

Project Wildcat

# TECHNICAL REPORT





## Acknowledgements

Project Wildcat would like to acknowledge those who made valuable contributions to the recommendations:

### Cherokee County Board of Commissioners

*Chairman Harry Johnston  
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*Including Project Management Team members:*

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*Including Project Management Team members:*

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### Cherokee Office of Economic Development

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*Northside Hospital  
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WellStar Cherokee Health Park  
Worthing Companies  
River Park Master HOA*

Property owners and the public who gave feedback throughout the study



**STATE OF GEORGIA  
COUNTY OF CHEROKEE**

**RESOLUTION NO. 2025-R-070**

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**A RESOLUTION OF THE CHEROKEE COUNTY BOARD OF COMMISSIONERS,  
ADOPTING THE WILDCAT AREA PLAN; PROVIDING FOR THE  
IMPLEMENTATION OF THE WILDCAT AREA PLAN; AND FOR OTHER PURPOSES**

**WHEREAS**, the I-575 and Sixes Road Interchange Area, has always been well positioned for success due to its strategic location – a relatively quick drive from I-75 – while also serving as a critical connector, providing essential access for Bells Ferry Road, Old Highway 5, and East Cherokee Drive. With expansive quadrants and large tracts of available acreage, anchored by a network of local roads, the interchange has always had a strong foundation for success; and

**WHEREAS**, over the past two decades, the I-575 and Sixes Road Interchange Area has prospered with the construction of Class A medical office facilities, joined by quality retailers and exceptional service providers. During this time, Sixes Road and the bridge over I-575 were expanded to four lanes, increasing capacity and enhancing traffic flow through the interchange area. Additionally, the managed lanes project delivered by the Georgia Department of Transportation, further cemented the interchange area as a critical destination; and

**WHEREAS**, despite the positive improvements witnessed in the I-575 and Sixes Road Interchange Area over the past two decades, the full potential remains unrealized, largely due to the difficult access and challenging logistics affecting the southeast quadrant (North Rope Mill Road); and

**WHEREAS**, Cherokee County and the cities of Holly Springs and Woodstock share jurisdiction in the I-575 and Sixes Road Interchange Area, with each jurisdiction visioning this area as a regional activity, workplace, and employment center as reflected within the respective comprehensive plans; and

**WHEREAS**, Cherokee County, Holly Springs, and Woodstock expect the I-575 and Sixes Road Interchange Area to realize its full potential as a regional activity center and therefore entered into a partnership, joined by the Cherokee Office of Economic Development (COED), in October 2023 to pursue an area plan of the interchange area; and

**WHEREAS**, Cherokee County, Holly Springs, Woodstock, and COED together selected Kimley-Horn and Associates (KHA) through a competitive procurement process to complete the area plan, studying development scenarios as well as potential transportation improvements to reduce congestion and enhance mobility; and

**WHEREAS**, the area plan study, which commenced in February 2024 and concluded in May 2025, included robust public and stakeholder input, traffic modeling, and land use scenarios to establish recommendations for projects and transportation improvements to maximize the productivity and traffic mobility of the overall interchange area; and

**WHEREAS**, the recommendations from the area plan study are contained in the Wildcat Area Plan, attached hereto as Exhibit “A.” The plan is named for the area historically known as the “Wild Cat” militia district, which is the current location of the I-575 and Sixes Road Interchange Area; and

**WHEREAS**, the Board of Commissioners seek to adopt the Wildcat Area Plan, which is supported by a technical report; and

**WHEREAS**, the Board of Commissioners seek to pursue an implementation plan for the recommendations of the Wildcat Area Plan in partnership with Holly Springs, Woodstock, and COED with the goal achieving the vision set forth by the plan; and

**NOW, THEREFORE, BE IT RESOLVED** by the Cherokee County Board of Commissioners:

The Wildcat Area Plan, attached hereto as Exhibit “A,” is hereby adopted; and

The Cherokee County Community Development Agency is hereby directed to establish an implementation plan for the Wildcat Area Plan; and

The Cherokee County Community Development Agency is hereby directed to coordinate with Holly Springs, Woodstock, and COED to achieve the goals and objectives set forth in the Wildcat Area Plan.

SO RESOLVED, APPROVED, AND ADOPTED this 1<sup>st</sup> day of July, 2025.

By:   
HARRY B. JOHNSTON, Chairman

Attest:   
CHRISTY BLACK, County Clerk

(SEAL)





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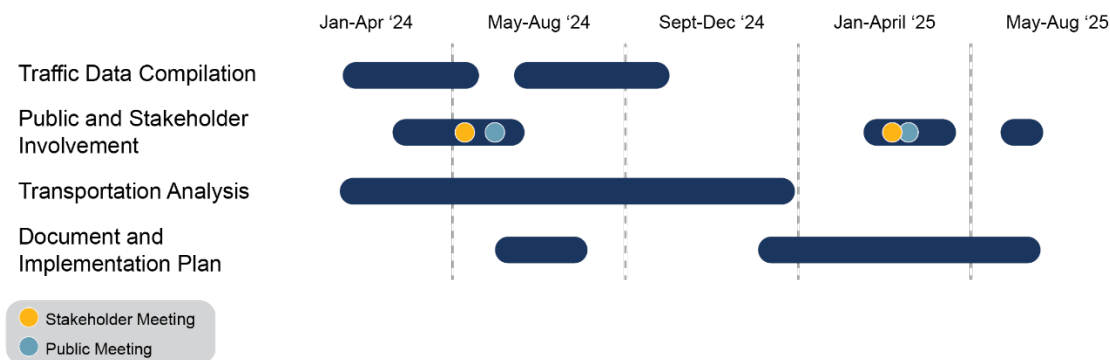
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## Introduction

Over the last several decades, development in North Atlanta has been driven by investments in roadway infrastructure including the extension of I-575, I-75, express lanes, and widened bridges along Sixes Road, among others. Not all areas and parcels have seen equal development attention despite their proximity to major corridors. Due to geographical and transportation limitations, the southeast quadrant of the I-575 and Sixes Road interchange is substantially underdeveloped. Physical barriers have limited the ability to adequately connect this portion of the interchange to its surrounding system and have limited development activity while other areas have grown.

Cherokee County, in collaboration with the Cherokee Office of Economic Development, and the cities of Holly Springs and Woodstock, is creating a small area plan and transportation study for the area around the I-575 and Sixes Road interchange. The project began at the start of 2024 and extended through the summer of 2025 with multiple community engagement efforts, an essential piece in developing a thorough and inclusive plan.

## Project Schedule



## Study Area

### Overview

The study area focuses on the southeast quadrant of the I-575 and Sixes Road interchange, though through the planning process, the study area enlarged to also include the southwest quadrant. This primary area is bounded by a cemetery to the north, U.S. Army Corps of Engineers (USACE) property to the south, I-575 to the west, and the Georgia Northeastern Railroad (GNRR) to the east. **Figure 2** displays the area. The land is situated within the Wildcat Character Area of the 2023 Comprehensive Land Use Plan, which represents major employment sectors, including professional, corporate and regional offices, and medical complexes. Existing conditions in the area feature a blend of developed properties and undeveloped green spaces, with



**FIGURE 2: STUDY AREA**

current land uses including commercial buildings, residential areas, and industrial uses. The land is divided among Woodstock, Holly Springs, and unincorporated Cherokee County.

## Considerations Limiting Transportation and Future Development

Compared to growth seen in other regions, the study area has experienced limited development and integration into the surrounding infrastructure because of adjacent physical barriers (**Figure 3**) and the resulting transportation challenges. These barriers have significantly impeded the area's potential for growth and seamless connectivity with nearby developed regions.

The I-575 interchange at Sixes Road is a crucial connectivity point, providing access to major transportation routes in North Atlanta. However, regional growth has increased traffic, causing congestion, especially at this interchange and other key intersections along Sixes Road, such as Holly Springs Parkway. The complex layout of the transportation network and high traffic volumes create significant challenges for development. This congestion complicates access for residents and businesses, diminishing the area's attractiveness for new developments.

Running adjacent to the study area, the Georgia Northeastern Railroad (GNRR) presents another challenge. The railroad limits crossing points, restricting local connectivity and challenging vehicle and pedestrian access.

The Lebanon United Methodist Church Cemetery, established in the 19th century, is a significant historical and cultural landmark. Its presence creates a barrier to transportation and development, as preservation limits new road or infrastructure construction in the area.

To the south, the USACE Lake Allatoona property presents additional challenges. The land is subject to strict federal regulations protecting natural resources and environmental quality. Coordination with the Army Corps can be complex, involving regulatory compliance, which limits development opportunities and complicates integration with surrounding infrastructure.



FIGURE 3: GEOGRAPHIC CONSTRAINTS SURROUNDING THE STUDY AREA



## Previous Plan Review

Previous plans within and surrounding the study area were reviewed to identify expected changes and potential future opportunities that may inform or impact recommendations in the Wildcat Plan. Plans and projects documented below are from Cherokee County, City of Woodstock, City of Holly Springs, Atlanta Regional Commission, and Georgia Department of Transportation. Plan review included the following documents and resources:

- Metropolitan Transportation Plan – 2024 Atlanta Regional Commission Region Plan
- GDOT GeoPI – 2024 Georgia Department of Transportation Projects
- SPLOST – 2024 Cherokee County Special Purpose Local Option Sales Tax
- Our Cherokee – 2023 Cherokee County Comprehensive Land Use Plan
- Cherokee Moves – 2022 Cherokee County Comprehensive Transportation Plan (CTP)
- Old Highway 5 – 2022 Cherokee County Corridor Study

In addition to infrastructure improvements, permitted developments were reviewed to consider changes to traffic patterns and connectivity due to private development. Project factsheets and information are included in the Appendix.

## Programmed Infrastructure Projects

Programmed infrastructure projects with identified funding sources and timelines for construction are documented below. Depending on the timeline, the programmed projects may have detailed approved designs or still be in design development with preliminary concept details that are being refined. Programmed projects are included in the analysis of future conditions as background conditions that are expected to be implemented and operational with or without the Wildcat Plan.

### Programmed Projects Included at Study Intersections

- **I-575 at Ridgewalk Pkwy Interchange Improvement** (ARC CH-261, GDOT PI 0019632) – diverging diamond interchange improvement
- **Holly Springs Pkwy at Palm St and River Park Blvd Realignment** (Cherokee CTP-159) – Palm St realignment to River Park Blvd traffic signal; original Palm St converted to right-in-right-out

### Other Nearby Programmed Projects

- **Holly Springs Pkwy Widening** (complete as of October 2024) – widening from two to four lanes for approximately 0.7 miles north of Rabbit Hill Rd
- **Hickory Springs Pkwy New Alignment** (ARC CH-215) – new four-lane roadway between Holly Springs Pkwy at Mountain Brook Drive to Hickory Road at Hickory Springs Industrial Dr
- **I-575 at Towne Lake Pkwy Interchange Improvement** (ARC CH-260, GDOT PI 0019631) – interchange improvement to widen exit ramps and Towne Lake Pkwy
- **Holly St Pedestrian Improvements** (ARC CH-351) – installation of 5-ft sidewalks, buffered bike lanes, and streetlights on both sides of Holly St between Old Holly Springs Rd and Holly Springs Pkwy (Main St); Will also include a pedestrian bridge crossing over I-575 to connect to existing sidewalks



## Planned Infrastructure Projects

Planned projects are often preliminary concepts with varying levels of detail and funding that may require further study and design development. Planned projects in adopted studies are competitive for state and federal funding sources and may become programmed projects as priorities, funding, and feasibility align to move the project forward. The following planned projects were considered during the development of study scenarios and opportunities for the action plan.

- **Holly St at Main St** (Cherokee CTP-212, Old Hwy 5 Study) – intersection improvement proposed to address safety and operational improvements
- **Holly Springs Pkwy at Sixes Rd** (Cherokee CTP-409, Old Hwy 5 Study) – intersection modification proposed to address safety and operational improvements
- **Main St at Ridgewalk Pkwy** (Cherokee CTP-419) – intersection improvement, potential roundabout
- **Arnold Mill Rd Extension** (ARC CH-167) – proposed new roadway connection between Main Street/Hwy 5 at Ridgewalk Pkwy and Arnold Mill Rd at Neese Rd (Arnold Mill Bypass)

## Permitted Development

The *Heights at Holly Springs* is a mixed-use development currently under construction between Holly Springs Parkway and E Rope Mill Road north of commercial properties fronting Sixes Road. The development will include approximately 294 new residential units and 25,000 SF of commercial space. Based on a traffic impact study submitted to the City of Holly Springs, the development is projected to generate 346 new trips during the weekday AM peak hour and 345 new trips during the PM peak hour. Projected traffic based on the traffic impact study was included in the future traffic analysis to account for the additional impact from permitted future development on study intersections included in this report.



## Data Collection

### Transportation Data

Data collection to inform existing conditions for the study included collecting current intersection and corridor traffic counts, historic crash data, and congestion-related bottleneck data. Current and historic data provide insight into existing roadway conditions and transportation operations as well as provide a foundation to consider future projections and identify improvements to serve the traveling public.

### Intersection and Corridor Traffic Counts

Intersection turning movement counts (TMCs) at primary intersections and high-volume driveways as well as average daily traffic (ADT) corridor counts were collected throughout the study area to identify a baseline of existing traffic conditions. The TMCs included four-hour turning movements (two-hour AM peak and two-hour PM peak) while the ADTs included 24-hour bidirectional daily counts. A site visit was conducted to gather intersection and corridor details needed for modeling.

### Crash Data

Using GDOT's AASHTOWare, available crash data for the most recent five years (2018-2022) was analyzed to identify critical trends and patterns. The process began with a high-level cleaning of the crash data to ensure the accuracy and reliability of the analysis. This cleaning process involved a thorough review of various key factors, including the specific locations where crashes occurred, the manner of collision (such as rear-end, angle, side-swipe, or head-on collisions), and the direction of travel of the vehicles involved. The cleaning process is beneficial as there are often numerous reporting agencies with different templates to document crash details. By carefully examining crash report elements, inconsistencies, errors, or anomalies in the data can be identified and addressed, thereby improving the quality and utility of the dataset for subsequent analysis.

### RITIS Data (Bottlenecks)

Bottlenecks were identified using the Regional Integrated Transportation Information System (RITIS), a platform that aggregates and analyzes real-time traffic data to support transportation planning and operations. The process involved collecting and examining various types of traffic data, including speed, volume, and incident reports, to pinpoint locations where traffic flow was significantly slower than expected. This methodical approach not only helped in detecting current bottlenecks and congestion but also provided valuable insights into their underlying causes, such as high traffic volumes, accidents, or other incidents.

### Replica Data (Travel Patterns)

Replica is a data platform that provides synthesized travel and commuting information based on public and confidential data sources including mobile location data, consumer/resident demographic information, built environment characteristics, economic activity, and traffic/transportation volumes. Replica was used to understand the origins and destinations of travelers within the study area. Road segments on corridors around the study area were selected for detailed analysis. The process involved reviewing travel trends for trips passing through these selected segments, as well as analyzing the patterns of these trips. Data available through Replica, and similar resources, are for transportation planners to use to make informed recommendations to improve mobility and efficiency in the studied corridors.



## Engineering and Environmental Data

The complexity of the southeast quadrant area necessitates collaborative problem-solving from an interdisciplinary team, including engineering and environmental groups. The data collection process for engineering and environmental aspects considered data that could provide insight into the interaction between infrastructure and the surrounding environment. Data gathered included GIS contours, property lines, aerial imagery, locations of railroads and utilities, and environmental resources.

### GIS Contours and Property Lines

Geographic Information System (GIS) contours are vital in transportation and land use studies as they provide detailed topographical data. These contours illustrate the elevation and slope of the land, which are crucial for planning road alignments, drainage systems, and other infrastructure. The GIS contours were obtained from Cherokee County.

Understanding property boundaries is essential to determine land ownership and potential impacts on private and public properties. Accurate property line data helps avoid legal disputes and ensures that proposed developments comply with existing land ownership and zoning regulations. Property lines were sourced from county assessor records and databases, which provide detailed maps of land parcels.

### Aerial Imagery

Aerial imagery offers a bird's-eye view of the study area, capturing current land use, vegetation cover, and existing infrastructure. Imagery is instrumental in identifying land use patterns, planning for new developments, and assessing environmental impacts. High-resolution aerial images from 1999 to 2024 were acquired through Nearmap and Google Earth.

### Railroad and Utility Locations

The locations of utilities and the GNRR railroad line are critical as they interact with road networks and development projects. Understanding the proximity and alignment of these infrastructure elements helps in designing safer and more efficient transportation corridors. Data on railroad and utility locations were gathered from Cherokee County. Identifying the location of key utilities and assessing the feasibility and costs of impacting each informs connectivity decisions.

### Environmental Resources

An environmental review was conducted following the guidance specified in the National Environmental Policy Act (NEPA). This review provides an understanding from the outset of the most complex areas bordering the site, including USACE property and the cemetery. Identifying and preserving environmental resources is a key aspect of sustainable transportation and land use planning. This includes recognizing wetlands, water bodies, wildlife habitats, and other ecologically sensitive areas to mitigate adverse impacts.



## Analysis Methodology and Tools

A variety of analysis tools were employed to evaluate existing traffic conditions, project future traffic conditions, design proposed transportation improvements, and estimate the impact of proposed improvements on future transportation network conditions.

### Travel Demand Modeling

#### Atlanta Regional Commission Activity Based Model

A travel demand model (TDM) estimates how traffic will utilize the transportation network throughout the day. In the Atlanta metropolitan area, the Atlanta Regional Commission (ARC) develops and maintains their Activity Based Model (ABM), which acts as the standard TDM for the region. The ARC ABM was used throughout the traffic analysis to estimate projected traffic growth rates and to model the impacts of changes to network connectivity and capacity.

The ARC ABM update corresponding to the 2024 Metropolitan Regional Transportation Plan was used for all TDM modeling in this study. At the beginning of the study, the base model from ARC was calibrated using traffic count data collected and available in the vicinity of the study area.

Calibrating/validating the model is an important step to consider and make modifications to the Existing Conditions model to reflect travel patterns representative of current conditions in the study area. The calibrated model was carried forward to model as a base condition for all future traffic scenarios.

While the ABM is a powerful tool for understanding large-scale changes in travel patterns, it also has some limitations. To improve model efficiency, the model limits the granularity of the transportation network and of population and employment centers. In the study area, smaller roadways and driveways are typically not included in the model. Similarly, individual or separate developments may be combined into a singular node that represents a larger area that includes employment and residential land uses. The ABM also has limited ability to account for certain factors that impact route planning, such as intersection operations (ex. turn lanes, signal timing conditions) and traveler habits. Given some of these TDM considerations, it is important to employ engineering judgment regarding how much of a travel shift will take place with various network improvements. The traffic analysis in this study used ABM outputs as a guide for the nuanced development of traffic growth projections to inform individual intersection analyses with Synchro and SIDRA.

### Traffic Operations Modeling and Capacity Analysis

#### Synchro

Synchro (Version 12) is a traffic simulation software that performs network and intersection modeling. The software provides tools to model intersection operations and transportation networks at a high level of detail via a series of connected intersections. A primary strength of Synchro is its ability to accurately model signal timing plans and performance measures for intersection operations.

Traffic volumes, roadway geometries, and signal timing plans were coded into Synchro for each study scenario. Synchro includes industry standard Highway Capacity Manual (HCM) methodologies to calculate performance metrics for intersection operations, including overall intersection conditions as well as individual intersection approach conditions. Level of Service (LOS) and delay are the two





primary performance metrics used to evaluate transportation improvements. See the Highway Capacity Manual 6<sup>th</sup> Edition section for further discussion of these performance metrics.

