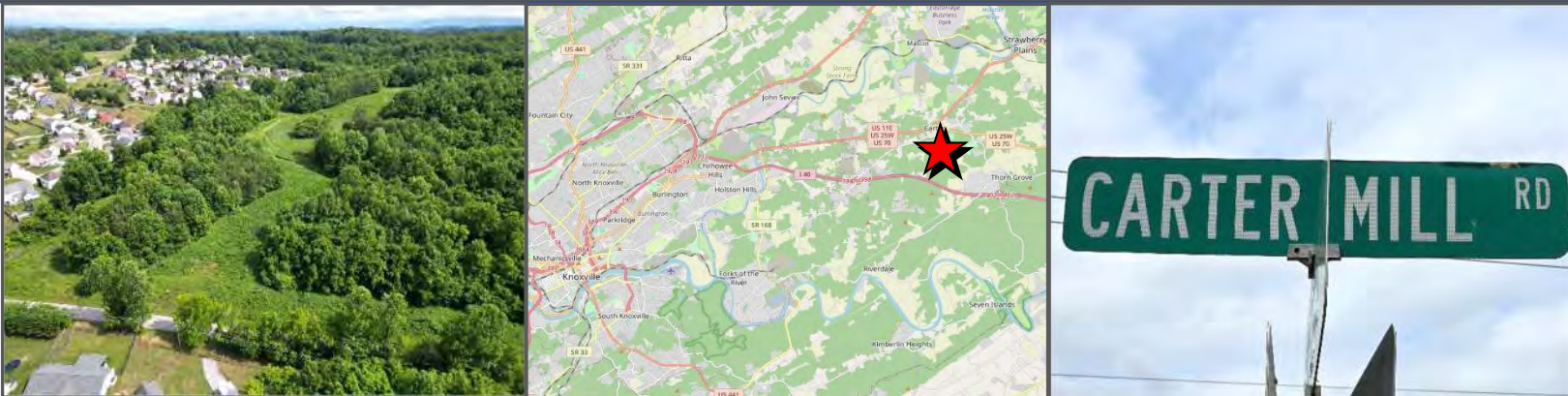


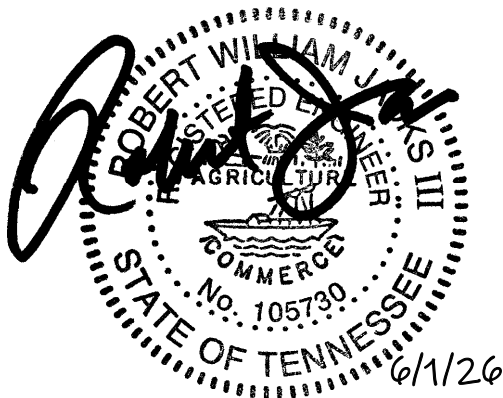


Transportation Impact Study Carter Ridge Phase IX Knox County, Tennessee



June 2026

Prepared for:
Skycrest Development
725 N 5th Street, Suite 100
Jacksonville, OR 97530



8-SB-26-C / 8-B-26-DP
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EXECUTIVE SUMMARY

Preface:

Skycrest Development proposes an additional and final phase in an existing residential subdivision on the south side of Carter Mill Drive in East Knox County, TN. This subdivision is Carter Ridge, and this phase, Phase IX, will see the construction of up to a maximum of 135 single-family detached houses on 75.6 +/- acres and is estimated to be fully built and occupied by 2029.

Carter Ridge Subdivision currently has two entrances on Carter Mill Drive, and a third will be provided at its eastern end once Phase VIII has been completed. Phase IX will provide the fourth, most western, and final entrance for the subdivision phases to Carter Mill Drive. Several previous Transportation Impact Studies (TIS) for Carter Ridge Subdivision have been completed for the other earlier phases, with some of these phases fully built out, and this TIS provides an analysis of the subdivision's final phase, Phase IX. This study also incorporates and takes into account the impacts of the other phases in the subdivision that have not been constructed yet, including Phases VI, VII, and VIII. These three other phases will include a total of 128 houses. Phase VIII has recently begun construction, while Phases VI and VII are yet to be constructed.

The primary purpose of this study is to determine and evaluate the potential impacts of the residential subdivision phases on the adjacent transportation system. The study includes a review of the primary access road, the proposed entrance at Carter Mill Drive for Phase IX, and the adjacent intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane. This report is a Level 1 study established by Knoxville/Knox County Planning. Recommendations and mitigation measures are offered if transportation operations are projected to be below recognized engineering standards.

Study Results:

The significant findings of this study include the following:

- Carter Ridge Phase IX, with up to a maximum of 135 single-family detached houses, is estimated to generate 1,355 vehicle trips on an average weekday at full build-out and occupancy in 2029. Of these daily trips for Phase IX, 96 are estimated to occur during the AM peak hour and 127 in the PM peak hour.
- The combined total of Carter Ridge Phases VI – IX, with 263 single-family detached houses remaining to be built and occupied, is estimated to generate 2,919 trips at full build-out and occupancy on an average weekday in 2029. Of these daily trips

from these four remaining phases, 193 are estimated to occur during the AM peak hour and 253 in the PM peak hour.

- The existing 4-way unsignalized intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane will not be significantly impacted by the construction of the remaining phases in the Carter Ridge Subdivision. Low vehicle delays at this intersection have been calculated in both the existing and projected 2029 conditions.
- The Proposed Entrance intersection for Carter Ridge Phase IX at Carter Mill Drive is calculated to have minimal vehicle delays and queues during the projected 2029 morning and afternoon peak hours, operating under two-way stop-controlled conditions.
- The projected 2029 entering vehicular volumes into Carter Ridge Phase IX from Carter Mill Drive were determined and estimated not to meet Knox County warrant thresholds for separate entering turn lanes.
- Carter Mill Drive was widened to 20 feet for the majority of Carter Ridge Subdivision's road frontage as a precondition for the subdivision's initial approval. However, Carter Mill Drive to the west of the Carter Ridge Subdivision's road frontage, including Phase IX, is quite narrow and was measured to be less than 14 feet in width at several locations.

Recommendations:

The following summary recommendations are presented based on the study's analyses to minimize the impacts of the proposed development on the adjacent transportation system, while aiming to achieve an acceptable traffic flow and improved safety. More details regarding all the recommendations are discussed at the end of the report. The recommendations for the western section of Carter Mill Drive are provided due to existing issues noted in the requested review.

Carter Mill Drive at Proposed Entrance for Phase IX:

- A single exit lane for Carter Ridge Phase IX, allowing both left and right turn movements at Carter Mill Drive, will be sufficient according to the calculations.
- Future landscaping, existing vegetation, or proposed signage must not impact the intersection sight distances looking from the Proposed Entrance to the west and east on Carter Mill Drive.
- Based on a posted speed limit of 30 mph on Carter Mill Drive, the required intersection sight distance is 300 feet for exiting left and right-turning vehicles. The existing sight distances from Carter Mill Drive at the Proposed Entrance

location were visually estimated to be adequate in both directions, assuming the existing vegetation on the south side of Carter Mill Drive along the property's road frontage will be removed during construction.

- It is recommended that a Stop Sign (R1-1) be posted and a 24" white stop bar be applied to the Proposed Entrance approach at Carter Mill Drive. The stop bar should be applied a minimum of 4 feet away from the traveled edge of Carter Mill Drive and placed at the desired stopping point that maximizes the sight distance.

Carter Ridge Phase IX Internal Roads:

- A 25-mph Speed Limit Sign (R2-1) with additional plaque signage, as shown in the report, is recommended to be posted near the beginning of the Proposed Entrance road off Carter Mill Drive. It is also recommended that a "No Outlet" Sign (W14-2a) be posted at the front of the subdivision. This sign can be posted above or below the street name sign.
- Stop Signs (R1-1) are recommended to be installed on the minor approaches at the internal roadway T-intersections, as shown in the report.
- Sight distances at the new internal intersections must not be impacted by new signage, parked cars, or future landscaping. The civil site designer should ensure that appropriate internal sight distances will be met.
- If directed by the local post office, the site designer should include a parking area and a centralized mail delivery center within the development for the Phase IX subdivision residents.
- All drainage grates and covers for the residential development must be pedestrian and bicycle-safe.
- Internal sidewalks are proposed along one side of each road in Phase IX. Concrete sidewalks should be 5 feet wide and have appropriate ADA-compliant ramps at intersection corners with detectable surfaces. White-painted crosswalks should be installed on internal road pavement at locations where pedestrians are expected to cross. Internal crosswalks should be white transverse pavement markings as shown in TDOT Standard Drawing T-M-4.
- As provided for the other phases of the Carter Ridge Subdivision that face and abut Carter Mill Drive, a 5-foot-wide sidewalk should be constructed along the road frontage of Phase IX on the southern side of Carter Mill Drive and connect to the short stub already provided west of the Carter Mill Drive at Carter Ridge Drive / Carter View Lane intersection.

- The main internal road in Phase IX will have long, straight road segments with steep road grades due to the existing terrain. Straight road segments with steep grades encourage higher vehicle speeds. It is recommended that the site designer consider traffic calming measures on this main internal road, and this should be discussed with Knox County in the detailed design phase.
- All road and intersection elements should be designed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) and the Manual on Uniform Traffic Control Devices (MUTCD), as well as TDOT and Knox County's specifications and guidelines, to ensure proper roadway operations.

Carter Mill Drive:

- Due to the existing narrow pavement widths on the western end of Carter Mill Drive (measured as narrow as 13.6 feet), it is recommended that this section be improved to safely and effectively accommodate both current and future traffic, including the additional traffic generated by the remaining phases of the Carter Ridge Subdivision. The recommendations include immediate and future improvements as follows:
 - 2026 Immediate Recommendations:
 - Identify and prioritize locations where Carter Mill Drive is less than 16 feet wide and widen the pavement to a minimum of 18 feet.
 - Post a Speed Limit Sign (R2-1) of 30 mph for westbound traffic on Carter Mill Drive to the west of the intersection with Carter Ridge Drive / Carter View Lane.
 - Install a "Narrow Road" Sign (W5-2) 250 feet to the east of the existing 30-mph Speed Limit Sign posted on Carter Mill Drive off McCubbins Road for eastbound traffic.
 - After widening, install 6-inch white edge lines on the newly widened segments along Carter Mill Drive.
 - Install "Two-Way Traffic" Signs (W6-3) for both directions of travel with advisory speed plaques (W13-1P), preferably stating 20 mph or less. These signs should be posted on both ends of Carter Mill Drive's narrower western section and where horizontal curves warrant additional caution.
 - Aggressively clear vegetation and trees within the right-of-way along the western section of Carter Mill Drive to improve sight

distance and roadside safety.

- All utility poles within this western section of Carter Mill Drive and adjacent to the roadway, if not relocated away from the roadway, should be delineated with all-yellow horizontal or vertical retroreflective signs (OM2-2V or OM2-2H) facing oncoming traffic.

- 2029 Future Recommendations (or earlier if feasible):

- Widen the western section of Carter Mill Drive to a consistent 18-foot paved width if not already completed by 2029. When widening to 18 feet, consideration should be given to using a SafetyEdgeSM at the pavement edges, which shapes the pavement at a 30-degree angle during the paving process.
- The initial approval for the Carter Ridge Subdivision stipulated that prior to final plat approval for any lots in the development, Carter Mill Drive needed to be widened to 20 feet along the entire frontage of the site. This initial road widening of Carter Mill Drive terminated approximately 200 feet to the east of the subdivision property's westernmost point, which includes the development parcel for Phase IX. This remaining unwidened section of Carter Mill Drive is directly in front of Phase IX and should be widened to 20 feet. Beyond that point, the pavement should be properly transitioned to the narrower road section to the west.
- After all the phases of Carter Ridge Subdivision are completed, the pavement markings on the already 20-foot-wide eastern and central sections of Carter Mill Drive, including the double yellow centerline and white edge lines, should be reapplied.

The developer should be responsible for widening Carter Mill Drive to 20 feet along the full road frontage of Phase IX, consistent with the original subdivision approval conditions. It is recommended that Knox County and the developer coordinate regarding any potential shared improvements to the broader western section of Carter Mill Drive beyond the Phase IX road frontage.

DESCRIPTION OF EXISTING CONDITIONS

▪ STUDY AREA:

The proposed location of Carter Ridge Phase IX is shown on a map in Figure 1a. The proposed additional and final phase for the Carter Ridge Subdivision will be located along Carter Mill Drive in East Knox County, TN, west of the existing Phase III houses. Carter Ridge Subdivision is just over a mile southeast of the Andrew Johnson Highway (US 11E / SR 34) and Asheville Highway (US 11E / US 70 / US 25W / SR 9) interchange. Phases I and II were constructed several years ago between Strawberry Plains Pike to the north and Carter Mill Drive to the south. These phases, designated as “Carter Mill Subdivision,” are fully built out. “Carter Ridge Subdivision” comprises the remaining phases (III through IX), all located on the south side of Carter Mill Drive.

Carter Ridge Subdivision has recently completed the construction of Phases III, IV, and V (except for a handful of houses in Phase V). The earthworks and grading for Phase VIII, the furthest eastern phase of the subdivision, have also recently begun. Phases VI and VII have not yet begun construction but are expected to be fully constructed and occupied by 2029, the same timeframe as Phase IX. Figure 1b shows the various phases and the overall master plan of the Carter Mill and Carter Ridge Subdivisions for all nine phases.

As requested by Knoxville/Knox County Planning, this study analyzes the transportation impacts of proposed Phase IX. The analysis includes the Proposed Entrance for Phase IX and a review of Carter Mill Drive west of Phase IX to McCubbins Road. Although not specifically requested, the existing intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane was also included in the evaluations.



The proposed development property is in a rural area that has a fairly low density outside the Carter Mill and Carter Ridge Subdivisions. In the immediate vicinity, the land uses include residential, agricultural, and undeveloped properties. Paschal Carter Memorial Park is adjacent to Carter Ridge Subdivision on the far east end of Carter Mill Drive.

The development property for Phase IX is completely undeveloped and mostly forested with some pockets of open areas. The topography of the proposed subdivision property is characterized by fairly steep terrain, downhill from south to north towards Carter Mill Drive. The property is bisected by a 150-foot easement that contains overhead electrical transmission lines and runs northwest to southeast.

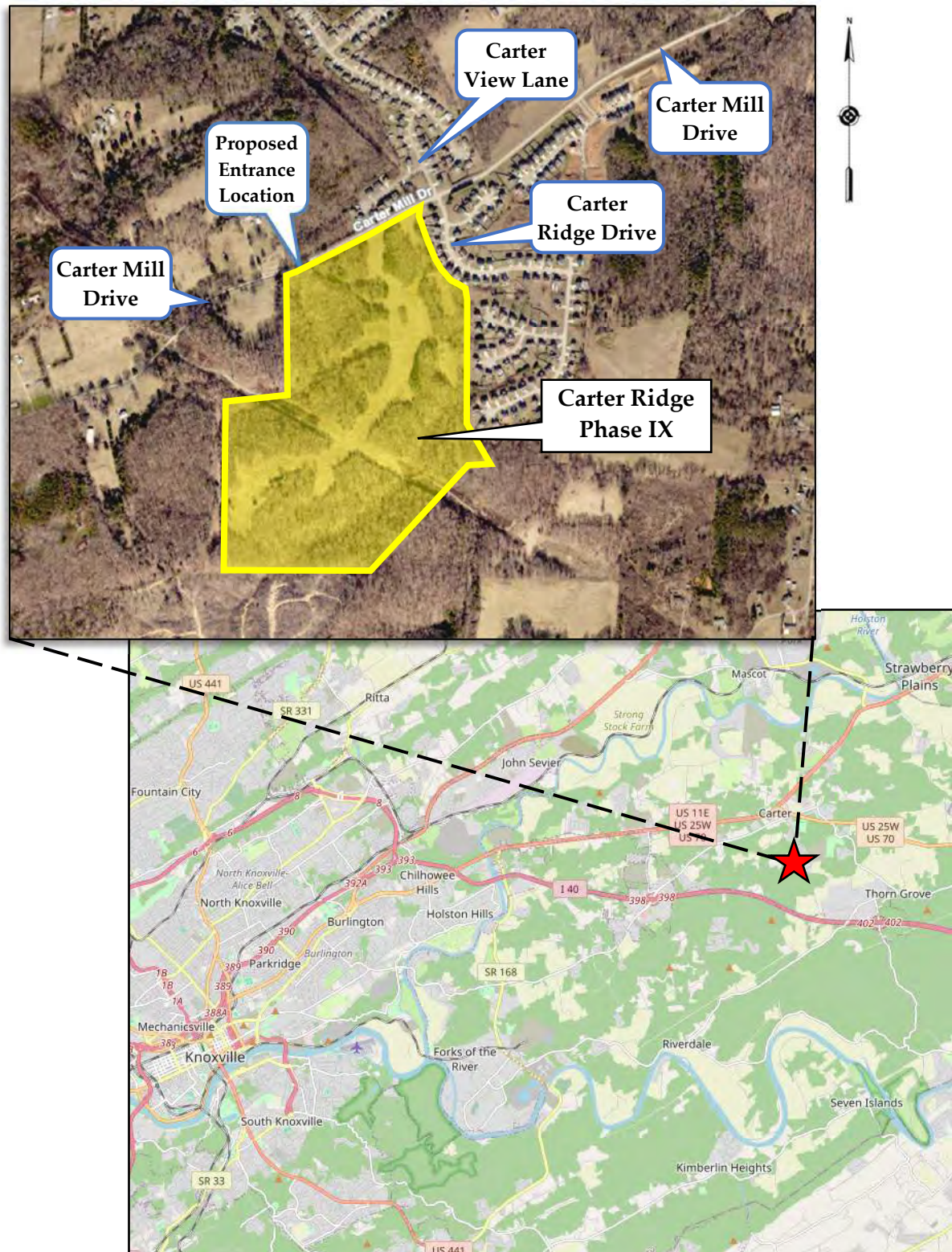


Figure 1a
Location Map

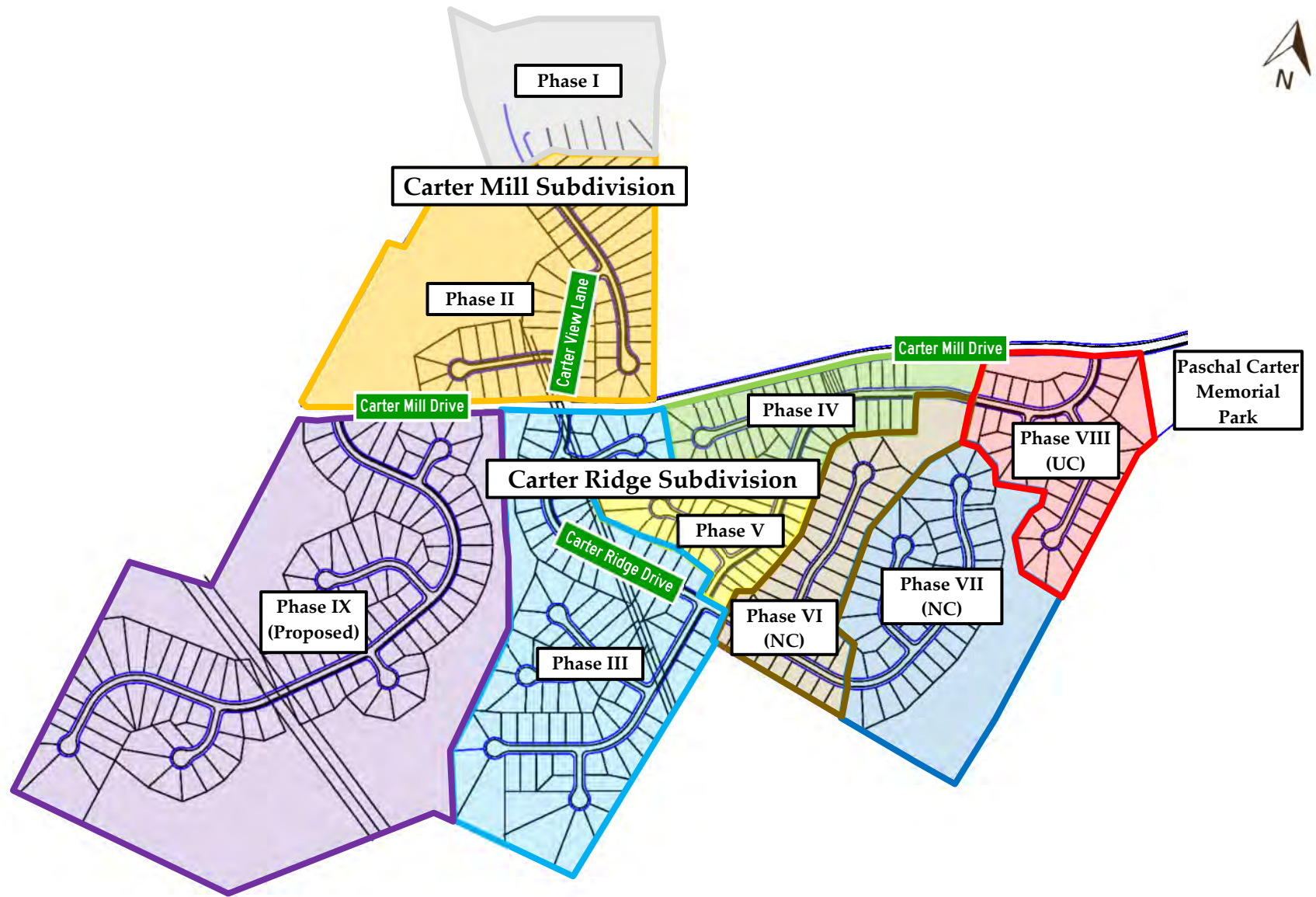


Figure 1b
Master Plan for
Carter Mill and Carter Ridge Subdivisions

Not to Scale
 NC = Not Constructed
 UC = Under Construction

▪ **EXISTING ROADWAYS:**

Table 1 lists the characteristics of the existing primary roadways near the development property and included in the study:

TABLE 1
STUDY CORRIDOR CHARACTERISTICS

NAME	CLASSIFICATION ¹	SPEED LIMIT	LANES	ROAD WIDTH ²	TRANSIT ³	PEDESTRIAN FACILITIES	BICYCLE FACILITIES
Carter Mill Drive	Minor Collector	30 mph	2 undivided	20 feet *	None	Sidewalk on south side of road alongside limits of Phase III & IV of Carter Ridge Subdivision	No bike lanes
Carter Ridge Drive	Local Street	25 mph	2 undivided	26 feet	None	Sidewalk on east side of road except for short section north of Richfield Lane	No bike lanes
Carter View Lane	Local Street	25 mph	2 undivided	26 feet	None	None	No bike lanes

¹ 2018 Major Road Plan by Knoxville/Knox County Planning

² From edges of pavement or face of curbs near project site

³ According to Knoxville Area Transit (KAT) System Map

* Along Carter Ridge Subdivision development property

Carter Mill Drive is classified as a Minor Collector with two travel lanes from McCubbins Road in the southwest to South Carter School Road to the northeast, with a total length of 1.6 miles. Adjacent to the development site for Phase IX, this roadway has a fairly straight horizontal alignment and, besides one substantial vertical sag curve, has a minor amount of vertical change. Carter Mill Drive has a total width of 20 feet along nearly the entire road frontage of Carter Ridge Subdivision. This widening was required as part of the initial subdivision approval. The widened portion originally included a double yellow centerline and white edge lines, but both are currently faded.

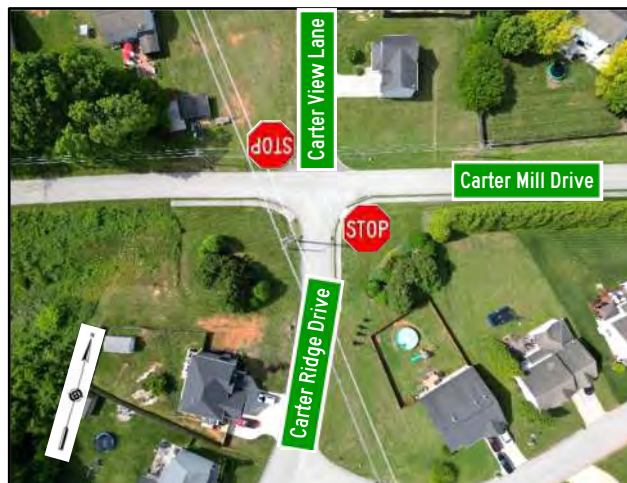
The Proposed Entrance for Phase IX on Carter Mill Drive will be approximately 1,000 feet to the west of the intersection with Carter Ridge Drive and Carter View Lane. Additionally, at this proposed access point, Carter Mill Drive narrows down to its original state, with narrow paved widths further west up to McCubbins Road. At this transition to the unwidened section on the western end of Carter Mill Drive, the double yellow center line and white edge lines to the west are nonexistent. The narrower western portion of Carter Mill Drive provides access to several residences and farms on large properties and has more substantial horizontal curvature. On the eastern end of Carter Ridge Subdivision, where Phase VIII has begun construction, Carter Mill Drive provides access to Paschal Carter Memorial Park. Carter Mill Drive has a posted speed limit of 30 mph on its western end off McCubbins Road for eastbound traffic. There are no utility

streetlights along Carter Mill Drive's length for roadway illumination.

At the unsignalized four-way intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane, east of proposed Phase IX's property, each approach has a single lane. The Carter Ridge Drive and Carter View Lane approaches are controlled by Stop Signs (R1-1), and vehicles on Carter Mill Drive operate freely without stopping.

Phase IX's proposed access point will intersect Carter Mill Drive, adjacent to where the widening of the road to 20 feet was stopped, and narrows down to its original width further to the west. The Proposed Entrance to Phase IX will be approximately 200 feet to the east of the development property's most western point, and the road frontage along Carter Mill Drive to the west of the Proposed Entrance location remains unwidened.

As part of the requested scope of work for this study, road width measurements were made on Carter Mill Drive between the intersection of Carter Ridge Drive / Carter View Lane and McCubbins Road to the west and are provided in the next section of the report.



Intersection of Carter Mill Drive at
Carter Ridge Drive / Carter View Lane



Carter Mill Drive at
Phase IX Proposed Entrance Location

Carter Ridge Drive is a Local Street with two travel lanes and traverses from the 4-way intersection with Carter Mill Drive on the north side to Madison Oaks Road to the south in the interior of Carter Ridge Subdivision, with a total length of 0.3 miles. Carter Ridge Drive currently provides access to the built Phases III, IV, and V of the Carter Ridge Subdivision to and from Carter Mill Drive and traverses in a generally northwest-southeast direction. Carter Ridge Drive will also provide road access to Phases VI and VII when built. Carter Ridge Drive consists of 2 – 13-foot vehicular lanes with concrete curbing. Roadway lighting is not present on Carter Ridge

Drive. A 4-foot sidewalk is provided on the east side of Carter Ridge Drive for the majority of its length, except for a short section north of Richfield Lane.

Carter View Lane is a Local Street with two travel lanes and traverses from the 4-way intersection with Carter Mill Drive on the south side to Drakewood Road to the north in the interior of the Carter Mill Subdivision, with a total length of 0.1 miles. Carter View Lane generally traverses in a north-south direction and consists of 2 – 13-foot vehicular lanes with concrete curbing. Roadway lighting is not present on Carter View Lane, and no sidewalks are provided. Carter View Lane is a popular route taken by motorists since it leads to several other residential roadways to the north in the Carter Mill Subdivision, with eventual access to Strawberry Plains Pike with Asheville Highway (US 11E / US 70 / US 25W / SR 9) slightly further to the east and Carter Elementary School and Interstate 40 to the west.

The following pages list the road width measurements taken on the western section of Carter Mill Drive between the intersection of Carter Mill Drive and Carter Ridge Drive / Carter View Lane and the T-intersection at McCubbins Road, a total of 4,545 feet, and include photos of the roadway every 500 feet at the measured width locations. A rolling wheel was used to make the road width measurements on this street every 250 feet. As shown in the following pages, Carter Mill Drive (outside the area adjacent to and east of Phase IX's Proposed Entrance) was measured at a maximum width of 18.3 feet near McCubbins Road and a minimum width of 13.6 feet. Over this 3,545-foot distance, the overall average pavement width was 15.7 feet.

Following these road section pages, Figure 2 shows the traffic count location for the study, the current traffic signage along Carter Mill Drive in the vicinity of the development site, and the traffic lane configuration of the traffic count intersection location. The signage only includes warning and regulatory signage and does not show directional road signage. The pages following Figure 2 provide a further overview of the site study area, accompanied by additional photographs.

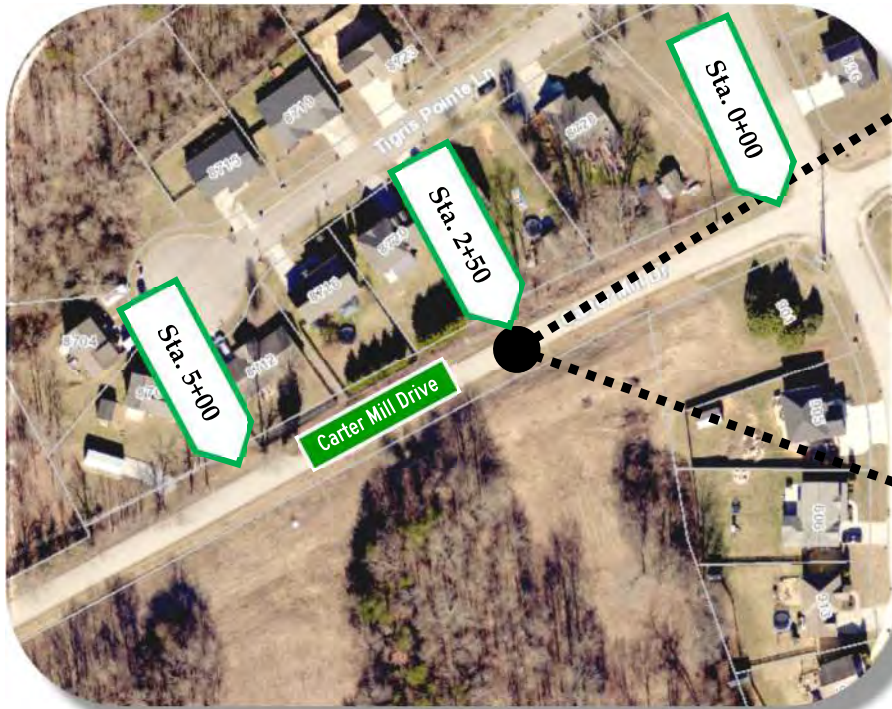
Section 1 Information:

Pavement Width of Carter Mill Drive @:

Station 0+00 = 20.6' (@ end of Curb Return of Carter View Lane)

Station 2+50 = 20.1'

Station 5+00 = 20.0'



**Carter Mill Drive
Station 2+50**



**View of Carter Mill Drive
(Looking Northeast)**



**View of Carter Mill Drive
(Looking Southwest)**

Section 2 Information:

Pavement Width of Carter Mill Drive @:

Station 7+50 = 20.0'

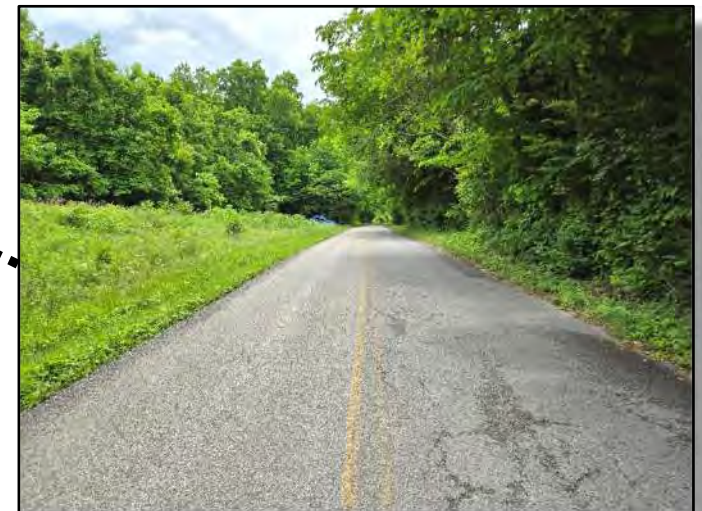
Station 10+00 = 17.0'



Carter Mill Drive
Station 7+50



View of Carter Mill Drive
(Looking Northeast)



View of Carter Mill Drive
(Looking Southwest)

Section 3 Information:

Pavement Width of Carter Mill Drive @:

Station 12+50 = 15.8'

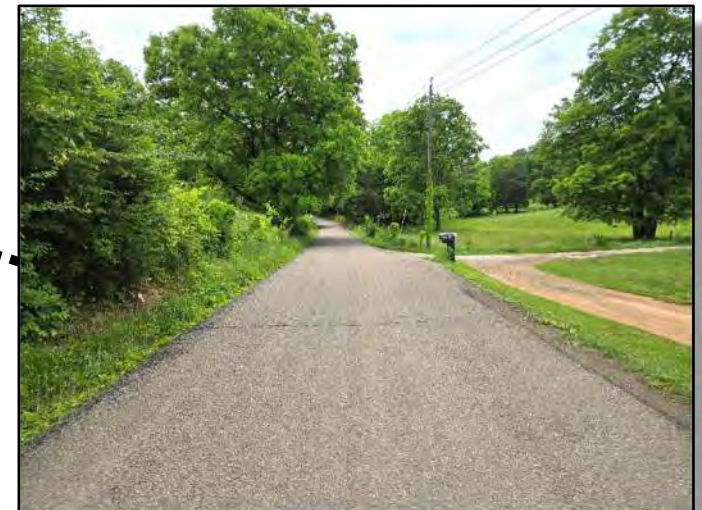
Station 15+00 = 15.3'



