Apartments TIS Review Comments (1-E-22-UR)

Dear Mr. Gould,

The Transportation Impact Study (TIS) for the above referenced use on review case that was received on November 29, 2021 has been reviewed by staff from Knox County Engineering and Public Works (EPW) and Knoxville-Knox County Planning. We have identified the following comments related to the TIS that we require further information/revision on for the review of this case:

1. Page 6 – First paragraph, 2nd line should read “Road to the west of the site.” Instead of “Road to the east of the site.” Yarnell Road intersects Everett Road west of the proposed site driveways. **Corrected**
2. Page 7 – Under “Existing Traffic Volumes” please explain the methodology and assumptions employed in the reassignment of the Everett Woods residential subdivision traffic as shown in Figure 6B. **Added a statement of the bases of the reassignment.**
3. Page 9 – Some of the volumes at the intersection of Yarnell Road and Cedar Break Drive in Figure 6A do not agree with the count data as shown at the intersection of Yarnell Road and Everett Road. It is our understanding that these were derived from the turning movement count at Yarnell Road and Everett Road, so there should be no rounding discrepancies. Please update according to provided markup sheet. **Revised**
4. Page 14 – One of the volumes in Figure 7B is incorrect, please update according to provided markup sheet. **Typo corrected.**
5. Page 17 – In the discussion of site trip distribution please include an explanation of apportioning trips to each of the two site driveways. **Added a statement describing the general basis of the driveway assignment. The detail assignment is as illustrated in Figures 9A and 9B.**

6. Page 17 – Please include in the Appendix the trip generation plots for the local multi-family trip generation for reference purposes. **Added the Knoxville/Knox County adopted trip generation document for the multi-family residential use.**
7. Appendix – Some of the volumes in the un-numbered figure “2021 Traffic (without Everett Woods Traffic) are incorrect, please update according to provided markup sheet. **Corrected**
8. Please incorporate additional information to address the following items as called for in Section 7, “Analysis” portion of the Knoxville-Knox County Planning TIA Guidelines:
 - a. Document the relationship of the proposed access points to existing streets including separation distance and any alignment issues. Along with this, please denote any specific needs for the access directly opposite of Yellow Glen Blvd to match its width with a boulevard section similar to the proposed western access. **Added a section for the Proposed Access. Added recommendation of 300’ spacing from Yarnell Road**
 - b. Document general site circulation information and in particular any recommendations pertaining to reducing conflicts between the proposed angle parking shown on the eastern access and whether it should be eliminated or if sufficient throat depth can be provided. **Added a section for the Proposed Access**
 - c. Document presence/need for any multimodal facilities within the development or along its frontage. **Page 6 of the report stated that there are not any KAT services, sidewalks, nor bike facilities along Everett Road in the site vicinity.**

Please provide a **PDF** of the following: a **signed and sealed letter** addressing these concerns in a **comment response sheet** (with the indication of where/how the comments were addressed) attached to the back of a **fully revised TIS**. Revisions are due no later than Monday, December 20, 2021 by noon. If you have any questions, please contact me.

Sincerely,



Mike Conger, P.E.
Knoxville-Knox County Planning

CC: Mike Reynolds, AICP, Knoxville-Knox County Planning
John Sexton, P.E., Knox County Engineering and Public Works



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Stephanie Hargrove, Knox County Engineering and Public Works
Aaron Fritts, Knox County Engineering and Public Works



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