## SIDRA

SIDRA (Version 9) provides lane-based micro-analysis of complex and/or alternative intersections similar to Synchro software. SIDRA is commonly used to analyze intersection operations at roundabouts and is one of several industry-standard tools to consider alternative intersection operations, specifically for roundabouts. In this study, SIDRA was used to consider operational conditions of a roundabout. SIDRA was used instead of Synchro due to its ability to provide more accurate performance analysis of the alternative intersection type. SIDRA also includes industry standard Highway Capacity Manual (HCM) methodologies to calculate performance metrics for intersection operations.

## Highway Capacity Manual 6<sup>th</sup> Edition

The Highway Capacity Manual (HCM) is the industry standard methodology for calculating the capacity and Level of Service of roadways and intersections. The sixth edition of this manual, HCM 6<sup>th</sup>, is fully integrated with the Synchro software, and Synchro automatically calculates HCM 6<sup>th</sup> performance metrics for all intersections. HCM 6<sup>th</sup> methodology was used for all Level of Service and delay calculations through the traffic capacity analysis.

Level of Service (LOS) is a qualitative measure of traffic performance that reflects driver experience on a roadway. The primary factors influencing LOS at intersections are traffic volumes, speeds, number of lanes, conflicting movements, and signal timing. Values for LOS range from A to F, with LOS A representing the best traffic performance and LOS F representing the worst. For this study, the minimum acceptable LOS standard for intersections follows the industry standard LOS D.

Intersection delay measures the average amount of time vehicles spend waiting at an intersection. Delay is closely related to LOS, and higher delay corresponds with a worse LOS. Intersection geometries and signal timings were optimized to minimize delay at each intersection.

## Engineering and Environmental Analysis

### ArcGIS Pro

ArcGIS Pro is a desktop GIS program. GIS, or Geographic Information System, is a tool that enables analysis and mapping of multiple spatially referenced layers of data. ArcGIS Pro was used to support several analysis tasks, including crash analysis, bottleneck analysis, travel pattern analysis, ARC ABM analysis, and mapping.

### Microstation

Microstation is a computer-aided-design (CAD) program used to make engineering drawings that provides assistance in the development of horizontal and vertical alignments, roadway cross-sections, and other constructability assessments conducted for the Wildcat Plan. All roadway and bridge drawings for engineering analysis were done in Microstation.

## GDOT and AASHTO Design Standards

The Georgia Department of Transportation (GDOT) and the American Association of State Highway and Transportation Officials (AASHTO) establish standards for the design of roadways. AASHTO's





“Policy on Geometric Design of Highways and Streets,” also known as the Green Book, sets baseline standards and best practices for the design of roadways. It includes guidance on horizontal and vertical curves, intersection spacing, intersection skew, and other design elements. GDOT’s Design Policy Manual (DPM) sets standards for roadway design for the state of Georgia. The DPM is based on federal, state, and AASHTO design policies and principles. In this study, roadway design followed GDOT and AASHTO standards as much as possible.



## Scenario Overview

The study team developed four scenarios to analyze intersection operations: Existing 2024, No-Build 2044, Build 2044 (Without Development), and Build 2044 (With Development). Together, these four scenarios measure the current traffic conditions, traffic conditions under expected traffic growth, changes to travel patterns caused by the proposed transportation improvements, and additional traffic growth caused by the proposed land use developments.

### Existing 2024

The Existing scenario reflects current, on-the-ground traffic conditions. A total of 13 intersections are modeled in the Existing scenario – 10 intersections on Sixes Road between Wellstar Way and Toonigh Road and 3 intersections on Ridgewalk Parkway between I-575 Southbound Exit 9 and Olde Rope Mill Park Road.

The existing roadway network, signal timings, and peak hour volumes were modeled in Synchro. Existing roadway and intersection geometries were determined via satellite imagery and field visits. Signal timing plans for all signalized intersections in the study area were obtained from GDOT and/or local maintaining agencies. Peak hour volumes were determined from the traffic and turning movement counts collected for this study and discussed in the Data Collection section of this report.

### No-Build 2044

The No-Build scenario reflects projected traffic conditions in 2044 assuming the roadway network remains unchanged except for known funded or programmed projects. The No-Build scenario contains the same 13 intersections as the Existing scenario. The only geometric change between the Existing and No-Build scenarios is the inclusion of the Palm Street realignment in the No-Build scenario. In the Existing road network, Palm Street has a high angle, full-access approach to its intersection with Holly Springs Parkway between Toonigh Road and River Park Boulevard. The No-Build scenario accounts for the planned construction of a Palm Street Realignment that would branch off from the existing Palm Street to form a four-way signalized intersection with Holly Springs Parkway and River Park Boulevard. The existing Palm Street with Holly Springs Parkway will be converted from full-access to a right-in/right-out intersection.

No-Build traffic volumes were obtained by applying growth rates to Existing volumes. Growth rates for the study network were determined by comparing 2024 and 2050 outputs from the ARC ABM. While peak period segment volumes from the ABM are not directly translatable to the peak hour turning movement volumes used in Synchro, the results from the ABM informed the differences in growth rates between intersections as well as the overall magnitude of growth.

### Build Without Development 2044

The Build Without Development scenario reflects projected traffic conditions in 2044 assuming all proposed Project Wildcat transportation improvements are constructed but no additional development in the southeast quadrant occurs. See the Scenario: Transportation Network Recommendations section for a full description of the proposed transportation improvements. Signal timings and operations were optimized for the Build network to account for shifts in travel patterns.





The built-out Project Wildcat transportation network impacts travel patterns within the study area by providing increased capacity on some routes and by creating new connections within the study area. An ARC ABM scenario was developed using the build network to evaluate how traffic might shift onto higher capacity roads and newly created connections, as well as determining how the changes to the network might bring new traffic into the area. Build Without Development traffic volumes were obtained by applying growth rates or travel pattern shifts to No-Build volumes.

As was the case when growing Existing volumes to No-Build volumes, peak period segment volumes from the ABM are not directly transferable to peak hour turning movement volumes. Results from the ABM determined which roadway segments and corresponding intersection approaches would have increases or travel shifts away from the approach when compared with the No-Build scenario. The magnitudes of the growth rates were based on the peak period as well as considering daily growth rates projected by the ABM. Where there were major differences between peak period and daily growth rates, engineering judgement identified a chosen growth rate that tended towards the daily growth rate.

## Build With Development 2044

The Build With Development scenario reflects projected traffic conditions in 2044 assuming all proposed transportation improvements and the full extent of potential development in the southeast quadrant are constructed. In addition to the southeast quadrant, the analysis accounted for traffic growth due to further development of the southwest quadrant that was explored with the project management team. Roadway and intersection geometries do not change between the Build Without Development and Build With Development scenarios.

Build With Development traffic volumes were obtained by adding trips that would be generated by the proposed development in the southeast and southwest quadrants to the Build Without Development traffic volumes. The Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition was used to project the total number of trips produced for the land uses as well as the time-of-day and directional (entering/exiting) breakdown of those trips.

Development trips were then distributed to the Build network based on likely routes that travelers would take to developments. Several data sources informed the trip distribution process, including locations of population centers, Replica data, and existing and projected travel times. See the Build 2044 (With Development) section for further discussion of how trips were distributed.



## Existing Conditions

### Existing Roadway and Vehicle Traffic Conditions

The existing roadway network in the study area primarily consists of Sixes Road and Holly Springs Parkway. The existing study network consists of 13 intersections:

1. Sixes Road at Wellstar Way
2. Sixes Road at I-575 SB Ramps
3. Sixes Road at I-575 NB Ramps
4. Sixes Road at N Rope Mill Road
5. Sixes Road at Holly Springs Parkway
6. Holly Springs Parkway at E Rope Mill Lane
7. Holly Springs Parkway at E Rope Mill Road
8. Holly Springs Parkway at River Park Boulevard
9. Holly Springs Parkway at Palm Street
10. Holly Springs Parkway at Toonigh Road
11. Ridgewalk Parkway at I-575 SB Ramps
12. Ridgewalk Parkway at I-575 NB Ramps
13. Ridgewalk Parkway at Olde Rope Mill Park Road

Congestion and dangerous driving conditions are an issue on Sixes Road/Holly Springs Parkway between I-575 Southbound and Fox Creek Drive. The Sixes Road at Holly Springs Parkway intersection is especially challenged. High volumes from the interstate, nearby commercial developments, and residential developments along Holly Springs Parkway cause substantial congestion and bottlenecks at the intersection. The unusual geometry and skew of the intersection may also contribute to congestion and unsafe conditions by impacting capacity and sight distance.

Signal coordination has also been noted as an issue contributing to congestion further east on the Holly Springs Parkway corridor. A lack of coordination between signals in the multiple jurisdictions who own and operate signals on the corridor may contribute to congestion and bottlenecks near Toonigh Road and Fox Creek Drive.

The existing network lacks connectivity in some areas. Currently, the only north-south connections between Sixes Road and Ridgewalk Parkway are Holly Springs Parkway/Main Street and I-575. The existing connections are congested and do not provide a direct, non-interstate route between the employment and commercial centers on Sixes Road and Ridgewalk Parkway. The Cherokee County Aquatic Center and Wellstar Cherokee Health Park are somewhat disconnected from the rest of the study area, with Wellstar Way being the only access point to the key community destinations.



## Existing Pedestrian and Bicycle Infrastructure

The existing pedestrian and bicycle network includes sidewalk coverage on stretches of major roads and trails within Olde Rope Mill Park.

Sidewalks are present on both sides of Sixes Road for the majority of the segments between Wellstar Way and Sixes Road, including along the interchange bridge. There are signalized crosswalks at the Sixes Road intersections with Wellstar Way, Holly Springs Parkway, and both interchange ramps. The intersection of Sixes Road and stop-controlled N Rope Mill Road lacks a safe crossing across Sixes Road, forcing pedestrians to walk further to use the Sixes Road at Holly Springs Parkway crosswalks.

East of the Sixes Road and Holly Springs Parkway intersection, sidewalk connectivity on Holly Springs Parkway is poor. While sidewalks exist adjacent to some developments, they are discontinuous and do not connect to the larger network. Crosswalk locations connecting across Holly Springs Parkway are also sparse.

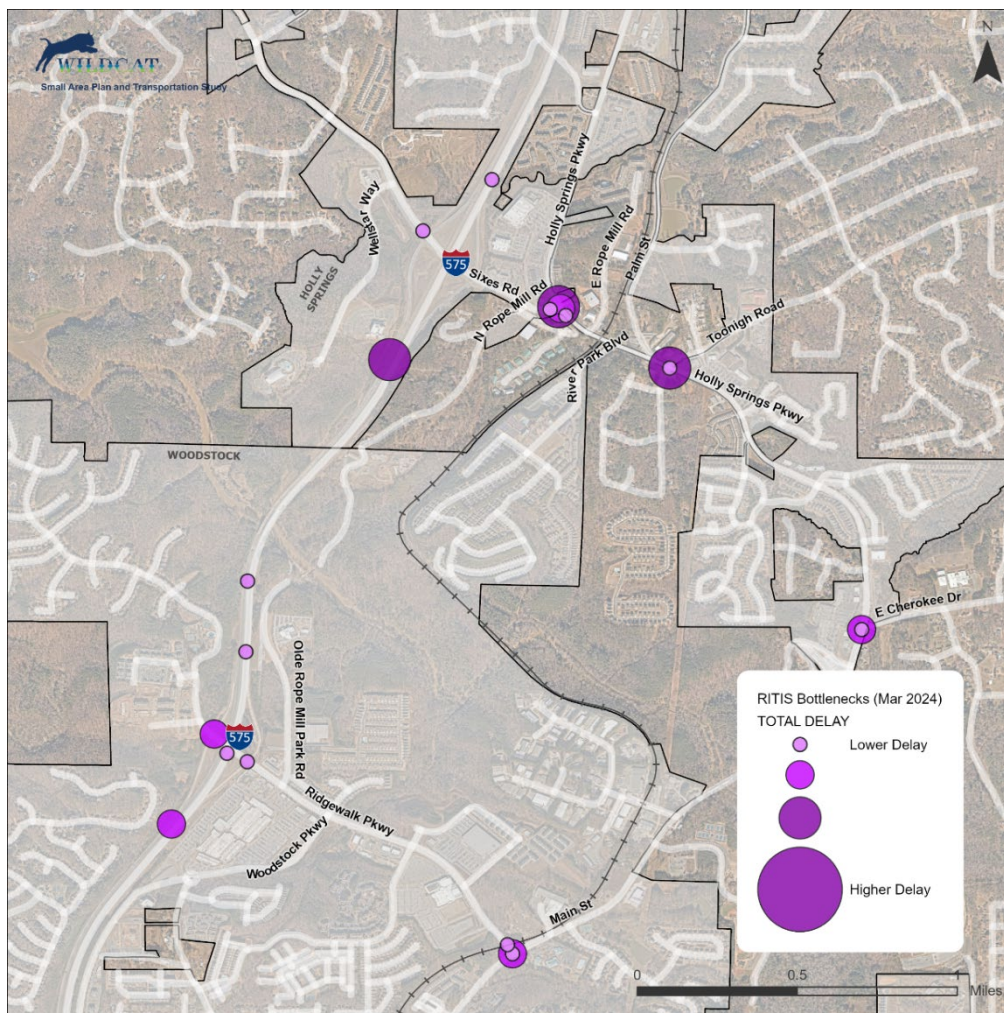
There are multiple recreational trails located within Olde Rope Mill Park. Sidewalks and a short side path connect Ridgewalk Parkway to Olde Rope Mill Park via Olde Rope Mill Park Road. A pedestrian bridge connects Olde Rope Mill Park to trails north of Little River, though these trails do not have a direct connection for pedestrians and bicyclists to access Sixes Road. On Wellstar Way, a side path connects the Wellstar Cherokee Health Park to the Cherokee County Aquatic Center. The side path does not currently extend up to Sixes Road, nor do any sidewalks connect Sixes Road to the Health Park and Aquatic Center.

## Existing Bottleneck Locations

Bottleneck data for the month of March 2024 was pulled from the RITIS database. The top bottlenecks in the study area were mapped in GIS and are shown in **Figure 4**. Existing bottleneck data indicates that the most challenged intersections in the study area are located on Sixes Road and Holly Springs Parkway and at I-575 interchanges.

The most congested intersection in the study area is Sixes Road at Holly Springs Parkway. Bottlenecks occur at all four approaches to this intersection, including one of the top three highest delay bottlenecks in the study area. A high delay bottleneck also occurs at the intersection of Holly Springs Parkway and Toonigh Road.

Large bottlenecks also occur on I-575. Most bottlenecks occur on the interstate in the southbound direction, with the highest delay observed at Entrance 10 (Sixes Road southbound). High delay bottlenecks were also observed at the southbound interchange intersection with Ridgewalk Parkway and at Entrance 9 (Ridgewalk Parkway southbound), with lower delay bottlenecks occurring at other interchange intersections.



**FIGURE 4: TOP BOTTLENECKS IN STUDY AREA, MARCH 2024**

## Existing Crash Evaluation

Historic crash data for the five most recent available years (2018 to 2022) were pulled from GDOT's AASHTOWare Safety tool. Crash data were cleaned to very crash types and remove any crashes that did not take place on the study network. Cleaned crash data at key study area intersections are summarized in **Table 1**.

A total of 469 crashes occurred in the study area between 2018 and 2022, with 440 of these taking place at the key study intersections. No fatal crashes were identified. Rear end crashes comprised the majority of crashes in the study network. A high proportion of rear end crashes may be caused by the congestion at intersections observed in **Figure 4** (Bottlenecks). Side-swipe same direction crashes were the second most common crash type. The curvature of the Sixes Road and Holly Springs Parkway intersection and the lack of signage at the turn lanes are likely contributing factors to these crashes.

The intersection of Sixes Road at Holly Springs Parkway had the highest number of intersection crashes compared with the other study intersections. A substantial number of crashes here were rear ends in the eastbound right-turn lane, which is often indicative of congestion as a factor negatively impacting safety. The single pedestrian crash in the study network occurred at this intersection. It is notable that despite the high frequency of crashes, no fatal or serious injury crashes were recorded at the intersection.

Other intersections with high crashes frequencies were the intersections at the I-575 and Sixes Road interchange. Sixes Road at the I-575 Northbound Ramps had 84 crashes, and Sixes Road at the I-575 Southbound Ramps had 72 crashes. Two serious injury crashes occurred at the NB ramps. Rear end and left turn crashes are common at these intersections, which may indicate the need for adjusted signal phasing and turn lane geometry.

Holly Springs Parkway at Toonigh Road had the 3<sup>rd</sup> highest quantity of intersection crashes in the study area. Over half of the observed crashes at this intersection were rear end crashes, and two serious injury crashes were observed. Similar to other conditions in the area, congestion at this intersection, particularly on the minor legs, could be a major contributor impacting the frequency of collisions.

**TABLE 1: HISTORIC CRASH DATA FOR STUDY INTERSECTIONS**

| Intersection                          | Total Crashes | Fatal Crashes | Serious Injury Crashes | Pedestrian Crashes |
|---------------------------------------|---------------|---------------|------------------------|--------------------|
| Sixes Road at Holly Springs Parkway   | 131           | 0             | 0                      | 1                  |
| Sixes Road at I-575 NB Ramps          | 84            | 0             | 2                      | 0                  |
| Holly Springs Parkway at Toonigh Road | 76            | 0             | 2                      | 0                  |
| Sixes Road at I-575 SB Ramps          | 72            | 0             | 0                      | 0                  |
| Sixes Road at N Rope Mill Road        | 30            | 0             | 0                      | 0                  |
| Holly Springs Parkway at Palm Street  | 25            | 0             | 1                      | 0                  |
| Sixes Road at Wellstar Way            | 22            | 0             | 1                      | 0                  |



## Existing Capacity Analysis

### Traffic Distribution

**FIGURE 5** summarizes existing peak hour traffic volumes. Traffic volumes on Sixes Road are generally directional by time of day. In the morning, higher volumes of traffic are directed towards the interchange, with most interstate traffic headed south. In contrast, higher volumes of traffic are directed away from the interchange in the evening. These trends may indicate that travel patterns on Sixes Road are currently shaped by a high proportion of residents commuting to and from employment centers south of the area, for example in Cobb County and Fulton County.

Traffic volumes on intersections along Holly Springs Parkway between Sixes Road and Toonigh Road are more consistent between the AM and PM peak hours with the exception of the intersection with Sixes Road. Northbound and southbound through volumes on Holly Springs Parkway at Sixes Road are much lower in the morning peak period than in the evening peak period.

At the Holly Springs Parkway and Sixes Road intersection, higher volumes of southbound right turns onto Sixes Road occur in the morning peak hour. Fewer eastbound left turns occur in the morning peak hour than in the evening peak hour. Northbound left-turn volumes are high throughout the day.

Between Sixes Road and Toonigh Road, there are low volumes turning onto side streets from Holly Springs Parkway. Most side streets here are side-street stop controlled and have low volumes throughout the day. The only signalized side street on this segment, River Park Boulevard, has approximately 100 left and right turns during both peak periods and serves one of the larger communities as a sole entry/exit point.

At Holly Springs Parkway and Toonigh Road, southbound volumes are high in both peak hours, though there are slightly more trips in the AM peak hour. The right-turn movement is the largest southbound movement, totaling about 300 trips in the morning peak hour and 200 trips in the evening peak hour. Left-turn movements from Holly Springs Parkway onto Toonigh Road are also substantial, especially in the PM peak hour.