Carter Mill Drive
Station 12+50



View of Carter Mill Drive
(Looking Northeast)



View of Carter Mill Drive
(Looking Southwest)

Section 4 Information:

Pavement Width of Carter Mill Drive @:
Station 17+50 = 14.8'



Carter Mill Drive
Station 17+50



View of Carter Mill Drive
(Looking Northeast)



View of Carter Mill Drive
(Looking Southwest)

Section 5 Information:

Pavement Width of Carter Mill Drive @:

Station 20+00 = 15.1'

Station 22+50 = 14.3'



Carter Mill Drive
Station 22+50



View of Carter Mill Drive
(Looking Northeast)



View of Carter Mill Drive
(Looking Southwest)

Section 6 Information:

Pavement Width of Carter Mill Drive @:

Station 25+00 = 14.7'

Station 27+50 = 15.0'

Station 30+00 = 13.6'



Carter Mill Drive
Station 27+50



View of Carter Mill Drive
(Looking Northeast)



View of Carter Mill Drive
(Looking Southwest)

Section 7 Information:

Pavement Width of Carter Mill Drive @:

Station 32+50 = 13.9'

Station 35+00 = 15.4'



**Carter Mill Drive
Station 32+50**



**View of Carter Mill Drive
(Looking Northeast)**



**View of Carter Mill Drive
(Looking Southwest)**

Section 8 Information:

Pavement Width of Carter Mill Drive @:

Station 37+50 = 17.6'

Station 40+00 = 16.7'



**Carter Mill Drive
Station 37+50**



**View of Carter Mill Drive
(Looking Northeast)**



**View of Carter Mill Drive
(Looking Southwest)**

Section 9 Information:

Pavement Width of Carter Mill Drive @:

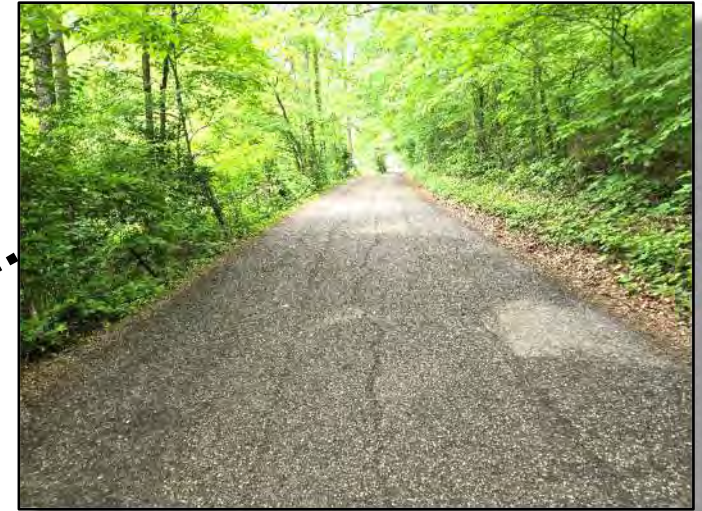
Station 42+50 = 15.5'

Station 45+00 = 18.0'

Station 45+45 = 18.3' (@ Stop Sign at McCubbins Road)



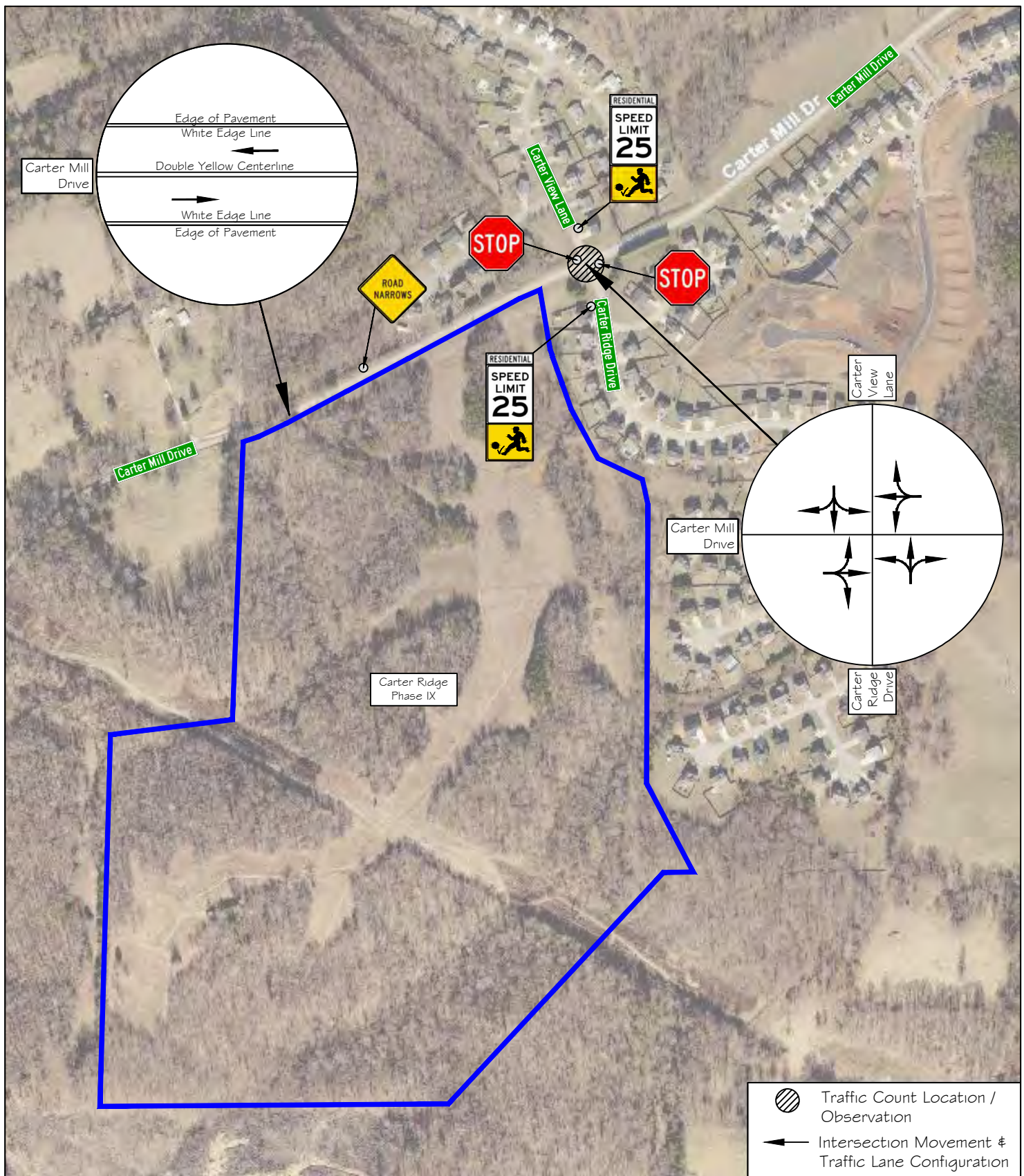
**Carter Mill Drive
Station 42+50**



**View of Carter Mill Drive
(Looking Northeast)**



**View of Carter Mill Drive
(Looking Southwest)**



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

NOT TO SCALE



FIGURE 2

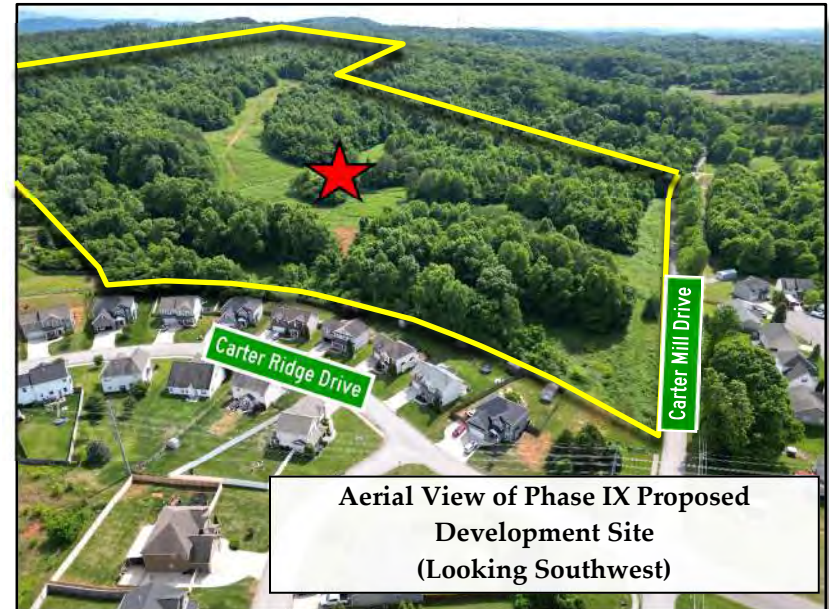
Carter Ridge Phase IX

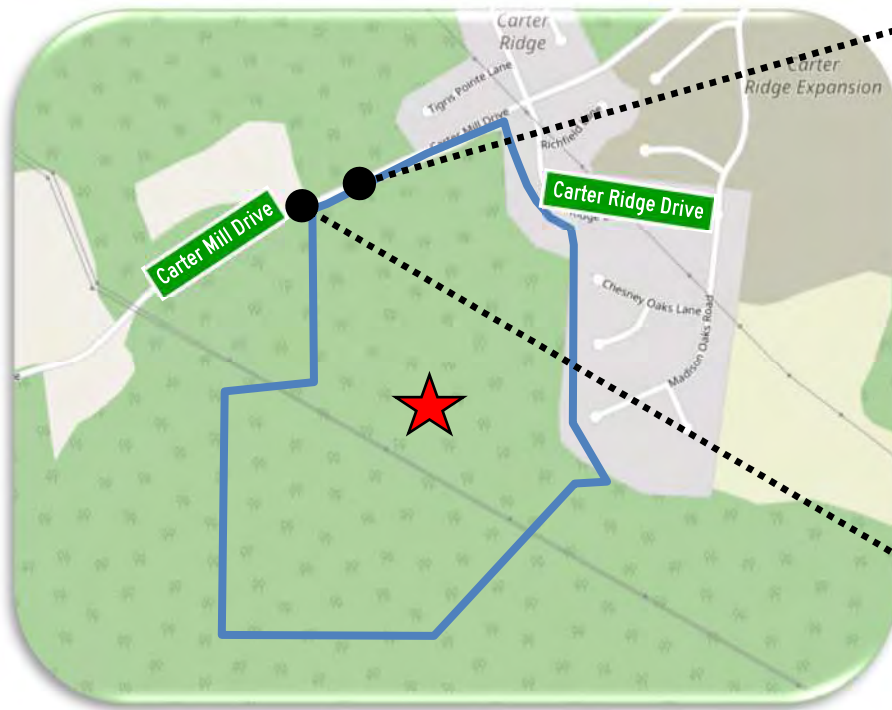
Traffic Count Location, Traffic Signage & Existing Lane Configurations

PHOTO EXHIBITS



Phase IX Proposed Development Site





Phase IX Proposed Development Site



▪ **EXISTING TRANSPORTATION VOLUMES PER MODE:**

There are no annual vehicular traffic count locations along Carter Mill Drive or particularly near the project site. The closest traffic count locations are conducted by the Tennessee Department of Transportation (TDOT). The following count location data is provided, and can be viewed with further details in Appendix A:

○ Existing vehicular roadway traffic:

The TDOT reported the following Average Annual Daily Traffic (AADT):

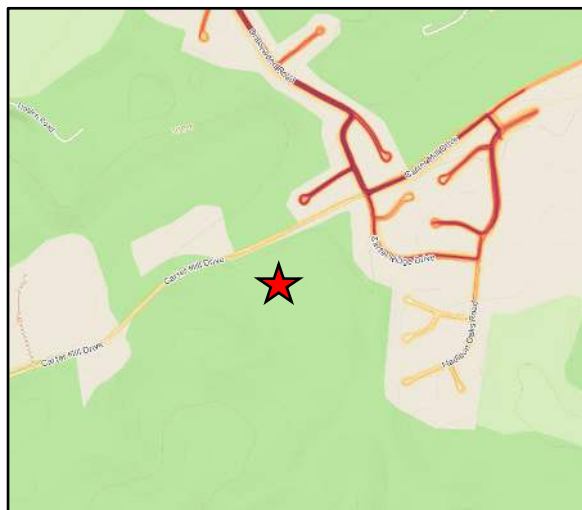
- Asheville Highway (US 25E), northeast of the development site, with 7,058 vehicles per day in 2025. From 2015 to 2025, this count station has reported an average annual growth rate of +3.5%.
- Strawberry Plains Pike, northwest of the development site, with 6,682 vehicles per day in 2025. From 2015 to 2025, this count station has reported an average annual growth rate of +1.1%.
- South Carter School Road, southeast of the development site, with 1,596 vehicles per day in 2025. From 2015 to 2025, this count station has reported an average annual growth rate of +2.5%.

○ Existing bicycle and pedestrian volumes:

The average daily pedestrian and bicycle traffic along Carter Mill Drive and the other studied roadways is unknown. Due to the lack of nearby amenities, it is assumed that minimal pedestrian and bicyclist activity occurs in the study area outside of exercise purposes. During the traffic counts for this project, almost three dozen pedestrians were observed over 6 hours at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane. One bicyclist was observed crossing Carter Mill Drive, and another, later in the day, was observed traveling back and forth, north to south, and vice versa, several times. All these pedestrian activities appeared to be exercise-related except for a handful of school-age children entering and exiting school buses that had stopped on Carter Mill Drive near the 4-way intersection.

An online website, [strava.com](https://www.strava.com), provides “heat” maps detailing routes taken by pedestrians, joggers, and bicyclists. The provided heat maps display data from the last two years, are updated monthly, and are compiled from individuals who have allowed their smart devices to track and record their routes (millions of users). The activities in the maps are represented on the roads by color intensities, with darker colors indicating

higher activity. The Strava heat maps indicate that there is no bicycle traffic on the adjacent roads near the development site. However, a fair amount of pedestrian traffic is shown occurring on the eastern/southern sections of Carter Mill Drive and on the roads in Carter Mill Subdivision, Carter Ridge Subdivision, and the nearby Paschal Carter Memorial Park.



Strava Heat Map for Pedestrians and Joggers



Strava Heat Map for Bicyclists

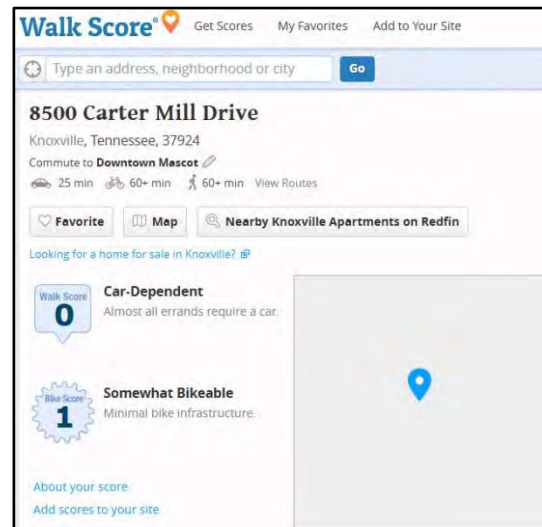
▪ **PEDESTRIAN AND BICYCLE FACILITIES:**

Bicycle facilities (lanes) are not currently available on any of the studied roadways within the project site study area.

While bike lanes are not provided on Carter Mill Drive, sidewalks are provided on the southern side along Carter Ridge Subdivision's Phases III and IV road frontage. Along Phase III, the concrete sidewalk is 4 feet in width, and along Phase IV's road frontage, the concrete sidewalk is 5 feet in width. A short section of 4-foot-wide sidewalk also exists to the west of the four-way intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane for approximately 100 feet. There are no sidewalks on Carter View Lane in Carter Mill Subdivision. Carter Ridge Drive in Phase III has a 4-foot sidewalk on its eastern side except for a short distance north of Richfield Lane. Also, it is assumed that a sidewalk will be provided along Carter Mill Drive along the road frontage of Phase VIII, which has recently begun construction.

▪ **WALK SCORE:**

A private company offers a website at walkscore.com that grades and gives scores to locations within the United States based on “walkability”, “bikeability”, and transit availability based on a patented system. According to the website, the numerical values assigned to the Walk Score and Bike Score are based on the distance to the closest amenity in various relevant categories (such as businesses, schools, and parks) and are graded from 0 to 100.

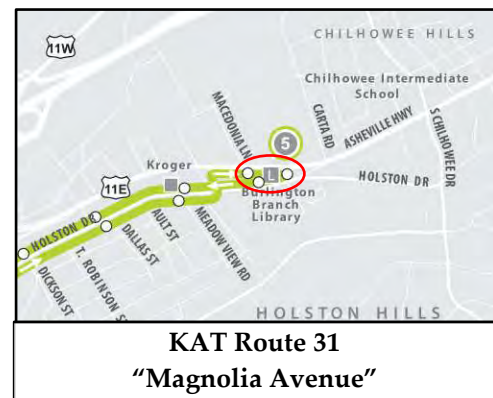


The site location for Phase IX is graded with a Walk Score of 0 at the approximate development property address (8500 Carter Mill Drive). This Walk Score indicates that almost all errands currently require a vehicle for travel at the development property location. The Walk Score is graded very low due to the lack of nearby amenities. The site is assigned a Bike Score of 1, indicating minimal bike infrastructure. A Transit Score is not provided since there are no public transportation opportunities near the development site. Overall, this study assumed no reductions in vehicle trips due to pedestrian or bicyclist activity by future residents of Carter Ridge Phase IX or the other phases in the subdivision included in this study.

▪ **TRANSIT SERVICES:**

The City of Knoxville offers a network of public transit options through Knoxville Area Transit (KAT). However, bus service is not available near the development site.

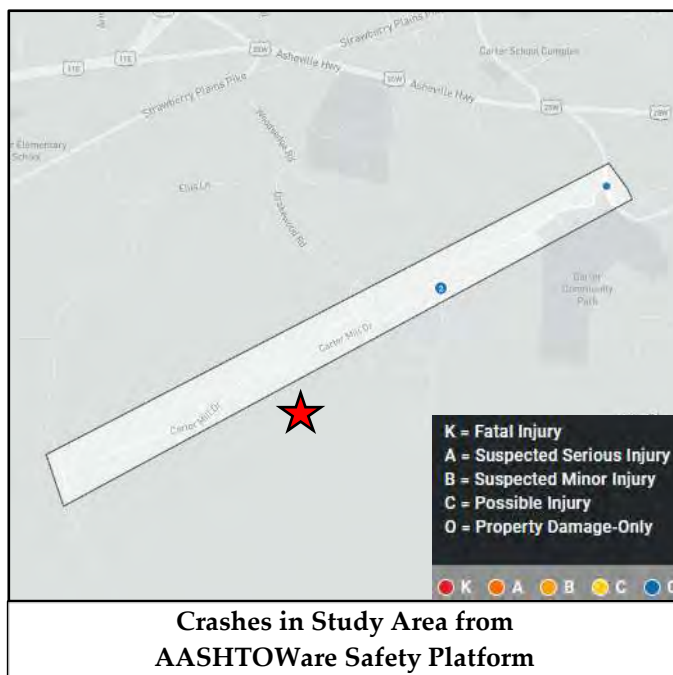
The closest public transit bus stop to the development site is 8 miles to the west on Route 31, “Magnolia Avenue”. This closest bus station is located at the corner of Asheville Highway and Chilhowee Drive near Holston Hills. This route has established bus service every 60 minutes at this bus stop, and this route map is also included in Appendix B. It operates on weekdays and weekends. Other transit services in the area include the East Tennessee Human Resource Agency (ETHRA) and



the Community Action Committee (CAC), which provide transportation services upon request. Given that the distance to the nearest public bus service is many miles, with no sidewalks or bike lanes available to access the bus stop without a vehicle, the proposed Phase IX (or any other remaining phases) of the Carter Ridge Subdivision is not expected or assumed to experience a reduction in vehicle trips due to public transit usage.

▪ **CRASH DATA:**

For this project, access to the AASHTOWare Safety online platform was provided. This AASHTO (American Association of State Highway and Transportation Officials) platform is part of several offerings, including compiling crash data for local state DOTs to use in safety analyses. TDOT provides vehicle crash data to this system and is an extension of its existing E-TRIMS (Enhanced Tennessee Roadway Information Management System) database. The crash data in the E-TRIMS system is from the statewide TITAN (Tennessee Integrated Traffic Analysis Network) database. The TITAN database includes all reportable vehicle crash data from Tennessee law enforcement agencies.



In the vicinity of the development property along the adjacent corridor of Carter Mill Drive, three crashes occurred during the past 3 years between May 22nd, 2023, and May 22nd, 2026. A summary of the data for these 3 crashes from the AASHTOWare Safety Platform is presented in Table 2. One of the crashes occurred at the intersection of Carter Mill Drive at South Carter School Road to the east, one occurred on Carter Mill Drive on its eastern section, and one occurred on Madison Oaks Road in Phase IV of the Carter Ridge Subdivision.

Of the 3 crashes, all were property-damage-only (PDO) incidents without injuries or fatalities. The “manner of first collision” at the intersection was an angle crash, the one at the eastern section of Carter Mill Drive was a sideswipe, opposite direction crash, and the one in Phase IV of the

subdivision was a rear-to-rear crash. The attributable driver actions reported in the three crashes included “failure to yield right of way”, “improper backing”, and “vision obstructed”.

Overall, the number of crashes recorded along the adjacent corridor over the past 3 years is very minimal, and fortunately, none have resulted in fatalities or injuries. Overall, no definable pattern or detrimental road characteristic is readily evident in the data provided for these three crash occurrences. With the narrow road width of the western section of Carter Mill Drive, it is noted that no crashes have occurred during this time period. However, extending the crash data search to January 1st, 2015, four other PDO crashes are shown having occurred on the western end of Carter Mill Drive. One crash was reported in each year of 2017, 2018, 2021, and 2022. Two of these crashes were sideswipe, opposite direction, and the other two are not listed. Three of these crashes occurred within the Carter Mill Drive western section, which had measured road widths of 14 to 15 feet. Sideswipe crashes on the western section would not be unexpected, as less-than-desirable, narrow road widths characterize this portion of Carter Mill Drive.

TABLE 2
CRASH DATA IN STUDY AREA
5/22/23 - 5/22/26

CRASH LOCATION	MANNER OF FIRST COLLISION	TYPE OF CRASH	TOTAL VEHICLES	VEHICLE MOST HARMFUL EVENT (1st Vehicle / 2nd Vehicle)	DRIVER ACTIONS (1st Vehicle / 2nd Vehicle)
Carter Mill Drive					
At an Intersection	Angle	(O) Property-Damage Only	2	Vehicle in Transport / Vehicle in Transport	No Contributing Actions / Failure to Yield Right of Way
Along Roadway	Sideswipe, Opposite Direction	(O) Property-Damage Only	2	Parked Motor Vehicle / Parked Motor Vehicle	Vision Obstructed
Madison Oaks Road					
Along Roadway	Rear to Rear	(O) Property-Damage Only	2	Vehicle in Transport / Vehicle in Transport	Improper Backing

From AASHTOWare Safety online platform

PROJECT DESCRIPTION

▪ LOCATION AND SITE PLAN:

The proposed plan layout for Phase IX, featuring a maximum of 135 single-family detached houses, is designed by Skycrest Development and is illustrated in Figure 3. The figure shows 120 house lots, but the study assumed, for worst-case purposes, an additional 15 lots could be provided, for a total of 135. As shown in the figure, one entrance will be constructed for Phase IX on the southern edge of Carter Mill Drive. The Proposed Entrance on Carter Mill Drive will be approximately 1,000 feet to the west of the four-way intersection with Carter Ridge Drive and Carter View Lane. The Proposed Entrance will also be located roughly where the widening of Carter Mill Drive was ended, with the roadway being significantly narrower to the west up to McCubbins Road. Phase IX will be adjacent and directly to the west of Carter Ridge Phase III.

The civil site design includes one main internal street and four other short streets, all of which terminate at cul-de-sacs and intersect the main internal street at T-intersections. For Phase IX, no internal connections will be made to the other phases of Carter Ridge Subdivision. Carter Ridge Phase IX will have a substantial amount of undeveloped space, with areas along the northeastern portion of the development property reserved for stormwater detention ponds and controls. Three smaller areas are shown on the concept plan as common areas that will be used for dog parks.

The typical size of each single-family detached house lot in Phase IX of the subdivision will be approximately 10,000 square feet (~1/4 acre). Each house will have a separate garage and driveway.

The completion schedule for Phase IX depends on economic factors and construction timelines. This project is also contingent on permitting, design, and other regulatory approvals. Overall, the local real estate market for new housing remains quite competitive due to population growth, in-migration, and other factors. Thus, this study assumed that the total construction build-out of Phase IX and full occupancy would occur by 2029, as estimated by the developer. As stated earlier, earthworks for Carter Ridge Phase VIII are currently underway, and this phase is assumed to be fully built out and occupied by 2028. Furthermore, Phases VI and VII, which have not begun construction, are also assumed to be fully built out by 2029, the same timeframe assumed for Phase IX.

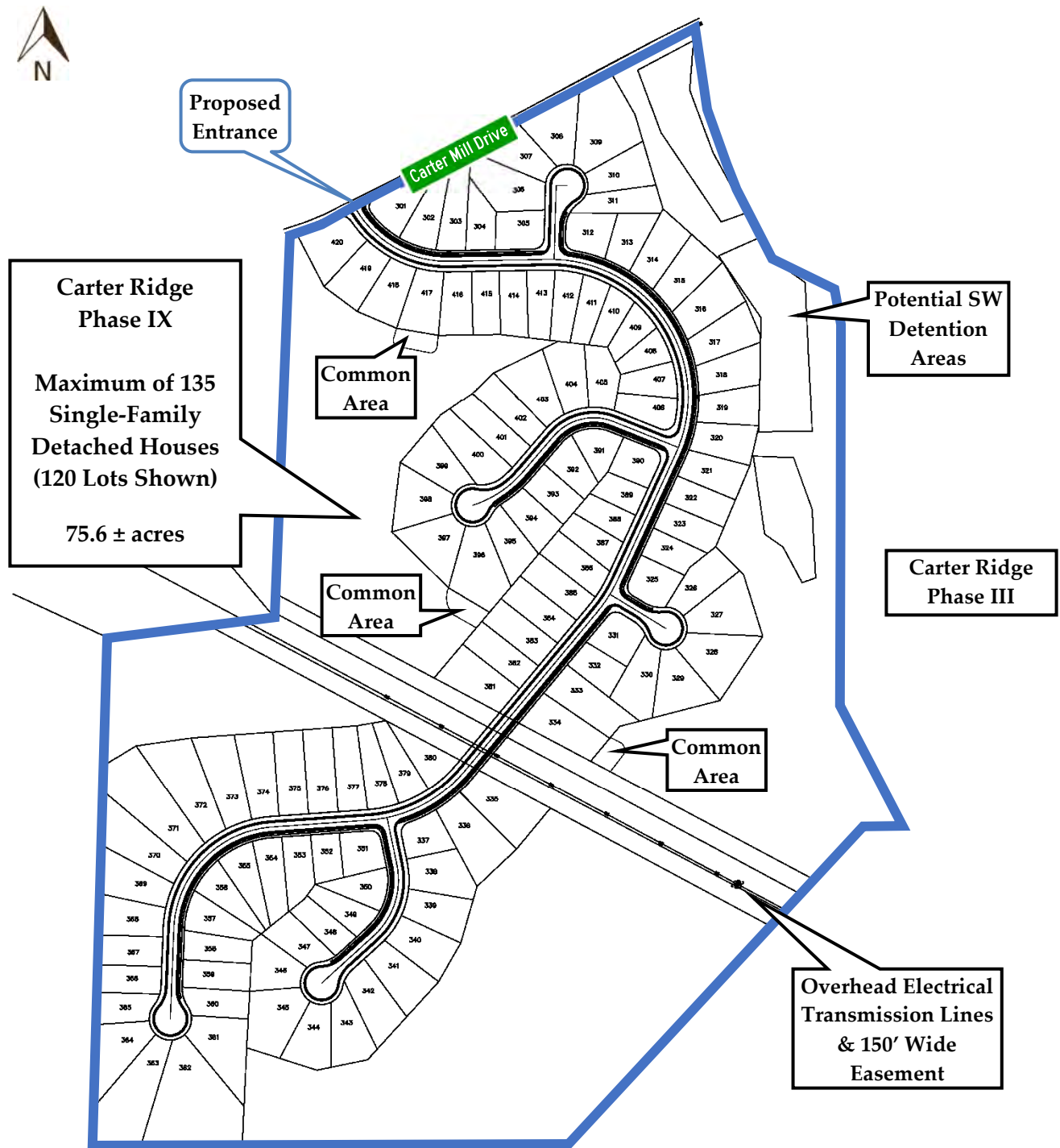


Figure 3
Proposed Plan Layout
Carter Ridge Phase IX

Not to Scale –
Annotated by Ajax
Engineering for
Display Purposes



Skycrest
Development

▪ **PROPOSED USES AND ZONING REQUIREMENTS:**

The existing single parcel, comprising the Carter Ridge Phase IX development property, is located in Knox County, TN, and is zoned as Planned Residential (PR) with a density of less than 2.5 units per acre. The Knox County Commission approved this rezoning in March 2005. Uses permitted in the Planned Residential (PR) zone include single-family dwellings, duplexes, and multi-dwelling structures and developments. The most recently published online KGIS zoning map is provided in Appendix C and shown here. The existing adjacent surrounding zoning and land uses are the following:



- All the adjacent properties to the Phase IX development property are either zoned as Planned Residential (PR) or Agricultural (A).
- Three adjacent properties to the west are zoned Agricultural (A), with the closest two being undeveloped, and the furthest western parcel consisting of a single-family detached house with a large barn and several outbuildings. These three parcels all have direct road access to Carter Mill Drive to the north.
- Carter Mill Drive binds the development property to the north. Across Carter Mill Drive, and along the road frontage for Phase IX, the properties are zoned as Planned Residential (PR). They are occupied by one large, undeveloped, forested parcel and several other single-family detached houses in Phase II of Carter Mill Subdivision along Tigris Pointe Lane. Phase II of Carter Mill Subdivision is completely built out and occupied. Tigris Pointe Lane provides external access to the single-family detached houses, and the large undeveloped parcel has direct road access to Carter Mill Drive to the south.
- To the northeast and east, the development property is bound by single-family detached houses in Phase III of Carter Ridge Subdivision along Carter Ridge Drive. Carter Ridge Drive provides external road access to single-family detached houses with access to Carter Mill Drive to the north. Phase III of Carter Ridge Subdivision is also zoned as Planned Residential (PR), and this phase is completely built out and occupied.

- To the southeast, the development property is adjacent to one large, jigsaw-shaped, undeveloped parcel zoned as Agricultural (A). External road access to this parcel is provided to the east along several points on Cooper Road.
- A single large undeveloped parcel to the south-southwest is zoned as Planned Residential (PR). This property abuts McCubbins Road and allows external road access to the west.

▪ **ON-SITE CIRCULATION:**

The total length of the five internal roads in the Carter Ridge Phase IX will be 4,516 feet (0.86 miles), designed and constructed to Knox County specifications. The development will have asphalt-paved internal roadways with concrete curbs. The lane widths internally will be 13 feet each, for a total pavement width of 26 feet. The public right-of-way within the development will be 50 feet wide. Knox County will maintain the streets in the subdivision after construction, and these will be dedicated public roads.

▪ **SERVICE AND DELIVERY VEHICLE ACCESS AND CIRCULATION:**

In addition to residential passenger vehicles, the internal roadways will provide service, delivery, maintenance, and access for fire protection/rescue vehicles. These vehicle types will not impact roadway operations except when they occasionally enter and exit the development. Curbside private garbage collection services are expected to be available for this residential subdivision if desired.