### Capacity Analysis Results

**TABLE 2** provides detailed LOS and delay for the Existing (2024) peak hour conditions. **Figure 6** provides a visual depiction of the results of the Existing capacity analysis. Level of Service is presented from LOS A (green) to LOS F (red) for intersections as a whole, and for individual intersection approaches that perform worse than LOS D in at least one peak hour. While most overall intersections currently operate acceptably, several approaches and two intersections overall operate below the standard LOS D.

The intersection of Sixes Road and Holly Springs Parkway (Intersection 5) operates at LOS E during both the AM and PM peak hours, and the eastbound and westbound approaches operate at LOS E and LOS F, respectively, during the AM and PM peak hours. On Sixes Road eastbound, high volume turning movements struggle to clear queues during the currently allotted green time, contributing significantly to intersection delays. The northbound left-turn movement on Holly Springs Parkway is also challenged by high volumes, leading to delays despite the dual left turn lane.

The intersection of Ridgewalk Parkway and the I-575 Northbound Ramps (Intersection 12) is failing during both peak periods. The poor operations at this intersection are driven by delays on the northbound approach. Given the current signal timing for the intersection, the northbound right-turn





movement has insufficient green time during the peak hours studied. Signal fine tuning and modifications to current timing plans could lessen delays and improve overall performance at this intersection throughout the day.

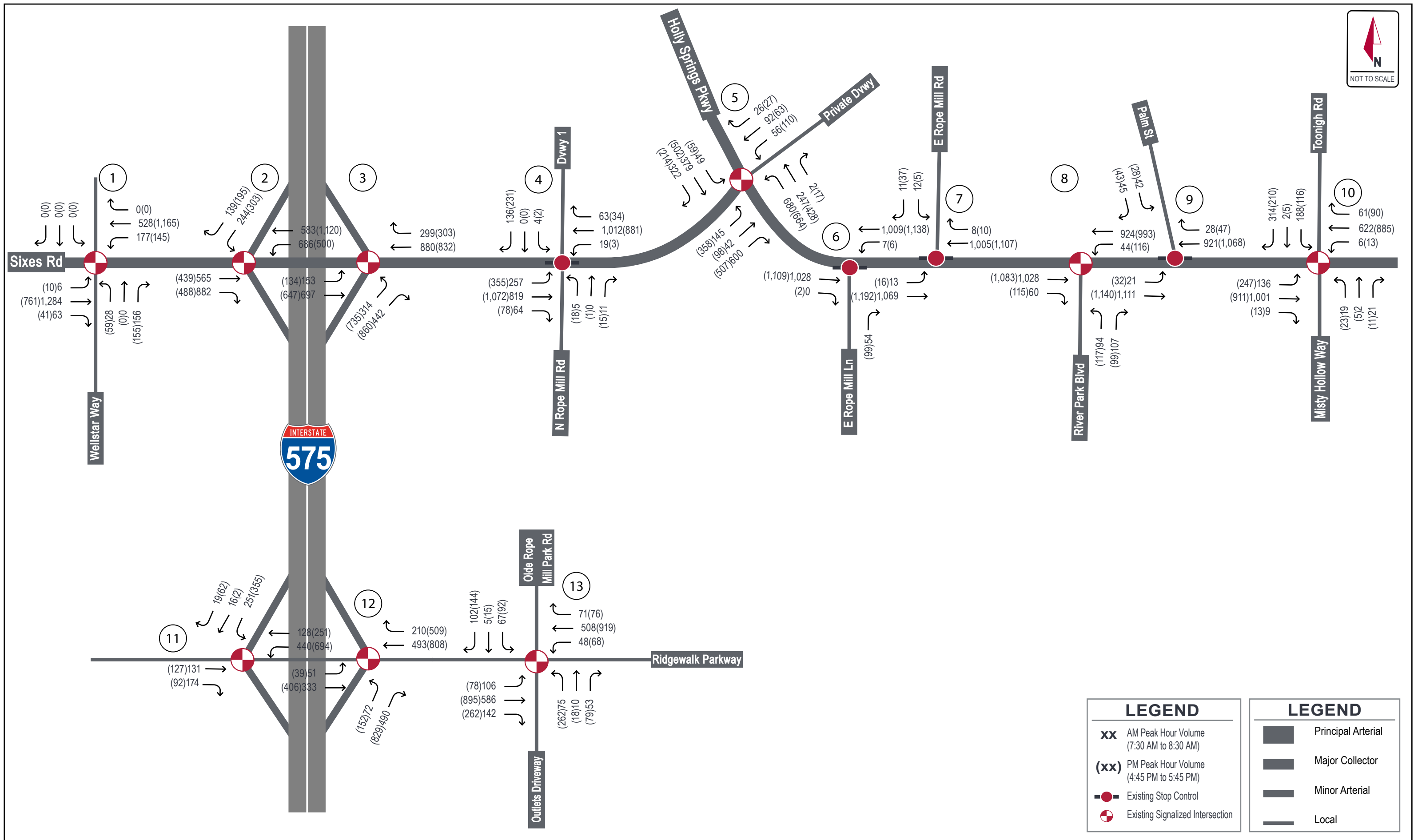
In addition to the two intersections operating below the LOS standard overall, multiple intersection approaches do not meet LOS standards during peak hours. Most side streets at two-way stop-controlled intersections along Sixes Road and Holly Springs Parkway operate with high stop-controlled delay or are failing during one or both peak hours. At these intersections, both left- and right-turns are allowed from the side streets. Delays are primarily driven by side street left turning movements, which struggle to find gaps in traffic to enter the mainline. It is not uncommon for unsignalized approaches on major thoroughfares to experience delays turning onto the major street. It is notable that existing traffic volumes at stop-controlled approaches are small and unlikely to meet signal warrants in order to consider a new traffic signal.

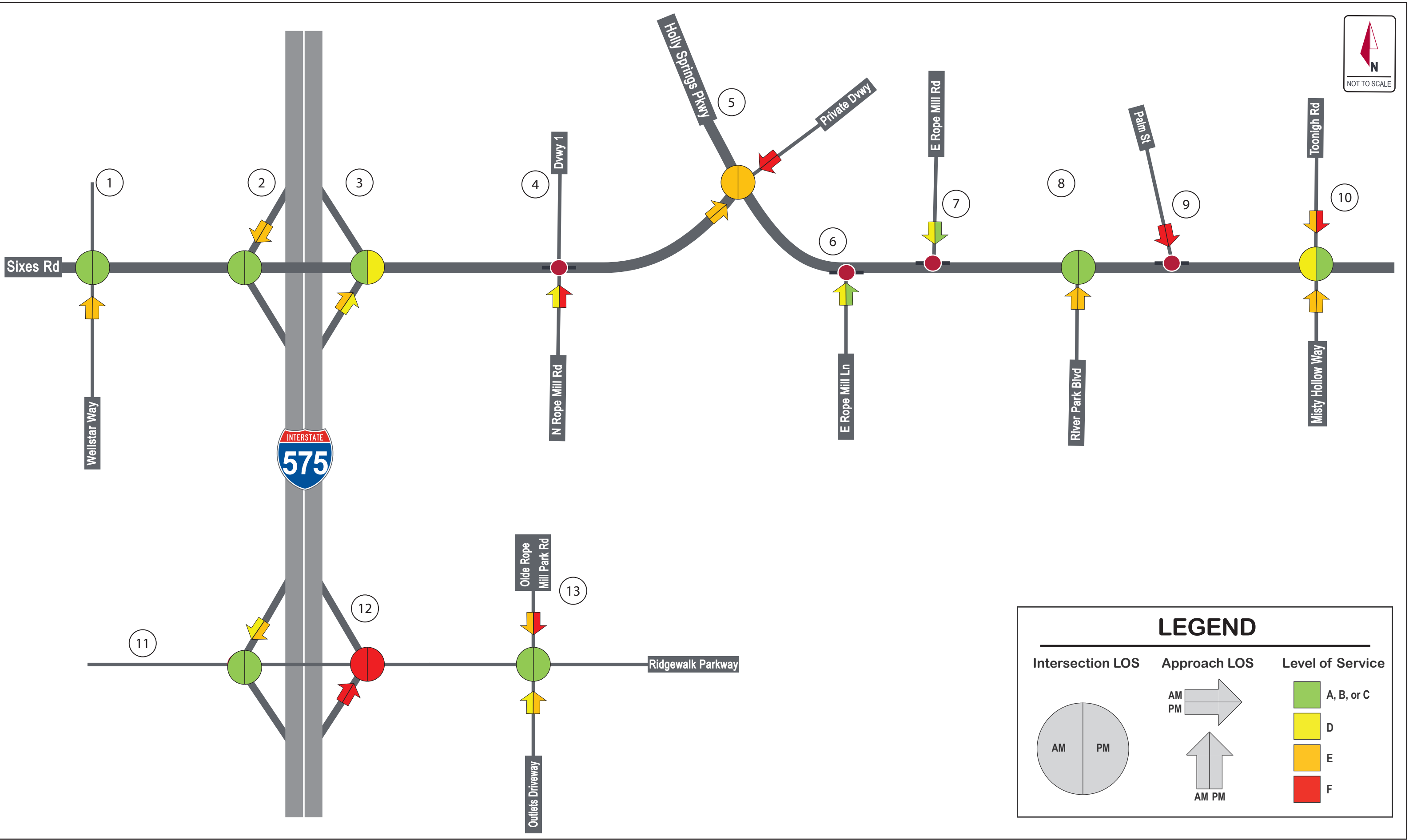
Side street approaches also experience delay at signalized intersections along the corridor. The exit ramp approaches at the Sixes Road and I-575 interchange (Intersections 2 and 3) operate at LOS E or LOS D during peak hours due to high turning volumes exiting the ramps. At both ramps, high volume left-turn movements with insufficient green times are the primary contributors to approach delay. At the northbound ramp, right-turn volumes are very high, especially in the PM peak hour. This movement contributes some delay to the approach, though it performs acceptably due to the presence of the dual right turn lanes.

Other intersections that experience higher delay along side street approaches include Sixes Road at Wellstar Way, Holly Springs Parkway at River Park Boulevard, Holly Springs Parkway at Toonigh Road, and Ridgewalk Parkway at Olde Rope Mill Park Road. Delays and poor performance at these approaches are driven by high turning volumes paired with signal timing that could be fine-tuned to respond to heavy movements at intersections. Signal fine tuning and modifications to current timing plans could lessen delays and improve overall performance along the corridor as a whole. However, it is notable that Sixes Road and Holly Springs Parkway experience heavy mainline vehicular volumes, which contribute to the allocation of significant traffic signal timing to the major corridor rather than the lower volume side streets.

**TABLE 2: EXISTING (2024) PEAK HOUR LEVEL OF SERVICE**

| Intersection                                                  | Control        | Peak Hour | NB        | SB        | EB       | WB        | Overall          |
|---------------------------------------------------------------|----------------|-----------|-----------|-----------|----------|-----------|------------------|
| 1. Wellstar Way & Sixes Rd                                    | Traffic Signal | AM        | E (70.4)  | -         | B (12.7) | A (5)     | <b>B (15)</b>    |
|                                                               |                | PM        | E (65.7)  | -         | A (8.2)  | A (1.1)   | <b>A (9.5)</b>   |
| 2. I-575 Southbound Ramps & Sixes Rd                          | Traffic Signal | AM        | -         | E (61.5)  | C (34)   | B (18.7)  | <b>C (28.1)</b>  |
|                                                               |                | PM        | -         | E (59.5)  | C (32.9) | A (3.7)   | <b>B (17.1)</b>  |
| 3. I-575 Northbound Ramps & Sixes Rd                          | Traffic Signal | AM        | E (59.5)  | -         | B (12.2) | A (0.5)   | <b>B (15.7)</b>  |
|                                                               |                | PM        | D (47.7)  | -         | C (27.2) | D (35.9)  | <b>D (38.8)</b>  |
| 4. N Rope Mill Rd & Sixes Rd                                  | TWSC           | AM        | D (26)    | B (14.5)  | -        | -         | <b>(2.2)</b>     |
|                                                               |                | PM        | F (343.2) | B (13.1)  | -        | -         | <b>(6.8)</b>     |
| 5. Sixes Rd/QT Driveway & Holly Springs Pkwy                  | Traffic Signal | AM        | C (35)    | D (38.6)  | E (74.2) | F (336)   | <b>E (68.8)</b>  |
|                                                               |                | PM        | D (43.9)  | D (44.1)  | E (65.9) | F (143.3) | <b>E (56.9)</b>  |
| 6. Holly Springs Pkwy & E Rope Mill Rd (South)                | TWSC           | AM        | C (22.1)  | -         | -        | -         | <b>(0.6)</b>     |
|                                                               |                | PM        | D (30)    | -         | -        | -         | <b>(1.3)</b>     |
| 7. Holly Springs Pkwy & E Rope Mill Rd (North)                | TWSC           | AM        | -         | D (25.5)  | -        | -         | <b>(0.3)</b>     |
|                                                               |                | PM        | -         | C (24.5)  | -        | -         | <b>(0.5)</b>     |
| 8. River Park Blvd/Palm St & Holly Springs Pkwy               | Traffic Signal | AM        | E (62.4)  | -         | A (7.2)  | A (6.5)   | <b>B (11.8)</b>  |
|                                                               |                | PM        | E (67.8)  | -         | B (10)   | A (6.4)   | <b>B (13.4)</b>  |
| 9. Holly Springs Pkwy & Palm St                               | TWSC           | AM        | -         | F (198.7) | -        | -         | <b>(8.1)</b>     |
|                                                               |                | PM        | -         | F (185.3) | -        | -         | <b>(5.7)</b>     |
| 10. Misty Hollow Way/ Toonigh Rd & Holly Springs Pkwy         | Traffic Signal | AM        | E (59)    | E (77.5)  | C (22.3) | D (38.9)  | <b>D (39.4)</b>  |
|                                                               |                | PM        | E (69.8)  | F (115.8) | C (21.5) | B (15.1)  | <b>C (32)</b>    |
| 11. I-575 Southbound Ramps & Ridgewalk Pkwy                   | Traffic Signal | AM        | -         | D (49.9)  | B (18.2) | A (6.5)   | <b>B (19.9)</b>  |
|                                                               |                | PM        | -         | E (63.1)  | D (37.8) | B (11)    | <b>C (28.5)</b>  |
| 12. I-575 Northbound Ramps & Ridgewalk Pkwy                   | Traffic Signal | AM        | F (239.3) | -         | B (13.8) | B (12.3)  | <b>F (90.0)</b>  |
|                                                               |                | PM        | F (410.1) | -         | A (6)    | A (1.4)   | <b>F (148.4)</b> |
| 13. Outlets Driveway/ Olde Rope Mill Park Rd & Ridgewalk Pkwy | Traffic Signal | AM        | D (48.1)  | E (58.1)  | A (1.2)  | B (11)    | <b>B (13.9)</b>  |
|                                                               |                | PM        | E (55.5)  | F (181.9) | A (0.9)  | B (15.1)  | <b>C (28.4)</b>  |







## No-Build 2044

### Traffic Distribution

**Figure 7** summarizes peak hour traffic volumes on the No-Build network. The No-Build roadway geometry is identical to the Existing network apart from the Palm Street realignment and coinciding signalization of the intersection of Holly Springs Parkway and Palm Street/River Park Boulevard. The realignment also modifies the existing Palm Street at Holly Springs Parkway approach to a right-in right-out condition.

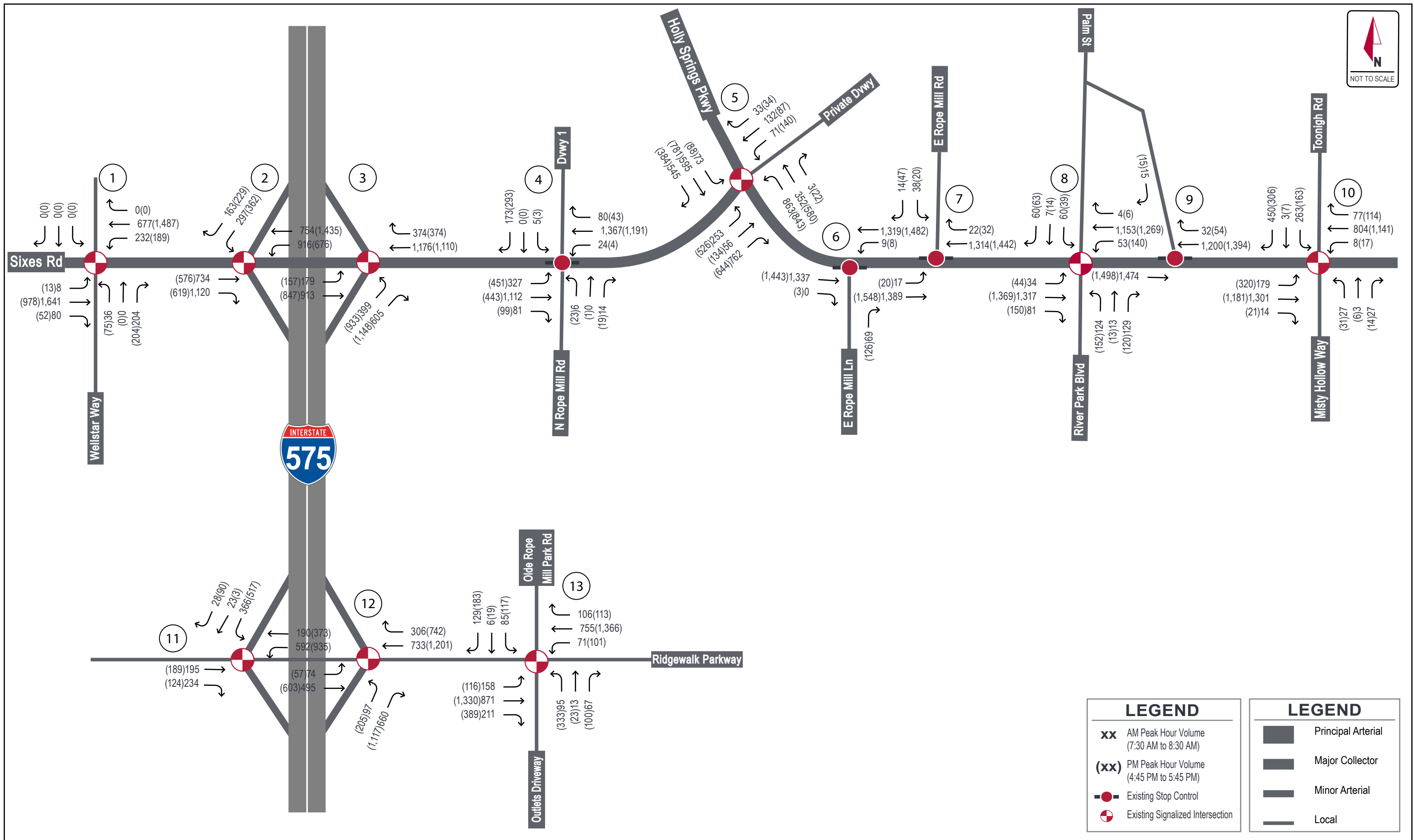
Traffic volume projections for this scenario were developed by comparing ARC ABM model travel patterns and future trips for permitted development in the area. The No-Build model, composed of the Existing network plus any funded or programmed infrastructure projects, was compared against the Existing model to determine appropriate growth rates for roadway links and corresponding intersection approaches. The highest growth rates, or shifts in travel patterns, were found along Holly Springs Parkway north of Sixes Road, Ridgewalk Parkway, and the Ridgewalk Parkway interchange. Growth rates along Sixes Road and Holly Springs Parkway east of Sixes Road were relatively low compared to the rest of the network. As discussed in the methodology section of this report, the ABM is focused on the regional roadway network and does not include all local roads in the study area. Roads not included in the ABM were assigned a similar growth rate to Sixes Road.

The Palm Street realignment alters traffic patterns and trip growth on the existing Palm Street and nearby side streets. Because left-turn and through movements are prohibited when the existing Palm Street approach converts to right-in-right-out, all existing traffic on these movements diverts to the new Palm Street for a signalized left turn onto Holly Springs Parkway. The majority of existing right-turn volumes on Palm Street also divert to the new Palm Street due to the realigned segment providing a shorter route for right-turning traffic. All other traffic volumes that would make left-turn or through movements onto the existing Palm Street also divert to instead use the new Palm Street.

As seen in **Figure 7**, volumes remain high at intersections that were identified with substandard LOS in the Existing scenario. The northbound left-turn movement at the Sixes Road and Holly Springs Parkway intersection grows by almost 200 trips in each peak hour, totaling approximately 850 trips in both the AM and PM peaks. These turn volumes are opposed by southbound right-turn and through movements that also grow significantly from Existing to No-Build conditions.

Traffic also grows substantially on the Sixes Road interchange. Right-turn volumes on the northbound ramp grow by nearly 200 trips in the AM peak hour and by nearly 300 trips in the PM peak hour. The left-turn movement here does not add a substantial number of trips in AM peak hour but grows by nearly 200 trips in the PM peak hour. In the AM peak period, turning volumes onto the southbound entrance ramp grow by 200 to 300 trips while opposed through movements also grow substantially. Traffic volumes to and from I-575 north of Sixes Road do not add many trips.

On Holly Springs Parkway, the largest traffic growth is projected for the east-west through movements. These movements grow by approximately 300 trips in both the AM and PM peak hours. The side street with the most traffic growth on Holly Springs Parkway is Toonigh Road. The right- and left-turn movements on Toonigh Road each grow by about 100 trips in both peak hours.



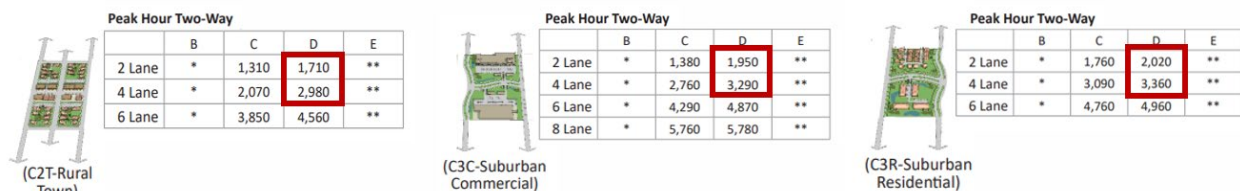
## Capacity Analysis Results

**Table 3** provides detailed LOS and delay for the No-Build (2044) peak hour conditions. **Figure 9** (found after **Figure 8** below) provides a visual depiction of the results of the No-Build Level of Service analysis. Level of Service is presented from LOS A (green) to LOS F (red) for intersections as a whole, and for individual intersection approaches that perform worse than LOS D in at least one peak hour. Signal timings were adjusted for the No-Build 2044 conditions to consider updates likely to be implemented to respond to shifts in travel patterns. Compared to the Existing capacity analysis results, the No-Build capacity analysis shows increased congestion at most intersections. Along Holly Springs Parkway, signalized study intersections are projected to perform at LOS E or worse overall, and stop-controlled approaches to side streets along both Sixes Road and Holly Springs Parkway are projected to perform at LOS E or worse in both peak hours.

Holly Springs Parkway at Sixes Road (Intersection 5) is projected to operate at LOS F with significant delays in both peak hours under the No-Build 2044 conditions. The approaches with the most delay are the eastbound approach on Sixes Road and the westbound approach on the QuikTrip driveway. These approaches operate at LOS F in both peak hours, with significant projected delay in the AM peak hour (average 500 seconds of delay per vehicle per HCM 6<sup>th</sup> methodology).

Nearly all side street approaches, stop-controlled or signalized, along Holly Springs Parkway operate at LOS E or LOS F during at least one peak hour under the No-Build scenario. At the signalized intersections of Holly Springs Parkway at Toonigh Road and at Palm Street/River Park Boulevard, delay increases compared to the Existing scenario. While the Toonigh Road intersection (Intersection 10) performed acceptably under the Existing scenario, higher delays on the southbound approach and on east-west through movements result in an overall LOS F in the AM peak hour and LOS E in the PM peak hour. The Palm Street/River Park Boulevard intersection (Intersection 8) adds a signalized southbound leg to the former three-legged intersection due to the programmed Palm Street realignment. Poor performance at this intersection with overall LOS E in the AM peak hour and LOS F in the PM peak hour is mostly driven by limited capacity on the east-west through movements as well as high delays on the northbound approach.

This section of Holly Springs Parkway between Sixes Road and Toonigh Road is likely over capacity for east-west movements based on existing geometry with a single through-lane in each direction. An evaluation of Link Level of Service was performed for Holly Springs Parkway based on Florida DOT Quality Level of Service standards. On this segment, the projected peak hour two-way volume is approximately 2,600 vehicles per hour during both peak hours. As shown in **Figure 8**, this volume exceeds the maximum volume thresholds to maintain Level of Service D for a two-lane road. The result of the evaluation of Link Level of Service indicates that Holly Springs Parkway should be widened from two lanes to four lanes to serve current and projected volumes along the corridor.



**Figure 8: Florida DOT QLOS Standards for Rural and Suburban Roadways**

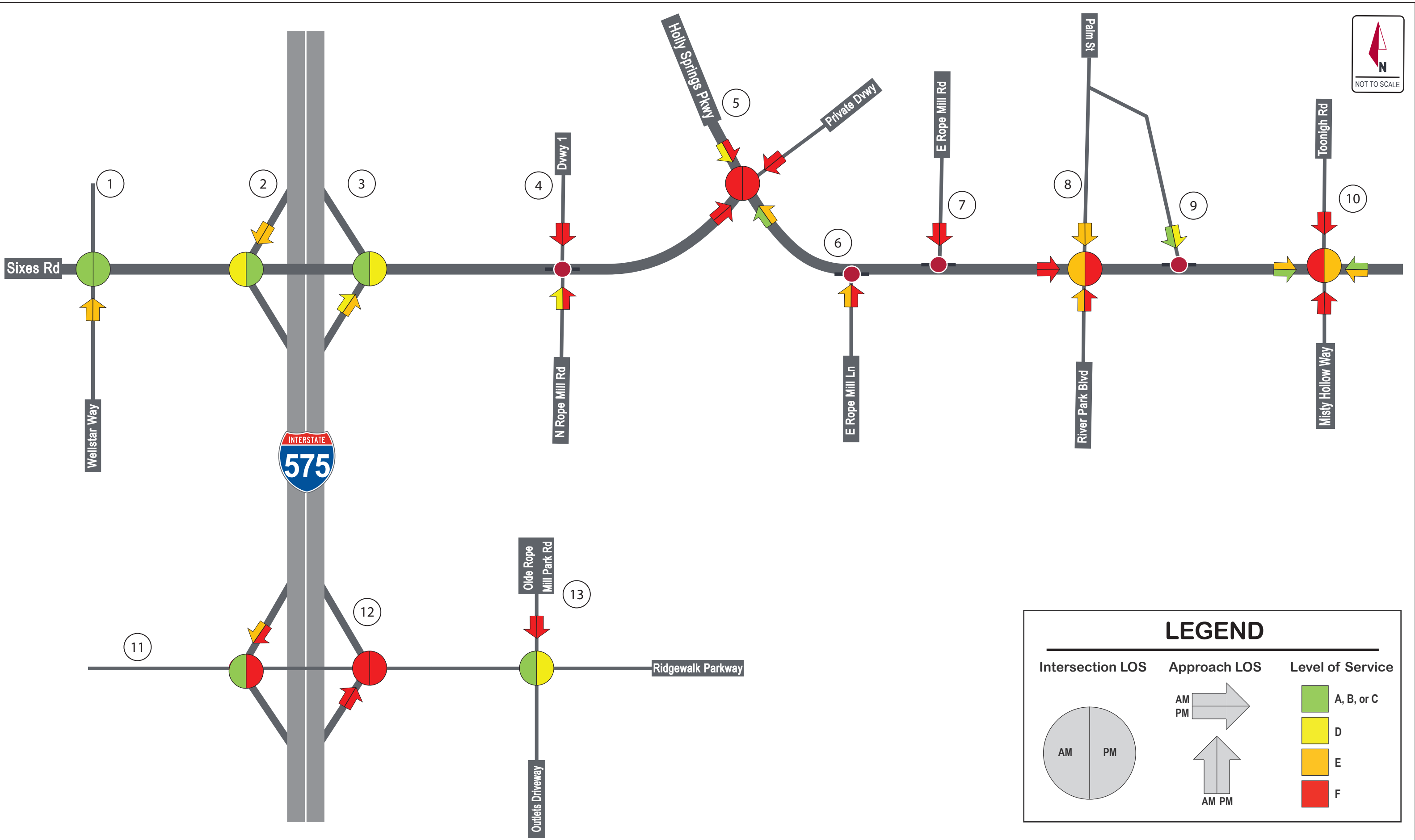
The intersections at the Sixes Road interchange (Intersections 2 and 3) still perform acceptably under the No-Build scenario, but delays do increase compared to the Existing scenario. The northbound exit ramp (Intersection 3) experiences the highest approach delay during the PM peak hour. In the PM peak hour, both the right- and left-turn movements are projected to carry about 1,000 trips, challenging the existing capacity and laneage. The southbound exit ramp (Intersection 2) also experiences increased delays under the No-Build scenario. However, the I-575 at Sixes Road interchange still performs acceptably overall.

Sixes Road at Wellstar Way (Intersection 1) still performs acceptably despite delay resulting in LOS E experienced by the northbound approach during both peak hours. Sixes Road at N Rope Mill Road/Commercial Driveway (Intersection 4) is projected to experience LOS F and significant delay for the stop-controlled side-street approaches. It is not uncommon for unsignalized approaches on major thoroughfares to experience delays turning onto the major street.

**TABLE 3: NO-BUILD (2044) PEAK HOUR LEVEL OF SERVICE**

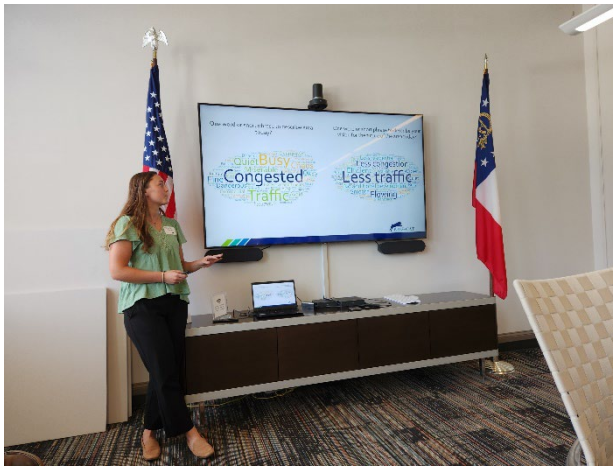
| Intersection                                                  | Control        | Peak Hour | NB        | SB        | EB        | WB        | Overall          |
|---------------------------------------------------------------|----------------|-----------|-----------|-----------|-----------|-----------|------------------|
| 1. Wellstar Way & Sixes Rd                                    | Traffic Signal | AM        | E (76.8)  | -         | C (25.3)  | C (32.5)  | <b>C (31.9)</b>  |
|                                                               |                | PM        | E (70.9)  | -         | B (11.9)  | A (1.9)   | <b>B (11.8)</b>  |
| 2. I-575 Southbound Ramps & Sixes Rd                          | Traffic Signal | AM        | -         | E (59.6)  | D (35.1)  | C (30.7)  | <b>D (35.4)</b>  |
|                                                               |                | PM        | -         | E (59.7)  | C (34.1)  | A (5)     | <b>B (19)</b>    |
| 3. I-575 Northbound Ramps & Sixes Rd                          | Traffic Signal | AM        | D (54.6)  | -         | B (19.9)  | A (1.1)   | <b>B (19.8)</b>  |
|                                                               |                | PM        | E (63.1)  | -         | D (36.1)  | D (50.8)  | <b>D (52.9)</b>  |
| 4. N Rope Mill Rd & Sixes Rd                                  | TWSC           | AM        | D (26.3)  | F (235.1) | -         | -         | <b>(14.8)</b>    |
|                                                               |                | PM        | F (*)     | F (81.3)  | -         | -         | <b>(8.5)</b>     |
| 5. Sixes Rd/QT Driveway & Holly Springs Pkwy                  | Traffic Signal | AM        | C (34.9)  | D (41.2)  | F (508.2) | F (585.6) | <b>F (173.5)</b> |
|                                                               |                | PM        | E (64.4)  | F (185.9) | F (159.8) | F (246.2) | <b>F (136.6)</b> |
| 6. Holly Springs Pkwy & E Rope Mill Rd (South)                | TWSC           | AM        | E (40.2)  | -         | -         | -         | <b>(1.1)</b>     |
|                                                               |                | PM        | F (92)    | -         | -         | -         | <b>(3.8)</b>     |
| 7. Holly Springs Pkwy & E Rope Mill Rd (North)                | TWSC           | AM        | -         | F (60.3)  | -         | -         | <b>(1.2)</b>     |
|                                                               |                | PM        | -         | F (62.4)  | -         | -         | <b>(1.4)</b>     |
| 8. River Park Blvd/Palm St & Holly Springs Pkwy               | Traffic Signal | AM        | E (62.2)  | E (57.3)  | F (112.3) | D (40.9)  | <b>E (76.6)</b>  |
|                                                               |                | PM        | F (113)   | E (78.6)  | F (147.4) | D (40.1)  | <b>F (96.2)</b>  |
| 9. Holly Springs Pkwy & Palm St                               | TWSC           | AM        | -         | C (24)    | -         | -         | <b>(0.1)</b>     |
|                                                               |                | PM        | -         | D (29.9)  | -         | -         | <b>(0.2)</b>     |
| 10. Misty Hollow Way/ Toonigh Rd & Holly Springs Pkwy         | Traffic Signal | AM        | F (116.4) | F (193.5) | E (72.9)  | A (5.6)   | <b>F (82.1)</b>  |
|                                                               |                | PM        | F (181.1) | F (245.5) | C (29.3)  | E (67.1)  | <b>E (77.1)</b>  |
| 11. I-575 Southbound Ramps & Ridgewalk Pkwy                   | Traffic Signal | AM        | -         | E (56.9)  | C (32.1)  | B (16.7)  | <b>C (30.7)</b>  |
|                                                               |                | PM        | -         | F (129.4) | D (50.9)  | E (74.4)  | <b>F (86.1)</b>  |
| 12. I-575 Northbound Ramps & Ridgewalk Pkwy                   | Traffic Signal | AM        | F (438.1) | -         | A (9.9)   | B (14)    | <b>F (148.7)</b> |
|                                                               |                | PM        | F (666.6) | -         | A (6.1)   | A (3.2)   | <b>F (227.2)</b> |
| 13. Outlets Driveway/ Olde Rope Mill Park Rd & Ridgewalk Pkwy | Traffic Signal | AM        | D (51)    | F (87.7)  | A (1.8)   | B (14.1)  | <b>B (17.0)</b>  |
|                                                               |                | PM        | D (54.5)  | F (273.8) | A (2.4)   | C (23.9)  | <b>D (36.8)</b>  |

*\*Due to limitations with HCM 6<sup>th</sup>/HCM 7<sup>th</sup> methodologies, delays exceed 1,000 seconds for this approach.*



## PMT Charrette

### Meeting Details and Activities



On July 31, 2024, the Project Management Team and Consultant Team gathered for a half day workshop at the COED offices. The workshop began with a review of stakeholder and public engagement results from the first round of outreach followed by a summary of Existing and No-Build traffic analysis and corresponding ideas for low and moderate scale transportation infrastructure improvements. The goal for the first half of the meeting was to provide baseline information to all parties so that everyone had the same understanding of current conditions as well as the anticipated conditions if no transportation investments were made over the course of the next 20 years.



The second half of the meeting incorporated some more substantial idea generation. Kimley-Horn provided informational updates about some of the transportation connectivity challenges (I-575, the railroad, the cemetery, and the USACE property). Some initial ideas for transformative transportation concepts were presented to help attendees think about the possibilities. Following that, the group separated into three breakouts to do some brainstorming about big connectivity ideas. The teams then regrouped for a discussion around land use and development. This included a review of case studies of similar sized properties and another round of breakouts to discuss development opportunities. Once completed, the group gathered for a report out of the individual team ideas before discussing next steps and concluding. Images in **Figure 10** show some of the day's events.



**FIGURE 10: WORD CLOUD OF STATED CONCERNS IN STUDY AREA (TOP), PROJECT TEAM DRAWING ON MAP (MIDDLE), WORKSHOP ATTENDEES GATHERED AT CONFERENCE TABLE (BOTTOM)**

## Meeting Outcomes

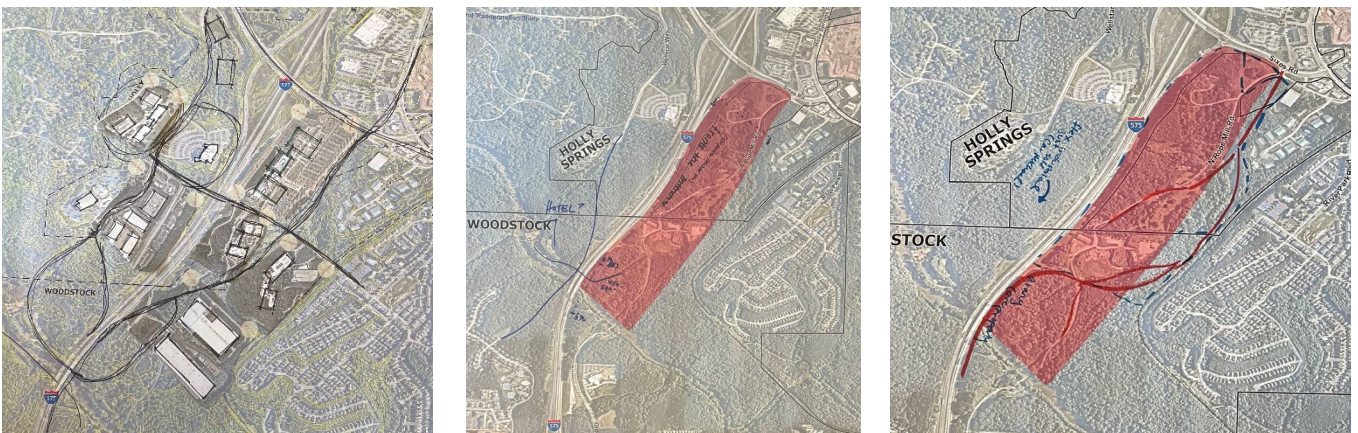
Breakout teams produced individual concepts for both transportation connectivity and land use/development. Images capturing the ideas for both breakout discussions across the three groups are shown in **Figure 11** and **Figure 12**.

Some similar transportation ideas were discussed across the three groups including a new connection from Ridgewalk Parkway to Sixes Road (using the easement along the I-575 corridor) and a new connection across I-575 between Wellstar Way and a realigned/reimagined North Rope Mill Road. A realignment of Holly Springs Parkway and Sixes Road was also a common theme. Other ideas considered by one or more of the groups included leveraging and upgrading the current dirt road used for dredging operations along Little River, making use of the commercial drive to the west of Holly Springs Parkway, widening Holly Springs Parkway to Ridgewalk Parkway, and connecting to the River Park neighborhood to the east.