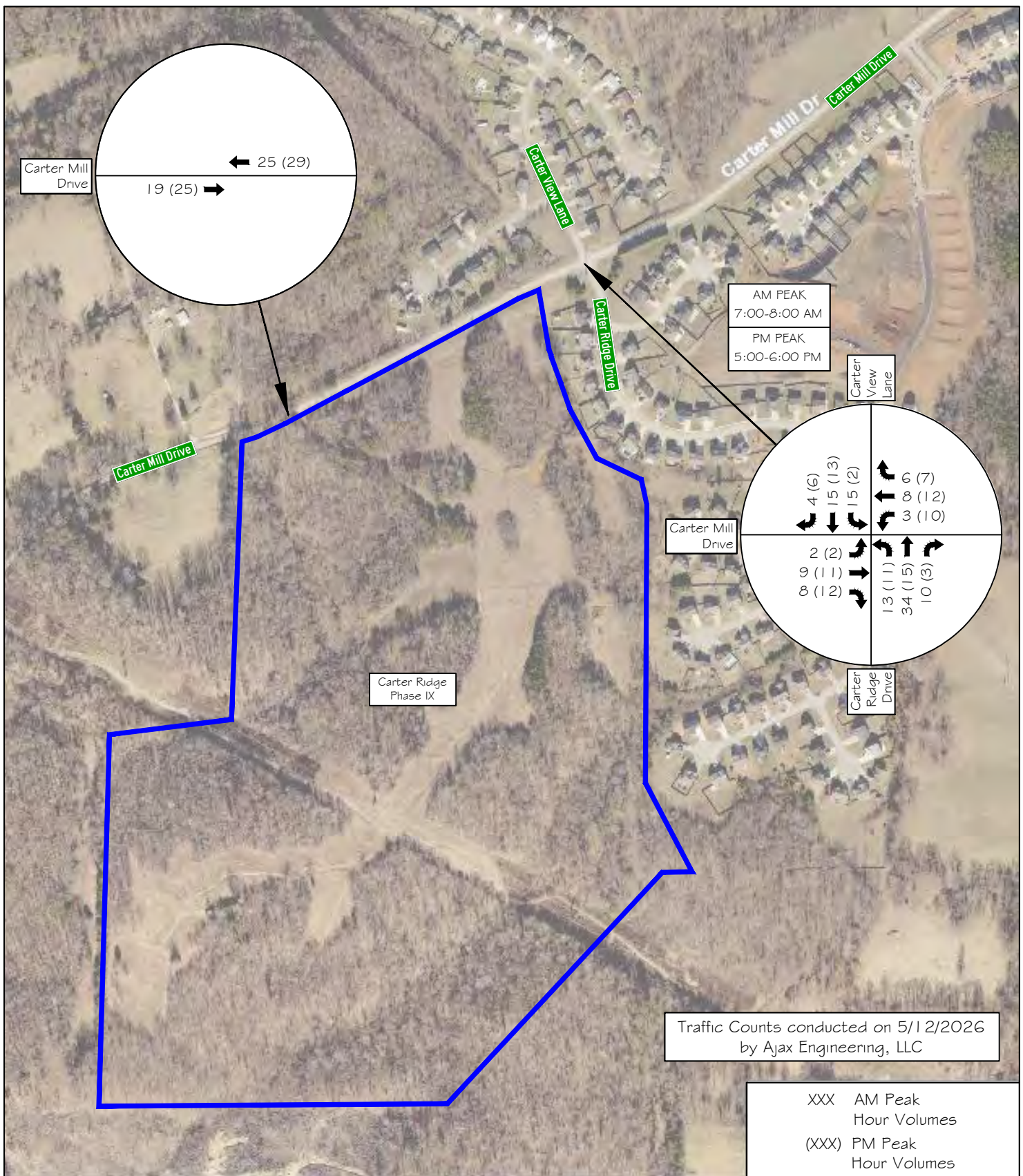
The new public streets will be designed and constructed to Knox County specifications and are expected to be adequate for fire protection and rescue vehicles, trash collection trucks, and single-unit delivery trucks. The development's internal drives will accommodate larger vehicle types, as well as residents' standard passenger vehicles. The internal roads will be sufficiently sized to allow vehicles to turn around in the proposed cul-de-sacs.

ANALYSIS OF EXISTING AND PROJECTED CONDITIONS

▪ EXISTING TRAFFIC CONDITIONS:

This study conducted a 6-hour traffic count at the unsignalized four-way intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane on Tuesday, May 12th, 2026. The count was conducted while schools were in session. The manual traffic counts were conducted to tabulate the morning and afternoon peak period volumes and travel directions near the proposed development site. Based on the traffic volumes collected at the intersection, the AM and PM peak hours were observed at 7:00 – 8:00 am and 5:00 – 6:00 pm. The peak hour tabulated traffic counts at the intersection can be reviewed in Figure 4, and the full 6-hour counts are provided in Appendix D. The thru volumes shown on Carter Mill Drive at the Proposed Entrance location for Phase IX were derived from the traffic volumes tabulated at the intersection. Some observations of the traffic on the adjacent Carter Mill Drive corridor include the following:

- The majority of observed vehicles during the traffic count were passenger cars. However, a couple of public school buses were observed traveling on Carter Mill Drive. A dump truck was observed along with several delivery vehicles. No semi-tractor trailers were observed during the traffic count.
- About three dozen pedestrians were observed at the intersection during the counts, with all these movements appearing to be exercise-related. Most of the pedestrians were observed in the afternoon hours. During the traffic count, about a half dozen school-age children were observed entering and exiting school buses at the intersection before and after school. The school buses stopped on Carter Mill Drive near the intersection three times to load and unload students. These buses did not enter the subdivision streets off Carter Mill Drive and involved travel to and from the narrower western section of Carter Mill Drive.
- One bicyclist was observed crossing Carter Mill Drive from Carter Ridge Drive to Carter View Lane in the morning, and in the afternoon, a bicyclist was observed crossing back and forth several times.
- Overall, the traffic volumes on Carter Mill Drive at the Proposed Entrance location for Phase IX were minimal, and a slight majority traveled from east to west in both the AM and PM peak hours. A fair amount of north/south traffic at the intersection of Carter Ridge Drive and Carter View Lane was observed, more so in the AM peak than the PM.



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NOT TO SCALE



FIGURE 4

Carter Ridge Phase IX

2026 Peak Hour Traffic Volumes -
Existing Traffic Conditions

Capacity analyses were conducted to determine the Level of Service (LOS) for the existing 2026 intersection traffic volumes, as shown in Figure 4, at the unsignalized intersection of Carter Mill Drive at Carter Ridge Drive and Carter View Lane. These results are being provided as a courtesy, as this intersection was not included in the scope of work provided by Knoxville/Knox County Planning. The capacity analyses were calculated following the Highway Capacity Manual (HCM) methods and utilizing Synchro (Version 12) traffic software.

Methodology:

LOS is a qualitative measurement developed by the transportation profession to express how well an intersection or roadway performs based on a driver's perception. LOS designations include LOS A through LOS F. The designation of LOS A signifies a roadway or intersection operating at best, while LOS F signifies road operations at worst. This grading system provides a reliable, straightforward means to communicate road operations to the public. The HCM provides level of service criteria for unsignalized and signalized intersections.



LOS is defined by vehicle delay, and roadway facilities are additionally characterized by the volume-to-capacity ratio (v/c). LOS designations are reported differently for unsignalized and signalized intersections. For example, a 20-second delay at an unsignalized intersection would indicate LOS C, representing the additional delay a motorist would experience while traveling through the intersection. However, a 20-second delay at a signalized intersection would indicate LOS B. This difference is primarily due to motorists' differing expectations of the two road facilities. In most cases, the LOS D/LOS E boundary is considered the upper limit of acceptable delay during peak periods in urban and suburban areas.

For unsignalized intersections, LOS is characterized by delay (in seconds). This measure attempts to quantify delay, including travel time, driver discomfort, and fuel consumption. For unsignalized intersections, the analysis assumes that mainline thru and right-turn traffic does not stop and is not affected by traffic on minor side streets. Thus,

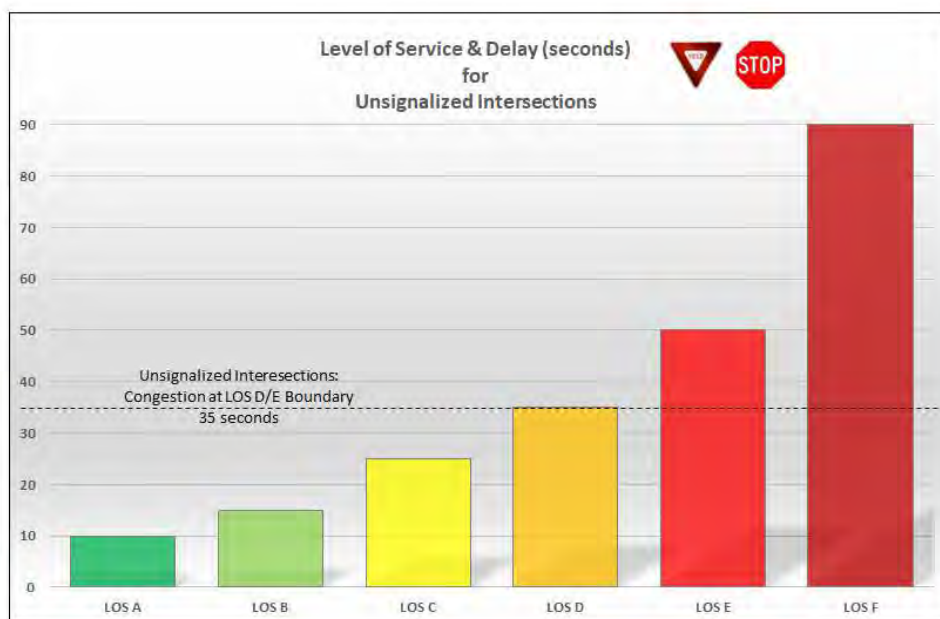
the LOS for a two-way stop (or yield) controlled intersection is defined by the delay for each minor approach and the left-turn movements on the major street. Table 3 lists the level of service criteria for unsignalized intersections. The analysis results for unsignalized intersections using HCM methodologies are conservative because they rely on cautious vehicle-gap parameters. More often, under normal road conditions, drivers are more willing to accept smaller gaps in traffic than the HCM methodology models. The unsignalized intersection methodology also does not account for the larger gaps that nearby upstream and downstream signalized intersections can sometimes create if present. For unsignalized intersections, the upper limit of acceptable delay during peak hours is typically the LOS D/E boundary of 35 seconds.

TABLE 3
LEVEL OF SERVICE AND DELAY FOR UNSIGNALIZED INTERSECTIONS



LEVEL OF SERVICE	DESCRIPTION	CONTROL DELAY (seconds/vehicle)
A	Little or no delay	0 - 10
B	Short Traffic Delays	>10 - 15
C	Average Traffic Delays	>15 - 25
D	Long Traffic Delays	>25 - 35
E	Very Long Traffic Delays	>35 - 50
F	Extreme Traffic Delays	>50

Source: Highway Capacity Manual, 7th Edition



The intersection capacity results for the existing 2026 peak hour traffic are shown in Table 4. The intersection in the table is shown with a LOS (Level of Service) designation, delay (in seconds), and v/c ratio (volume-to-capacity ratio) for the AM and PM peak hours. Appendix E includes the worksheets from the traffic software for the existing 2026 peak hour capacity analyses.

As shown in Table 4, the intersection of Carter Mill Drive and Carter Ridge Drive / Carter View Lane is calculated to operate with very good LOS and short vehicle delays in the existing peak hour 2026 conditions.

TABLE 4
INTERSECTION CAPACITY ANALYSIS RESULTS -
2026 EXISTING PEAK HOUR TRAFFIC CONDITIONS

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	AM PEAK			PM PEAK		
			LOS	DELAY (seconds)	V/C	LOS	DELAY (seconds)	V/C
Carter Mill Drive (EB & WB) at Carter Ridge Drive (NB) / Carter View Lane (SB)		Northbound Left/Thru/Right	A	9.4	0.094	A	9.3	0.045
		Eastbound Left	A	7.2	0.002	A	7.2	0.001
		Westbound Left	A	7.3	0.002	A	7.3	0.008
		Southbound Left/Thru/Right	A	9.5	0.047	A	9.3	0.037

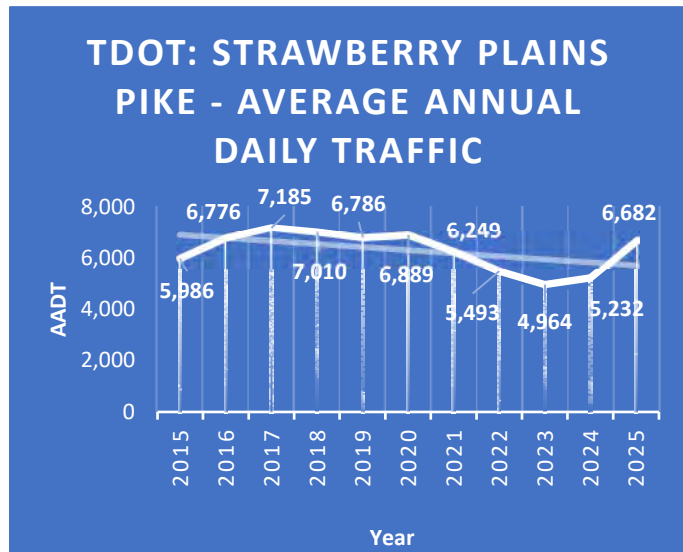
Note: All analyses were calculated in Synchro 12 software and reported using 7th Edition intersection methodology

^a Level of Service, ^b Average Delay (sec/vehicle), ^c Volume-to-Capacity Ratio

▪ **PROJECTED TRAFFIC CONDITIONS WITHOUT THE PROJECT:**

Horizon year traffic conditions represent the projected traffic volumes in the study area if the proposed project is not developed (no-build option). For this study, Phase VIII, which has begun construction, is assumed to reach build-out and full occupancy by 2028. Phases VI and VII are assumed to reach this state by 2029. Phase IX, the subject of this study, is also assumed to reach build-out and full occupancy by 2029.

According to the nearby TDOT count stations, vehicular traffic has experienced slight to moderate growth over the past few years. Specifically, the TDOT data shown in Appendix A indicates that Strawberry Plains Pike, to the northwest of the development site, has experienced an annual growth rate of 1.1% over the past decade, from 2015 to 2025. Asheville Highway, to the northeast, over the same time period, has reported an average annual growth rate of 3.5%, and South Carter School Road to the east was 2.5%. Two of these count locations showed drops in traffic in and around 2020 due to the pandemic, but have since rebounded, particularly in the last reported year of 2025.



Furthermore, while conducted during different times of the year, the previous TIS for Carter Ridge Subdivision for Phases VI - VIII, produced in 2022, also included a traffic count at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane and tabulated a total of 200 vehicles in the AM and PM peak hours. The recent count conducted at the same intersection for this TIS tabulated a total of 231 vehicles in the AM and PM peak hours, an average annual growth of nearly 4% since 2022.

Thus, to account for traffic growth in the area, and using the researched historical and tabulated traffic data, this study used an annual growth rate of +4% to calculate future growth, ensuring a conservative result. This assumed annual growth rate was applied to the existing 2026 volumes tabulated at the intersection to estimate future volumes in the horizon years of 2028 and 2029, without the proposed development traffic from the remaining Phases VI, VII, VIII, and IX.

Figures 5a and 5b show the projected 2028 and 2029 AM and PM peak hour traffic volumes at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane, and also on Carter Mill Drive at the Proposed Entrance location for Phase IX.

Capacity analyses were undertaken to determine the projected LOS in 2028 and 2029 at the intersection, excluding any new vehicles being generated from the remaining Carter Ridge Subdivision phases, assuming the no-build option. The results are shown in Tables 5a and 5b, and Appendix C includes the capacity analysis worksheets from the software.

The results in the tables show just slightly greater vehicle delays at the intersection under the 2028 and 2029 projected conditions versus the existing 2026 conditions. This result is due to increased traffic volumes, driven by the assumed 4% growth, but the intersection is expected to still operate in these future conditions with minimal vehicle delays.

TABLE 5a
INTERSECTION CAPACITY ANALYSIS RESULTS -
2028 PROJECTED PEAK HOUR TRAFFIC CONDITIONS WITHOUT THE PROJECT

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	AM PEAK			PM PEAK		
			LOS	DELAY (seconds)	V/C	LOS	DELAY (seconds)	V/C
Carter Mill Drive (EB & WB) at Carter Ridge Drive (NB) / Carter View Lane (SB)	 Unsignalized	Northbound Left/Thru/Right	A	9.5	0.102	A	9.4	0.049
		Eastbound Left	A	7.2	0.002	A	7.3	0.001
		Westbound Left	A	7.3	0.002	A	7.3	0.008
		Southbound Left/Thru/Right	A	9.6	0.051	A	9.4	0.039

Note: All analyses were calculated in Synchro 12 software and reported using 7th Edition intersection methodology

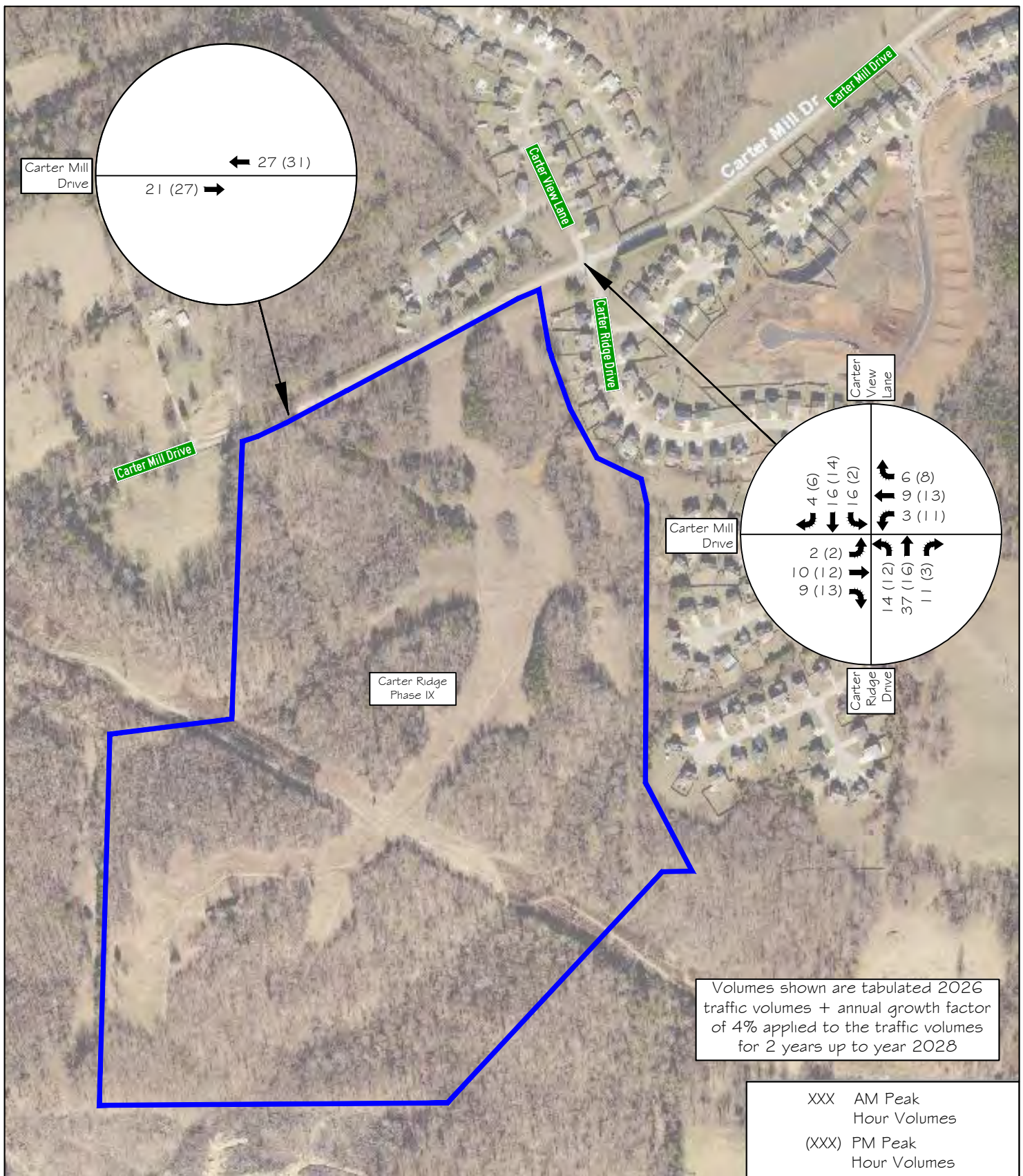
^a Level of Service, ^b Average Delay (sec/vehicle), ^c Volume-to-Capacity Ratio

TABLE 5b
INTERSECTION CAPACITY ANALYSIS RESULTS -
2029 PROJECTED PEAK HOUR TRAFFIC CONDITIONS WITHOUT THE PROJECT

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	AM PEAK			PM PEAK		
			LOS	DELAY (seconds)	V/C	LOS	DELAY (seconds)	V/C
Carter Mill Drive (EB & WB) at Carter Ridge Drive (NB) / Carter View Lane (SB)	 Unsignalized	Northbound Left/Thru/Right	A	9.5	0.105	A	9.4	0.051
		Eastbound Left	A	7.2	0.002	A	7.3	0.001
		Westbound Left	A	7.3	0.002	A	7.3	0.008
		Southbound Left/Thru/Right	A	9.6	0.054	A	9.4	0.042

Note: All analyses were calculated in Synchro 12 software and reported using 7th Edition intersection methodology

^a Level of Service, ^b Average Delay (sec/vehicle), ^c Volume-to-Capacity Ratio



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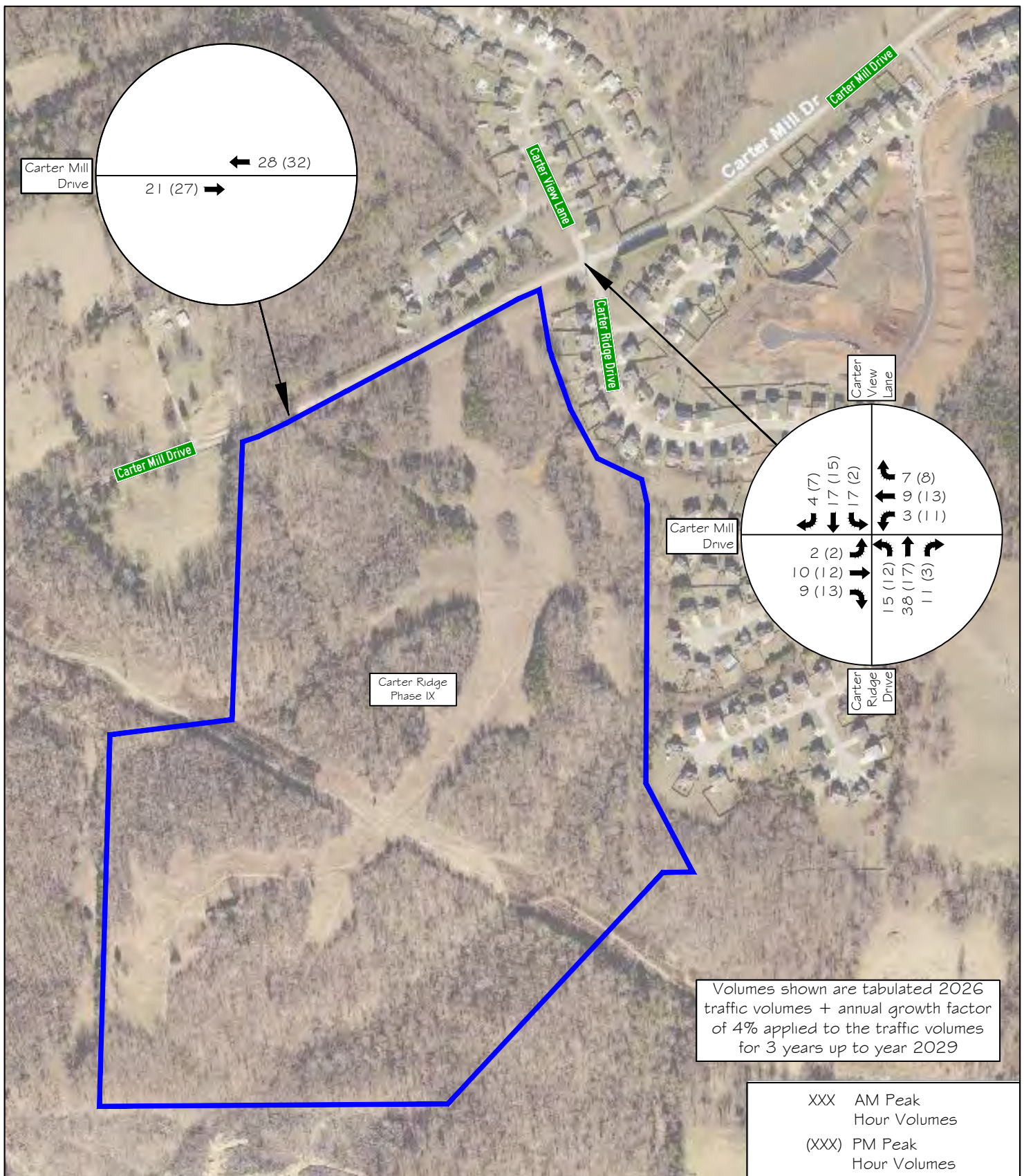
NOT TO SCALE



FIGURE 5a

Carter Ridge Phase IX

2028 Peak Hour Traffic Volumes -
Projected Traffic Conditions
Without the Project



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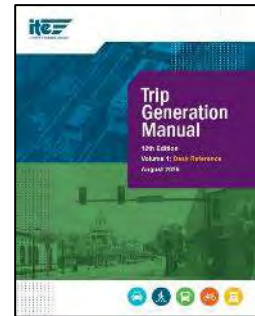
FIGURE 5b

Carter Ridge Phase IX

2029 Peak Hour Traffic Volumes -
Projected Traffic Conditions
Without the Project

▪ **TRIP GENERATION:**

A generated trip is a single, one-direction vehicle movement entering or exiting the study site. The estimated traffic generated by the proposed remaining phases of Carter Ridge Subdivision, including Phase IX, was calculated using rates and equations from the Trip Generation Manual, 12th Edition, an Institute of Transportation Engineers (ITE) publication. The Trip Generation Manual is the most widely used resource for determining trip generation rates in transportation impact studies. The Manual includes data on various land uses and provides equations to calculate generated trips based on development variables such as the number of dwelling units or building square footage.



The data and calculations from ITE for Carter Ridge Phases VI - IX are shown in Appendix F. As stated previously, Phase VIII has recently begun construction and was included in this study along with Phases VI and VII, which are yet to be constructed, in addition to Phase IX, which will include a maximum of 135 single-family detached houses. A total of 128 houses remain to be built in Phases VI – VIII. A summary of the trip generation information is presented in the following table, which includes a total of 263 single-family detached houses in the remaining Phases VI – IX:

TABLE 6
TRIP GENERATION FOR CARTER RIDGE PHASES VI - IX
263 Single-Family Detached Houses

ITE LAND USE CODE	LAND USE DESCRIPTION	# OF UNITS	GENERATED DAILY TRAFFIC	GENERATED TRAFFIC AM PEAK HOUR			GENERATED TRAFFIC PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
#210	Single-Family Detached Housing	Phases VI & VII 89 Houses	984	27%	73%		62%	38%	
				18	47	65	54	32	86
#210	Single-Family Detached Housing	Phase VIII 39 Houses	580	27%	73%		62%	38%	
				9	23	32	25	15	40
#210	Single-Family Detached Housing	Phase IX 135 Houses	1,355	27%	73%		62%	38%	
				26	70	96	79	48	127
Total New Volume Site Trips			2,919	53	140	193	158	95	253

ITE Trip Generation Manual, 12th Edition

Trips calculated by using Fitted Curve Equations

For the combination of Phases VI - IX, it is estimated that 53 vehicles will enter and 140 will exit, for a total of 193 generated trips during the AM peak hour. Similarly, it is estimated that 158 vehicles will enter and 95 will exit, for a total of 252 generated trips during the PM peak hour. The calculated trips generated for an average weekday are estimated to be 2,919 vehicles for these remaining phases. As discussed earlier, no vehicle trip reductions were included in the calculations or analysis.

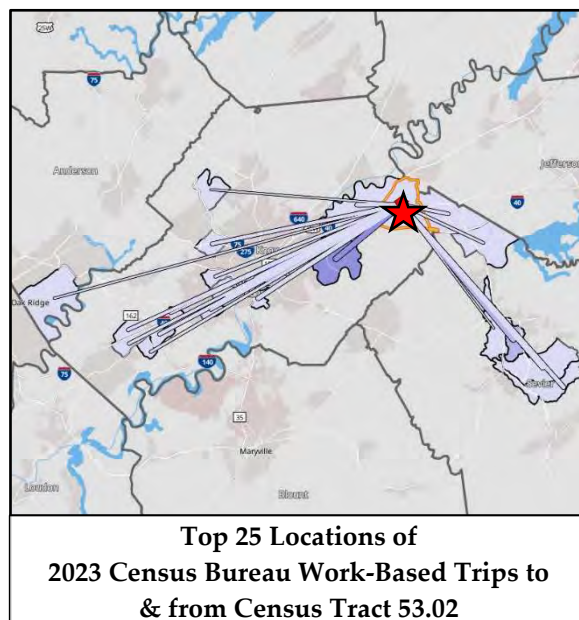
Phase IX, alone, with a maximum of 135 single-family detached houses, is expected to generate 1,355 daily trips, with 96 occurring in the AM peak hour and 127 in the PM peak hour.

▪ **TRIP DISTRIBUTION AND ASSIGNMENT:**

The projected trip distribution and assignment for Carter Ridge Phase IX are based on several sources and engineering judgments. The first source is based on the existing traffic count volumes and the observed travel directions collected at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane.

The volumes and splits tabulated during the recent traffic count on May 12th, 2026, roughly matched the previous count from November 2022, but with a noticeable increase in volumes to and from the west on Carter Mill Drive. During the AM peak hour at the intersection, a greater number of vehicles were observed exiting Carter Ridge Drive towards the north onto Carter View Lane, with lower amounts of entering from the north; however, these southbound thru movements consisted of the majority of entering vehicles onto Carter Ridge Drive in the morning peak hour. During the PM peak hour, most exiting vehicles from the subdivision at this intersection headed west on Carter Mill Drive and north onto Carter View Lane. The intersection entering vehicles were fairly evenly split from the east, north, and west in the PM peak hour.

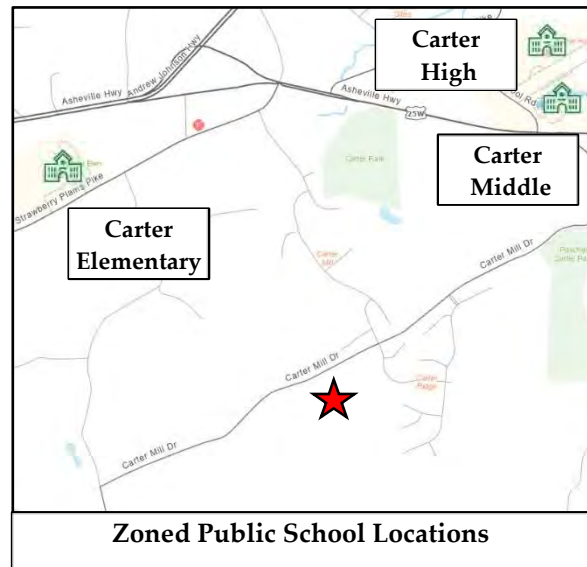
Another source for determining the projected trip distribution is based on work-related trips in the local area. Work-based trips will be a significant impetus for trips generated by the development, and these trips are more likely to travel to and from the west-southwest and southeast. This assertion is based on data from the United States Bureau website for Census Tract 53.02, where the subdivision property is located. Based on the 2023 (latest available) census data, as presented in Appendix G, most work-based trips in the surrounding area correspond to the Forks of the River industrial park area, downtown Knoxville, the University of Tennessee area, and areas of West Knoxville. Other work-based locations in the Census Tract area include travel to and from Kodak, Oak Ridge, and Sevier County, TN. The largest work-based travel corresponds to downtown Knoxville at nearly 10%, with the next highest being the Forks of the River industrial park.



In addition to employment centers, it is likely that a smaller portion of the traffic generated by

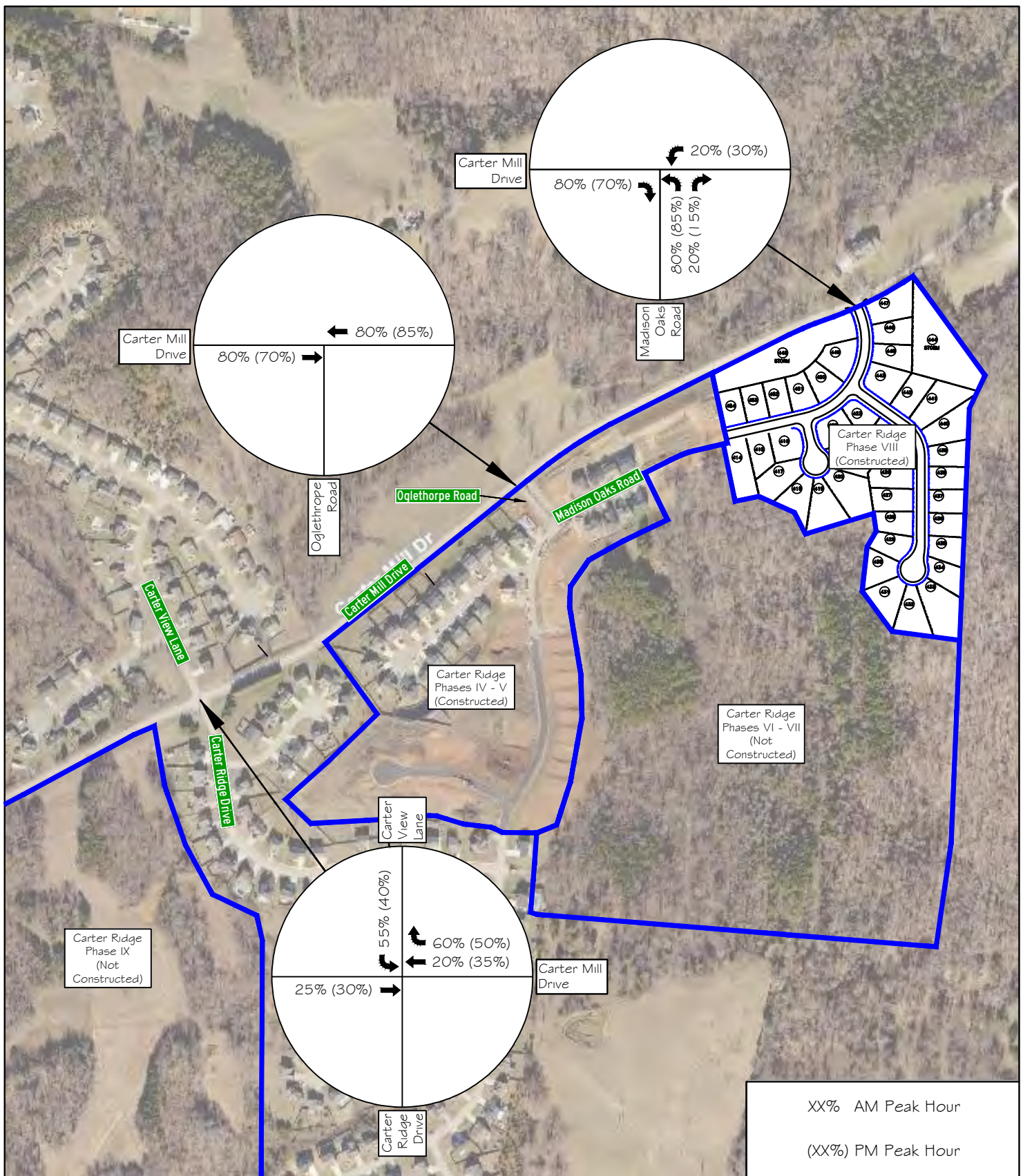
the development's residential uses will travel to and from public and private schools. Schools will be another incentive for making external trips for residents with school-age children. Carter Middle and High School are adjacent to each other, and both are just 1.5 miles away by roadway, north and east of the subdivision. The quickest route to these schools from the subdivision will be east on Carter Mill Drive, north on South Carter School Road, west on Asheville Highway for a short distance, and then north on North Carter School Road. Carter Elementary is located 1.8 miles away by roadway on Strawberry Plains Pike, northwest of the subdivision. The quickest route to Carter Elementary from the subdivision will be via the Carter Mill Subdivision north of the Carter Ridge Subdivision. This route will include taking Carter View Lane to the north, north on Drakewood Road, north on Woodsedge Road, and then west on Strawberry Plains Pike.