**FIGURE 11: TRANSPORTATION NETWORK IDEAS FROM CHARRETTE BREAKOUT GROUPS**

In a similar way, the breakout groups met to discuss land use and development opportunities. They explored ideas around the possibility of a corporate campus on the east side of the interstate with more medical office on the west side. There was some consideration for industrial space also and conversation about intentional incorporation of greenspace into the development. The teams used building footprint and general height assumptions to help with the overall massing of the development.



**FIGURE 12: LAND USE/DEVELOPMENT IDEAS FROM CHARRETTE BREAKOUT GROUPS**



## Scenario: Transportation Network Recommendations

**Figure 13** shows the transportation network recommendations produced by this study. These recommendations resulted from needs identified from the Existing and No-Build traffic analyses and from extensive future year traffic analyses. The transportation recommendations can be divided into three groups:

- 1) Sixes Road and Holly Springs Parkway Improvements
- 2) Wellstar Way and N Rope Mill Road Improvements
- 3) Slip Lanes and Access Lanes to Proposed Developments

### Sixes Road and Holly Springs Parkway Improvements

The Existing and No-Build traffic analyses indicated that Sixes Road and Holly Springs Parkway are congested and will continue to experience more delays and bottlenecks in the future. The recommended improvements on Sixes Road and Holly Springs Parkway were designed to alleviate congestion and improve safety throughout the Holly Springs Parkway/Main Street corridor and especially at the intersection of Sixes Road and Holly Springs Parkway.

The first recommended improvement in this group is a realignment of the Sixes Road and Holly Springs Parkway intersection (I-1). Whereas skewed geometry challenges the existing intersection, the proposed realignment would reconfigure Sixes Road at Holly Springs Parkway as a 90-degree intersection. The east-west through movement would become Sixes Road to Holly Springs Parkway, and Holly Springs Parkway would become the southbound approach. E Rope Mill Road would connect as the northbound approach to serve existing developments.

The second of the recommended improvements on Holly Springs Parkway/Main Street is a roadway widening from Sixes Road to Ridgewalk Parkway (W-3 and W-4). This set of improvements would add an additional through/travel lane in each direction with a median and turn lanes, giving the road four travel lanes in total. This would also include a recommended side path on one side of the road and a sidewalk on the other side of the road.

The final recommended improvement in this group is the reinforcement and striping of the commercial driveway and signalization of the Sixes Road at N Rope Mill Road/commercial driveway intersection (W-2). The commercial driveway would be converted from a private road into a striped parallel route to Holly Springs Parkway. The signalized intersection would improve operations on side streets and would support new development and the changes to N Rope Mill Road detailed below.

### Wellstar Way and N Rope Mill Road Improvements

To support the anticipated development of land adjacent to the interstate, this study recommends three improvements to Wellstar Way and N Rope Mill. These improvements are intended to improve network connectivity near new developments and support the additional traffic that these developments will generate.

The first recommendation in this group is widening and reinforcing Wellstar Way (W-1). The current Wellstar Way has insufficient capacity to serve traffic from anticipated medical and industrial development west of I-575. This study recommends widening the road from one lane in each direction to two lanes in each direction and reinforcing the pavement to support increased traffic.





The second recommendation in this group is widening, reinforcing, and realigning N Rope Mill Road (NC-2). N Rope Mill Road currently serves as a small, unstriped two-lane connection to a few scattered developments east of the interstate. As the land around it continues to develop, this road will be unable to serve newly generated traffic demand. This study recommends widening N Rope Mill Road to two-lanes in each direction, reinforcing the pavement, and adding striping in some places while completely creating a new alignment in other places. Further, N Rope Mill Road should be realigned near its intersection with Sixes Road to form a 90-degree intersection, which would improve safety and operations for traffic at the newly signalized intersection.

The final recommended improvement in this group is a new connection over I-575 between Wellstar Way and N Rope Mill Road, referred to in this study as Wellstar Bridge (NC-1). This new road would connect to the existing roundabout at Wellstar Way and the Cherokee County Aquatic Center and would provide a bridge over the interstate to form a new intersection on N Rope Mill Road. Wellstar Bridge would serve two purposes: first, it would provide improved connectivity between developments on either side of interstate; and second, it would support the operations of the access lanes detailed below.

## Slip Lanes and Access Lanes to Proposed Developments

The final group of recommendations is designed to both alleviate congestion on challenged interchanges and provide improved accessibility to new developments. These recommendations work in tandem with the Wellstar Way and N Rope Mill Road improvements to increase connectivity in the study area.

At a high level, this group of improvements would create a network of one-way roads connecting the interstate and Ridgewalk Parkway to new developments along Wellstar Way and N Rope Mill Road. The first set of one-way roads is a pair of slip lanes between I-575 and Wellstar Bridge (NC-4A and NC-4B). The slip lanes would allow traffic to and from the interstate to access Wellstar Bridge without interacting with congested interchanges on Sixes Road and Ridgewalk Parkway. Because the slip lanes and N Rope Mill Road form a new route between the interstate and Sixes Road, they would also divert a substantial amount of traffic from the Sixes Road interchange.

The second set of one-way roads is a pair of access lanes between Ridgewalk Parkway and Wellstar Bridge (NC-3A and NC-4A). The northbound access lane would split off of Olde Rope Mill Park Road north of the car dealership, merging with the northbound slip lane and connecting to Wellstar Bridge at N Rope Mill Road. The southbound access lane would split off of the southbound slip lane, connecting to Ridgewalk Parkway at an existing intersection west of the interchange. Similar to the slip lanes, these access lanes would allow traffic from Ridgewalk Parkway direct access to new developments without using congested routes on Holly Springs Parkway or the interstate.



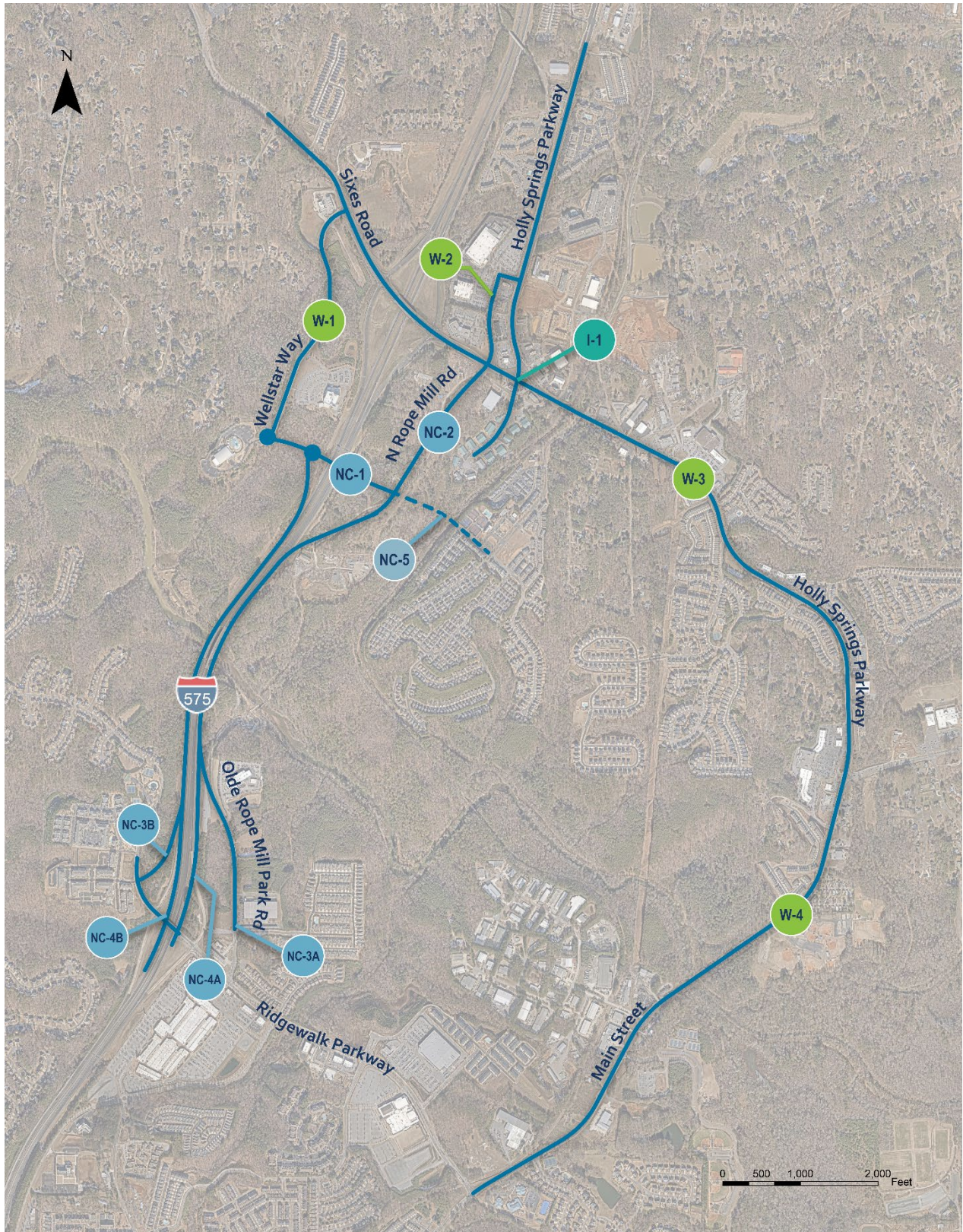


FIGURE 13: TRANSPORTATION NETWORK RECOMMENDATIONS

## Alternate Alignment (N Rope Mill Road/Holly Springs Parkway)

The team explored another geometric alternative that allowed for the northbound movement from the I-575 slip lanes and access road to N Rope Mill Road to instead continue through to Holly Springs Parkway to the north (**Figure 14**). Under this scenario, a new connection would be created for the existing N Rope Mill Road to serve local development traffic, as both intersections are needed to properly serve all of the traffic accessing/crossing Sixes Road. Traffic analysis was not completed for this alignment and would be necessary to understand if the configuration would support the projected traffic movements, but it is documented here for further consideration.

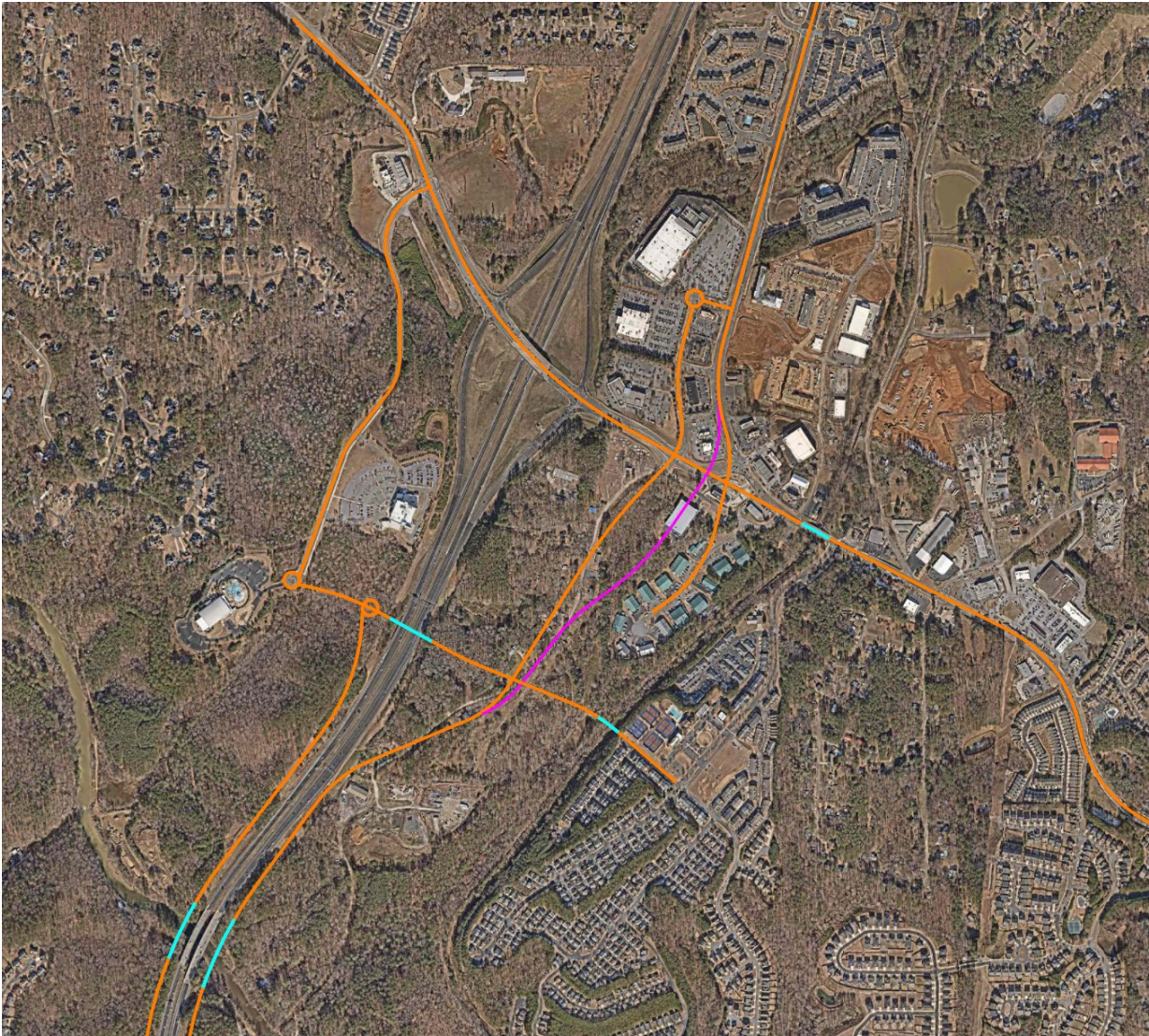


FIGURE 14: ALTERNATE ALIGNMENT OF N ROPE MILL ROAD

## Build 2044 (Without Development)

### Scenario Overview

**Figure 15** summarizes the peak hour traffic volumes under the Build Without Development scenario. The Build scenarios have a number of changes to the study network, increasing the total of study intersections from 13 to 19. Multiple new segments include the Wellstar Way Bridge, some development driveways, and the access and slip lanes. Driveway locations were assumed at intersections 15, 16, and 17; the actual locations of future driveways are yet to be determined.

ARC ABM model runs were used to determine changes in travel patterns between the No-Build and Build Without Development scenarios. The two transportation improvements that are most impactful to travel patterns in the study area are the Holly Springs Parkway/Main Street widening and the addition of the access and slip lane system. Together, these two improvements improve north-south mobility in the study area and help to alleviate traffic on I-575 and its interchanges.

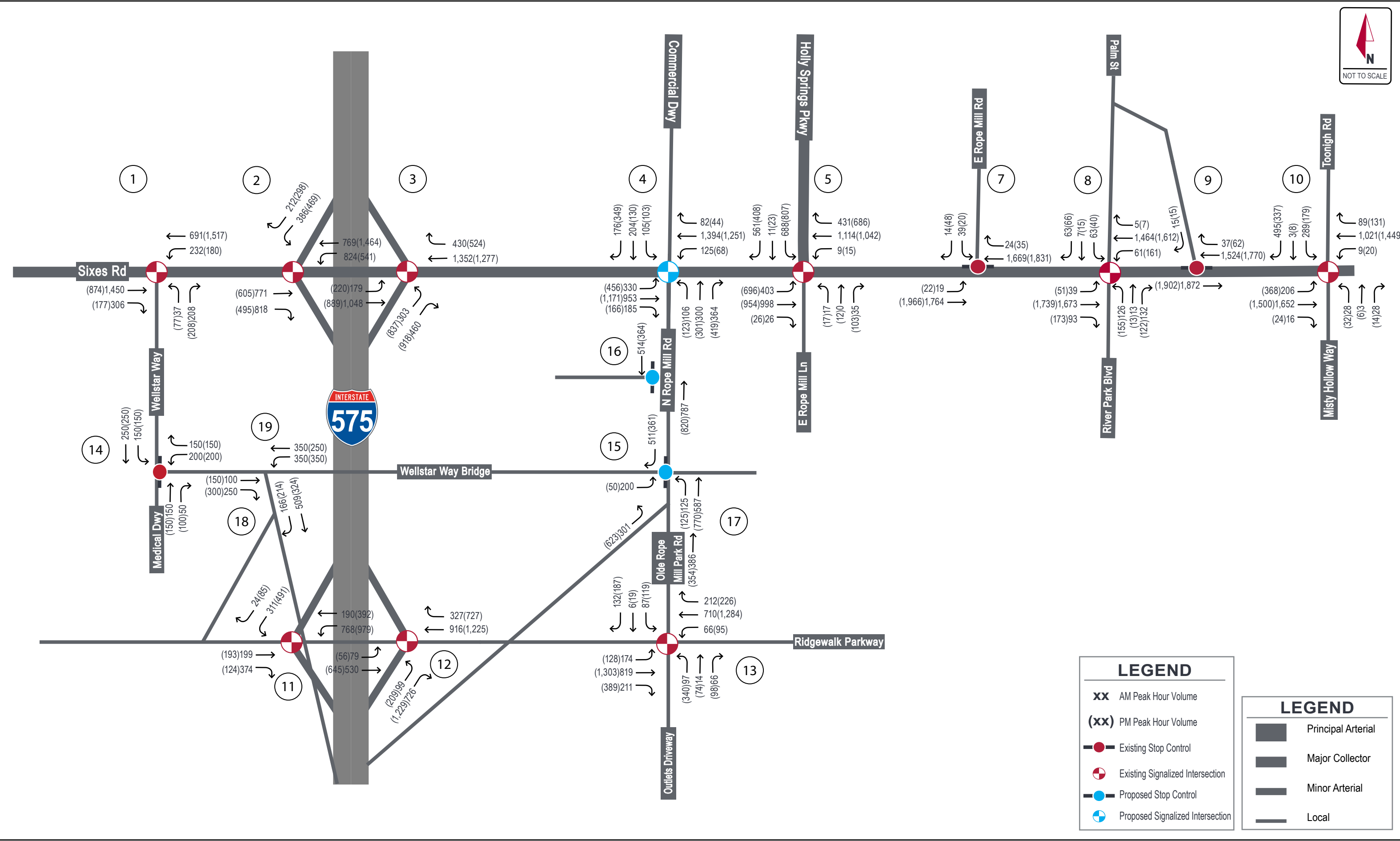
The combination of the widened Holly Springs Parkway and the access and slip lane system serves to reduce trips on I-575 between Sixes Road and Ridgewalk Parkway, as well as reduce trips on the northbound exit ramp and southbound entrance ramp on Sixes Road. The additional capacity provided by Holly Springs Parkway/Main Street widenings and the slip lane system incentivizes travelers to divert their trips off the interstate and instead take routes that are more direct and/or less congested. Traffic volumes on the Sixes Road northbound exit and southbound entrance ramps are estimated to decrease by 20% to 30% due to the Build transportation improvements.

Due to the widening, traffic volumes on Holly Springs Parkway/Main Street increase substantially. Across the corridor, through volumes increase by approximately 20%; side volumes remain mostly steady. Changes to travel patterns caused by the recommended transportation improvements also increase volumes on Sixes Road. Though fewer trips from the interstate use Sixes Road under the Build scenario, additional trips from the Holly Springs Parkway/Main Street widening and slip lane system increase total volumes on Sixes Road.

The realignment of the Sixes Road and Holly Springs Parkway intersection alters turning movement volumes. Due to the realignment, right turns on Sixes Road and left turns on Holly Springs Parkway become through movements in the Build network. Through volumes on the north leg of Holly Springs Parkway are converted to left turns. Due to new trips from the access lane system and the Holly Springs Parkway widening, volumes on the eastbound approach increase. The access lane system specifically increases eastbound left turns at this intersection.

At the intersection of Sixes Road and N Rope Mill Road, northbound volumes increase due to the access lane system. Volumes on this approach primarily come from trips using the access lanes as shorter alternative to the interstate; as a result, the majority of northbound trips turn right or go straight rather than turning left towards the interchange. Due to improvements to the commercial driveway, there are also higher volumes on the southbound approach of this intersection. However, most southbound trips from Holly Springs Parkway still choose to use the Sixes Road and Holly Springs Parkway intersection.

The Ridgewalk Parkway interchange with Sixes Road sees slightly increased traffic volumes primarily due to the widening of Holly Springs Parkway. However, these increases are not expected to have a significant impact on traffic conditions at the interchange, and operations at the programmed diverging-diamond interchange were not modeled as part of this study.



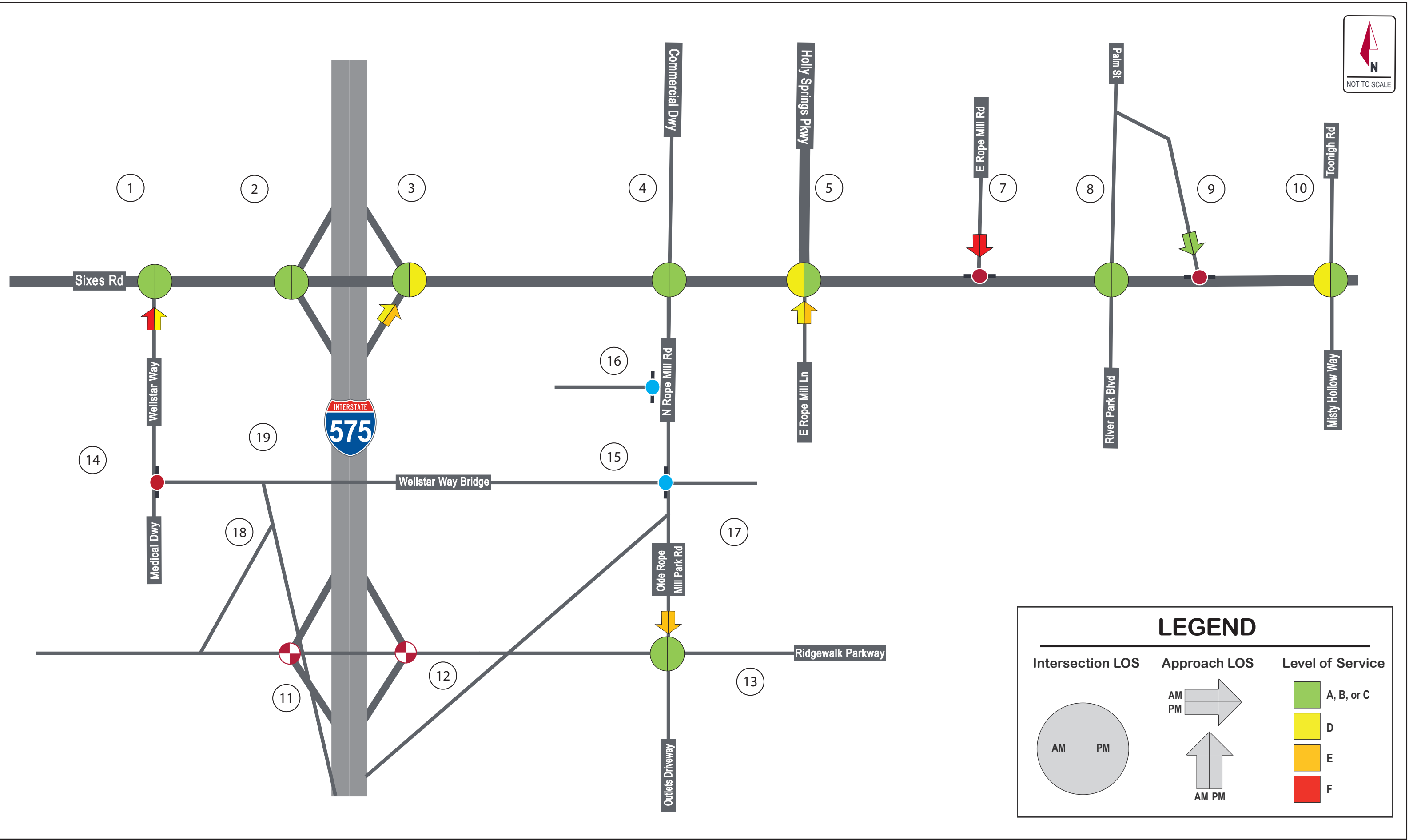
CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 15: BUILD WITHOUT DEVELOPMENT (2044) PEAK HOUR TRAFFIC VOLUMES**

## Capacity Analysis Results

**Table 4** provides detailed LOS and delay for the Build Without Development (2044) peak hour conditions. **Figure 16** summarizes the results of the Build Without Development LOS presented from LOS A (green) to LOS F (red) for intersections as a whole, and for individual intersection approaches that perform worse than LOS D in at least one peak hour. Overall, the transportation network performs well under Build Without Development conditions. The Build network considered roadway geometry and connectivity enhancements both to serve existing and projected traffic along the corridor, as well as plan for intersection geometries and signal operations that could support new development. Side street approaches at signalized and stop-controlled intersections along the corridor are projected to experience higher delays than the mainline due to allocation of signal timing and capacity for the large flows along the primary corridor. However, intersections operate better with the additional through- and turn-lanes as well as alternative routes provided in the Build Without Development scenario.

**TABLE 4: BUILD WITHOUT DEVELOPMENT (2044) PEAK HOUR LEVEL OF SERVICE**

| Intersection                                                  | Control        | Peak Hour                                                                        | NB        | SB       | EB       | WB       | Overall         |
|---------------------------------------------------------------|----------------|----------------------------------------------------------------------------------|-----------|----------|----------|----------|-----------------|
| 1. Wellstar Way & Sixes Rd                                    | Traffic Signal | AM                                                                               | F (100.6) | -        | B (11.5) | B (12.8) | <b>B (19.4)</b> |
|                                                               |                | PM                                                                               | D (47.9)  | -        | B (12.2) | A (7.4)  | <b>B (12.8)</b> |
| 2. I-575 Southbound Ramps & Sixes Rd                          | Traffic Signal | AM                                                                               | -         | D (45.7) | D (39.8) | B (14.3) | <b>C (27.3)</b> |
|                                                               |                | PM                                                                               | -         | D (52.3) | D (36.9) | A (7)    | <b>C (22.6)</b> |
| 3. I-575 Northbound Ramps & Sixes Rd                          | Traffic Signal | AM                                                                               | D (48.3)  | -        | A (3.2)  | B (14.6) | <b>B (17.7)</b> |
|                                                               |                | PM                                                                               | E (61.6)  | -        | A (6.2)  | C (28.2) | <b>D (35.5)</b> |
| 4. N Rope Mill Rd & Sixes Rd                                  | Traffic Signal | AM                                                                               | D (40.5)  | C (31.9) | B (11.2) | C (30.7) | <b>C (26)</b>   |
|                                                               |                | PM                                                                               | D (41.6)  | C (31.5) | B (13.8) | D (37.3) | <b>C (28.1)</b> |
| 5. Sixes Rd/QT Driveway & Holly Springs Pkwy                  | Traffic Signal | AM                                                                               | D (47.7)  | D (54.6) | D (47.7) | B (17.9) | <b>D (39.1)</b> |
|                                                               |                | PM                                                                               | E (60.8)  | D (43.2) | C (22.6) | C (28)   | <b>C (30.7)</b> |
| 6. Holly Springs Pkwy & E Rope Mill Rd (South)                | *              | * Former northbound TWSC Intersection 6 realigned to connect with Intersection 5 |           |          |          |          |                 |
| 7. Holly Springs Pkwy & E Rope Mill Rd (North)                | TWSC           | AM                                                                               | -         | F (76.5) | -        | -        | <b>(1.2)</b>    |
|                                                               |                | PM                                                                               | -         | F (51.3) | -        | -        | <b>(1)</b>      |
| 8. River Park Blvd/Palm St & Holly Springs Pkwy               | Traffic Signal | AM                                                                               | D (53.1)  | D (52.6) | A (3.2)  | A (3.1)  | <b>A (8.5)</b>  |
|                                                               |                | PM                                                                               | D (42)    | C (22.3) | A (8.1)  | D (36)   | <b>C (22.8)</b> |
| 9. Holly Springs Pkwy & Palm St                               | TWSC           | AM                                                                               | -         | C (16.7) | -        | -        | <b>(0.1)</b>    |
|                                                               |                | PM                                                                               | -         | C (19)   | -        | -        | <b>(0.1)</b>    |
| 10. Misty Hollow Way/ Toonigh Rd & Holly Springs Pkwy         | Traffic Signal | AM                                                                               | C (26.3)  | C (34.8) | D (42.9) | C (27.3) | <b>D (36.4)</b> |
|                                                               |                | PM                                                                               | D (46.6)  | D (44.8) | C (21.2) | C (25.4) | <b>C (26.3)</b> |
| 11. I-575 Southbound Ramps & Ridgewalk Pkwy                   | DDI            | Programmed DDI Not Modeled                                                       |           |          |          |          |                 |
| 12. I-575 Northbound Ramps & Ridgewalk Pkwy                   | DDI            | Programmed DDI Not Modeled                                                       |           |          |          |          |                 |
| 13. Outlets Driveway/ Olde Rope Mill Park Rd & Ridgewalk Pkwy | Traffic Signal | AM                                                                               | D (47.3)  | E (57)   | B (18)   | B (16.5) | <b>C (22.8)</b> |
|                                                               |                | PM                                                                               | D (47.3)  | E (60.6) | C (20.3) | C (31.2) | <b>C (30.7)</b> |



### LEGEND

Intersection LOS

Approach LOS

AM

PM

Level of Service

A, B, or C

D

E

F

## Scenario: Potential Development Opportunities

### Zoning and Development

To gain a thorough understanding of the existing area, a zoning map was developed, as shown in **Figure 17**. This map reveals that Holly Springs and unincorporated Cherokee County share the same zoning categories and color schemes, while Woodstock displays some slight differences. The zoning around the I-575 and Sixes Road Interchange is predominantly general commercial and light industrial. Similarly, the interchange at Ridgewalk Parkway to the south exhibits a comparable composition of commercial and light industrial zoning. Residential zones are primarily located further east along Holly Springs Parkway. These zoning patterns suggest potential for continued commercial and industrial development along the major interchanges, leveraging accessibility to I-575. The presence of residential areas further east indicates a buffer between commercial activities and residential neighborhoods, likely aiming to create a balanced land use strategy that supports both economic growth and community living. This zoning configuration also suggests that future development opportunities may focus on enhancing commercial and industrial facilities near the interchanges while preserving residential quality of life in the surrounding neighborhoods.

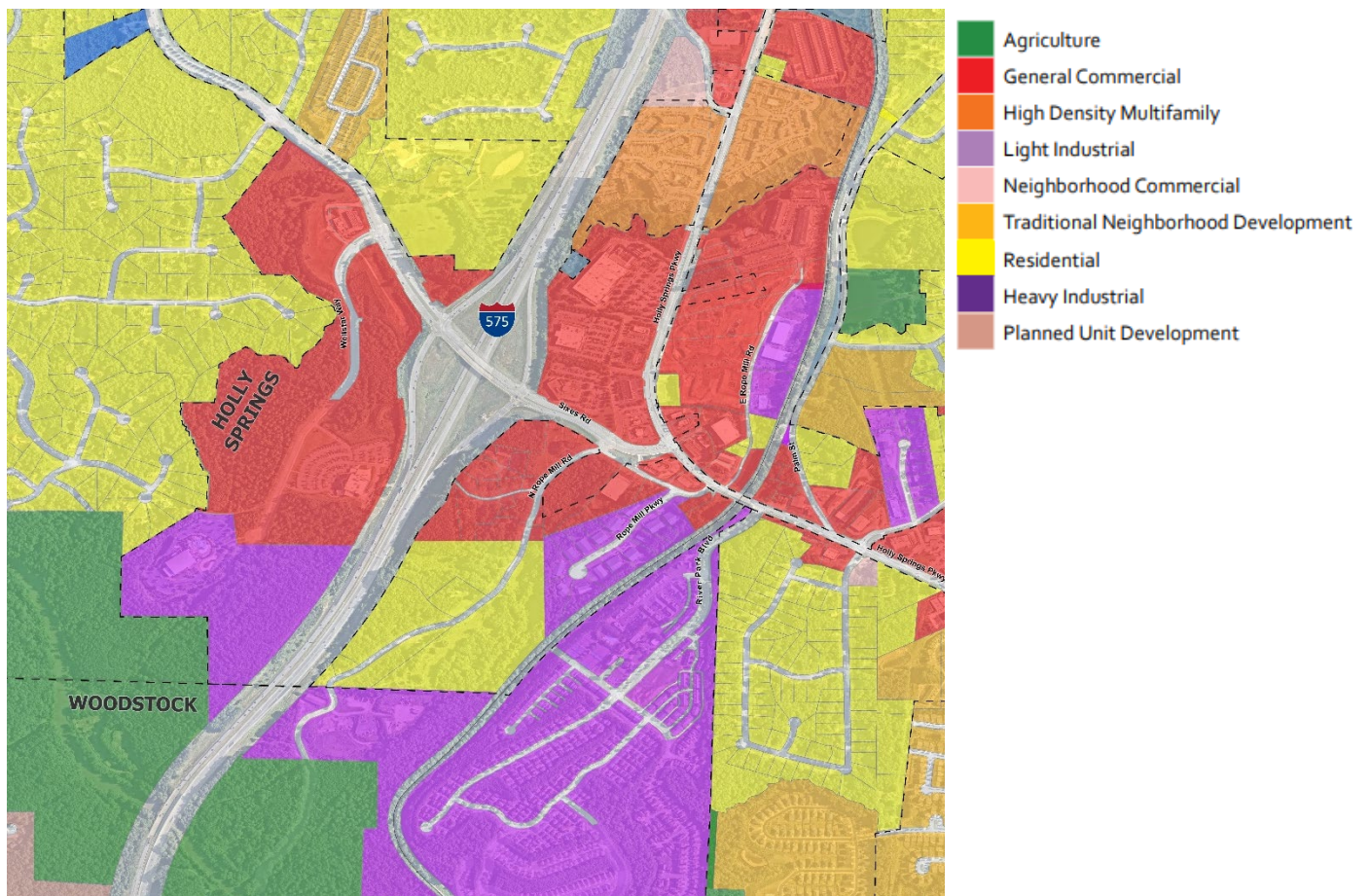
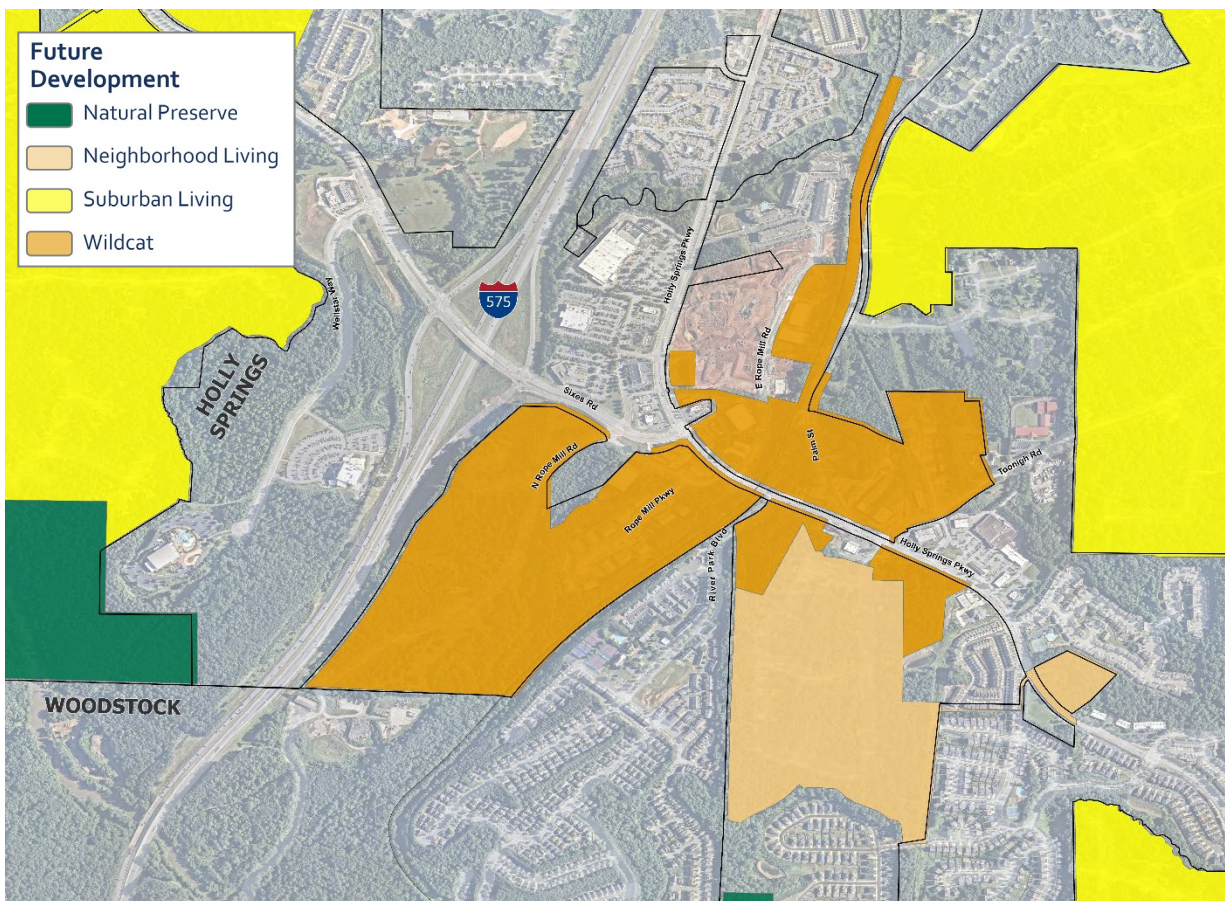


FIGURE 17: ZONING MAP

In conjunction with zoning, a future development map has been created and is displayed in **Figure 18**. Future development was outlined in the 2023 Cherokee Comprehensive Plan and included an analysis of current and future conditions, land use patterns, zoning maps, approved developments, economic market studies, topographic characteristics, natural resource sensitivity, and infrastructure availability, considering residential and employment forecasts. The development regions are categorized into distinct character areas. Each character area is assigned a primary and secondary land use type, along with the necessary infrastructure to support these developments. The study area intersects with both the Wildcat and Neighborhood Living character areas. The Wildcat character area is designated for major employment hubs, including corporate and medical offices, complemented by mixed-use and multifamily areas, and connected green and civic spaces. This area focuses on large corporate centers while ensuring that residential uses do not dominate the non-residential character. On the other hand, the Neighborhood Living character area consists predominantly of residential zones with townhouses, duplexes, single-family homes, and small commercial areas. This area aims to create moderate-density neighborhoods with diverse housing options and convenient services, fostering walkability and integrating community facilities and green spaces close to homes. **Table 5** provides details on each of the character areas and anticipated development.