The Knox County Schools Transportation Department has developed Parental Responsibility Zones (PRZs) to determine whether students are eligible for transportation services to and from school. The PRZ is defined as being 1.5 miles for grades 6–12 and 1.0 miles for grades K–5, from where the students' parcel is accessed to the point where the buses unload at the school. Due to Phase IX being outside these distances, all school-age children in this phase of the subdivision will be able to utilize the public school bus service. Some of the houses in the other remaining phases in Carter Ridge Subdivision may be within the PRZ for Carter Middle or High and would require private transportation to and from school.



Figures 6a – 6c show the projected distribution of traffic entering and exiting the development for Carter Ridge Subdivision in the year 2028 for Phase VIII, 2029 for Phases VI and VII, and 2029 once again for Phase IX. The percentages shown in the figures only pertain to the trips generated by the proposed dwellings for each phase in the development, calculated from the ITE trip rates. The projected trip distribution used in this study was based on the previous study's assumptions, but was slightly adjusted based on the latest observations of traffic at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane during the recent traffic count.

Figures 7a – 7c show the traffic assignment of the computed trips generated by the phases of the development and are based on the assumed distribution of trips shown in Figures 6a – 6c.



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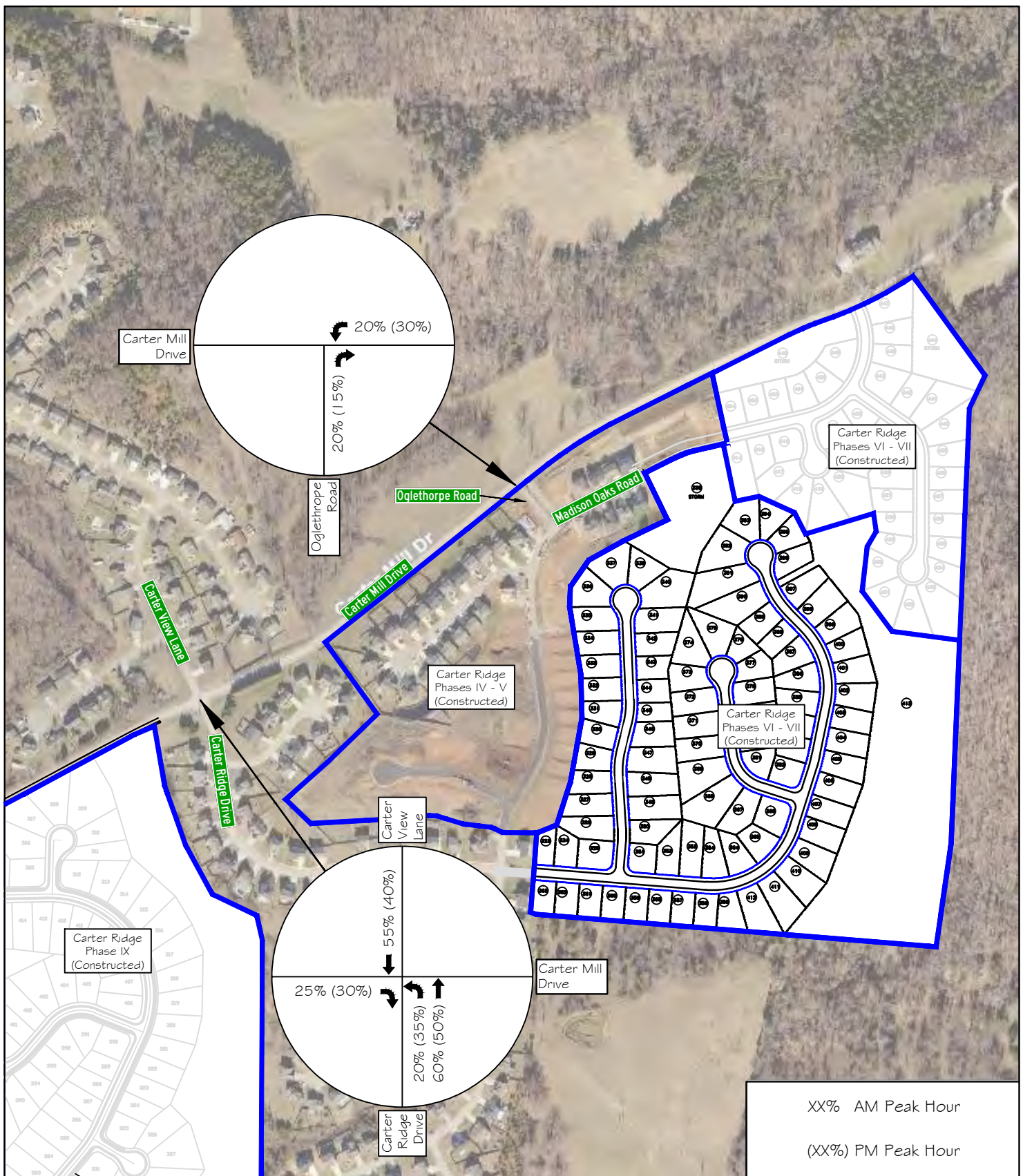
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FIGURE 6a

Carter Ridge Phase IX

Directional Distribution of Generated Traffic during AM and PM Peak Hours for Phase VIII (2028)



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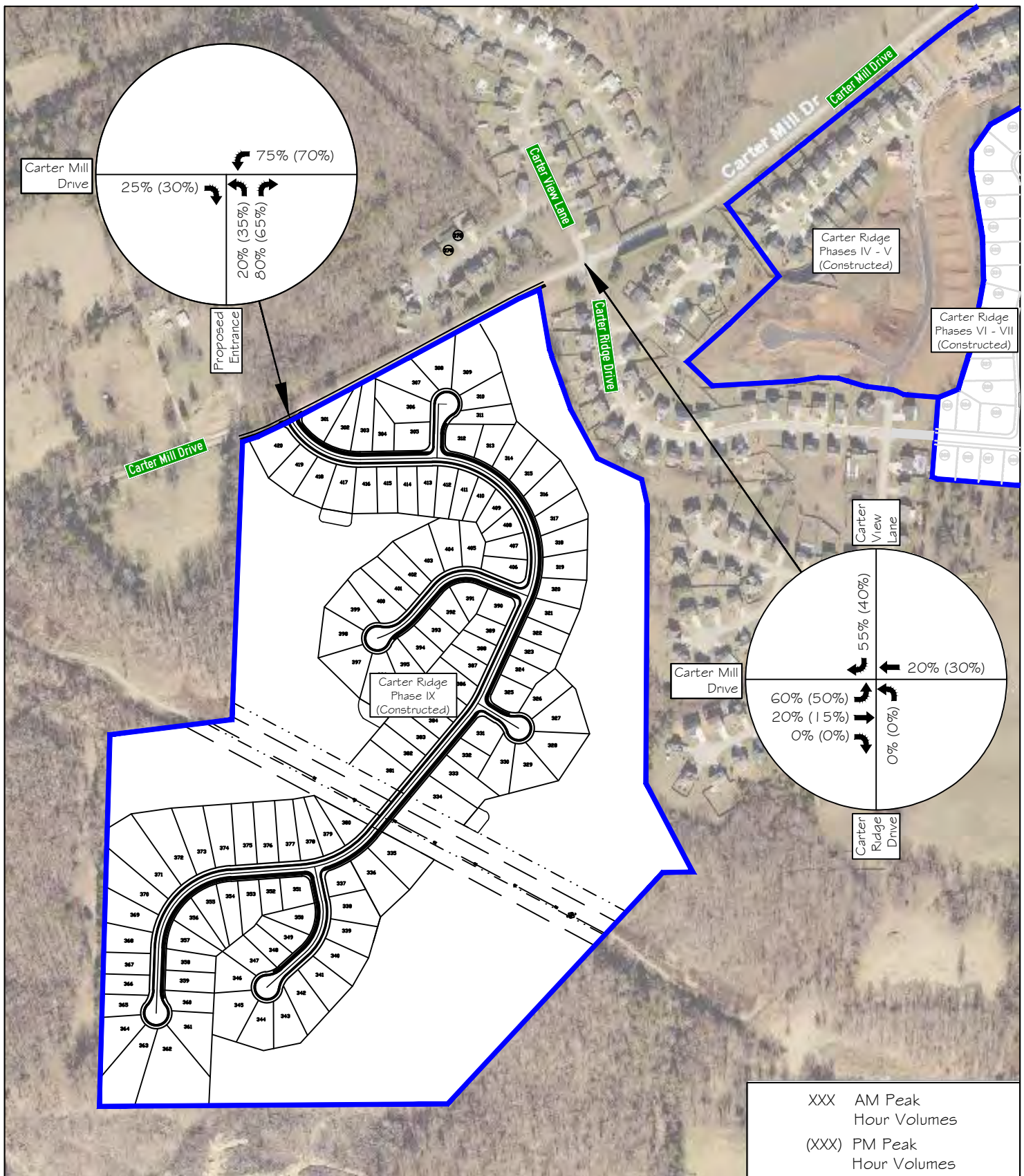
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FIGURE 6b

Carter Ridge Phase IX

Directional Distribution of Generated Traffic during AM and PM Peak Hours for Phases VI & VII (2029)



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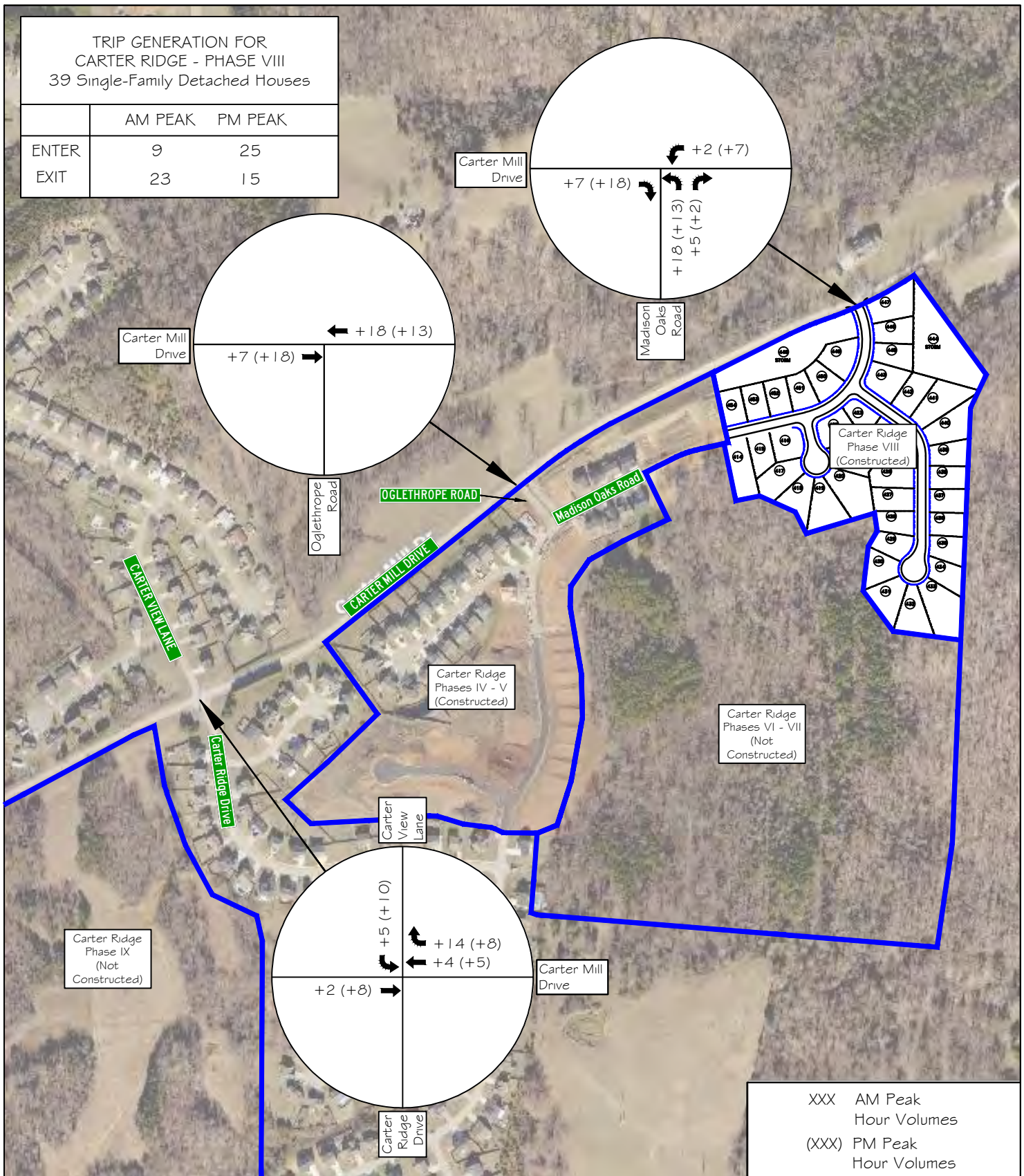
FIGURE 6c

Carter Ridge Phase IX

Directional Distribution of Generated Traffic during AM and PM Peak Hours for Phase IX (2029)

TRIP GENERATION FOR
CARTER RIDGE - PHASE VIII
39 Single-Family Detached Houses

	AM PEAK	PM PEAK
ENTER	9	25
EXIT	23	15



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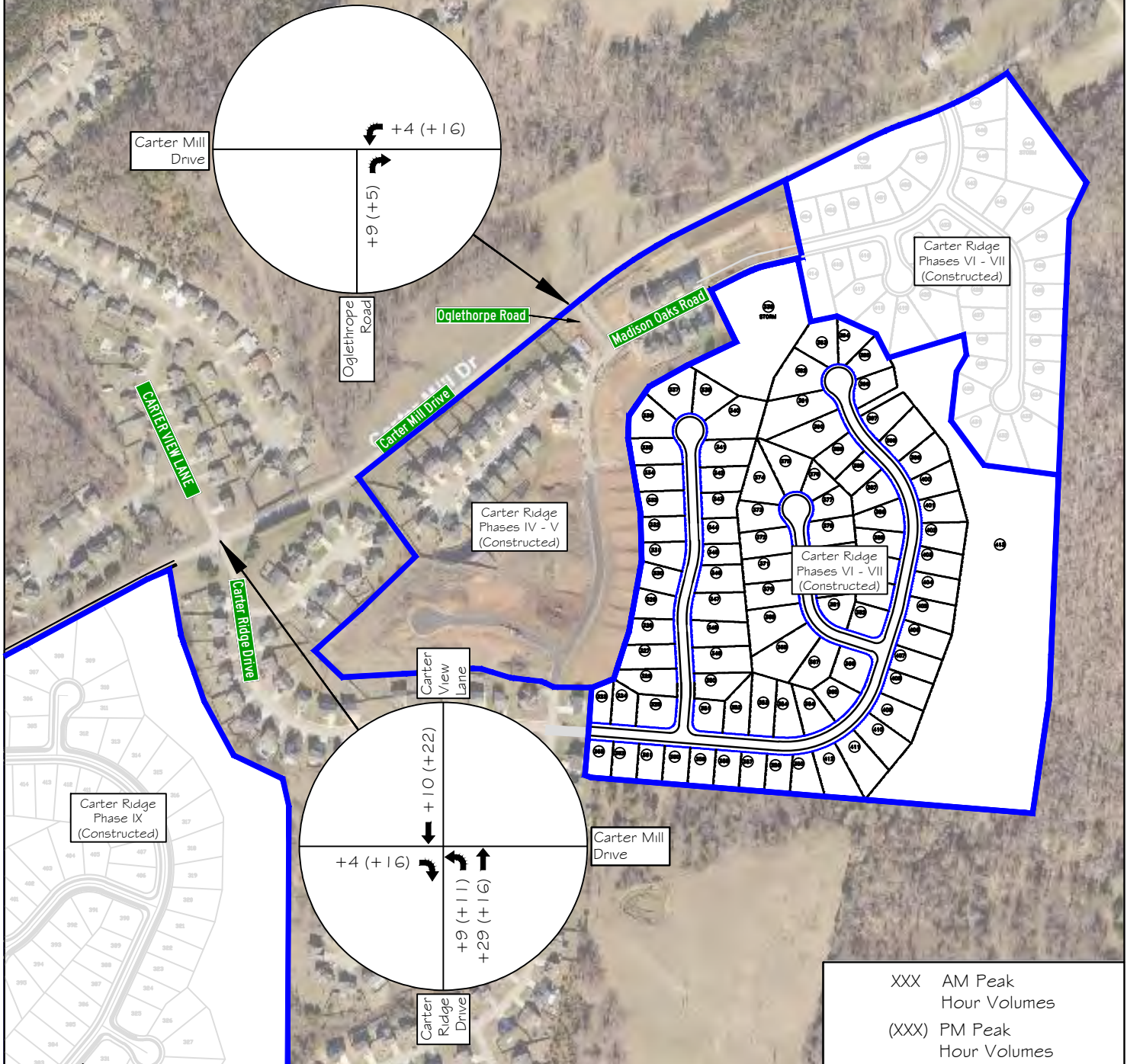
FIGURE 7a

Carter Ridge Phase IX

Traffic Assignment of Generated Traffic
during AM and PM Peak Hours for
Phase VIII (2028)

TRIP GENERATION FOR
CARTER RIDGE - PHASES VI & VII
89 Single-Family Detached Houses

	AM PEAK	PM PEAK
ENTER	18	54
EXIT	47	32



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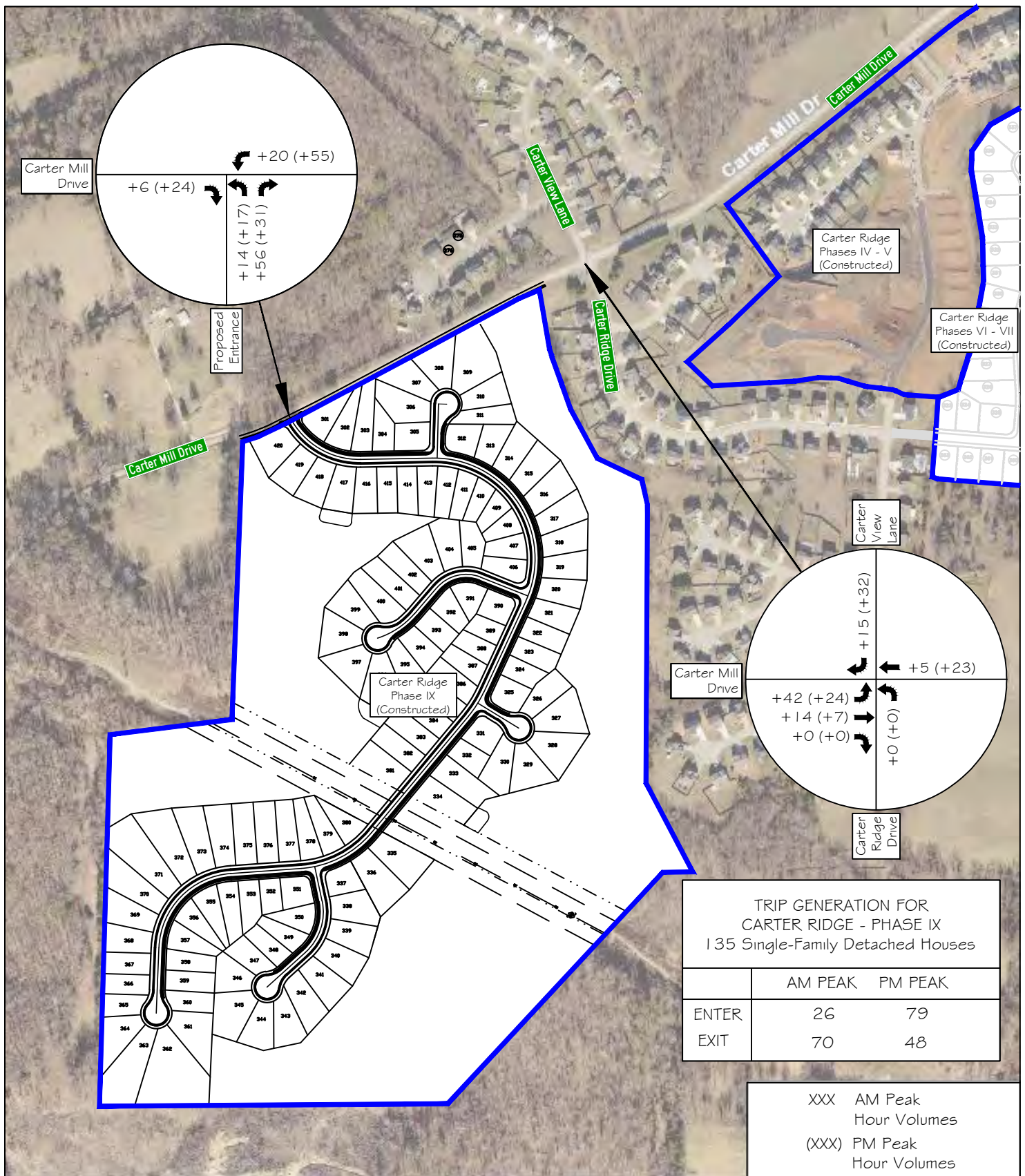
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FIGURE 7b

Carter Ridge Phase IX

Traffic Assignment of Generated Traffic
during AM and PM Peak Hours for
Phases VI & VII (2029)



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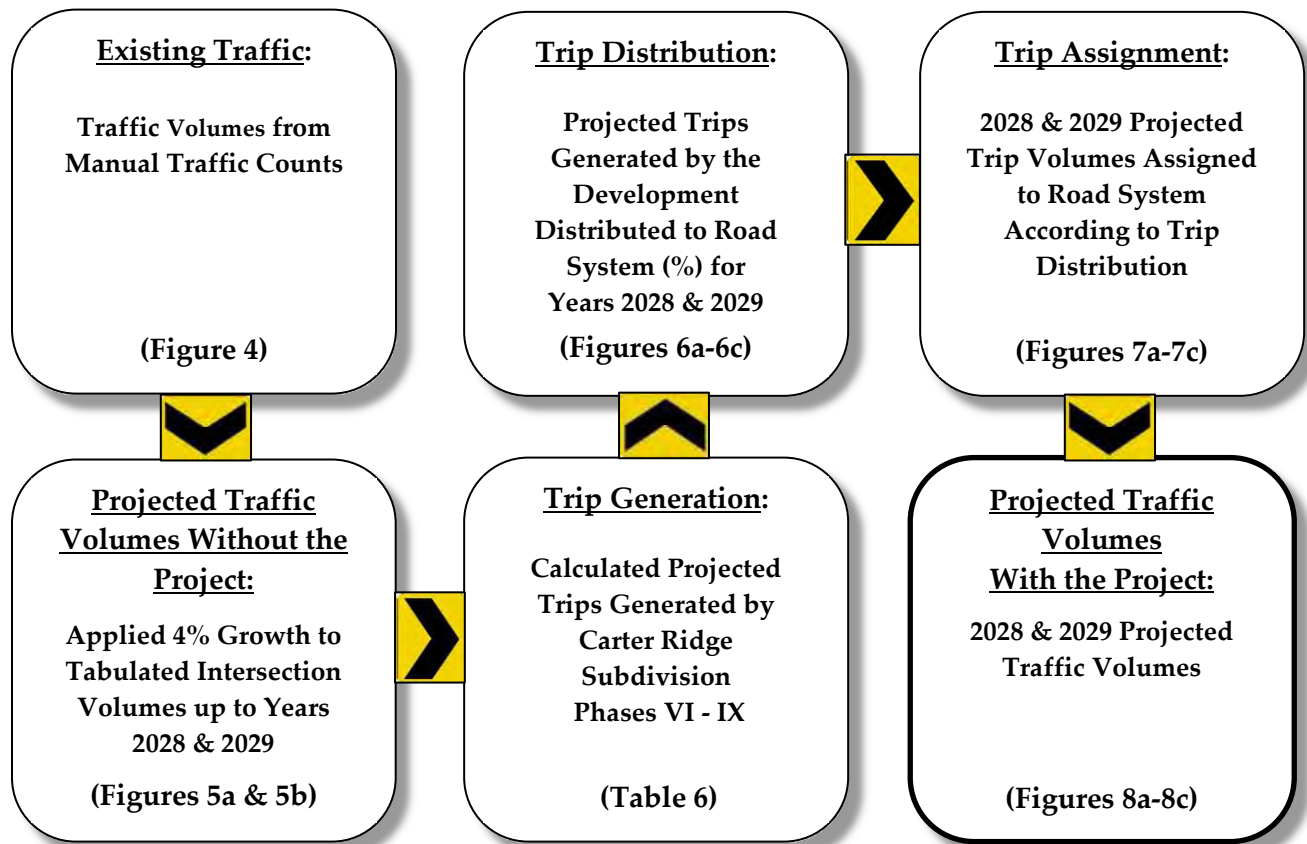
FIGURE 7c

Carter Ridge Phase IX

Traffic Assignment of Generated Traffic
during AM and PM Peak Hours for
Phase IX (2029)

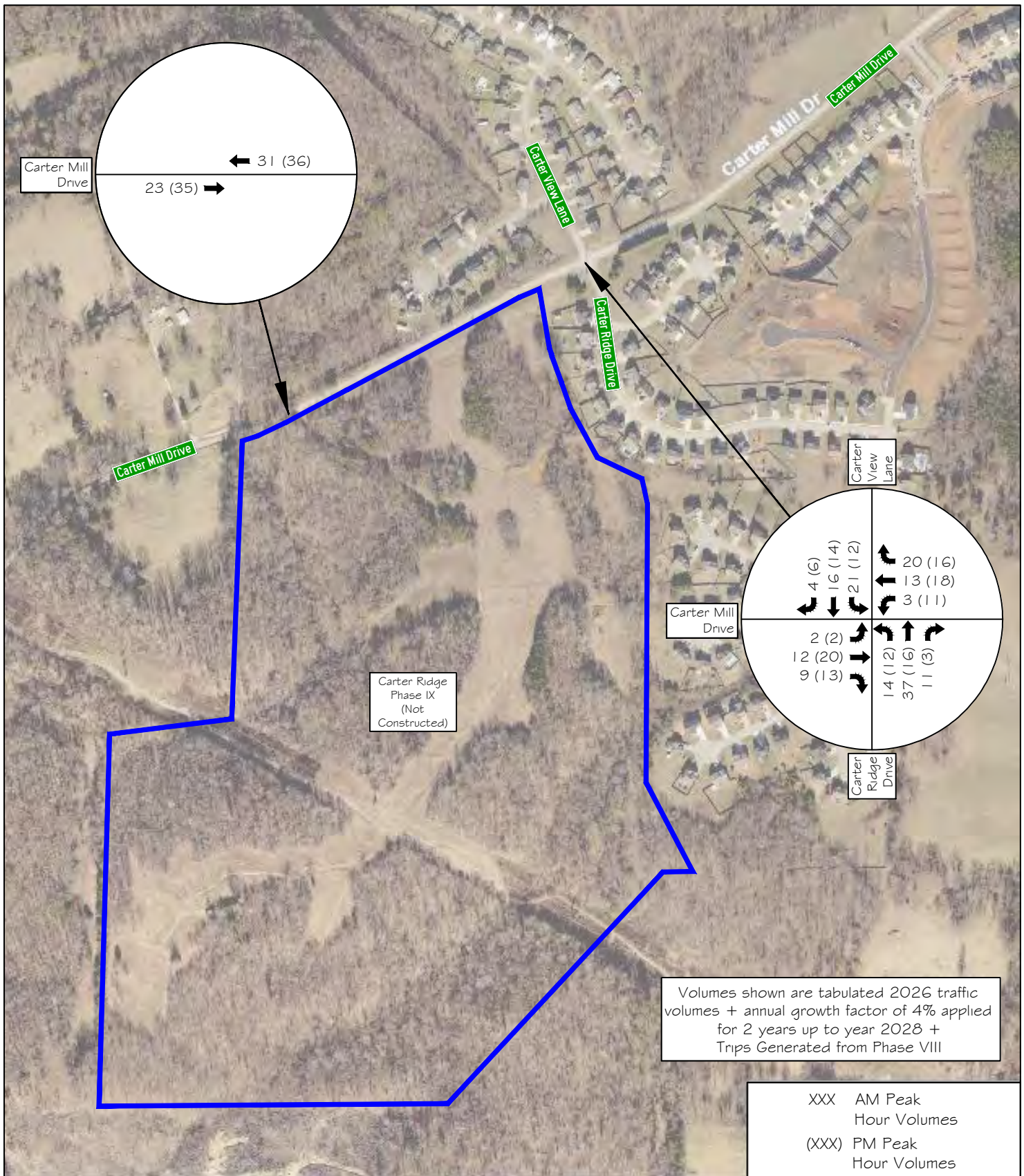
▪ **PROJECTED TRAFFIC CONDITIONS WITH THE PROJECT:**

Several additive steps were taken to estimate the total projected traffic volumes at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane and at the Proposed Entrance for Phase IX at Carter Mill Drive when the remaining Carter Ridge Subdivision phases are constructed and occupied in 2028 and 2029. The steps are illustrated below for clarity and review:



The calculated peak hour traffic (Table 6) generated by the remaining phases of Carter Ridge Subdivision was added to the 2028 and 2028 horizon year traffic (Figures 5a & 5b) by following the predicted trip distributions and assignments (Figures 6a – 6c & 7a – 7c). This procedure was completed to obtain the total projected traffic volumes when the subdivision is fully built out and occupied in 2028 and 2029. Figures 8a – 8c show the projected 2028 and 2029 AM and PM peak hour traffic volumes with the generated development traffic from the phases at the studied intersections.

The volumes shown in Figure 8a included the trips generated by Phase VIII in 2028. The volumes shown in Figure 8b include the trips generated by Phases VI and VII in 2029, plus the trips from Phase VIII. The volumes shown in Figure 8c include all trips generated by Phases VI – IX in 2029.



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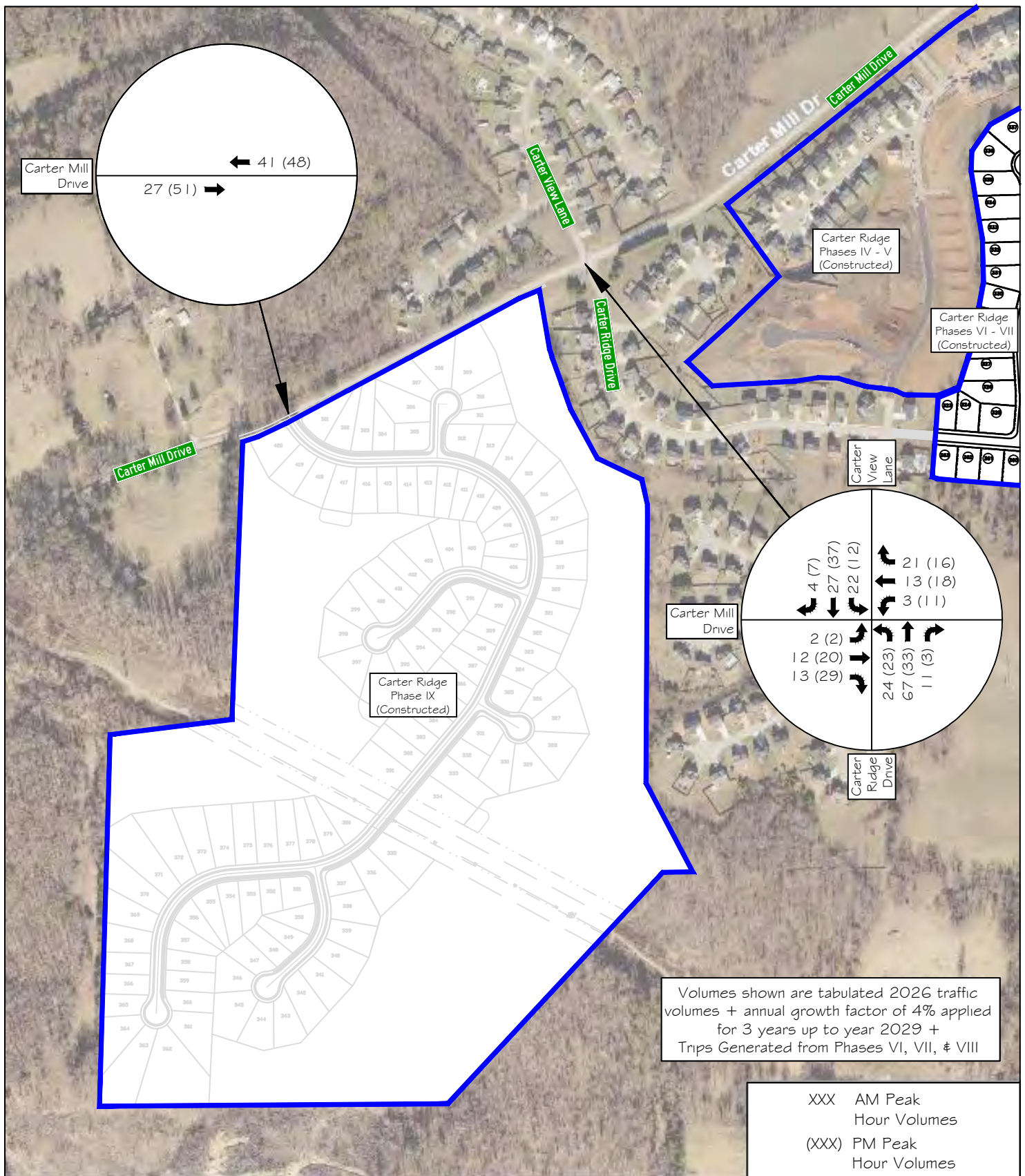
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FIGURE 8a

Carter Ridge Phase IX

2028 Peak Hour Traffic Volumes -
 Projected Traffic Conditions With
 Phase VIII



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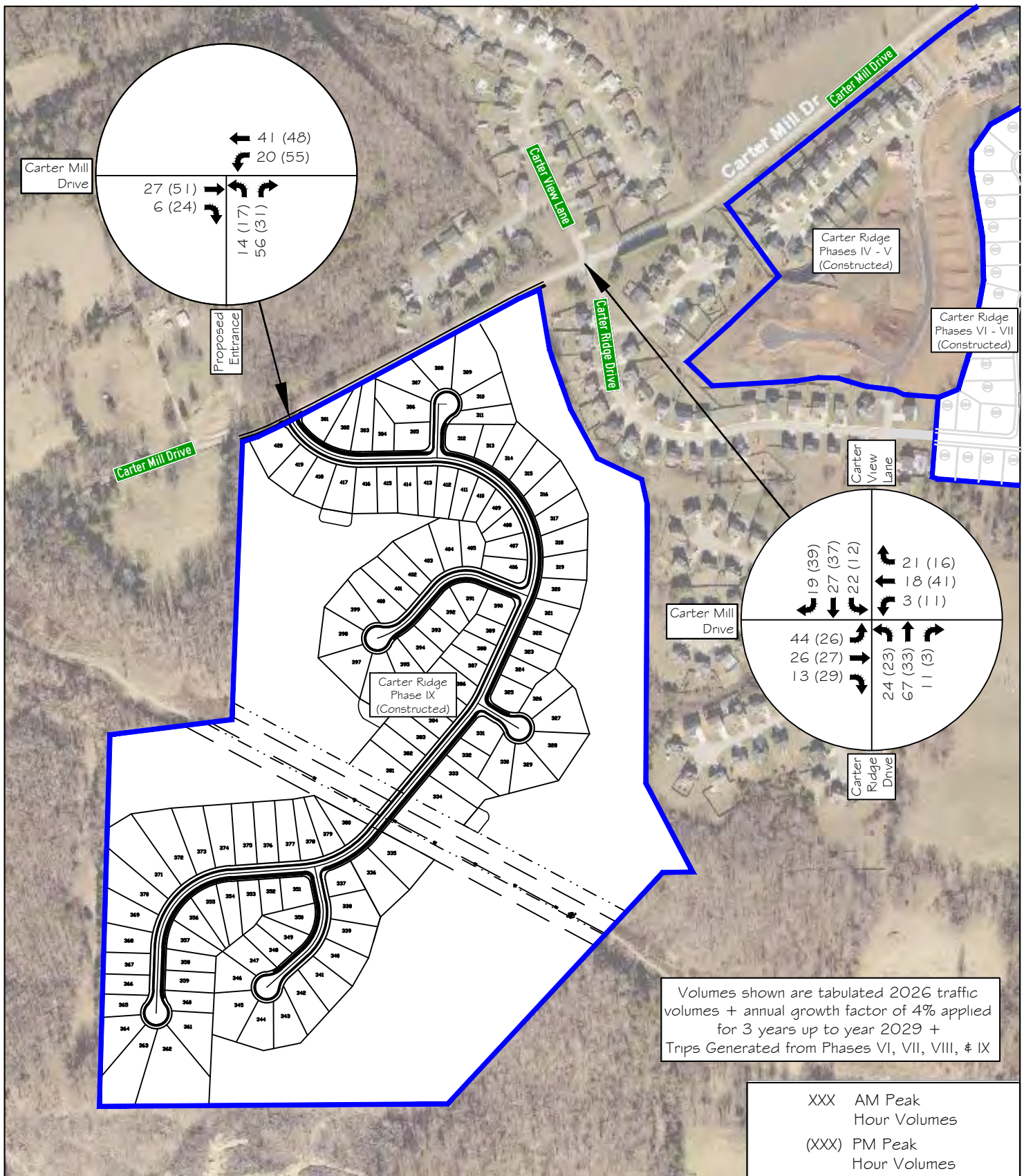
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FIGURE 8b

Carter Ridge Phase IX

2029 Peak Hour Traffic Volumes -
Projected Traffic Conditions With
Phases VI, VII, & VIII



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FIGURE 8c

Carter Ridge Phase IX

2029 Peak Hour Traffic Volumes -
Projected Traffic Conditions With the
Project Including Phases VI, VII, VIII, & IX

The intersection capacity results from the projected 2029 peak hour traffic, with all the remaining phases (VI – IX) of Carter Ridge Subdivision contributing new vehicle trips, are shown in Table 7. The results in the table show that both intersections are projected to operate with very good LOS and short vehicle delays in the 2029 AM and PM peak hours. Appendix E includes the capacity analysis worksheets from the software.

TABLE 7
INTERSECTION CAPACITY ANALYSIS RESULTS -
2029 PROJECTED PEAK HOUR TRAFFIC CONDITIONS WITH THE PROJECT (PHASES XI - IX)

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	AM PEAK			PM PEAK		
			LOS	DELAY (seconds)	V/C	LOS	DELAY (seconds)	V/C
Carter Mill Drive (EB & WB) at Carter Ridge Drive (NB) / Carter View Lane (SB)	 Unsignalized	Northbound Left/Thru/Right	B	11.8	0.220	B	10.8	0.116
		Eastbound Left	A	7.4	0.047	A	7.4	0.019
		Westbound Left	A	7.3	0.002	A	7.3	0.009
		Southbound Left/Thru/Right	B	11.8	0.131	B	10.7	0.175
Carter Mill Drive (EB & WB) at Proposed Entrance (NB)	 Unsignalized	Northbound Left/Right	A	8.9	0.078	A	9.2	0.059
		Westbound Left	A	7.3	0.014	A	7.5	0.040

Note: All analyses were calculated in Synchro 12 software and reported using 7th Edition intersection methodology

^a Level of Service, ^b Average Delay (sec/vehicle), ^c Volume-to-Capacity Ratio

▪ **POTENTIAL TRANSPORTATION SAFETY ISSUES:**

The study area was investigated for potential safety issues, both existing and future, that may arise during development. These transportation features are discussed in the following pages.

○ **EVALUATION OF SIGHT DISTANCE**

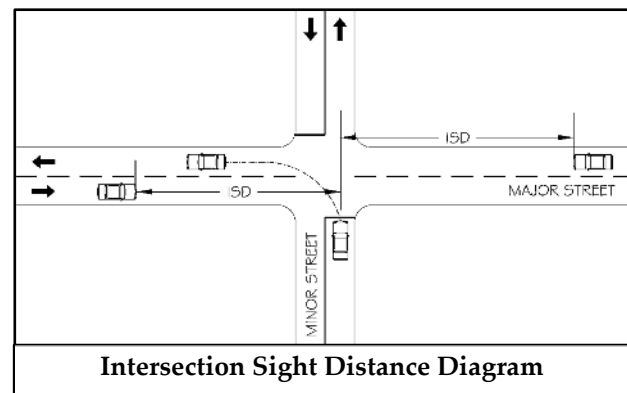
For intersections, sight distance evaluations are categorized into two types: Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD).

Methodology:

SSD is the distance required for a motorist on a major street to perceive, react, and the vehicle to come to a complete stop before colliding with an object on the road. For evaluating intersections, this object would be another vehicle entering the intersection from a minor street. SSD can be considered the minimum visibility distance standard for evaluating intersection safety.

ISD is considered the required visibility distance standard used to evaluate intersection safety. ISD is based on the time required to perceive, react, and complete the desired traffic maneuver once a motorist on a minor street decides to do so. Three traffic maneuvers are available for vehicles stopped on a minor street at a 4-way

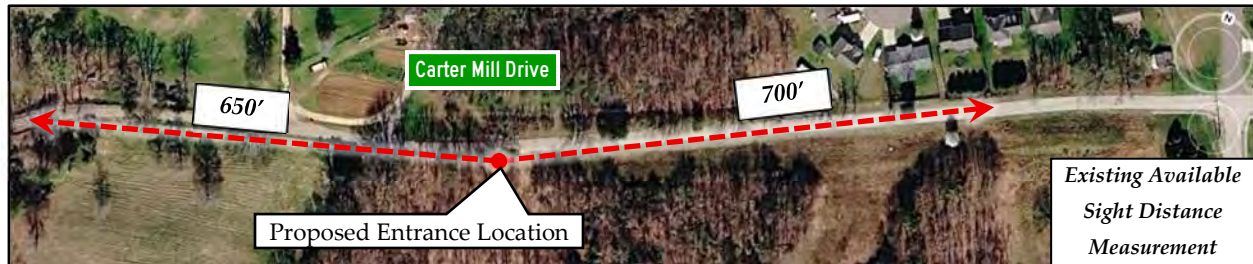
intersection: (1) a left-turn, (2) a right-turn, or (3) a crossing maneuver across the major street. For turns from the minor street, the ISD is needed to allow a stopped motorist to turn onto a major street without being overtaken by an approaching vehicle. The most critical ISD is for left turns from the minor street. The ISD for this maneuver includes the time to turn left and clear half of the intersection without conflicting with oncoming traffic from the left and accelerating to the road's operating speed without causing the approaching vehicles from the right to reduce their speed substantially.



Carter Mill Drive has a posted speed limit of 30 miles per hour. Based on Knox County's policy of requiring 10 feet of sight distance per 1 mph of speed, the required intersection sight distance is 300 feet. This distance is required for a motorist to exit safely to the left or right from the Proposed Entrance onto Carter Mill Drive.

As a safety check, visual observations of the sight distances near the Proposed Entrance location at Carter Mill Drive were undertaken. Using a Nikon Laser Rangefinder, the available sight distance was visually estimated to be 650 feet to the west and 700 feet to the east on Carter Mill Drive. However, vegetation along the south side of Carter Mill Drive to the west hampered the measurements. Sight distance to the east beyond 700 feet is not available due to a fairly significant vertical sag curve on Carter Mill Drive. Based on visual observation, the available sight distances from the Proposed Entrance location will be adequate for vehicles exiting the development; however, this assumes the existing vegetation to the west along the property's road frontage will be removed during construction.

Images of the existing sight distances near the proposed entrance location are labeled in the following with the required ISD and the rangefinder-measured sight distances in bolded italics.



View of Sight Distance on Carter Mill Drive at Proposed Entrance Location (Looking West)



View of Sight Distance on Carter Mill Drive at Proposed Entrance Location (Looking East)

- **EVALUATION OF TURN LANE THRESHOLDS**

The need for a separate eastbound right-turn or a westbound left-turn entering lane on Carter Mill Drive at the Proposed Entrance for Phase IX was evaluated in the projected 2029 conditions.

The criteria used for this turn lane evaluation were based on Knox County's "Access Control and Driveway Design Policy". This design policy relates vehicle volume thresholds based on prevailing speeds for two-lane and four-lane roadways. The location of the Proposed Entrance intersection is within a 30 mph speed zone; thus, the intersection was evaluated based on this posted speed. The worksheets for these evaluations are provided in Appendix H.

Based on the projected 2029 traffic volumes at the Proposed Entrance intersection, separate left and right-turn entering lanes on Carter Mill Drive will not be warranted.

- **PROJECTED VEHICLE QUEUES**

An additional software program calculated the projected vehicle queues during the 2029 AM and PM peak hours with the subdivision phases fully built out. The previously mentioned Synchro traffic software includes SimTraffic. The Synchro portion of the software performs macroscopic calculations for intersections, while SimTraffic handles micro-simulation and animation of vehicular traffic. SimTraffic software was utilized to estimate the projected vehicle queues at the intersections.

The 95th percentile vehicle queue is the recognized metric in the transportation engineering profession and serves as the design standard for assessing vehicle queue lengths. A 95th percentile vehicle queue length indicates 95% certainty that the queue will not exceed that length. The calculated vehicle queue results were based on averaging the outcomes from 10 one-hour traffic simulations in the software.

The 95th percentile vehicle queue lengths at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane and at the Proposed Entrance intersection for Phase IX are shown in Table 8 for the 2029 projected peak hour conditions. The vehicle queue worksheet results from the SimTraffic software are in Appendix I. Once again, the results for the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane are provided as a courtesy since this intersection was not included in the scope of work from Planning.

TABLE 8
VEHICLE QUEUE SUMMARY -
2029 PROJECTED PEAK HOUR TRAFFIC CONDITIONS WITH THE PROJECT (PHASES XI - IX)

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	95 th PERCENTILE VEHICLE QUEUE LENGTH (ft)	
			AM PEAK HOUR	PM PEAK HOUR
Carter Mill Drive (EB & WB) at Carter Ridge Drive (NB) / Carter View Lane (SB)	 Unsignalized	Eastbound Left/Thru/Right	18	12
		Westbound Left/Thru/Right	0	8
		Northbound Left/Thru/Right	53	49
		Southbound Left/Thru/Right	59	51
Carter Mill Drive (EB & WB) at Proposed Entrance (NB)	 Unsignalized	Westbound Left	6	21
		Northbound Left/Right	50	47

Note: 95th percentile vehicle queues were calculated in SimTraffic 12 software

Table 8 shows minimal vehicle queue lengths at the Phase IX Proposed Entrance intersection approaches in the 2029 AM and PM peak hours. The longest vehicle queues at the Proposed Entrance intersection are for the exiting approach, with a queue of 50 feet in the morning peak hour and 47 feet in the afternoon peak hour operating with a single exit lane. Based on these results, the expected vehicle queues exiting at the Proposed Entrance intersection will be two passenger vehicles, assuming each vehicle is 25 feet in length. The 95th percentile vehicle queue lengths for entering westbound left turns are calculated to be 6 feet and 21 feet in the AM and PM peak hours, respectively. The vehicle queues at the intersection of Carter Mill Drive at Carter Ridge Drive / Carter View Lane are also calculated to be short and reasonable in the projected 2029 conditions.

CONCLUSIONS & RECOMMENDATIONS

The following is an overview of recommendations to minimize the transportation impacts of Carter Ridge Phase IX and the other remaining phases of VI, VII, and VIII yet to be built on the adjacent transportation system while achieving acceptable traffic flow and safety levels.



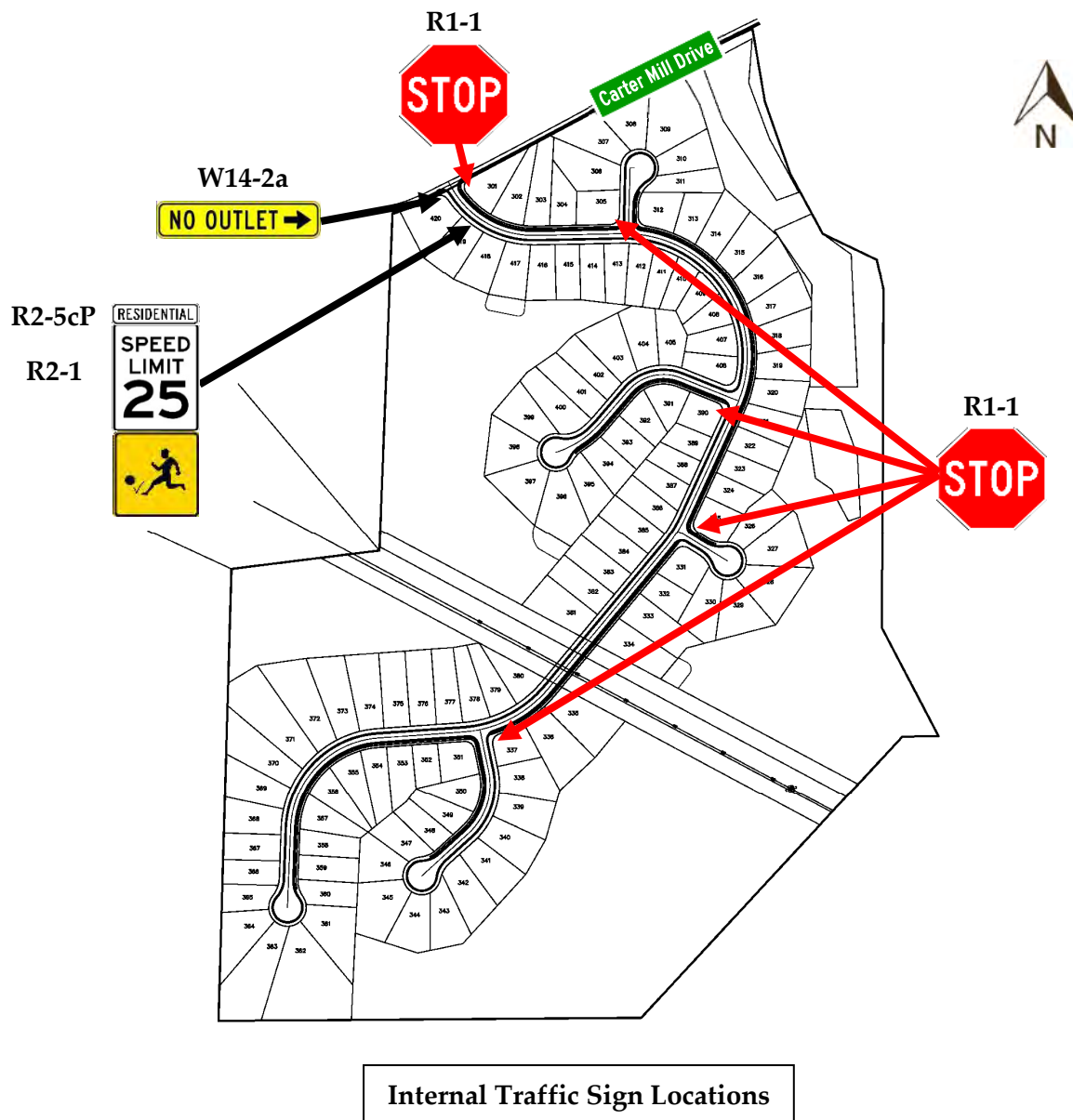
Carter Mill Drive at Proposed Entrance for Phase IX: A single exit lane for Phase IX of the Carter Ridge Subdivision, allowing both left and right turn movements at Carter Mill Drive, will be sufficient, according to the calculations. The delays associated with these exiting vehicle movements are projected to be minimal in the projected 2029 conditions.

- 1a) Future landscaping, existing vegetation, or proposed signage must not impact the intersection sight distances looking from the Proposed Entrance to the west and east on Carter Mill Drive.
- 1b) Based on a posted speed limit of 30 mph on Carter Mill Drive, the required intersection sight distance is 300 feet for exiting left and right-turning vehicles. The existing sight distances from Carter Mill Drive at the Proposed Entrance location were visually estimated to be adequate in both directions, assuming the existing vegetation on the south side of Carter Mill Drive along the property's road frontage will be removed during construction.
- 1c) It is recommended that a Stop Sign (R1-1) be posted and a 24" white stop bar be applied to the Proposed Entrance approach at Carter Mill Drive. The stop bar should be applied a minimum of 4 feet away from the traveled edge of Carter Mill Drive and placed at the desired stopping point that maximizes the sight distance.



Carter Ridge Phase IX Internal Roads: The site layout plan shows five new streets, as shown in Figure 3.

- 2a) A 25-mph Speed Limit Sign (R2-1) with additional plaque signage is recommended to be posted near the beginning of the Proposed Entrance road off Carter Mill Drive. It is also recommended that a "No Outlet" Sign (W14-2a) be posted at the front of the subdivision. This sign can be posted above or below the street name sign.
- 2b) Stop Signs (R1-1) are recommended to be installed on the minor approaches at the internal roadway T-intersections, as shown in the image below with other recommended signage.



- 2c) Sight distances at the new internal intersections must not be impacted by new signage, parked cars, or future landscaping. The civil site designer should ensure that appropriate internal sight distances will be met.
- 2d) If directed by the local post office, the site designer should include a parking area and a centralized mail delivery center within the development for the Phase IX subdivision residents.
- 2e) All drainage grates and covers for the residential development must be pedestrian and bicycle-safe.
- 2f) Internal sidewalks are proposed along one side of each road in Phase IX. Concrete sidewalks should be 5 feet wide and have appropriate ADA-compliant ramps at intersection corners with detectable surfaces. White-painted crosswalks should be installed on internal road pavement at locations where pedestrians are expected to cross. Internal crosswalks should be white transverse pavement markings as shown in TDOT Standard Drawing T-M-4.
- 2g) As provided for the other phases of the Carter Ridge Subdivision that face and abut Carter Mill Drive, a 5-foot-wide sidewalk should be constructed along the road frontage of Phase IX on the southern side of Carter Mill Drive and connect to the short stub already provided west of the Carter Mill Drive at Carter Ridge Drive / Carter View Lane intersection.
- 2h) The main internal road in Phase IX will have long, straight road segments with steep road grades due to the existing terrain. Straight road segments with steep grades encourage higher vehicle speeds. It is recommended that the site designer consider traffic calming measures on this main internal road, and this should be discussed with Knox County in the detailed design phase.
- 2i) All road and intersection elements should be designed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) and the Manual on Uniform Traffic Control Devices (MUTCD), as well as TDOT and Knox County's specifications and guidelines, to ensure proper roadway operations.



Carter Mill Drive: As discussed and described previously, the western section of Carter Mill Drive is narrow in width and difficult to safely traverse with vehicles simultaneously traveling in opposite directions. This narrow width is outside of the portion that was widened to 20 feet to allow for the initial development of the Carter Ridge Subdivision. This western section of Carter Mill Drive also has other issues outside narrow road widths that are problematic for safe travel with ever-increasing volumes.

The average width of the western section of Carter Mill Drive (west of the Proposed Entrance location for Phase IX – approximately 3,545 feet) was calculated to be 15.7 feet and has limited shoulders outside the pavement, faded to non-existent pavement markings, limited warning road signage, possibly substandard sight distances when vegetation is growing and unmaintained, pavement edge drop-offs, and the pavement surface on this section appears to be approaching the end of its useful life. The narrowest pavement width measured on the western section of Carter Mill Drive was 13.6 feet.

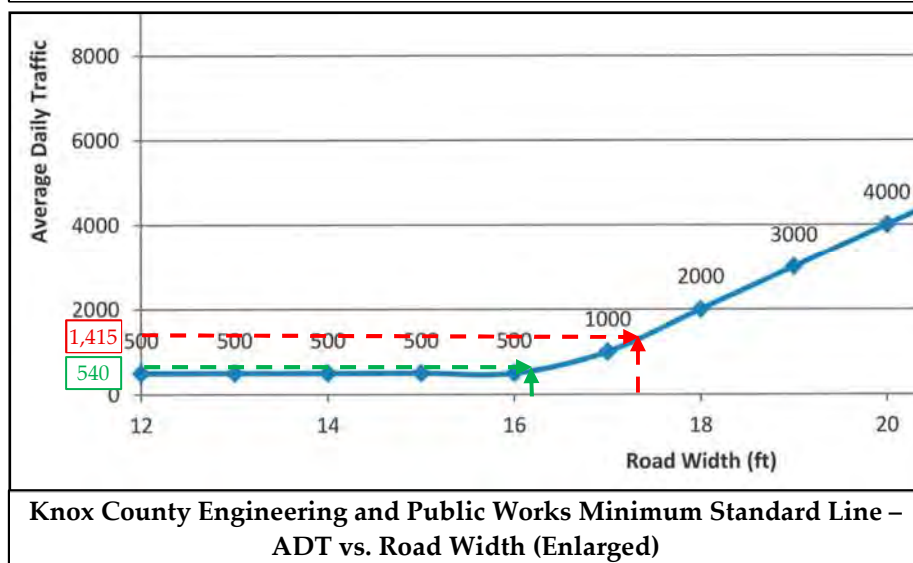
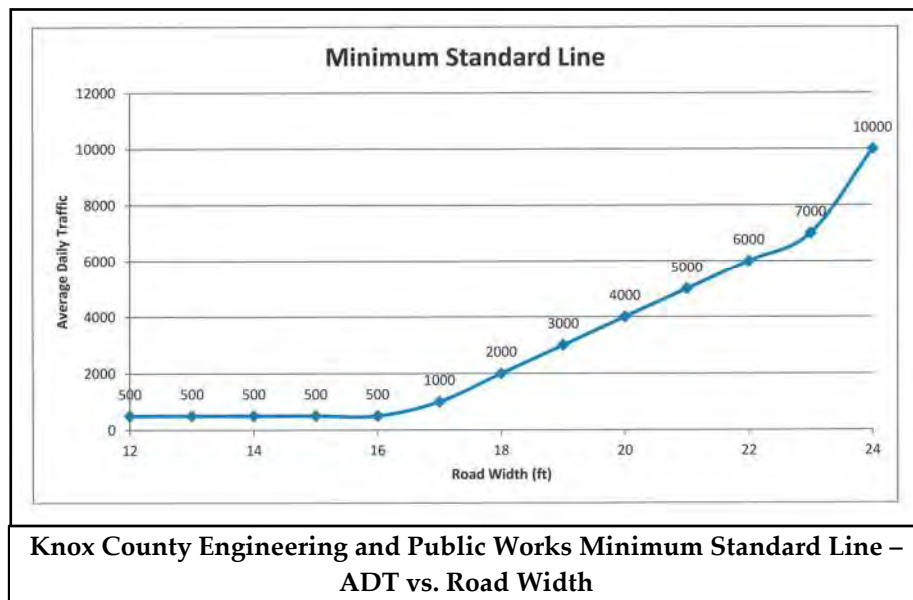
Carter Mill Drive's western section will require improvements to safely and effectively serve both current and future users. Demand on this roadway is currently relatively light. Still, it is expected to increase with each subsequent phase of the Carter Ridge Subdivision being constructed and general background traffic growth in the area. Any improvements must carefully balance safety considerations with the corridor's physical constraints. Providing an improved roadway that balances the need for safe vehicle passage with the surrounding terrain and existing alignment requires careful engineering judgment and trade-offs.

As calculated previously in the Trip Generation section of this report, the remaining phases in the Carter Ridge Subdivision by 2029 are projected to generate an additional 2,919 daily trips on top of the trips that are already occurring. Utilizing the assumed trip distribution in this report, with between 25 – 30% of these trips during the peak hours traveling to and from the west on Carter Mill Drive, the total daily amount of traffic on this section from the homes in the remaining phases of Carter Ridge Subdivision, on the higher end (30%), could be estimated to be approximately 875 additional vehicles per day.

The existing baseline daily traffic on the western section of Carter Mill Drive can be approximated by assuming that the PM peak hour thru volumes shown at the Proposed Entrance location on Carter Mill Drive in Figure 4 is, by using a rule of thumb, 10% of the daily traffic. With this assumption of 10%, the current daily traffic for the western section

of Carter Mill Drive can be estimated to be 540 vehicles (25+29/10%). Adding the calculated daily trips from the additional remaining phases of the subdivision would result in daily traffic of 1,415 vehicles on the western section of Carter Mill Drive in 2029 (2029 daily count = $540 + 2,919 \times 30\% = 1,415$ vehicles).

For planning purposes, Knox County (TN) Engineering and Public Works has published a “Minimum Standard Line” chart that relates average daily traffic (ADT) to the desired pavement width to be provided. A graph of this minimum standard from Knox County is shown in the images below. The first image is the full graph, and the second is an enlarged section for clarity of the results in this study. The second graph includes data in red for the calculated 2029 daily traffic with all subdivision phases constructed. The data in green represents the estimated current daily traffic on the western section of Carter Mill Drive.



According to the Knox County chart, the current estimated daily traffic on the western section of Carter Mill Drive would indicate a desired road width just over 16 feet. Carter Mill Drive, on its western section, had road width measurements between Station 12+50 and 42+50 that ranged from 13.6 feet to 17.6 feet, with most measurements being in the 14 – 16-foot range, less than desired, as demonstrated in the graph.

A road width of 18 feet would be appropriate for up to approximately 2,000 vehicles per day based on Knox County's ADT/road width minimum standard. The projected 2029 daily traffic volume on the western section of Carter Mill Drive, including traffic from Phases VI–IX, is estimated at approximately 1,415 vehicles per day — well below this threshold.

Therefore, widening the western section of Carter Mill Drive to a target width of 18 feet is recommended as the ultimate goal by the time all phases of the Carter Ridge Subdivision are completed and occupied in 2029. This width will provide adequate capacity and improved safety for projected traffic volumes. Widening this section beyond 18 feet to a full 20 feet to match the eastern portion of Carter Mill Drive could be considered impractical in many locations due to the more aggressive terrain, winding horizontal alignments, and right-of-way constraints present on the western end. Widening beyond 18 feet could also encourage higher vehicle speeds, which would be incompatible with the existing geometry, steep grades, and roadside hazards.

Where feasible and consistent with the original subdivision approval, the road frontage directly adjacent to Phase IX should be widened to 20 feet; however, 18 feet should be the standard applied to the remainder of the western section.

As such, recommendations for the western section of Carter Mill Drive are broken into immediate (2026) and future (2029) needs and actions in the following.

Summary Timeline of External Transportation Recommendations:

- 2026 Immediate Recommendations:
 - Identify and prioritize locations where Carter Mill Drive is less than 16 feet wide and widen the pavement to a minimum of 18 feet.
 - Post a Speed Limit Sign (R2-1) of 30 mph for westbound traffic on Carter Mill Drive to the west of the intersection with Carter Ridge Drive / Carter View Lane.

- Install a “Narrow Road” Sign (W5-2) 250 feet to the east of the existing 30-mph Speed Limit Sign posted on Carter Mill Drive off McCubbins Road for eastbound traffic. 
 - After widening, install 6-inch white edge lines on the newly widened segments along Carter Mill Drive.
 - Install “Two-Way Traffic” Signs (W6-3) for both directions of travel with advisory speed plaques (W13-1P), preferably stating 20 mph or less. These signs should be posted on both ends of Carter Mill Drive’s narrower western section and where horizontal curves warrant additional caution. 

W13-1P
 - Aggressively clear vegetation and trees within the right-of-way along the western section of Carter Mill Drive to improve sight distance and roadside safety.
 - All utility poles within this western section of Carter Mill Drive and adjacent to the roadway, if not relocated away from the roadway, should be delineated with all-yellow horizontal or vertical retroreflective signs (OM2-2V or OM2-2H) facing oncoming traffic.
- 2029 Future Recommendations (or earlier if feasible):
 - Widen the western section of Carter Mill Drive to a consistent 18-foot paved width if not already completed by 2029. When widening to 18 feet, consideration should be given to using a SafetyEdgeSM at the pavement edges, which shapes the pavement at a 30-degree angle during the paving process.
 - The initial approval for the Carter Ridge Subdivision stipulated that prior to final plat approval for any lots in the development, Carter Mill Drive needed to be widened to 20 feet along the entire frontage of the site. This initial road widening of Carter Mill Drive terminated approximately 200 feet to the east of the subdivision property’s westernmost point, which includes the development parcel for Phase IX. This remaining unwidened section of Carter Mill Drive is directly in front of Phase IX and should be widened to 20 feet. Beyond that point, the pavement should be properly transitioned to the narrower road section to the west.
 - After all the phases of Carter Ridge Subdivision are completed, the pavement markings on the already 20-foot-wide eastern and central sections of Carter Mill Drive, including the double yellow centerline and

white edge lines, should be reapplied.

The developer should be responsible for widening Carter Mill Drive to 20 feet along the full road frontage of Phase IX, consistent with the original subdivision approval conditions. It is recommended that Knox County and the developer coordinate regarding any potential shared improvements to the broader western section of Carter Mill Drive beyond the Phase IX road frontage.