**FIGURE 18: FUTURE DEVELOPMENT**

**TABLE 5: CHARACTER AREAS AND DEVELOPMENT DETAILS**

| Residential Intensity      | Primary Land Use                                                               | Secondary Land Use                                   | Infrastructure                                                                      | Greenspace                                                                                          |
|----------------------------|--------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Wildcat</b>             |                                                                                |                                                      |                                                                                     |                                                                                                     |
| 1.6 units per acre         | Office buildings and complexes                                                 | Mixed-use buildings                                  | Urban streets with sidewalks on both sides<br>Full urban services (water and sewer) | Smaller civic spaces within the commercial, mixed-use, and residential spaces, potential park space |
| <b>Neighborhood Living</b> |                                                                                |                                                      |                                                                                     |                                                                                                     |
| 3-8 units per acre         | Small lot single-family homes<br>Attached single-family duplexes and townhouse | Public and institutional uses<br>Mixed-use buildings | Urban streets with sidewalks on both sides<br>Full urban services (water and sewer) | Smaller civic spaces (pocket parks, playgrounds, etc.) within the residential areas                 |

Knowing the zoning and character areas provides a basis for thoughtful growth and development, aligned with community goals and infrastructure planning. For the study area, this could mean the inclusion of corporate and medical office complexes as major employment hubs, potentially complemented by mixed-use spaces with retail, dining, and multifamily housing to support vibrant, balanced neighborhoods. Integrated green and civic spaces would enhance the area by balancing built environments with natural spaces. The overall strategy aims to maintain a non-residential focus, ensuring that commercial and industrial activities are not overshadowed by residential uses, thereby supporting the area's role as a significant employment center.

## Case Studies

Reviewing case studies and their development makeup offers real-world insights and benchmarks, enabling planners to improve on less than desirable outcomes and replicate successful strategies. Five case studies were assessed for the future of the study area, specifically Ellenwood, College Park, Kennesaw, Raleigh, and Greenville. **Figure 19** to **Figure 23** contain maps of these case study areas and their respective land uses. The chosen case studies encompass a variety of uses and were selected due to their proximity to an interstate or highway and acreage, similar to the study area off I-575. This comparative analysis helps ensure that proposed developments are both practical and beneficial, drawing from successful examples in analogous locations.



FIGURE 19: CASE STUDY 1 OF AN INDUSTRIAL PARK

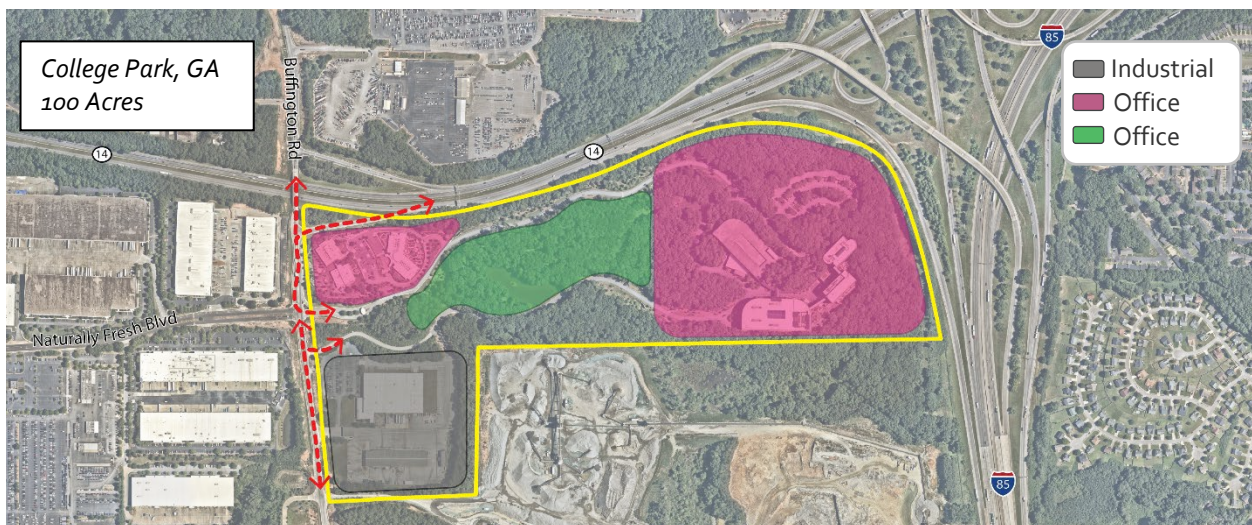


FIGURE 20: CASE STUDY 2 OF A CORPORATE CAMPUS SINGLE USER



FIGURE 21: CASE STUDY 3 OF AN INDUSTRIAL AND CORPORATE CAMPUS

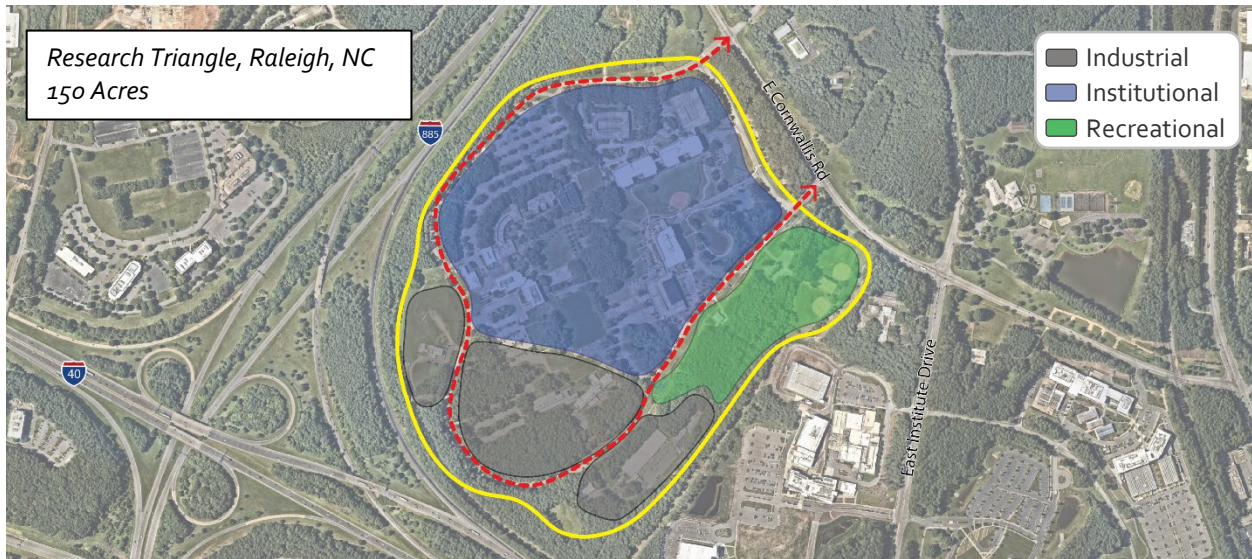


FIGURE 22: CASE STUDY 4 OF A RESEARCH/CORPORATE CENTER

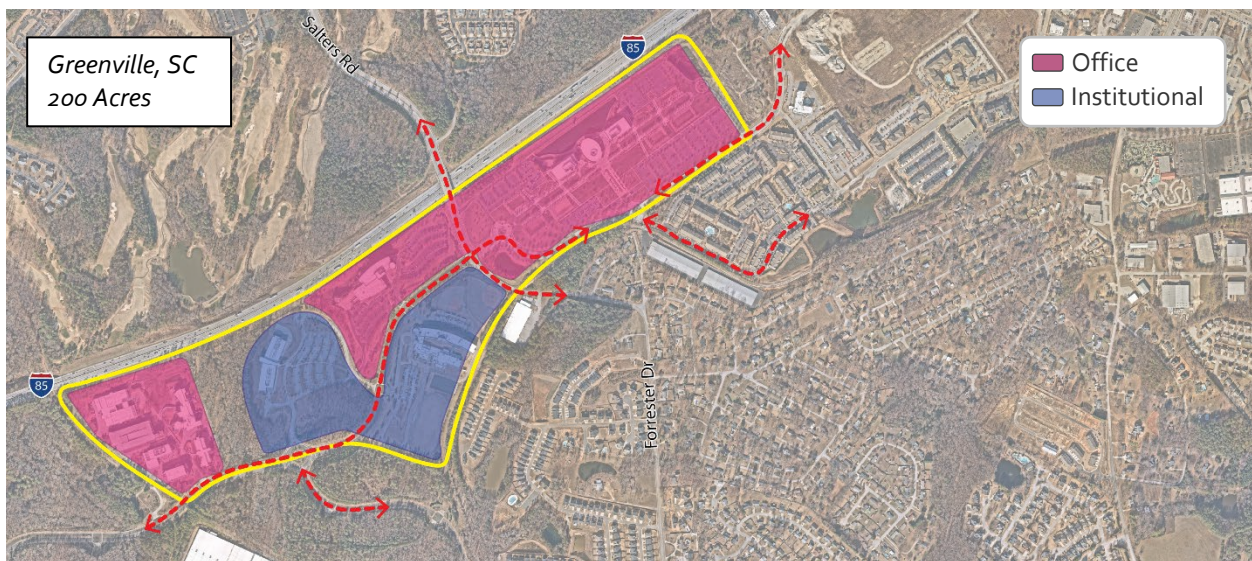


FIGURE 23: CASE STUDY 5 OF A CORPORATE CENTER

## Potential Development Opportunity

During a workshop with the project team, five case studies were examined to identify the most suitable development scenario for the study area. Case 5, focusing on Greenville, SC, emerged as the preferred option. The team expressed a common desire for development along the frontage of the east side of I-575, envisioning potential corporate campuses. To explore the possibilities, both low-density and high-density scenarios were developed, detailing square footage distributions for areas on both the east and west sides of I-575. After thorough evaluation, the high-density scenario was selected as the preferred development plan. Square footage adjustments were made based on feedback and the capacity of the transportation system. **Figure 24** displays the development and land uses around the study area. **Table 6** provides details on the square footages for each land use.

**TABLE 6: DEVELOPMENT SQUARE FOOTAGES**

| East of I-575           |                      |
|-------------------------|----------------------|
| Office Park             | 1,000,000 SF         |
| Retail                  | 250,000 SF           |
| Hotel                   | 100 rooms            |
| <b>Total</b>            | <b>1,250,000 SF*</b> |
| West of I-575           |                      |
| Medical Office Building | 300,000 SF           |
| Light Industrial        | 250,000 SF           |
| <b>Total</b>            | <b>550,000 SF</b>    |
| <b>Grand Total</b>      | <b>1,800,000 SF</b>  |

*\*Square footage from hotel not included*



**FIGURE 24: HIGH DENSITY SCENARIO**

*Final Development Plan has not been determined*



## Build 2044 (With Development)

### Traffic Distribution

The ITE *Trip Generation Manual*, 11<sup>th</sup> Edition was used to generate new traffic from the anticipated land uses that will be developed in the study area. Based on likely development and driveway locations, the development traffic was then distributed throughout the study area to reflect the likely routes of trips entering and exiting each development. **Figure 25** through **Figure 29** show the assumed distribution of development traffic on the Build network.

The land uses that will be developed on the east side of I-575 are assumed to be office, retail, and hotel uses. **Figure 25** shows the distribution of office trips on the Build network. Driveway locations for office land uses were placed on N Rope Mill Road at its intersection with Wellstar Way Bridge and on N Rope Mill Road between Wellstar Way Bridge and Sixes Road. Half of all office trips come from the interstate, with 30% of trips coming from south of the study area and 20% of trips coming from north of the study area. The other half of office trips come from local roads around the study area. Most traffic reaches the developments via the intersection of Sixes Road and N Rope Mill Road.

Retail and hotel trips are assumed to have the same distribution on the Build network, which is shown in **Figure 26**. The driveway location for retail and hotel land uses was placed on N Rope Mill Road between Wellstar Way Bridge and Sixes Road. Most retail and hotel trips come from local roads rather than the interstate. The majority of trips come from Holly Springs Parkway and its side streets, Sixes Road, or the medical and industrial developments to the west of the interstate.

The land uses that will be developed on the west side of I-575 are assumed to be medical and light industrial. **Figure 27** shows the distribution of medical trips on the Build network. The driveway location for medical land uses is assumed to be placed at the existing driveways serving the Cherokee County Aquatic Center. While much of the medical traffic comes from the interstate, the majority of trips come from the local road network. Holly Springs Parkway and its side streets, Sixes Road, and Ridgewalk Parkway bring in 60% of all medical traffic.

**Figure 28** and **Figure 29** show the distributions of industrial car and truck trips, respectively, on the Build network. The driveway location for light industrial land uses is assumed to be the same as the medical development driveway. Most commuters to the light industrial development either come from the local road network or from the interstate north of the study area. Nearly all of the truck traffic to the light industrial development comes from the interstate. Slightly more trucks enter from the interstate north of the study area, while slightly more trucks exit to the interstate south of the study area.

**Figure 30** shows the peak hour traffic volumes for the Build With Development scenario. Development traffic adds about 2,700 trips in the AM peak hour and 3,550 trips in the PM peak hour. Much of this traffic enters and exits developments via Holly Springs Parkway, resulting in substantial increases to through volumes at Holly Springs Parkway intersections. The intersection of Sixes Road and N Rope Mill Road has large increases to eastbound and westbound through volumes as well as eastbound right and westbound left volumes. Northbound turning volumes on N Rope Mill Road also see large increases in the PM peak hour.

On the Sixes Road interchange, volumes increase somewhat due to development traffic. The biggest increases in traffic volume occur on east-west through movements and at the southbound approach on





the I-575 southbound exit. Volumes only increase slightly at the northbound approach on the I-575 northbound exit; this is because the access lane system serves most northbound traffic from the interstate.

Due to the expected medical and light industrial developments along Wellstar Way, volumes increase at the intersection of Sixes Road and Wellstar Way. In the AM peak hour, most traffic growth occurs on the eastbound right and westbound left turning movements as commuters are coming into work. In the PM peak hour, these main leg turning movements still increase somewhat, but the majority of new traffic growth occurs on the northbound turning movements.

On Ridgewalk Parkway, development traffic increases through volumes at the interchange somewhat. These volume changes are minimal, however, and unlikely to significantly impact operations at the programmed diverging diamond interchange.

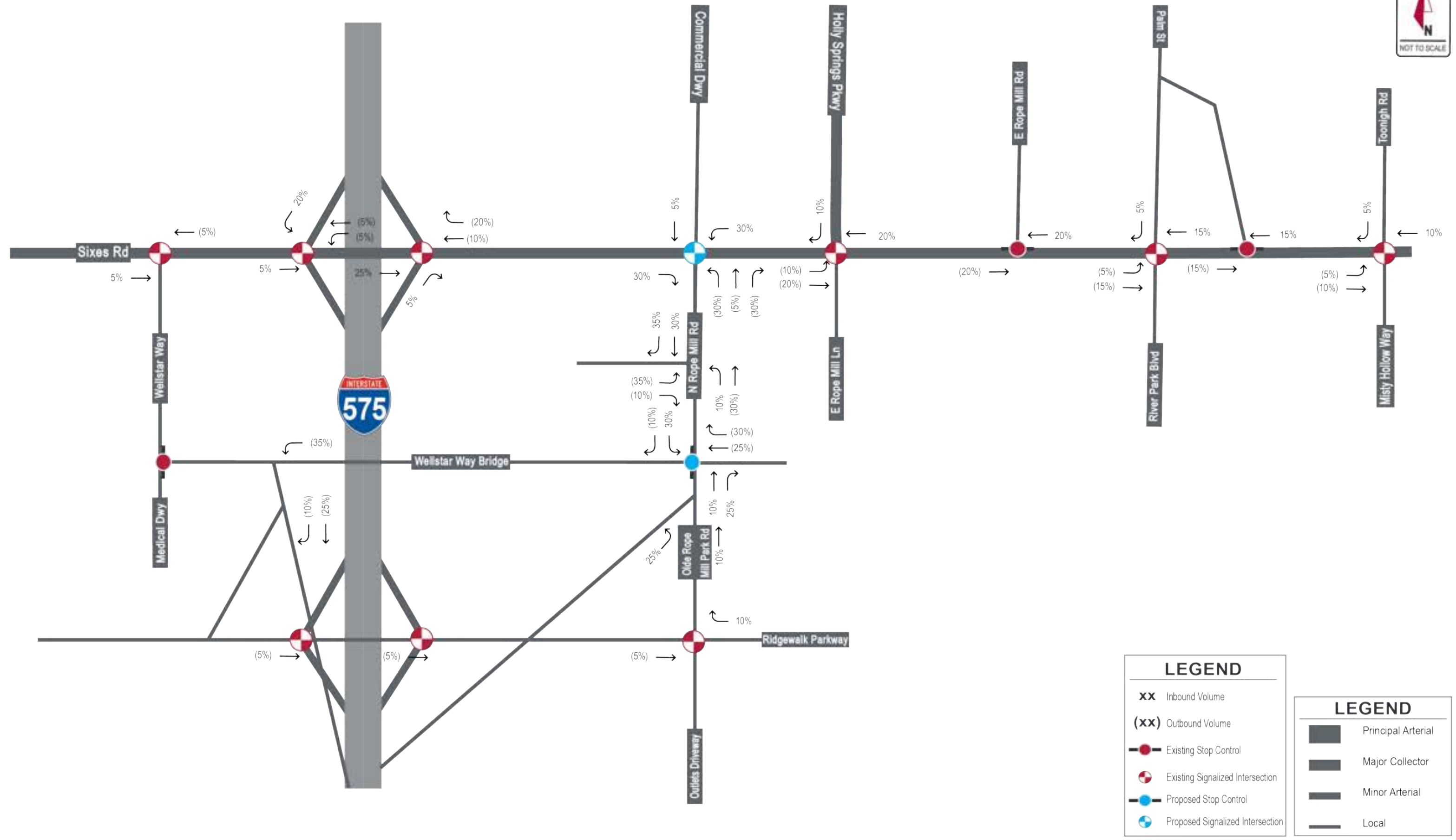
### Build Network Development

The development of the Build network was an iterative process that tested multiple combinations of transportation improvements to best serve existing congested roadways, background traffic growth, and new development traffic.