APPENDIX A

HISTORICAL TRAFFIC COUNT DATA

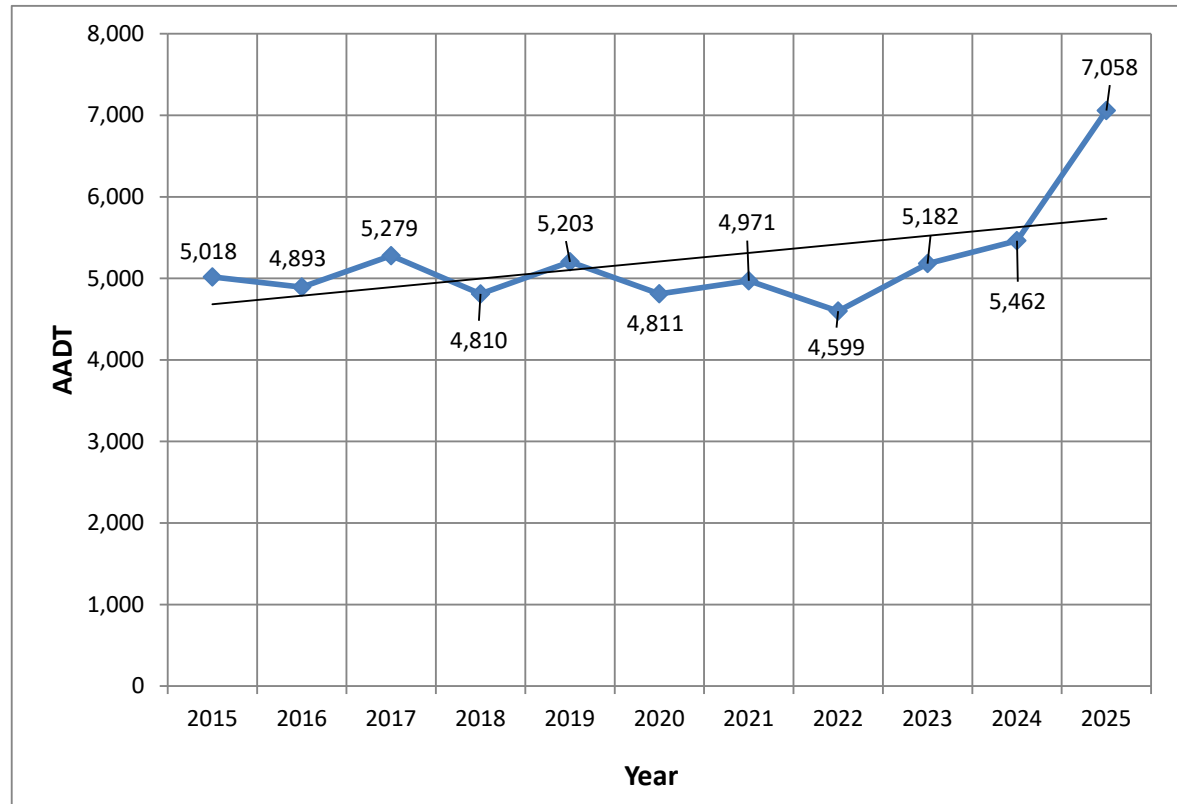
Historical Traffic Counts

Organization: TDOT

Station ID #: 47000062

Location: Asheville Highway - Near Jefferson County Line

YEAR	AADT	
2015	5,018	Trendline ↓
2016	4,893	
2017	5,279	
2018	4,810	
2019	5,203	
2020	4,811	
2021	4,971	
2022	4,599	
2023	5,182	
2024	5,462	
2025	7,058	



2015 - 2025 Growth Rate = 40.7%

Average Annual Growth Rate = 3.5%

Disclaimer: Please note that the AADT displayed for the current year is only a preliminary estimate, updated adjustment factors have not yet been applied to the traffic count information to produce a final AADT.

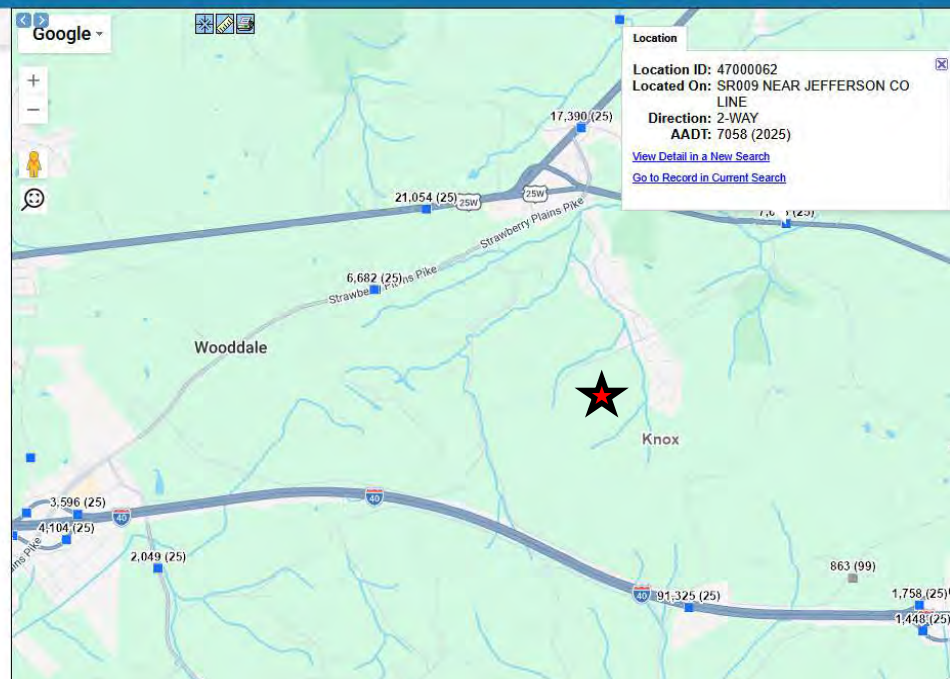
List View

Record 7507 of 16433 Goto Record go				
Location ID	47000062		MPO ID	
Type	SPOT		HPMS ID	
On NHS	No		On HPMS	No
LRS ID	475000901P00000		LRS Loc Pt.	14 582
SF Group	Lower FC (2026) ▶		Route Type	
AF Group	Region 1 Rural Major Collector (2026) ▶		Route	
GF Group	Knox (2026)		Active	Yes
Class Dist Grp	Region 1 Rural Major Collector (2026) ▶		Category	CC
Seas Class Grp				
WIM Group				
QC Group	Default			
Funct'l Class	Major Collector		Milepost	
Located On	SR009			
Loc On Alias	ASHEVILLE HWY;			
	NEAR JEFFERSON CO LINE			
More Detail ▶				

STATION DATA

Directions: 2-WAY ?

AADT 								
	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2025	7,058	700	10	65	6,854 (97%)	204 (3%)	Grown from 2023
	2024	5,462 ³		10	65	5,282 (97%)	180 (3%)	
	2023	5,182	515	10	65	4,985 (96%)	197 (4%)	
	2022	4,599	462	10	65	4,397 (96%)	202 (4%)	
	2021	4,971	445	9	65	4,741 (95%)	230 (5%)	
		1-5 of 41						



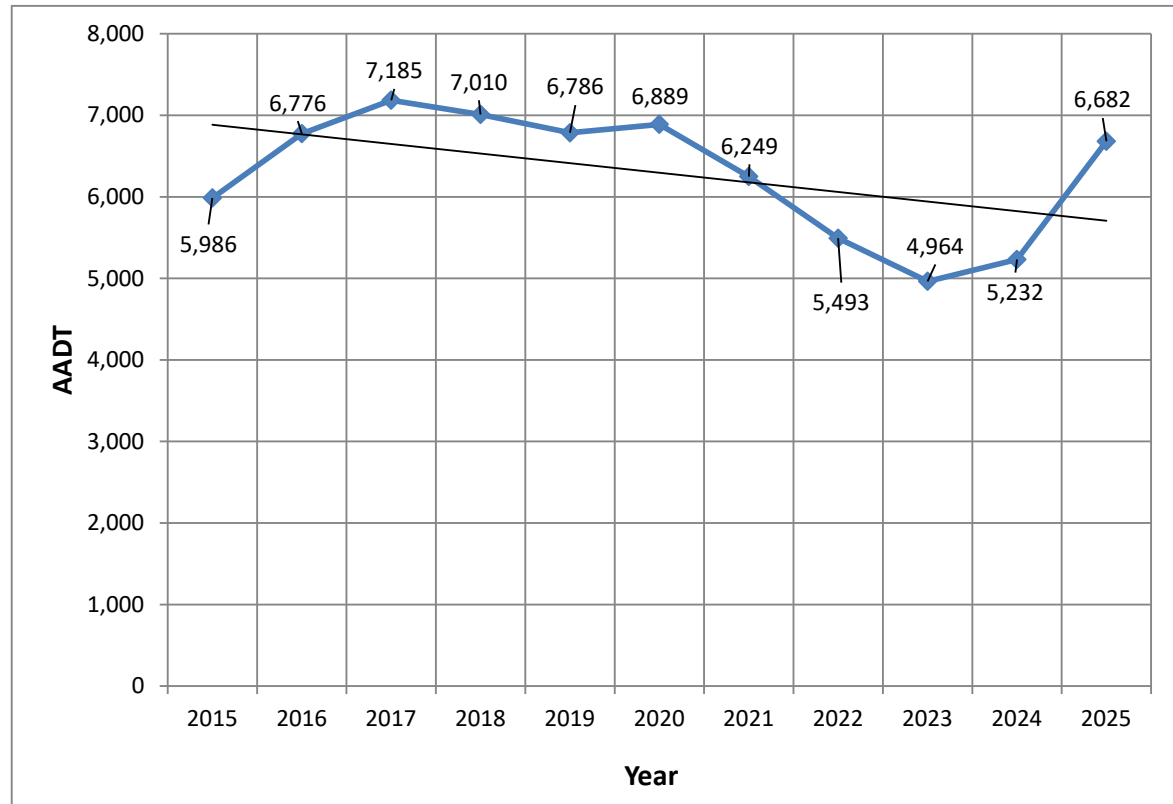
Historical Traffic Counts

Organization: TDOT

Station ID #: 47000059

Location: Strawberry Plains Pike - West of Trentville

YEAR	AADT	
2015	5,986	Trendline ↓
2016	6,776	
2017	7,185	
2018	7,010	
2019	6,786	
2020	6,889	
2021	6,249	
2022	5,493	
2023	4,964	
2024	5,232	
2025	6,682	



2015 - 2025 Growth Rate = 11.6%

Average Annual Growth Rate = 1.1%

TN

TDOT

Department of Transportation

Traffic Count (TCDS)

Home

Locate

Locate All

Email This

Auto-Locate: ☐

Disclaimer: Please note that the AADT displayed for the current year is only a preliminary estimate, updated adjustment factors have not yet been applied to the traffic count information to produce a final AADT.

List View

Record

7504

of 16433

Goto Record

go

Location ID

47000059

MPO ID

Type

SPOT

HPMS ID

On NHS

On HPMS

LRS ID

47L112401P00000

LRS Loc Pt

10.591

SF Group

Lower FC (2026)

Route Type

AF Group

Region 1 Urban Major Collector (2026)

Route

GF Group

Knox (2026)

Active

Yes

Class Dist Grp

Region 1 Urban Major Collector (2026)

Category

CC

Seas Class Grp

WIM Group

QC Group

Default

Funct Class

Major Collector

Milepost

Located On

01124

Loc On Alias

STRAWBERRY PLAINS PK.

WEST OF TRENTVILLE

More Detail

STATION DATA

Directions: 2-WAY EB WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2025	6,682	704	11	71	6,270 (94%)	412 (6%)	
2024	5,232 ³		12	62	5,086 (97%)	146 (3%)	Grown from 2023
2023	4,964	587	12	62	4,621 (93%)	343 (7%)	
2022	5,493	564	10	65	5,363 (98%)	130 (2%)	
2021	6,249	661	11	65	6,063 (97%)	186 (3%)	

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1-5 of 41

Google

Location

Location ID: 47000059
Located On: 01124 WEST OF TRENTVILLE
Direction: 2-WAY
AADT: 6682 (2025)
EB Count: 3862 (2025)
WB Count: 2821 (2025)
[View Detail in a New Search](#)
[Go to Record in Current Search](#)

Map showing the location of the traffic count station near Wooddale and Trentville. The map includes labels for Wooddale, Trentville, and Knox, and shows the road network with various traffic counts and directions.

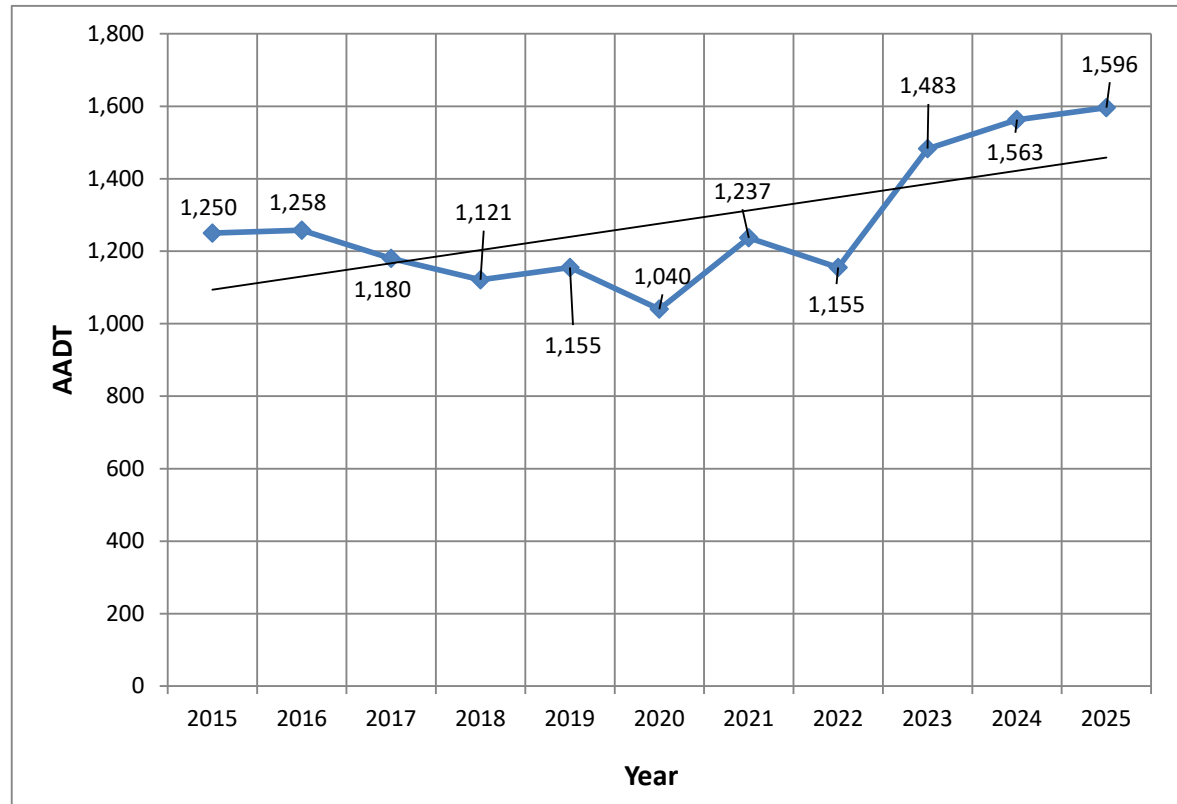
Historical Traffic Counts

Organization: TDOT

Station ID #: 47000063

Location: South Carter School Road, North of Thorngrove Pike

YEAR	AADT	
2015	1,250	Trendline ↓
2016	1,258	
2017	1,180	
2018	1,121	
2019	1,155	
2020	1,040	
2021	1,237	
2022	1,155	
2023	1,483	
2024	1,563	
2025	1,596	



2015 - 2025 Growth Rate = 27.7%

Average Annual Growth Rate = 2.5%

TN

TDOT

Department of Transportation

Traffic Count (TCDS)

Home

Locate

Locate All

Email This

Auto-Locate: ☐

Disclaimer: Please note that the AADT displayed for the current year is only a preliminary estimate, updated adjustment factors have not yet been applied to the traffic count information to produce a final AADT.

List View

Record

7508

of 16433

Goto Record

go

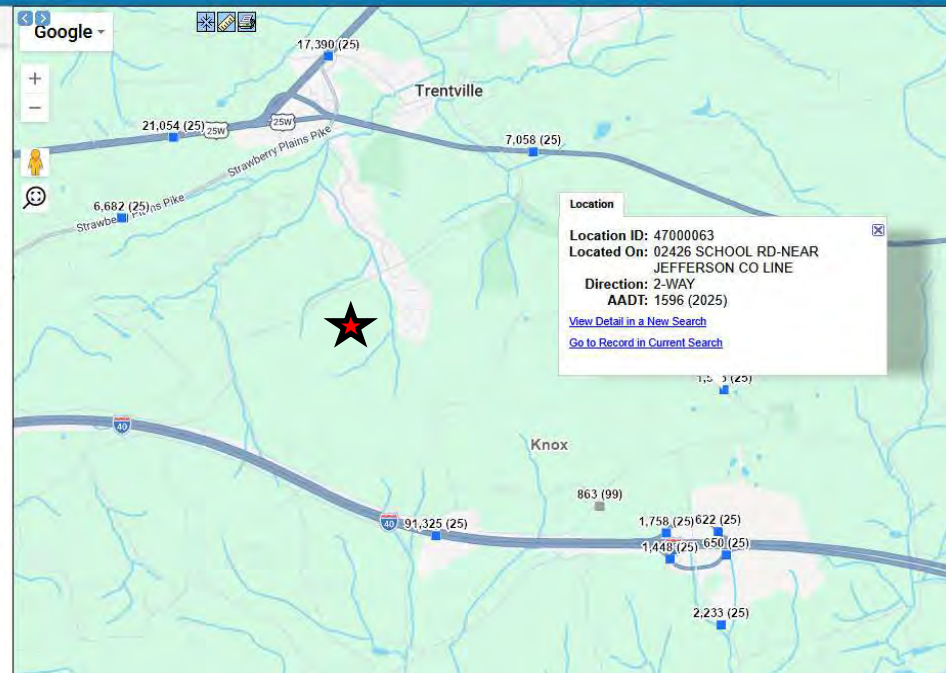
Location ID	47000063	MPO ID	
Type	SPOT	HPMS ID	
On NHS		On HPMS	
LRS ID	47L242601P00000	LRS Loc Pt.	0.3
SF Group	Lower FC (2026)	Route Type	
AF Group	RMCLocal (2026)	Route	
GF Group	Knox (2026)	Active	Yes
Class Dist Grp	RMCLocal (2026)	Category	CC
Seas Class Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	Minor Collector	Milepost	
Located On	02426		
Loc On Alias	S. CARTER SCHOOL RD.		
	SCHOOL RD-NEAR JEFFERSON CO LINE		

More Detail

STATION DATA

Directions: 2-WAY

	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2025	1,596 ³		10	65	1,548 (97%)	48 (3%)	Grown from 2024
	2024	1,563 ³		10	65	1,511 (97%)	52 (3%)	Grown from 2023
	2023	1,483	146	10	65	1,429 (96%)	54 (4%)	
	2022	1,155	119	10	65	1,116 (97%)	39 (3%)	
	2021	1,237	107	9	65	1,199 (97%)	38 (3%)	



APPENDIX B

KNOXVILLE AREA TRANSIT (KAT) MAP AND INFORMATION

Rider Tools and Tips

Fare Information

Fare Type	Regular Fare	Discounted Fare
1-Ride pass	\$1.00	\$0.50
1-Day pass	\$2.00	\$1.00
20-Ride pass	\$15.00	\$7.50
30-Day Pass	\$30.00	\$15.00

Discounted fare for seniors 65+, Medicare cardholders, and persons with disabilities. KAT ID or Medicare card required.

Children 4 and under ride free.

Knox County School Students also ride free with the Youth Freedom Pass.

To learn more about our fares, the Youth Freedom Pass, and how to buy tickets, visit katbus.com.

Riding Tips

- Plan your trip using this map, the free Transit app, or our homepage trip planner on katbus.com.
- Always arrive at your bus stop 5 minutes early.
- When you see your bus coming, wave to the operator so they know you want to board.
- Have your fare ready when the bus arrives.
- When nearing your destination, pull the cord next to the windows to alert the operator that you want to get off at the next stop.
- View our Passenger Ride Guide at katbus.com.

KAT Holidays

KAT Services do not operate on the following holidays: New Year's Day, Independence Day, Thanksgiving & Christmas.

KAT buses run on a Sunday schedule on the following holidays: Martin Luther King, Jr. Day, Memorial Day, Juneteenth, Labor Day, day after Thanksgiving, day before Christmas.

KAT's administrative offices are closed on all of the holidays listed above.

Go paperless!

PLAN your trip, PAY your fare, and SCAN your ticket, all in our FREE official app:



Scan QR code to download Transit



Herramientas y consejos para los pasajeros

Información sobre tarifas

Tipo de tarifa	Tarifa regular	Tarifa con descuento
Pase de 1 viaje	\$1.00	\$0.50
Pase de 1 día	\$2.00	\$1.00
Pase de 20 viajes	\$15.00	\$7.50
Pase de 30 días	\$30.00	\$15.00

Tarifa descontada para mayores de 65 años, personas con tarjeta de Medicare y personas con discapacidades. Se necesita el ID de KAT o tarjeta de Medicare.

Los niños menores de 4 años viajan gratis.

Los estudiantes de las escuelas públicas del Condado de Knox también viajan gratis con el pase Youth Freedom Pass.

Visite katbus.com para averiguar más sobre nuestras tarifas, el pase para jóvenes y para comprar boletos.

Consejos para viajar

- Planifique su trayecto con este mapa, la aplicación gratuita Transit o el planificador en katbus.com.
- Siempre llegue a la parada del autobús 5 minutos antes.
- Cuando vea que llega el autobús, haga una señal al operador para que sepa que quiere subir.
- Tenga su pago listo cuando llega el autobús.
- Cuando se acerque a su destino, jale del cordón cercano a la ventana para alertar al operador de que quiere bajarse en la siguiente parada.
- Repase nuestra Guía del Pasajero en katbus.com.

Los servicios de KAT no funcionan en los siguientes días feriados: Año Nuevo, Día de la Independencia, Acción de Gracias y Navidad.

Los autobuses de KAT siguen los horarios de los domingos en los siguientes feriados: día de Martin Luther King Jr., Día de los Caldos (Memorial Day), Juneteenth, Día del Trabajador, día después del Día de Acción de Gracias, día antes de Navidad.

Las oficinas de KAT estarán cerradas en todos esos días feriados.

¡Haga todo sin papel!

PLANIFIQUE su viaje, PAGUE la tarifa y ESCANEE su boleto, todo en Transit, nuestra aplicación oficial gratuita! La aplicación se configura en el mismo idioma de su teléfono. Escanee el código QR para descargar Transit.



Accesibilidad

Todos los autobuses de KAT van equipados con un elevador. También existe servicio de paratransito para quienes cualifiquen. Para más información, visite katbus.com o llame a KAT al 865-637-3000.



Información en español en el interior

Serves/ Servir:

- Burlington
- Burlington Branch Library
- Candler YMCA
- Kroger
- Chilhowee Park/ Jacob Building
- Knoxville Station/ Downtown
- Pellissippi State Magnolia Campus

KAT Reimagined

Effective Date:
August 26, 2024

Magnolia Avenue
(Weekdays & Weekends)



Route 31: Magnolia Avenue

How to Read this Schedule



SATURDAY								
Going away from downtown				Going toward downtown				
Knoxville Station Bay F	Magnolia EB at Jessamine	Magnolia at Chestnut	Kirkwood St Superstop EB	Asheville Hwy before Holston Dr	Kirkwood St Superstop WB	Magnolia at Chestnut	Magnolia WB at Jessamine	Knoxville Station Bay F
1	2	3	4 <i>Transfer to Rts. 32 & 34</i>	5	6 <i>Transfer to Rts. 32 & 34</i>	7	8	9
				8:42 AM	8:48 AM	8:59 AM	9:04 AM	9:10 AM
7:15 AM	7:19 AM	7:25 AM	7:38 AM	7:42 AM	7:48 AM	7:59 AM	8:04 AM	8:10 AM
7:40 AM	7:49 AM	7:50 AM	8:08 AM	8:12 AM	8:18 AM	8:29 AM	8:34 AM	8:40 AM
8:15 AM	8:19 AM	8:25 AM	8:38 AM	8:42 AM	8:48 AM	8:59 AM	9:04 AM	9:10 AM
8:45 AM	8:49 AM	8:55 AM	9:08 AM	9:12 AM	9:18 AM	9:29 AM	9:34 AM	9:40 AM
9:15 AM	9:19 AM	9:25 AM	9:38 AM	9:42 AM	9:48 AM	9:59 AM	10:04 AM	10:10 AM
9:45 AM	9:49 AM	9:55 AM	10:08 AM	10:12 AM	10:18 AM	10:29 AM	10:34 AM	10:40 AM
10:15 AM	10:19 AM	10:25 AM	10:38 AM	10:42 AM	10:48 AM	10:59 AM	11:04 AM	11:10 AM
10:45 AM	10:49 AM	10:55 AM	11:08 AM	11:12 AM	11:18 AM	11:29 AM	11:34 AM	11:40 AM
11:15 AM	11:19 AM	11:25 AM	11:38 AM	11:42 AM	11:48 AM	11:59 AM	12:04 PM	12:10 PM
11:45 AM	11:49 AM	11:55 AM	12:08 PM	12:12 PM	12:18 PM	12:29 PM	12:34 PM	12:40 PM
12:15 PM	12:19 PM	12:25 PM	12:38 PM	12:42 PM	12:48 PM	12:59 PM	1:04 PM	1:10 PM
12:45 PM	12:49 PM	12:55 PM	1:08 PM	1:12 PM	1:18 PM	1:29 PM	1:34 PM	1:40 PM
1:15 PM	1:19 PM	1:25 PM	1:38 PM	1:42 PM	1:48 PM	1:59 PM	2:04 PM	2:10 PM
1:45 PM	1:49 PM	1:55 PM	2:08 PM	2:12 PM	2:18 PM	2:29 PM	2:34 PM	2:40 PM
2:15 PM	2:19 PM	2:25 PM	2:38 PM	2:42 PM	2:48 PM	2:59 PM	3:04 PM	3:10 PM
2:45 PM	2:49 PM	2:55 PM	3:08 PM	3:12 PM	3:18 PM	3:29 PM	3:34 PM	3:40 PM
3:15 PM	3:19 PM	3:25 PM	3:38 PM	3:42 PM	3:48 PM	3:59 PM	4:04 PM	4:10 PM
3:45 PM	3:49 PM	3:55 PM	4:08 PM	4:12 PM	4:18 PM	4:29 PM	4:34 PM	4:40 PM
4:15 PM	4:19 PM	4:25 PM	4:38 PM	4:42 PM	4:48 PM	4:59 PM	5:04 PM	5:10 PM
4:45 PM	4:49 PM	4:55 PM	5:08 PM	5:12 PM	5:18 PM	5:29 PM	5:34 PM	5:40 PM
5:15 PM	5:19 PM	5:25 PM	5:38 PM	5:42 PM	5:48 PM	5:59 PM	6:04 PM	6:10 PM
5:45 PM	5:49 PM	5:55 PM	6:08 PM	6:12 PM	6:18 PM	6:29 PM	6:34 PM	6:40 PM
6:15 PM	6:19 PM	6:25 PM	6:38 PM	6:42 PM	6:48 PM	6:59 PM	7:04 PM	7:10 PM
6:45 PM	6:49 PM	6:55 PM	7:08 PM	7:12 PM	7:18 PM	7:29 PM	7:34 PM	7:40 PM
7:15 PM	7:19 PM	7:25 PM	7:38 PM	7:42 PM	7:48 PM	7:59 PM	8:04 PM	8:10 PM
7:45 PM	7:49 PM	7:55 PM	8:08 PM	8:12 PM	8:18 PM	8:29 PM	8:34 PM	8:40 PM
8:15 PM	8:19 PM	8:25 PM	8:38 PM	8:42 PM	8:48 PM	8:59 PM	9:04 PM	9:10 PM
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9:15 PM	9:19 PM	9:25 PM	9:38 PM	9:42 PM	9:48 PM	9:59 PM	10:04 PM	10:10 PM
9:45 PM	9:49 PM	9:55 PM	10:08 PM	10:12 PM	10:18 PM	10:29 PM	10:34 PM	10:40 PM
10:15 PM	10:19 PM	10:25 PM	10:38 PM	10:42 PM	10:48 PM	10:59 PM	11:04 PM	11:10 PM
11:15 PM	11:19 PM	11:25 PM	11:38 PM	11:42 PM	11:48 PM	11:59 PM	12:04 PM	

SUNDAY								
Going away from downtown				Going toward downtown				
Knoxville Station Bay F	Magnolia EB at Jessamine	Magnolia at Chestnut	Kirkwood St Superstop EB	Asheville Hwy before Holston Dr	Kirkwood St Superstop WB	Magnolia at Chestnut	Magnolia WB at Jessamine	Knoxville Station Bay F
1	2	3	4 <i>Transfer to Rts. 32 & 34</i>	5	6 <i>Transfer to Rts. 32 & 34</i>	7	8	9
				8:42 AM	8:48 AM	8:59 AM	9:04 AM	9:10 AM
8:15 AM	8:19 AM	8:25 AM	8:38 AM	8:42 AM	8:48 AM	8:59 AM	9:04 AM	9:10 AM
8:45 AM	8:49 AM	8:55 AM	9:08 AM	9:12 AM	9:18 AM	9:29 AM	9:34 AM	9:40 AM
9:15 AM	9:19 AM	9:25 AM	9:38 AM	9:42 AM	9:48 AM	9:59 AM	10:04 AM	10:10 AM
9:45 AM	9:49 AM	9:55 AM	10:08 AM	10:12 AM	10:18 AM	10:29 AM	10:34 AM	10:40 AM
10:15 AM	10:19 AM	10:25 AM	10:38 AM	10:42 AM	10:48 AM	10:59 AM	11:04 AM	11:10 AM
10:45 AM	10:49 AM	10:55 AM	11:08 AM	11:12 AM	11:18 AM	11:29 AM	11:34 AM	11:40 AM
11:15 AM	11:19 AM	11:25 AM	11:38 AM	11:42 AM	11:48 AM	11:59 AM	12:04 PM	12:10 PM
11:45 AM	11:49 AM	11:55 AM	12:08 PM	12:12 PM	12:18 PM	12:29 PM	12:34 PM	12:40 PM
12:15 PM	12:19 PM	12:25 PM	12:38 PM	12:42 PM	12:48 PM	12:59 PM	1:04 PM	1:10 PM
12:45 PM	12:49 PM	12:55 PM	1:08 PM	1:12 PM	1:18 PM	1:29 PM	1:34 PM	1:40 PM
1:15 PM	1:19 PM	1:25 PM	1:38 PM	1:42 PM	1:48 PM	1:59 PM	2:04 PM	2:10 PM
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2:15 PM	2:19 PM	2:25 PM	2:38 PM	2:42 PM	2:48 PM	2:59 PM	3:04 PM	3:10 PM
2:45 PM	2:49 PM	2:55 PM	3:08 PM	3:12 PM	3:18 PM	3:29 PM	3:34 PM	3:40 PM
3:15 PM	3:19 PM	3:25 PM	3:38 PM	3:42 PM	3:48 PM	3:59 PM	4:04 PM	4:10 PM
3:45 PM	3:49 PM	3:55 PM	4:08 PM	4:12 PM	4:18 PM	4:29 PM	4:34 PM	4:40 PM
4:15 PM	4:19 PM	4:25 PM	4:38 PM	4:42 PM	4:48 PM	4:59 PM	5:04 PM	5:10 PM
4:45 PM	4:49 PM	4:55 PM	5:08 PM	5:12 PM	5:18 PM	5:29 PM	5:34 PM	5:40 PM
5:15 PM	5:19 PM	5:25 PM	5:38 PM	5:42 PM	5:48 PM	5:59 PM	6:04 PM	6:10 PM
5:45 PM	5:49 PM	5:55 PM	6:08 PM	6:12 PM	6:18 PM	6:29 PM	6:34 PM	6:40 PM
6:15 PM	6:19 PM	6:25 PM	6:38 PM	6:42 PM	6:48 PM	6:59 PM	7:04 PM	7:10 PM
6:45 PM	6:49 PM	6:55 PM	7:08 PM	7:12 PM	7:18 PM	7:29 PM	7:34 PM	7:40 PM
7:15 PM	7:19 PM	7:25 PM	7:38 PM	7:42 PM	7:48 PM	7:59 PM	8:04 PM	8:10 PM
7:45 PM	7:49 PM	7:55 PM	8:08 PM	8:12 PM	8:18 PM	8:29 PM	8:34 PM	8:40 PM
8:15 PM	8:19 PM	8:25 PM	8:38 PM	8:42 PM	8:48 PM	8:59 PM	9:04 PM	9:10 PM
8:45 PM	8:49 PM	8:55 PM	9:08 PM	9:12 PM	9:18 PM	9:29 PM	9:34 PM	9:40 PM
9:15 PM	9:19 PM	9:25 PM	9:38 PM	9:42 PM	9:48 PM	9:59 PM	10:04 PM	10:10 PM
9:45 PM	9:49 PM	9:55 PM	10:08 PM	10:12 PM	10:18 PM	10:29 PM	10:34 PM	10:40 PM
10:15 PM	10:19 PM	10:25 PM	10:38 PM	10:42 PM	10:48 PM	10:59 PM	11:04 PM	11:10 PM
11:15 PM	11:19 PM	11:25 PM	11:38 PM	11:42 PM	11:48 PM	11:59 PM	12:04 PM	

* buses arrive at different days as they go on to serve other routes.

To determine when the bus serves a location, match the numbers on the timetable to the numbers on the map (these locations are called "timepoints").



To determine when the bus serves a stop in between timepoints, look at when it is due at the timepoint before your stop and the timepoint after your stop, and you can estimate when it will arrive. Always be at your stop 5 minutes early!

T These symbols indicate transfer points or Superstops, which are specific stops where you can transfer to a different route. Routes serving a transfer point or Superstop are indicated at the top of the times schedule, just above the name of the stop.

Cómo leer este horario

Conecte el número dentro del círculo en el mapa con la columna del horario con el mismo número para ver cuándo el bus para en ese lugar (esos lugares se llaman "timepoints").

Para determinar cuándo un bus atiende una parada entre timepoints, mire a qué hora debería llegar al timepoint antes de su parada y el timepoint después de su parada, y podrá estimar la hora de llegada. Siempre llegue a su parada con 5 minutos de anticipación!

T Estos símbolos indican puntos de trasbordo Superstops que son paradas específicas donde puedes trasbordar a una ruta diferente. Las rutas que atienden un punto de trasbordo o Superstop están indicadas en la parte superior del horario, justo encima del nombre de la parada.

ACCESSIBILITY

All KAT buses are lift-equipped. Paratransit service is also available to those who qualify. For more information, visit katbus.com or call 865-637-3000.

Bike racks are available on all KAT buses. Bikes ride free.

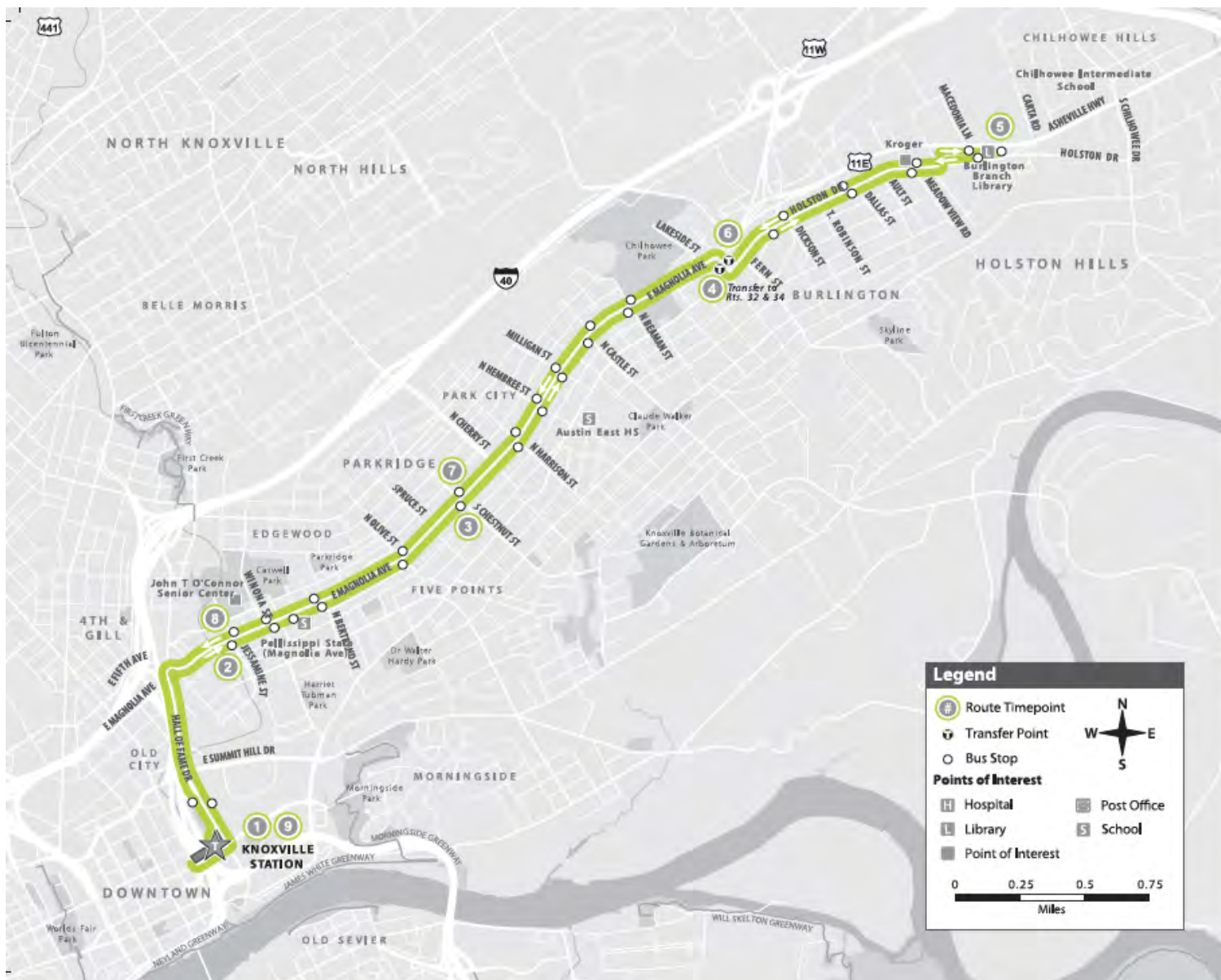
All buses have FREE Wi-Fi.

katbus.com • Customer Service: 865-637-3000

Route 31: Magnolia Avenue

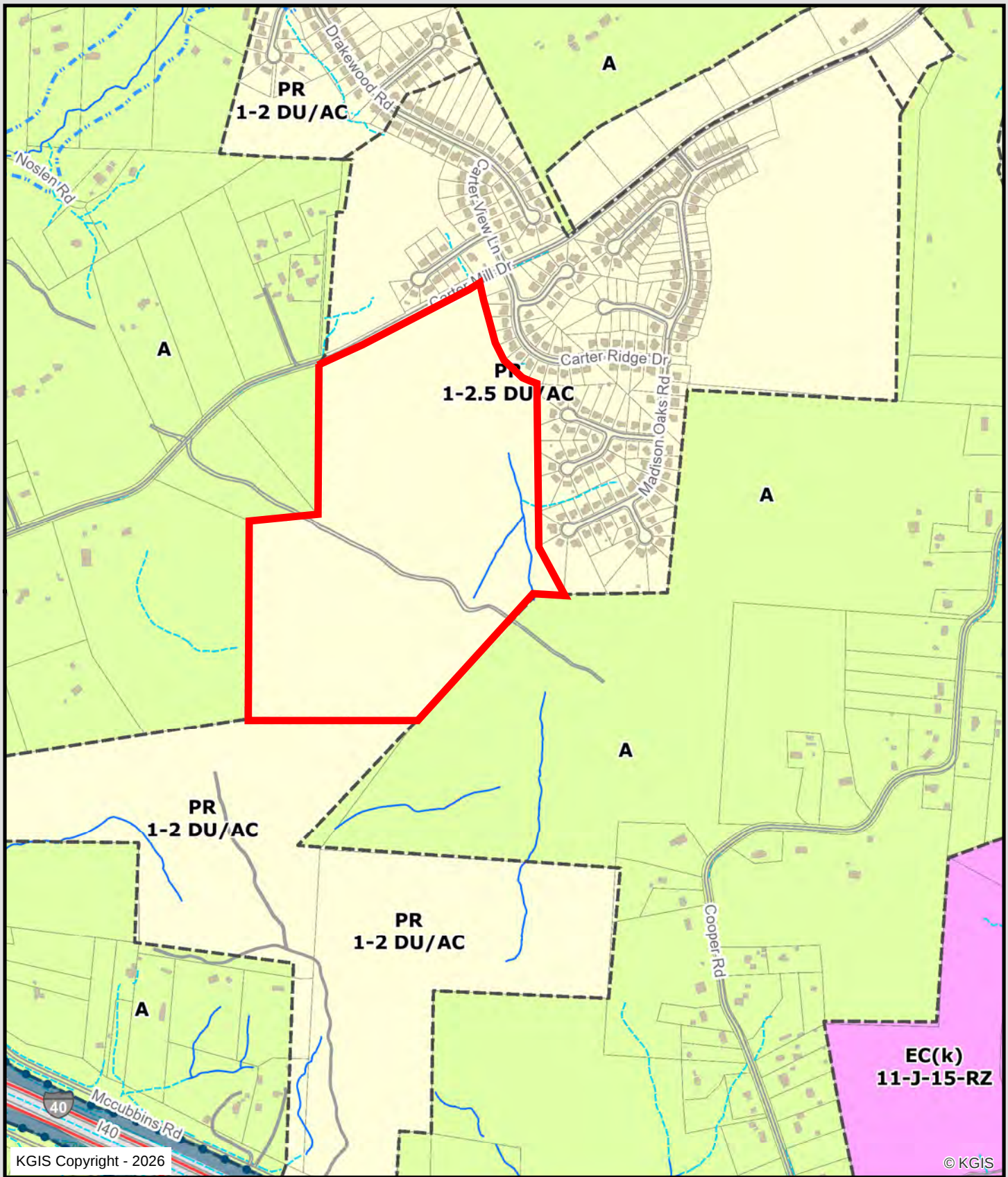
* Buses arrive at different bays as they go on to serve other routes.

WEEKDAY									
Going away from downtown				Going toward downtown					
Knoxville Station Bay F	Magnolia EB at Jessamine	Magnolia at Chestnut	Kirkwood St Superstop EB	Asheville Hwy before Holston Dr	Kirkwood St Superstop WB	Magnolia at Chestnut	Magnolia WB at Jessamine	Knoxville Station Arrival Time	Knoxville Station Bay*
			Transfer to Rts. 32 & 34		Transfer to Rts. 32 & 34				
1	2	3	4	5	6	7	8	9	
				6:12 AM	6:23 AM	6:29 AM	6:34 AM	6:40 AM	Bay P
				6:27 AM	6:38 AM	6:44 AM	6:49 AM	6:55 AM	Bay O
6:15 AM	6:19 AM	6:25 AM	6:38 AM	6:42 AM	6:53 AM	6:59 AM	7:04 AM	7:10 AM	Bay P
6:30 AM	6:34 AM	6:40 AM	6:53 AM	6:57 AM	7:08 AM	7:14 AM	7:19 AM	7:25 AM	Bay O
6:45 AM	6:49 AM	6:55 AM	7:08 AM	7:12 AM	7:23 AM	7:29 AM	7:34 AM	7:40 AM	Bay P
7:00 AM	7:04 AM	7:10 AM	7:23 AM	7:27 AM	7:38 AM	7:44 AM	7:49 AM	7:55 AM	Bay O
7:15 AM	7:19 AM	7:25 AM	7:38 AM	7:42 AM	7:53 AM	7:59 AM	8:04 AM	8:10 AM	Bay P
7:30 AM	7:34 AM	7:40 AM	7:53 AM	7:57 AM	8:08 AM	8:14 AM	8:19 AM	8:25 AM	Bay O
7:45 AM	7:49 AM	7:55 AM	8:08 AM	8:12 AM	8:23 AM	8:29 AM	8:34 AM	8:40 AM	Bay P
8:00 AM	8:04 AM	8:10 AM	8:23 AM	8:27 AM	8:38 AM	8:44 AM	8:49 AM	8:55 AM	Bay O
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11:30 AM	11:34 AM	11:40 AM	11:53 AM	11:57 AM	12:08 PM	12:14 PM	12:19 PM	12:25 PM	Bay O
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1:00 PM	1:04 PM	1:10 PM	1:23 PM	1:27 PM	1:38 PM	1:44 PM	1:49 PM	1:55 PM	Bay O
1:15 PM	1:19 PM	1:25 PM	1:38 PM	1:42 PM	1:53 PM	1:59 PM	2:04 PM	2:10 PM	Bay P
1:30 PM	1:34 PM	1:40 PM	1:53 PM	1:57 PM	2:08 PM	2:14 PM	2:19 PM	2:25 PM	Bay O
1:45 PM	1:49 PM	1:55 PM	2:08 PM	2:12 PM	2:23 PM	2:29 PM	2:34 PM	2:40 PM	Bay P
2:00 PM	2:04 PM	2:10 PM	2:23 PM	2:27 PM	2:38 PM	2:44 PM	2:49 PM	2:55 PM	Bay O
2:15 PM	2:19 PM	2:25 PM	2:38 PM	2:42 PM	2:53 PM	2:59 PM	3:04 PM	3:10 PM	Bay P
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6:00 PM	6:04 PM	6:10 PM	6:23 PM	6:27 PM	6:38 PM	6:44 PM	6:49 PM	6:55 PM	Bay F
6:15 PM	6:19 PM	6:25 PM	6:38 PM	6:42 PM	6:53 PM	6:59 PM	7:04 PM	7:10 PM	Bay P
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10:00 PM	10:04 PM	10:10 PM	10:23 PM	10:27 PM	10:38 PM	10:44 PM	10:49 PM	10:55 PM	Bay O
10:15 PM	10:19 PM	10:25 PM	10:38 PM	10:42 PM	10:53 PM	10:59 PM	11:04 PM	11:10 PM	Bay P
11:15 PM	11:19 PM	11:25 PM	11:38 PM	11:42 PM	11:53 PM	11:59 PM	12:04 AM		



APPENDIX C

ZONING MAP



Zoning Map

5.26.26

Knoxville - Knox County - KUB Geographic Information System



Printed: 5/26/2026 at 11:07:56 AM



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APPENDIX D

MANUAL TRAFFIC COUNT DATA

TRAFFIC COUNT DATA

Major Street: Carter Mill Drive (EB and WB)
 Minor Street: Carter View Lane (SB) / Carter Ridge Drive (NB)
 Traffic Control: Stop Signs on Minor Streets

5/12/2026 (Tuesday)
 Mostly Sunny and Mild
 Conducted by: Ajax Engineering

	Carter View Lane			Carter Mill Drive			Carter Ridge Drive			Carter Mill Drive			VEHICLE TOTAL	PEAK HOUR
TIME BEGIN	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND				
	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT		
7:00 AM	4	1	1	0	3	2	4	3	3	0	0	0	21	7:00 AM - 8:00 AM
7:15 AM	4	3	3	1	2	1	4	16	1	1	3	4	43	
7:30 AM	3	5	0	1	1	3	3	12	2	1	3	0	34	
7:45 AM	4	6	0	1	2	0	2	3	4	0	3	4	29	
8:00 AM	1	2	1	1	1	2	3	3	3	0	3	0	20	
8:15 AM	2	2	0	1	1	1	4	5	2	0	3	1	22	
8:30 AM	0	0	1	1	0	1	0	2	4	1	0	3	13	
8:45 AM	0	0	0	1	1	0	4	3	1	0	3	2	15	
TOTAL	18	19	6	7	11	10	24	47	20	3	18	14	197	
2:00 PM	0	4	0	1	1	1	2	0	2	0	2	1	14	
2:15 PM	2	1	0	0	0	2	1	1	0	0	1	1	9	
2:30 PM	0	1	1	1	0	0	0	5	1	0	0	0	9	
2:45 PM	1	5	0	1	0	1	2	1	1	0	0	1	13	
3:00 PM	2	2	0	0	1	2	1	2	1	1	0	4	16	
3:15 PM	1	3	0	2	2	2	1	1	2	0	0	0	14	
3:30 PM	5	4	2	6	4	5	3	2	1	0	1	1	34	
3:45 PM	1	5	2	2	1	1	2	2	1	0	1	1	19	
4:00 PM	0	3	1	2	0	1	3	2	1	0	2	0	15	
4:15 PM	3	5	1	3	0	3	5	4	0	0	2	4	30	
4:30 PM	2	2	1	1	3	0	3	0	0	1	2	3	18	
4:45 PM	0	2	0	2	2	1	5	3	1	0	1	7	24	
5:00 PM	0	4	0	3	4	1	2	2	0	0	2	3	21	5:00 PM - 6:00 PM
5:15 PM	1	3	1	3	1	4	1	5	0	1	3	2	25	
5:30 PM	0	4	4	4	4	1	4	4	1	0	3	4	33	
5:45 PM	1	2	1	0	3	1	4	4	2	1	3	3	25	
TOTAL	19	50	14	31	26	26	39	38	14	4	23	35	319	

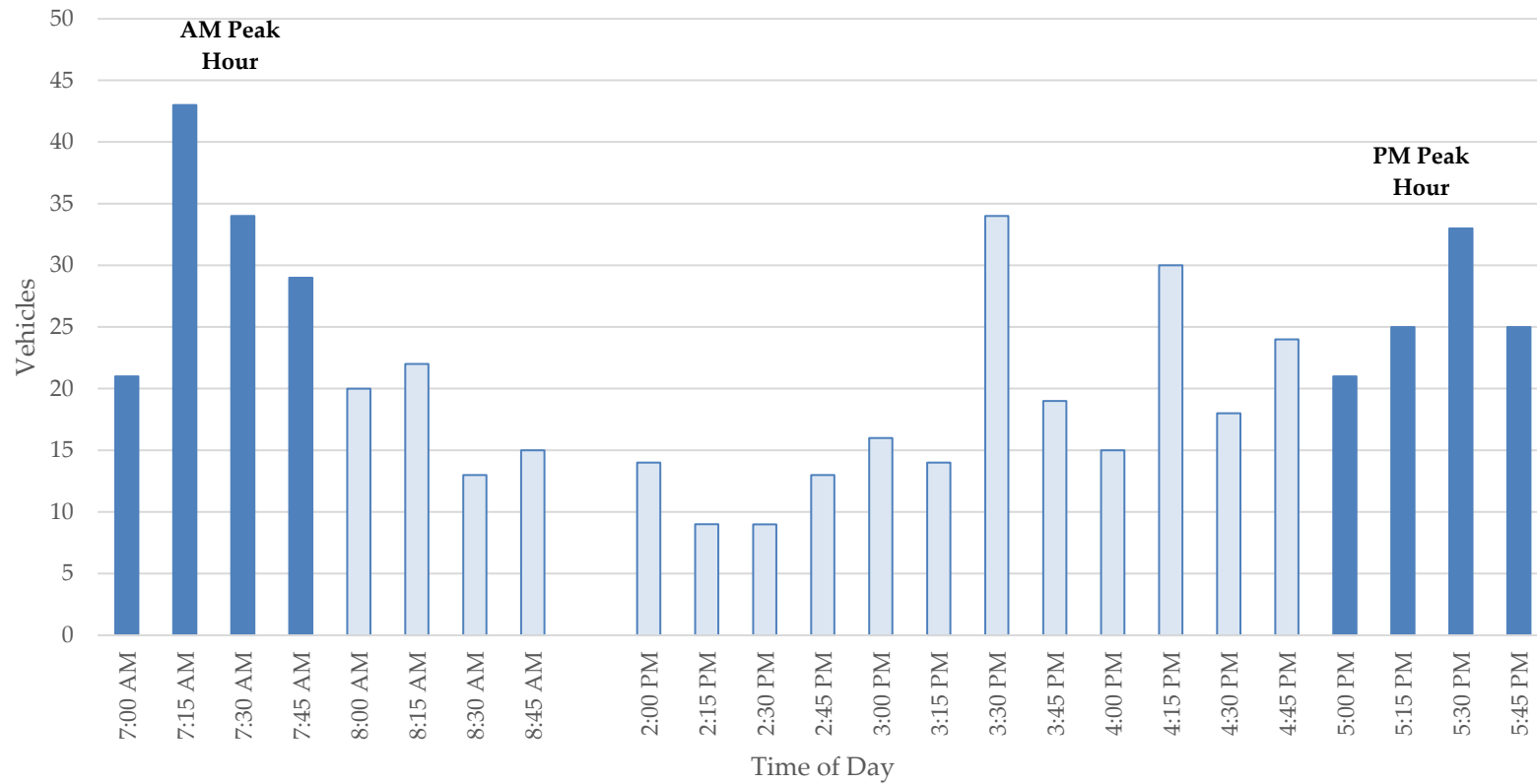
2026 AM Peak Hour 7:00 AM - 8:00 AM

	Carter View Lane			Carter Mill Drive			Carter Ridge Drive			Carter Mill Drive		
TIME BEGIN	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT
7:00 AM	4	1	1	0	3	2	4	3	3	0	0	0
7:15 AM	4	3	3	1	2	1	4	16	1	1	3	4
7:30 AM	3	5	0	1	1	3	3	12	2	1	3	0
7:45 AM	4	6	0	1	2	0	2	3	4	0	3	4
TOTAL	15	15	4	3	8	6	13	34	10	2	9	8
TRUCK %	6.6%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF _{mvmt}	0.94	0.63	0.33	0.75	0.67	0.50	0.81	0.53	0.63	0.50	0.75	0.50
PHF _{app}	0.85			0.85			0.68			0.59		
PHF _{int}	0.74											

2026 PM Peak Hour 5:00 PM - 6:00 PM

	Carter View Lane			Carter Mill Drive			Carter Ridge Drive			Carter Mill Drive		
TIME	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
BEGIN	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT
5:00 PM	0	4	0	3	4	1	2	2	0	0	2	3
5:15 PM	1	3	1	3	1	4	1	5	0	1	3	2
5:30 PM	0	4	4	4	4	1	4	4	1	0	3	4
5:45 PM	1	2	1	0	3	1	4	4	2	1	3	3
TOTAL	2	13	6	10	12	7	11	15	3	2	11	12
TRUCK %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF _{mvmt}	0.50	0.81	0.38	0.63	0.75	0.44	0.69	0.75	0.38	0.50	0.92	0.75
PHF _{app}	0.66			0.81			0.73			0.89		
PHF _{int}	0.79											

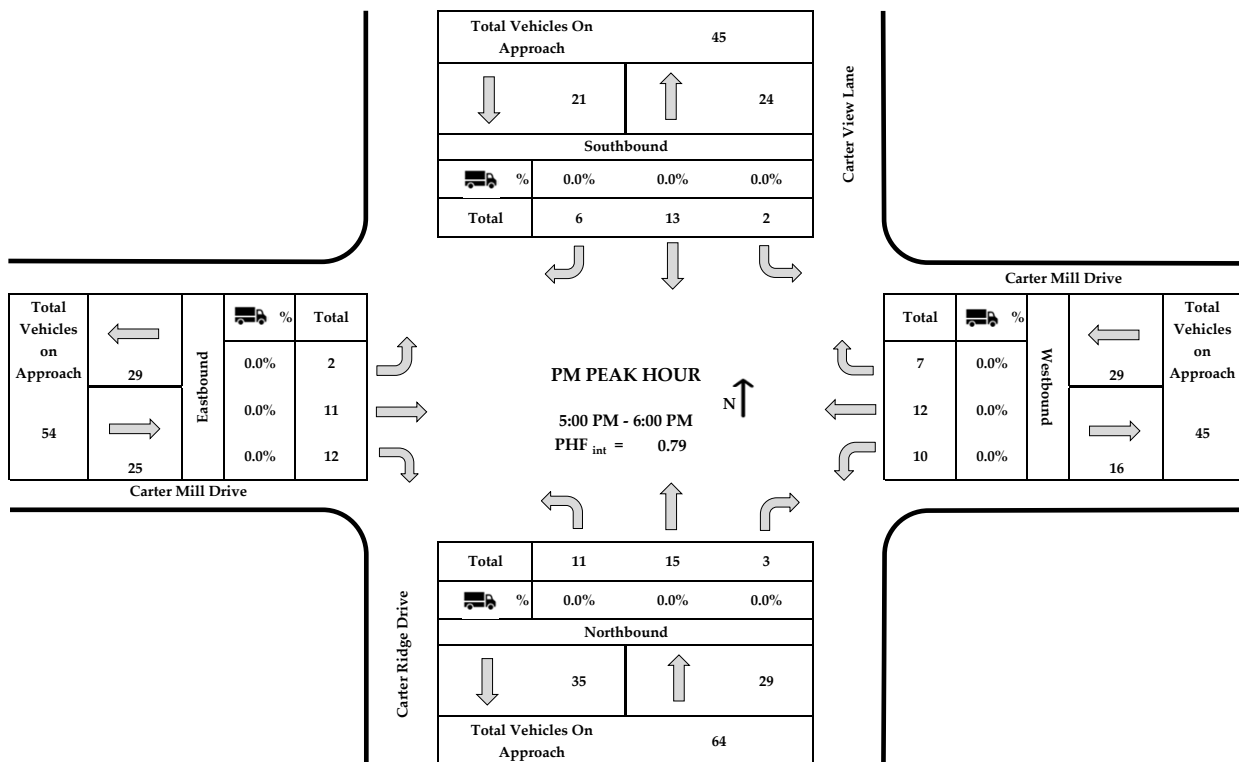
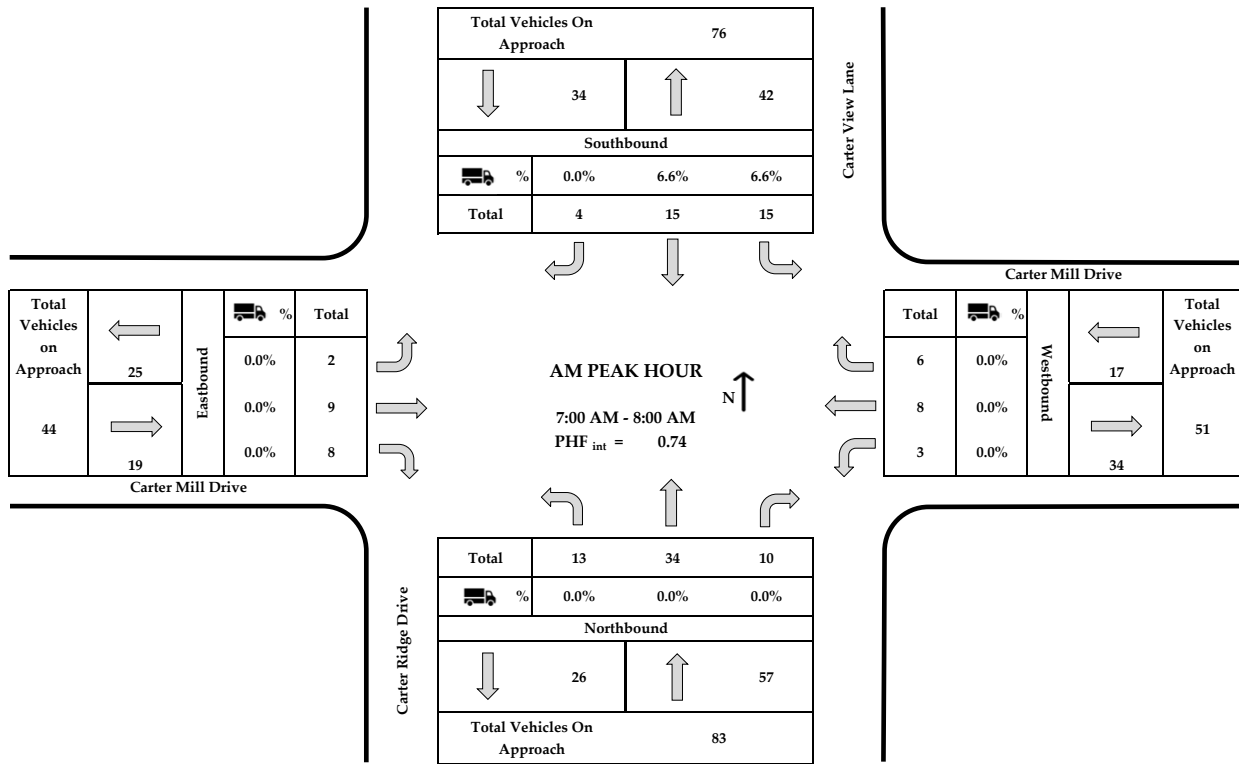
Carter Mill Drive at Carter View Lane & Carter Ridge Drive
Intersection Traffic Count Totals
5/12/26



PEAK HOUR DATA

Major Street: Carter Mill Drive (EB and WB)
 Minor Street: Carter View Lane (SB) / Carter Ridge Drive (NB)
 Traffic Control: Stop Signs on Minor Streets

5/12/2026 (Tuesday)
 Mostly Sunny and Mild
 Conducted by: Ajax Engineering



APPENDIX E

CAPACITY ANALYSES – HCM WORKSHEETS (SYNCHRO 12)

EXISTING CONDITIONS

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	9	8	3	8	6	13	34	10	15	15	4
Future Vol, veh/h	2	9	8	3	8	6	13	34	10	15	15	4
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	-	-	-4	-	-	5	-
Peak Hour Factor	59	59	59	85	85	85	68	68	68	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	7	7	0
Mvmt Flow	3	15	14	4	9	7	19	50	15	18	18	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	16	0	0	29	0	0	54	52	22	67	56	13
Stage 1	-	-	-	-	-	-	29	29	-	20	20	-
Stage 2	-	-	-	-	-	-	25	24	-	47	36	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.73	5.8	8.17	7.57	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.73	-	7.17	6.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.73	-	7.17	6.57	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.027	3.3	3.563	4.063	3.3
Pot Cap-1 Maneuver	1614	-	-	1598	-	-	960	847	1064	897	813	1071
Stage 1	-	-	-	-	-	-	1000	875	-	981	864	-
Stage 2	-	-	-	-	-	-	1003	878	-	942	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1614	-	-	1598	-	-	931	843	1064	829	810	1071
Mov Cap-2 Maneuver	-	-	-	-	-	-	931	843	-	829	810	-
Stage 1	-	-	-	-	-	-	998	873	-	978	862	-
Stage 2	-	-	-	-	-	-	976	876	-	874	845	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.76			1.28			9.44			9.49		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	895	173	-	-	293	-	-	842
HCM Lane V/C Ratio	0.094	0.002	-	-	0.002	-	-	0.047
HCM Ctrl Dly (s/v)	9.4	7.2	0	-	7.3	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	11	12	10	12	7	11	15	3	2	13	6
Future Vol, veh/h	2	11	12	10	12	7	11	15	3	2	13	6
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	-	-	-4	-	-	5	-
Peak Hour Factor	89	89	89	81	81	81	73	73	73	66	66	66
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	12	13	12	15	9	15	21	4	3	20	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	26	0	0	73	72	19	71	74	19
Stage 1	-	-	-	-	-	-	24	24	-	44	44	-
Stage 2	-	-	-	-	-	-	49	48	-	27	30	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.1	7.5	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1605	-	-	1601	-	-	938	836	1067	907	803	1062
Stage 1	-	-	-	-	-	-	1005	884	-	964	852	-
Stage 2	-	-	-	-	-	-	980	868	-	988	866	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1605	-	-	1601	-	-	899	828	1067	874	796	1062
Mov Cap-2 Maneuver	-	-	-	-	-	-	899	828	-	874	796	-
Stage 1	-	-	-	-	-	-	1003	883	-	956	845	-
Stage 2	-	-	-	-	-	-	941	861	-	960	865	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.58	2.51	9.31	9.32
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	874	130	-	-	578	-	-	865
HCM Lane V/C Ratio	0.045	0.001	-	-	0.008	-	-	0.037
HCM Ctrl Dly (s/v)	9.3	7.2	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

PROJECTED CONDITIONS WITHOUT THE PROJECT

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	10	9	3	9	6	14	37	11	16	16	4
Future Vol, veh/h	2	10	9	3	9	6	14	37	11	16	16	4
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	-	-	-4	-	-	5	-
Peak Hour Factor	59	59	59	85	85	85	68	68	68	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	7	7	0
Mvmt Flow	3	17	15	4	11	7	21	54	16	19	19	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	32	0	0	58	56	25	72	60	14
Stage 1	-	-	-	-	-	-	31	31	-	21	21	-
Stage 2	-	-	-	-	-	-	27	25	-	51	39	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.17	7.57	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.563	4.063	3.3
Pot Cap-1 Maneuver	1612	-	-	1593	-	-	955	849	1060	889	808	1070
Stage 1	-	-	-	-	-	-	997	879	-	979	863	-
Stage 2	-	-	-	-	-	-	1001	883	-	936	843	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1612	-	-	1593	-	-	925	846	1060	816	804	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	925	846	-	816	804	-
Stage 1	-	-	-	-	-	-	995	877	-	977	861	-
Stage 2	-	-	-	-	-	-	973	881	-	863	842	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.69	1.21	9.48	9.56
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	895	157	-	-	278	-	-	832
HCM Lane V/C Ratio	0.102	0.002	-	-	0.002	-	-	0.051
HCM Ctrl Dly (s/v)	9.5	7.2	0	-	7.3	0	-	9.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	12	13	11	13	8	12	16	3	2	14	6
Future Vol, veh/h	2	12	13	11	13	8	12	16	3	2	14	6
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	-	-	-4	-	-	5	-
Peak Hour Factor	89	89	89	81	81	81	73	73	73	66	66	66
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	13	15	14	16	10	16	22	4	3	21	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	26	0	0	28	0	0	79	78	21	77	81	21
Stage 1	-	-	-	-	-	-	25	25	-	48	48	-
Stage 2	-	-	-	-	-	-	54	53	-	29	33	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.1	7.5	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1601	-	-	1598	-	-	930	830	1065	898	795	1059
Stage 1	-	-	-	-	-	-	1003	883	-	957	847	-
Stage 2	-	-	-	-	-	-	975	865	-	985	864	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1601	-	-	1598	-	-	889	822	1065	862	787	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	889	822	-	862	787	-
Stage 1	-	-	-	-	-	-	1002	882	-	949	840	-
Stage 2	-	-	-	-	-	-	934	857	-	956	863	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.54			2.5			9.37			9.39		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	866	121	-	-	575	-	-	854
HCM Lane V/C Ratio	0.049	0.001	-	-	0.008	-	-	0.039
HCM Ctrl Dly (s/v)	9.4	7.3	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	10	9	3	9	7	15	38	11	17	17	4
Future Vol, veh/h	2	10	9	3	9	7	15	38	11	17	17	4
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	-	-	-4	-	-	5	-
Peak Hour Factor	59	59	59	85	85	85	68	68	68	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	7	7	0
Mvmt Flow	3	17	15	4	11	8	22	56	16	20	20	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	19	0	0	32	0	0	59	57	25	73	61	15
Stage 1	-	-	-	-	-	-	31	31	-	22	22	-
Stage 2	-	-	-	-	-	-	28	26	-	52	39	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.17	7.57	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.563	4.063	3.3
Pot Cap-1 Maneuver	1611	-	-	1593	-	-	955	848	1060	887	807	1069
Stage 1	-	-	-	-	-	-	997	879	-	978	862	-
Stage 2	-	-	-	-	-	-	1001	883	-	935	843	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1611	-	-	1593	-	-	923	845	1060	812	803	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	923	845	-	812	803	-
Stage 1	-	-	-	-	-	-	995	877	-	976	860	-
Stage 2	-	-	-	-	-	-	971	881	-	860	842	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.69	1.15	9.5	9.59
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	894	157	-	-	261	-	-	829
HCM Lane V/C Ratio	0.105	0.002	-	-	0.002	-	-	0.054
HCM Ctrl Dly (s/v)	9.5	7.2	0	-	7.3	0	-	9.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.2

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	12	13	11	13	8	12	17	3	2	15	7
Future Vol, veh/h	2	12	13	11	13	8	12	17	3	2	15	7
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	-	-	-4	-	-	5	-
Peak Hour Factor	89	89	89	81	81	81	73	73	73	66	66	66
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	13	15	14	16	10	16	23	4	3	23	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	26	0	0	28	0	0	80	78	21	78	81	21
Stage 1	-	-	-	-	-	-	25	25	-	48	48	-
Stage 2	-	-	-	-	-	-	55	53	-	30	33	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.1	7.5	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1601	-	-	1598	-	-	930	830	1065	897	795	1059
Stage 1	-	-	-	-	-	-	1003	883	-	957	847	-
Stage 2	-	-	-	-	-	-	975	865	-	984	864	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1601	-	-	1598	-	-	885	822	1065	859	787	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	885	822	-	859	787	-
Stage 1	-	-	-	-	-	-	1002	882	-	949	840	-
Stage 2	-	-	-	-	-	-	931	857	-	953	863	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.54			2.5			9.39			9.38		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	863	121	-	-	575	-	-	858				
HCM Lane V/C Ratio	0.051	0.001	-	-	0.008	-	-	0.042				
HCM Ctrl Dly (s/v)	9.4	7.3	0	-	7.3	0	-	9.4				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1				

PROJECTED CONDITIONS WITH THE PROJECT

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	26	13	3	18	21	24	67	11	22	27	19
Future Vol, veh/h	44	26	13	3	18	21	24	67	11	22	27	19
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	-	-	-4	-	-	5	-
Peak Hour Factor	59	59	59	85	85	85	68	68	68	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	7	7	0
Mvmt Flow	75	44	22	4	21	25	35	99	16	26	32	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	46	0	0	66	0	0	248	257	55	283	256	34
Stage 1	-	-	-	-	-	-	204	204	-	41	41	-
Stage 2	-	-	-	-	-	-	44	53	-	242	215	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.17	7.57	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.17	6.57	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.563	4.063	3.3
Pot Cap-1 Maneuver	1575	-	-	1549	-	-	750	689	1024	609	596	1041
Stage 1	-	-	-	-	-	-	840	771	-	951	842	-
Stage 2	-	-	-	-	-	-	985	865	-	701	674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1575	-	-	1549	-	-	659	653	1024	487	565	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	659	653	-	487	565	-
Stage 1	-	-	-	-	-	-	798	733	-	949	840	-
Stage 2	-	-	-	-	-	-	925	863	-	568	641	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	3.92			0.52			11.77			11.77		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	681	895	-	-	116	-	-	611
HCM Lane V/C Ratio	0.22	0.047	-	-	0.002	-	-	0.131
HCM Ctrl Dly (s/v)	11.8	7.4	0	-	7.3	0	-	11.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0	-	-	0.4

HCM 7th TWSC
8: Proposed Entrance & Carter Mill Drive

Intersection

Int Delay, s/veh 4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	6	20	41	14	56
Future Vol, veh/h	27	6	20	41	14	56
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	-5	-
Peak Hour Factor	59	90	90	85	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	46	7	22	48	16	62

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	52
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1566
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1566
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.31	8.92
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	997	-	-	568	-
HCM Lane V/C Ratio	0.078	-	-	0.014	-
HCM Ctrl Dly (s/v)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

HCM 7th TWSC

3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Intersection

Int Delay, s/veh 6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	27	29	11	41	16	23	33	3	12	37	39
Future Vol, veh/h	26	27	29	11	41	16	23	33	3	12	37	39
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	-	-	-4	-	-	5	-
Peak Hour Factor	89	89	89	81	81	81	73	73	73	66	66	66
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	29	30	33	14	51	20	32	45	4	18	56	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	63	0	0	211	203	47	199	209	60
Stage 1	-	-	-	-	-	-	105	105	-	88	88	-
Stage 2	-	-	-	-	-	-	106	98	-	111	121	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.3	5.7	5.8	8.1	7.5	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.3	4.7	-	7.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1543	-	-	1553	-	-	787	729	1034	723	653	1002
Stage 1	-	-	-	-	-	-	927	831	-	903	806	-
Stage 2	-	-	-	-	-	-	926	836	-	871	773	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1543	-	-	1553	-	-	657	708	1034	656	634	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	657	708	-	656	634	-
Stage 1	-	-	-	-	-	-	909	815	-	894	799	-
Stage 2	-	-	-	-	-	-	803	828	-	804	758	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.34	1.19	10.83	10.73
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	698	517	-	-	276	-	-	761
HCM Lane V/C Ratio	0.116	0.019	-	-	0.009	-	-	0.175
HCM Ctrl Dly (s/v)	10.8	7.4	0	-	7.3	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.6

HCM 7th TWSC

9: Proposed Entrance & Carter Mill Drive

Intersection

Int Delay, s/veh 3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	51	24	55	48	17	31
Future Vol, veh/h	51	24	55	48	17	31
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	-5	-
Peak Hour Factor	89	90	90	81	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	57	27	61	59	19	34

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	84
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1526
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1526
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	3.79	9.23
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	904	-	-	914	-
HCM Lane V/C Ratio	0.059	-	-	0.04	-
HCM Ctrl Dly (s/v)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

APPENDIX F

ITE TRIP GENERATION DATA

Land Use: 210

Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates, based on a small sample of sites, are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 215), and higher than those for senior adult housing—single-family (Land Use 251). (Source 1008)

Additional Data

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Alabama, Arizona, British Columbia (CAN), California, Delaware, Illinois, Kentucky, Massachusetts, Minnesota, Montana, New Jersey, New York, North Carolina, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Vermont, and West Virginia.

Source Numbers

356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077, 1078, 1079, 1204, 1221, 1225, 1236, 1251, 1265, 1267

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 155

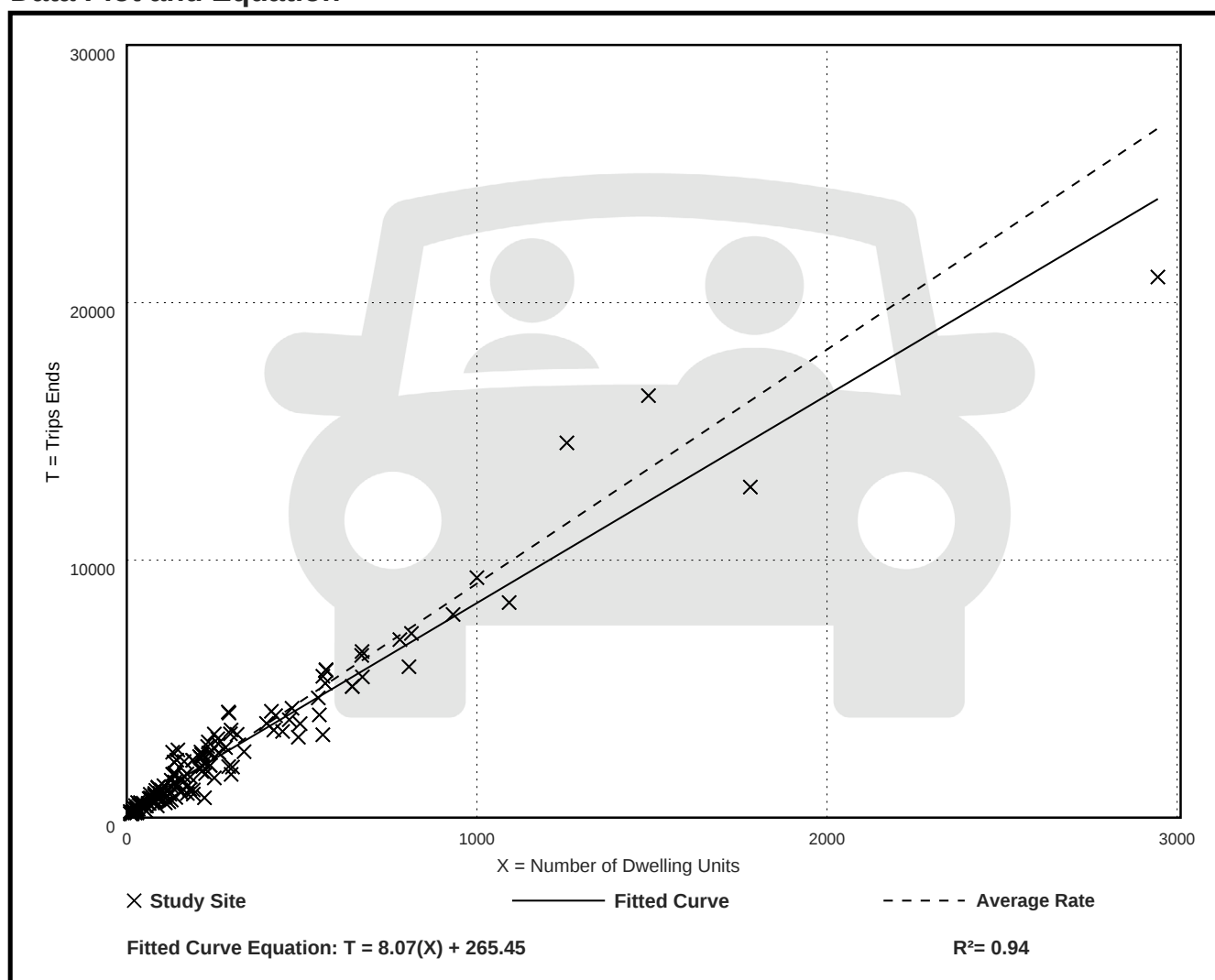
Avg. Num. of Dwelling Units: 261

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.09	3.47 - 23.80	2.29

Data Plot and Equation



Single-Family Detached Housing (210)

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: 153

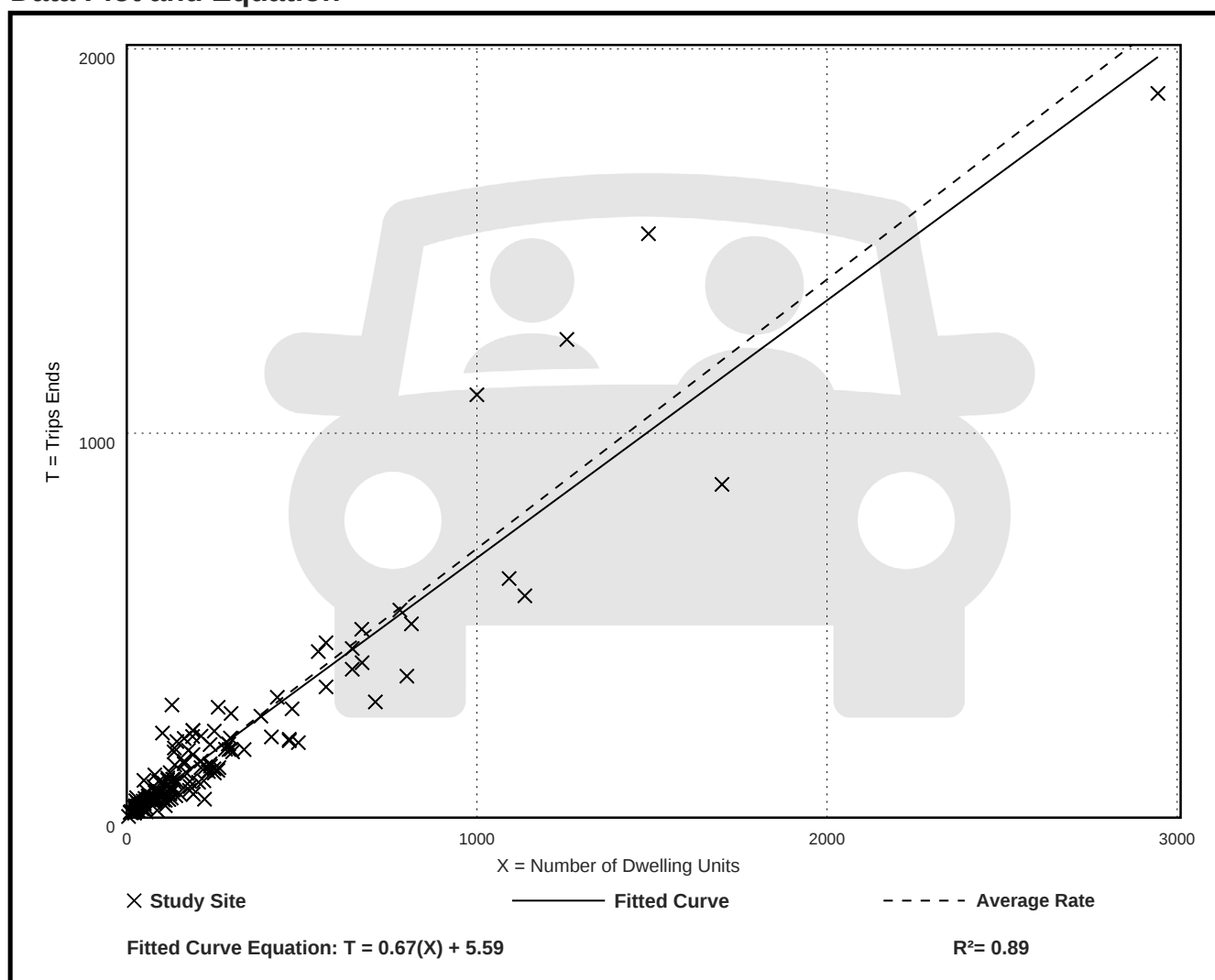
Avg. Num. of Dwelling Units: 239

Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Single-Family Detached Housing (210)

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: 166

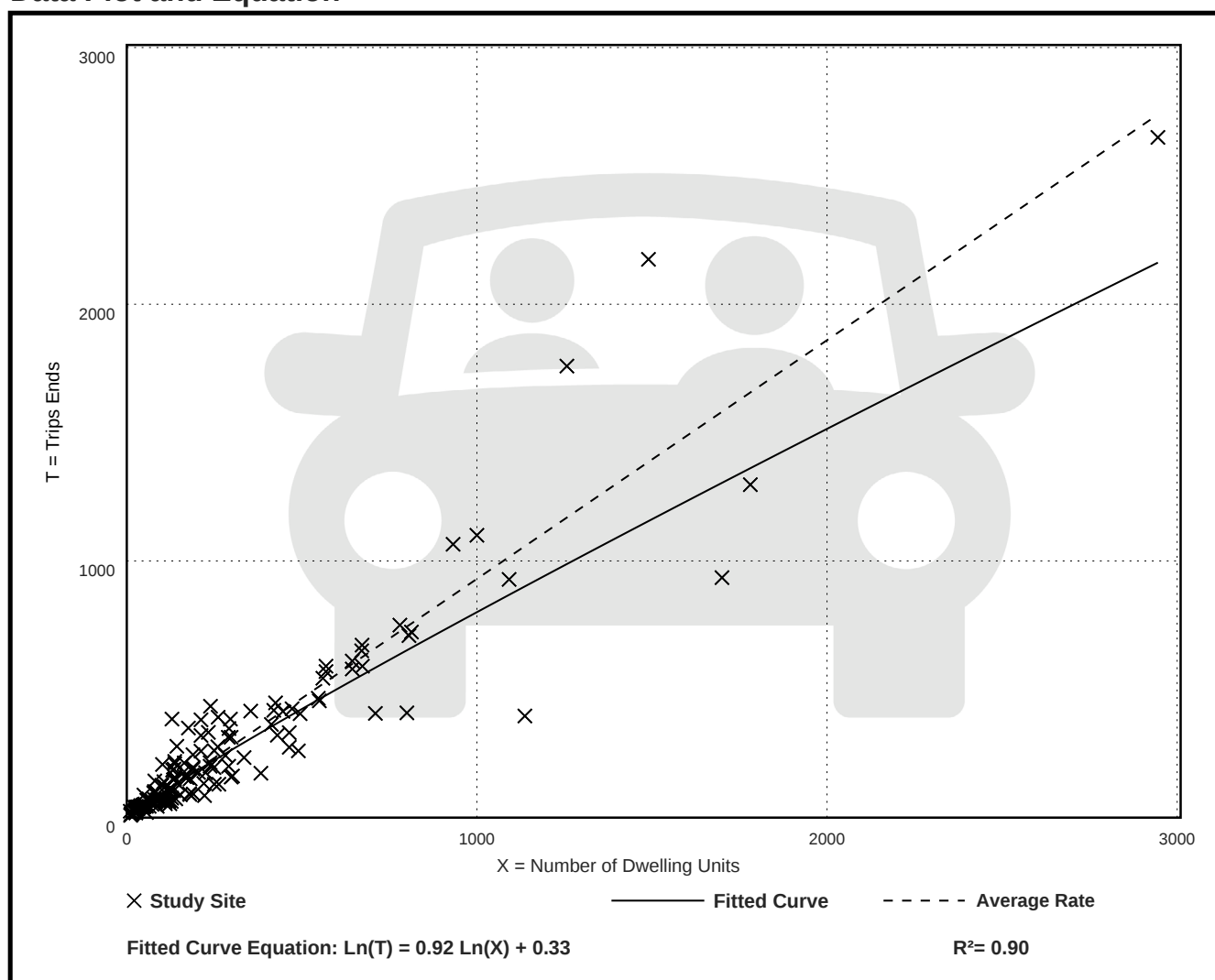
Avg. Num. of Dwelling Units: 266

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



TRIP GENERATION FOR CARTER RIDGE PHASES VI - IX

263 Single-Family Detached Houses

ITE LAND USE CODE	LAND USE DESCRIPTION	# OF UNITS	GENERATED DAILY TRAFFIC	GENERATED TRAFFIC AM PEAK HOUR			GENERATED TRAFFIC PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
#210	Single-Family Detached Housing	Phases VI & VII 89 Houses	984	27%	73%		62%	38%	
				18	47	65	54	32	86
#210	Single-Family Detached Housing	Phase VIII 39 Houses	580	27%	73%		62%	38%	
				9	23	32	25	15	40
#210	Single-Family Detached Housing	Phase IX 135 Houses	1,355	27%	73%		62%	38%	
				26	70	96	79	48	127
Total New Volume Site Trips			2,919	53	140	193	158	95	253

ITE Trip Generation Manual, 12th Edition

Trips calculated by using Fitted Curve Equations

TRIP GENERATION FOR CARTER RIDGE PHASES VI & VII
89 Single-Family Detached Houses

89 Residential Houses = X

Weekday:

Fitted Curve Equation: $T = 8.07(X) + 265.45$

$T = \quad 718.23 \quad + \quad 265.45$

$T = \quad 983.68$

$T = \quad 984 \text{ trips}$

Peak Hour of Adjacent Traffic between 7 and 9 am:

Fitted Curve Equation: $T = 0.67(X) + 5.59$

$T = \quad 59.63 \quad + \quad 5.59$

$T = \quad 65.22$

$T = \quad 65 \text{ trips}$

Peak Hour of Adjacent Traffic between 4 and 6 pm:

Fitted Curve Equation: $\ln(T) = 0.92 \ln(X) + 0.33$

$\ln(T) = \quad 0.92 \quad * \quad 4.49 \quad + \quad 0.33$

$\ln(T) = \quad 4.46$

$T = \quad 86 \text{ trips}$

TRIP GENERATION FOR CARTER RIDGE PHASE VIII
39 Single-Family Detached Houses

39 Residential Houses = X

Weekday:

Fitted Curve Equation: $T = 8.07(X) + 265.45$

$T = \quad 314.73 \quad + \quad 265.45$
 $T = \quad 580.18$
 $T = \quad \underline{\underline{580 \text{ trips}}}$

Peak Hour of Adjacent Traffic between 7 and 9 am:

Fitted Curve Equation: $T = 0.67(X) + 5.59$

$T = \quad 26.13 \quad + \quad 5.59$
 $T = \quad 31.72$
 $T = \quad \underline{\underline{32 \text{ trips}}}$

Peak Hour of Adjacent Traffic between 4 and 6 pm:

Fitted Curve Equation: $\ln(T) = 0.92 \ln(X) + 0.33$

$\ln(T) = \quad 0.92 \quad * \quad 3.66 \quad + \quad 0.33$
 $\ln(T) = \quad 3.70$
 $T = \quad \underline{\underline{40 \text{ trips}}}$

TRIP GENERATION FOR CARTER RIDGE PHASE IX
135 Single-Family Detached Houses

135 Residential Houses = X

Weekday:

Fitted Curve Equation: $T = 8.07(X) + 265.45$

$T = \quad 1089.45 \quad + \quad 265.45$

$T = \quad 1354.90$

$T = \quad 1,355 \text{ trips}$

Peak Hour of Adjacent Traffic between 7 and 9 am:

Fitted Curve Equation: $T = 0.67(X) + 5.59$

$T = \quad 90.45 \quad + \quad 5.59$

$T = \quad 96.04$

$T = \quad 96 \text{ trips}$

Peak Hour of Adjacent Traffic between 4 and 6 pm:

Fitted Curve Equation: $\ln(T) = 0.92 \ln(X) + 0.33$

$\ln(T) = \quad 0.92 \quad * \quad 4.91 \quad + \quad 0.33$

$\ln(T) = \quad 4.84$

$T = \quad 127 \text{ trips}$

APPENDIX G

2023 CENSUS BUREAU DATA

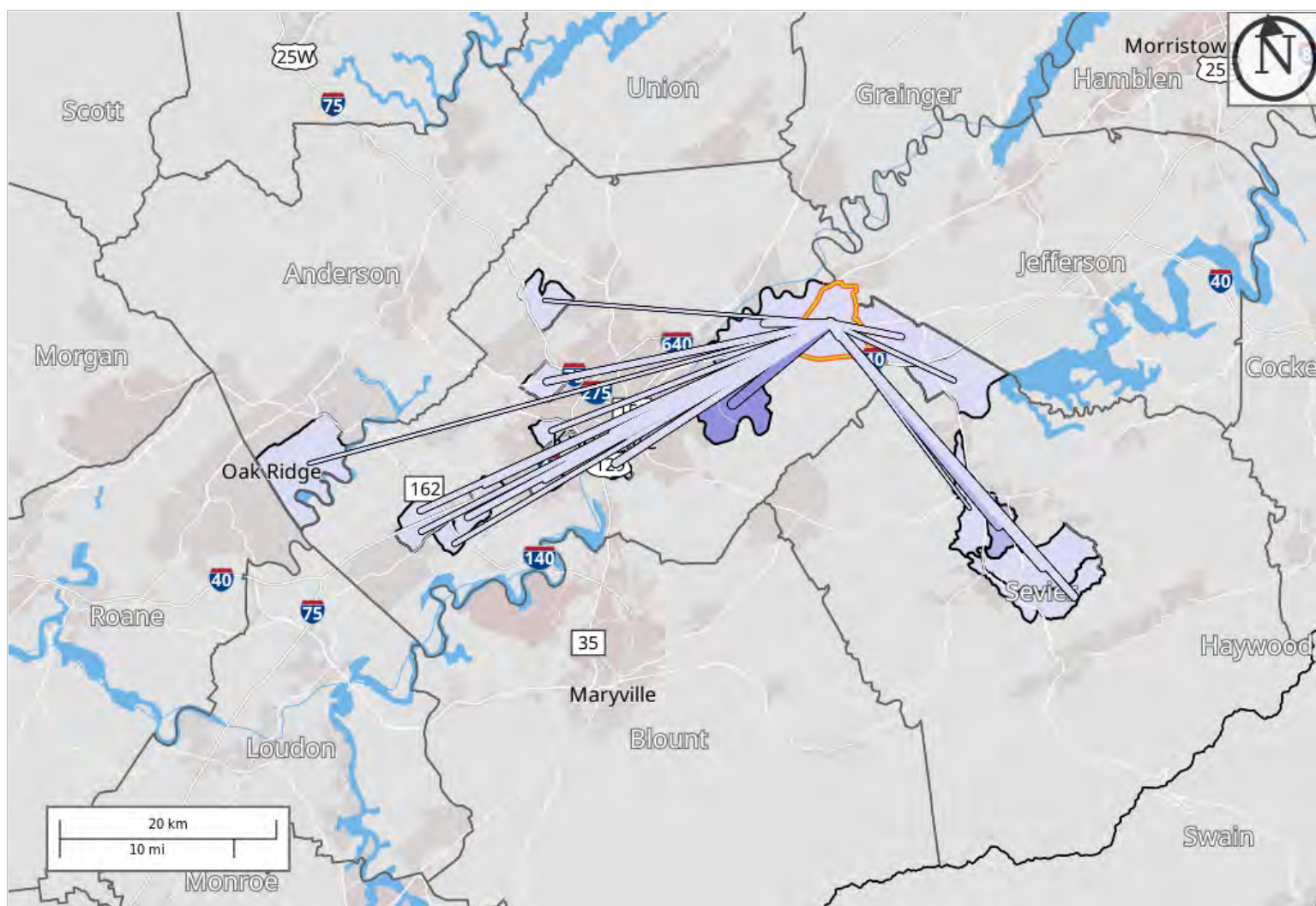
Destination Analysis

Workers: Living in 53.02 (Knox, TN)

Showing: Employment locations grouped by Census Tracts

Created by the U.S. Census Bureau's OnTheMap <https://onthemap.ces.census.gov> on 05/12/2026

Counts of All Jobs from Home Selection Area to Work Census Tracts in 2023 All Workers



Map Legend

Job Count

- 162 - 185
- 138 - 161
- 114 - 137
- 91 - 113
- 67 - 90
- 43 - 66
- 19 - 42

Selection Areas

- ▮ Home Area

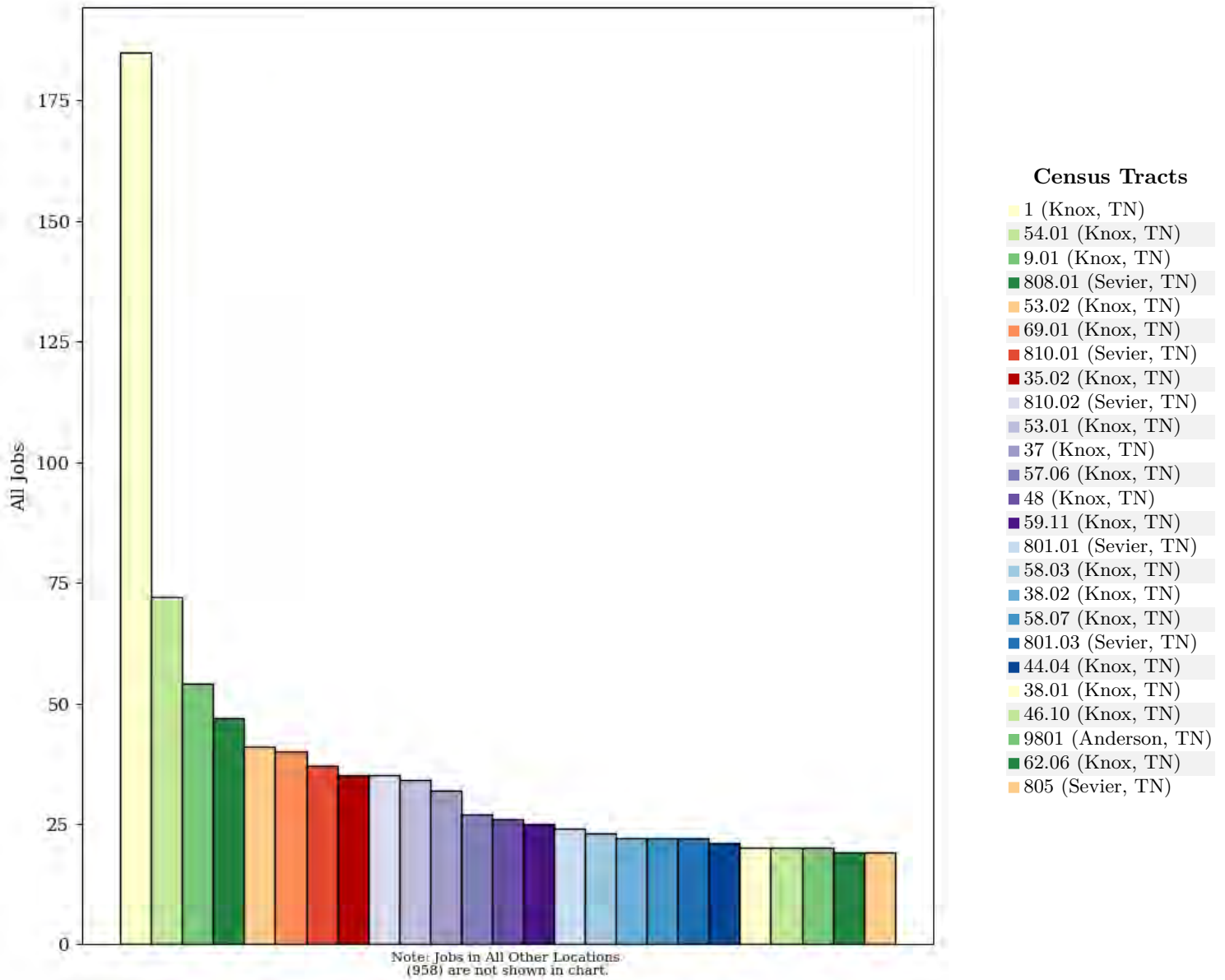
Job Count

- ▮ 162 - 185
- ▮ 138 - 161
- ▮ 114 - 137
- ▮ 91 - 113
- ▮ 67 - 90
- ▮ 43 - 66
- ▮ 19 - 42



All Jobs from Home Selection Area to Work Census Tracts in 2023

All Workers



All Jobs from Home Selection Area to Work Census Tracts in 2023

All Workers

Census Tracts as Work Destination Area	2023	
	Count	Share
All Census Tracts	1,880	100.0%
1 (Knox, TN)	185	9.8%
54.01 (Knox, TN)	72	3.8%
9.01 (Knox, TN)	54	2.9%
808.01 (Sevier, TN)	47	2.5%
53.02 (Knox, TN)	41	2.2%
69.01 (Knox, TN)	40	2.1%
810.01 (Sevier, TN)	37	2.0%
35.02 (Knox, TN)	35	1.9%
810.02 (Sevier, TN)	35	1.9%
53.01 (Knox, TN)	34	1.8%

Census Tracts as Work Destination Area	2023	
	Count	Share
37 (Knox, TN)	32	1.7%
57.06 (Knox, TN)	27	1.4%
48 (Knox, TN)	26	1.4%
59.11 (Knox, TN)	25	1.3%
801.01 (Sevier, TN)	24	1.3%
58.03 (Knox, TN)	23	1.2%
38.02 (Knox, TN)	22	1.2%
58.07 (Knox, TN)	22	1.2%
801.03 (Sevier, TN)	22	1.2%
44.04 (Knox, TN)	21	1.1%
38.01 (Knox, TN)	20	1.1%
46.10 (Knox, TN)	20	1.1%
9801 (Anderson, TN)	20	1.1%
62.06 (Knox, TN)	19	1.0%
805 (Sevier, TN)	19	1.0%
All Other Locations	958	51.0%

Additional Information

Analysis Settings

Analysis Type	Destination
Destination Type	Census Tracts
Selection area as	Home
Year(s)	2023
Job Type	All Jobs
Selection Area	53.02 (Knox, TN) from Census Tracts
Selected Census Blocks	95
Analysis Generation Date	05/12/2026 16:15 - OnTheMap 6.26.1
Code Revision	8e0435a3cbc6e8c298add78764d42126c9686cc9
LODES Data Vintage	8.4 (20251202_1657)

Data Sources

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2023).

Notes

1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not available before 2009.
2. Educational Attainment is only produced for workers aged 30 and over.
3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available before 2011.

APPENDIX H

KNOX COUNTY TURN LANE VOLUME THRESHOLD WORKSHEETS

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

Table 4B. Right-Turn Lane Volume Thresholds
For Two-Lane Roadways with a Prevailing Speed of 35 MPH or Less

RIGHT-TURN VOLUME	27	THROUGH VOLUME PLUS LEFT-TURN VOLUME*				
	<100	100 -199	200 - 249	250 -299	300 - 349	350 - 399
6 Fewer Than 25 25 - 49 50 - 99						
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
500 - 549 550 - 599		Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

Carter Mill Drive at
Proposed Entrance

2029 Projected AM
EB Right Turns = 6

Right Turn Lane NOT
Warranted

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.

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

Table 4B. Right-Turn Lane Volume Thresholds
For Two-Lane Roadways with a Prevailing Speed of 35 MPH or Less

RIGHT-TURN VOLUME	51	THROUGH VOLUME PLUS LEFT-TURN VOLUME*				
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
24	Fewer Than 25					
	25 - 49					
	50 - 99					
	100 - 149					
	150 - 199					
	200 - 249					
	250 - 299					Yes
	300 - 349				Yes	Yes
	350 - 399			Yes	Yes	Yes
	400 - 449			Yes	Yes	Yes
	450 - 499			Yes	Yes	Yes
	500 - 549	Yes	Yes	Yes	Yes	Yes
	550 - 599	Yes	Yes	Yes	Yes	Yes
	600 or More	Yes	Yes	Yes	Yes	Yes

Carter Mill Drive at
Proposed Entrance

2029 Projected AM
EB Right Turns = 24

Right Turn Lane NOT
Warranted

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

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

APPENDIX I

VEHICLE QUEUE WORKSHEETS (SIMTRAFFIC 12)

Queuing and Blocking Report

Intersection: 3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	57	66
Average Queue (ft)	3	35	32
95th Queue (ft)	18	53	59
Link Distance (ft)	358	252	265
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Proposed Entrance & Carter Mill Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	12	55
Average Queue (ft)	0	30
95th Queue (ft)	6	50
Link Distance (ft)	395	230
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Intersection: 3: Carter Ridge Drive/Carter View Lane & Carter Mill Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	26	15	55	59
Average Queue (ft)	1	1	30	33
95th Queue (ft)	12	8	49	51
Link Distance (ft)	358	240	252	265
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Proposed Entrance & Carter Mill Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	34	47
Average Queue (ft)	4	25
95th Queue (ft)	21	47
Link Distance (ft)	373	234
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

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