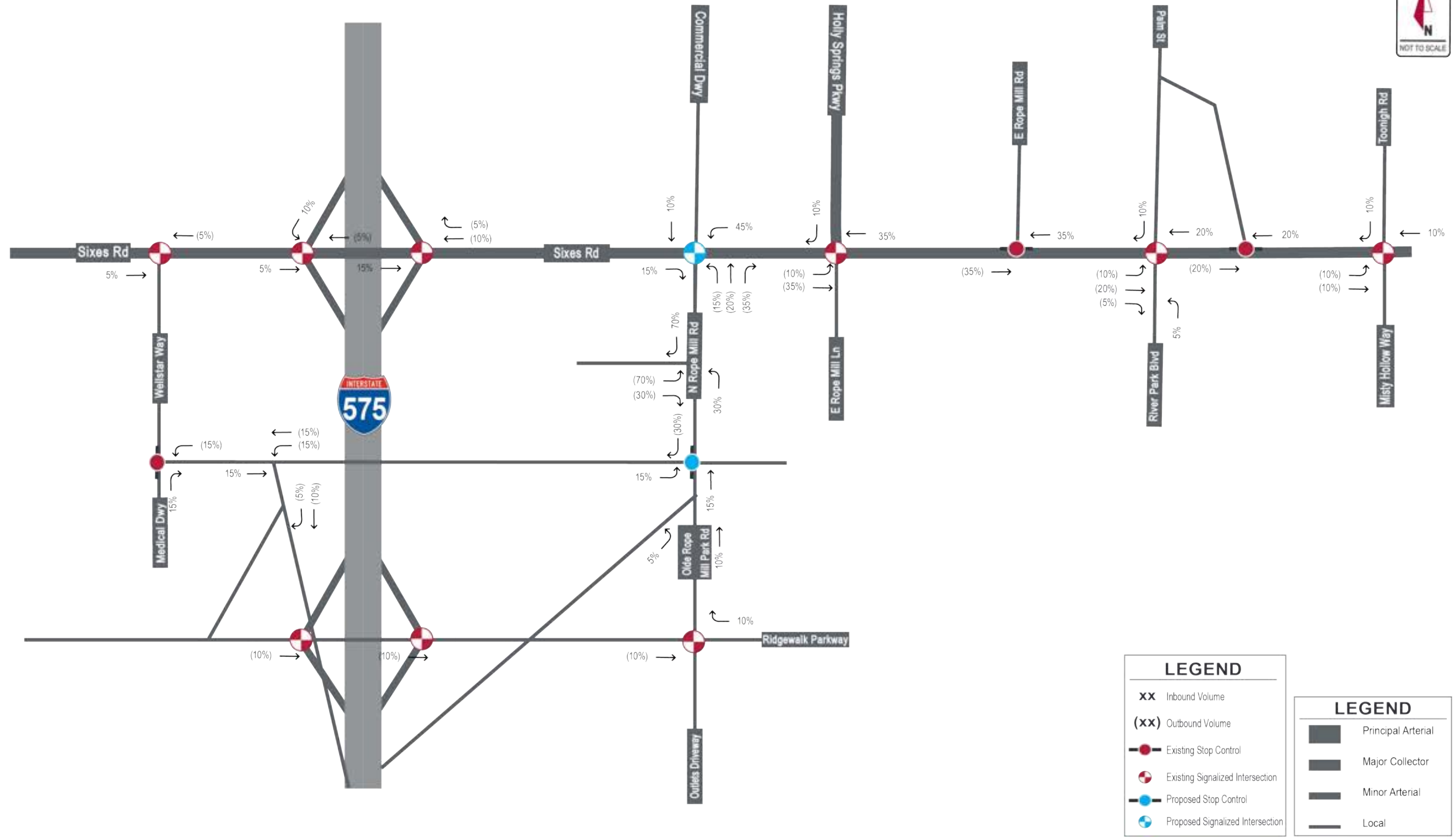
The first test group centered around realigning the Sixes Road and Holly Springs Parkway intersection to remove skew and connect Sixes Road, Holly Springs Parkway, Holly Springs Parkway, and N Rope Mill Road at a single point. This group of improvements also included connecting, widening, and reinforcing Olde Rope Mill Park Road and N Rope Mill Road, as well as constructing Wellstar Way Bridge and widening Holly Springs Parkway. The major flaw in this build network was the Sixes Road and Holly Springs Parkway intersection. While connecting these intersections at a single point reduced the total number of intersections, the intersection was overwhelmed by background traffic growth and new development traffic. All reasonable configurations of extra turn lanes and through lanes failed due to the extreme number of left-turn movements and opposing through movements. Another major flaw of this build network was the Ridgewalk Parkway and Olde Rope Mill Road intersection. New development traffic also overwhelmed this intersection; the combination of new development trips and existing trips from the Outlets at Ridgewalk Parkway caused extreme delays.

A roundabout was also tested as another potential solution to the Holly Springs Parkway and Sixes Road intersection. Using the traffic volumes from the final Build With Development scenario, a roundabout was built in SIDRA to test the effectiveness of a roundabout. However, high circulating volumes on the south half of the roundabout caused this solution to fail, even after increasing the number of circulating lanes and slip right-turn lanes.

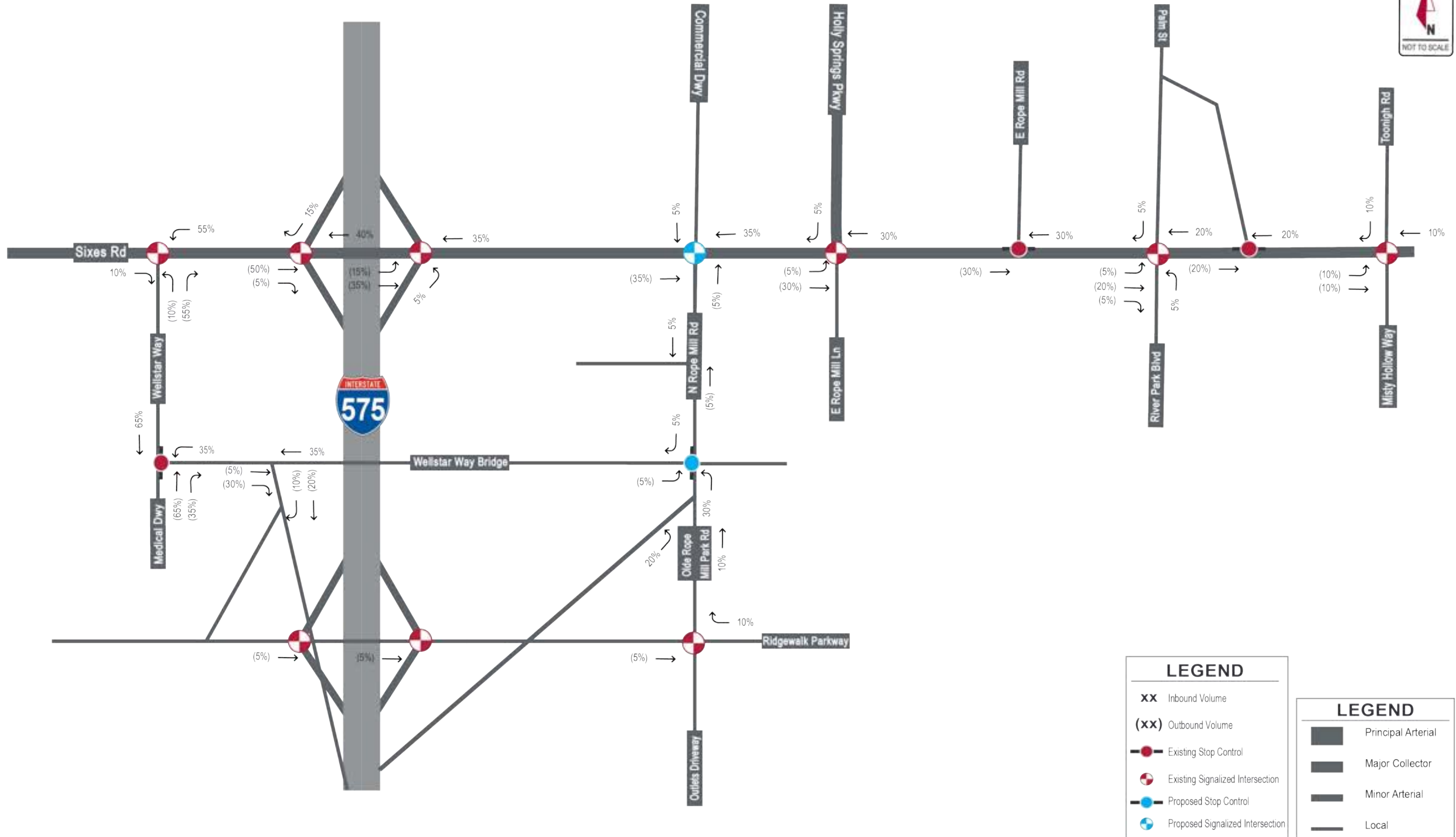
The final Build network maintains the two existing intersections on Sixes Road and adds the access lane system to correct the major issues that arose in previous alternatives.



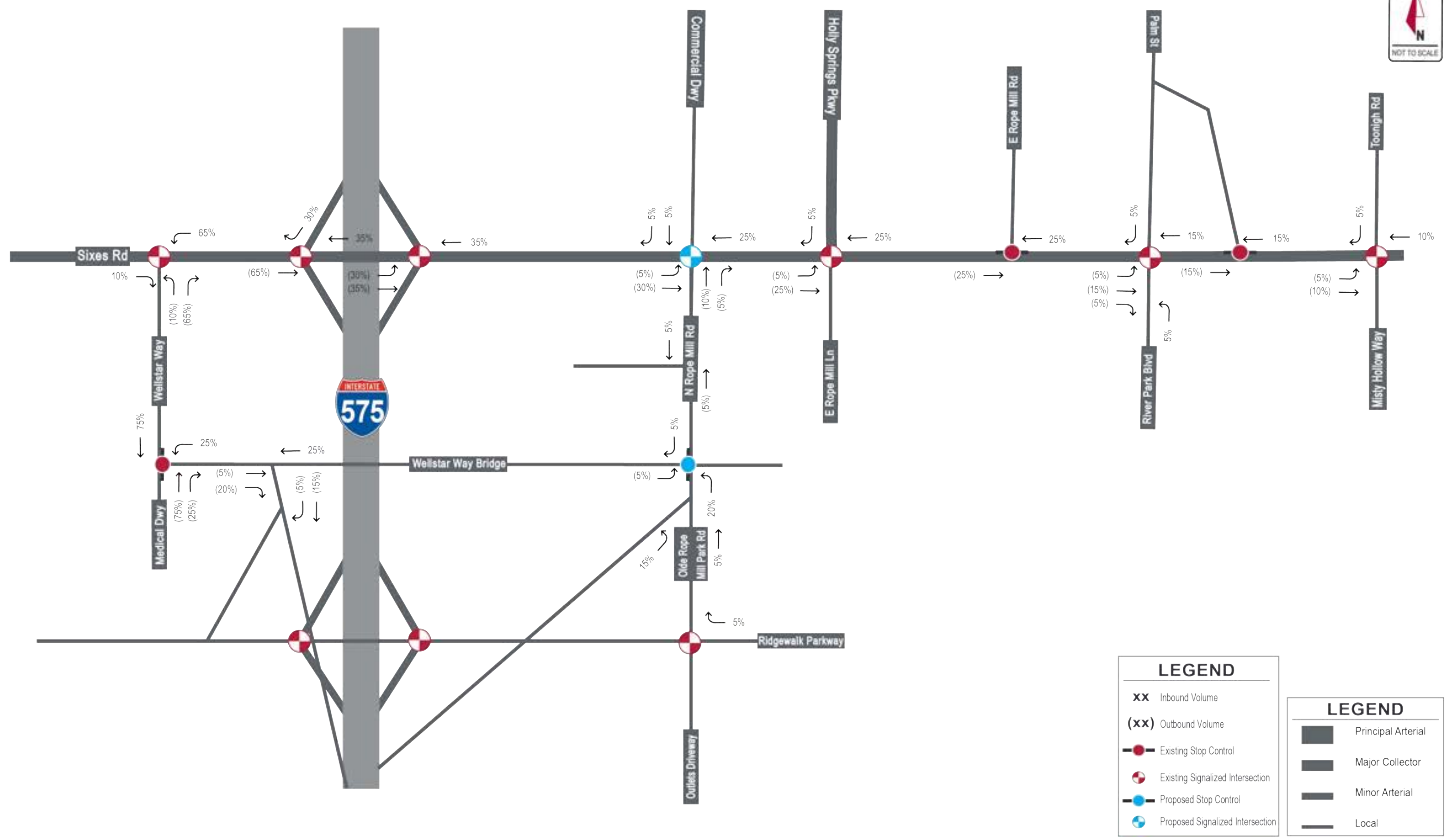
CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 25: BUILD OFFICE TRAFFIC DISTRIBUTION**



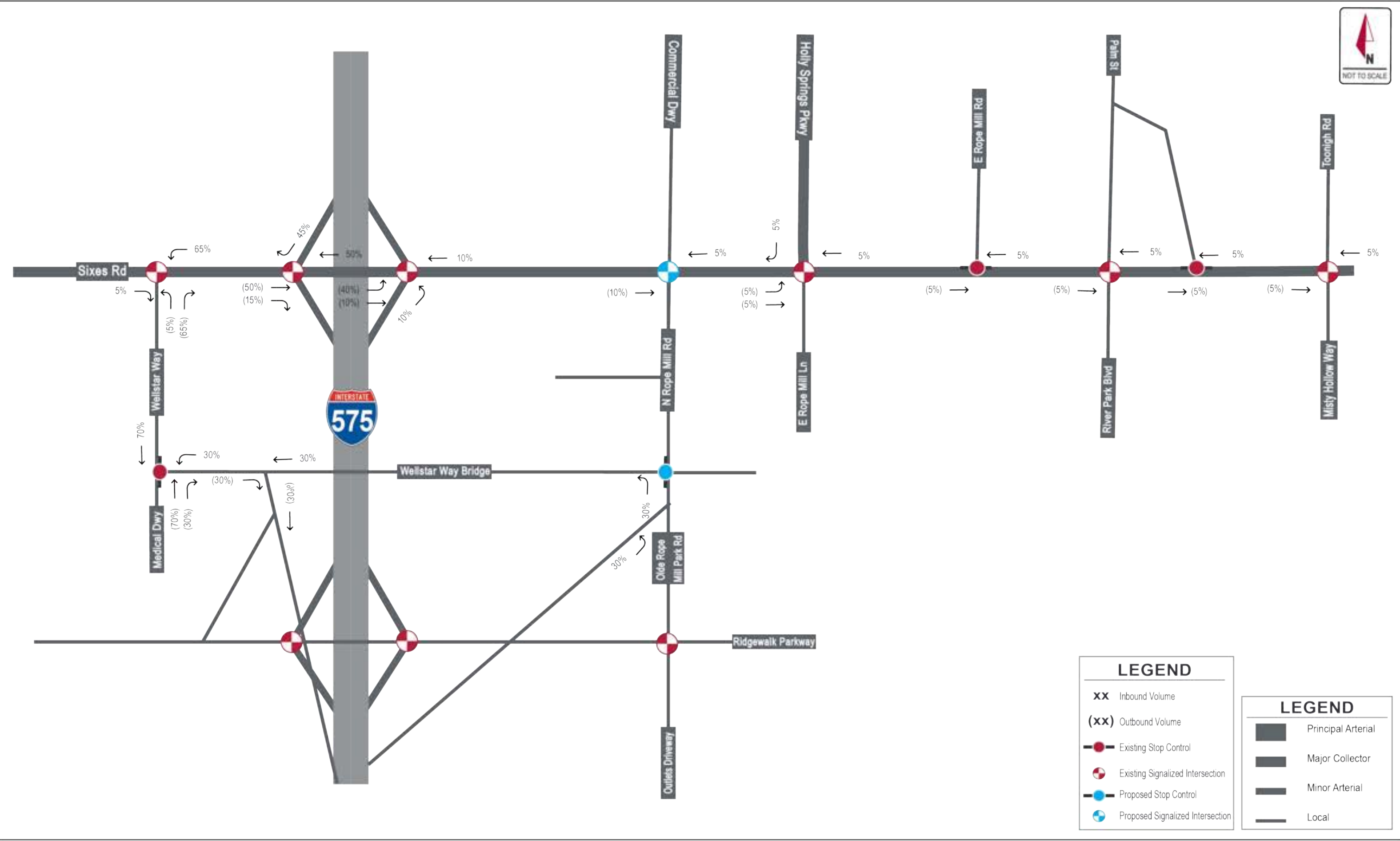
CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 26: BUILD RETAIL AND HOTEL TRAFFIC DISTRIBUTION**



CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 27: BUILD MEDICAL TRAFFIC DISTRIBUTION**



CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 28: BUILD INDUSTRIAL TRAFFIC DISTRIBUTION**



CHEROKEE 575 SIXES STUDY AREA  
**FIGURE 29: BUILD INDUSTRIAL TRUCK TRAFFIC DISTRIBUTION**





## Capacity Analysis Results

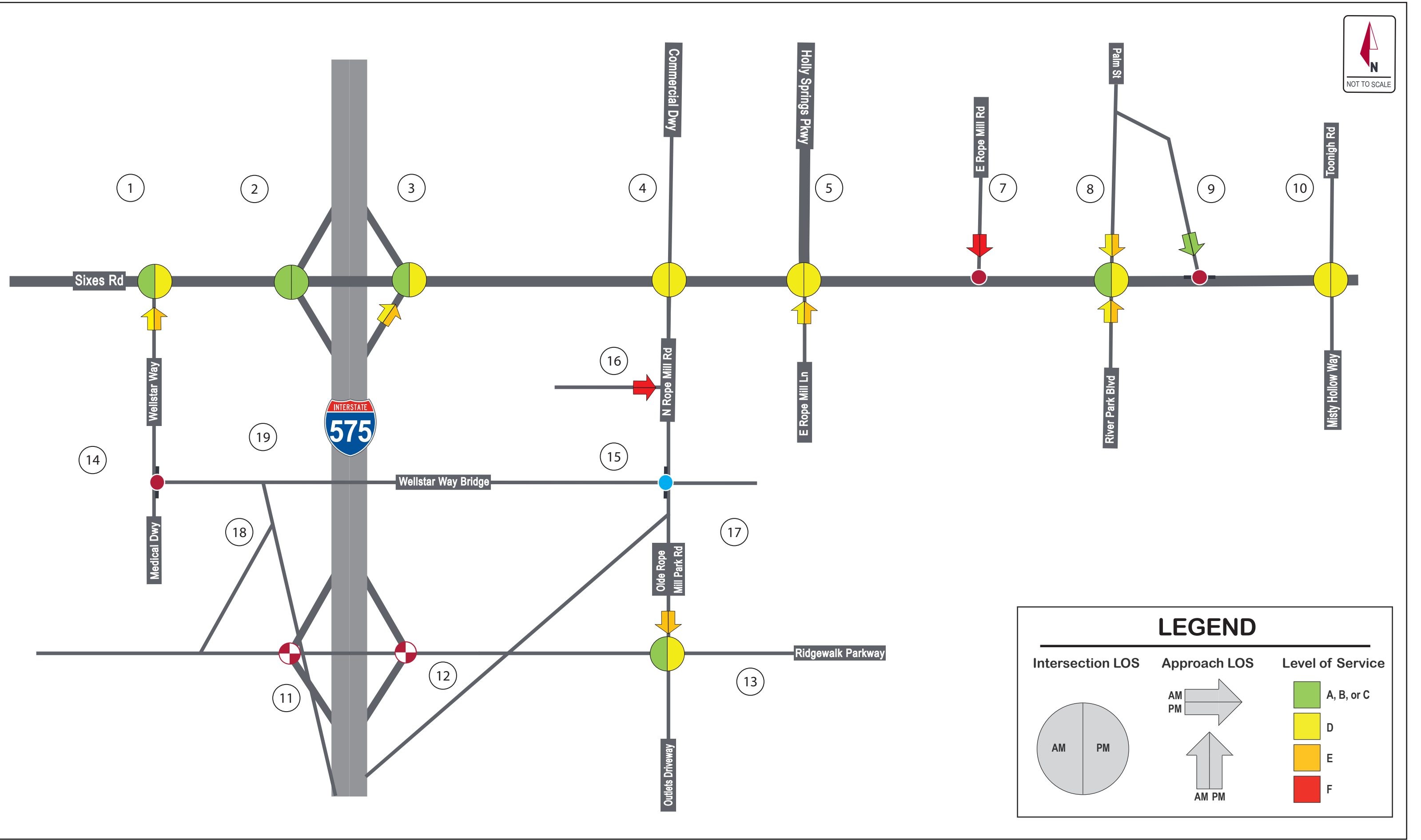
**Table 7** provides detailed LOS and delay for the Build With Development (2044) peak hour conditions. **Figure 31** summarizes the results of the Build With Development LOS presented from LOS A (green) to LOS F (red) for intersections as a whole, and for individual intersection approaches that perform worse than LOS D in at least one peak hour. The Build Without Development conditions increased capacity with the roadway geometry and connectivity enhancements in anticipation of the potential for new development traffic. The addition of new development traffic is projected to leverage the additional capacity from the Build network, resulting in increases in delay and LOS compared with the Build Without Development conditions. The potential development opportunity is projected to increase activity in the study area with higher traffic volumes and increases in delays, particularly during the PM peak hour. However, even with development traffic, all signalized intersections in the Build network perform acceptably overall in both peak hours.

The side-street stop controlled southbound approach of Holly Springs Parkway at E Rope Mill Road (Intersection 7) is projected to continue to experience delay and operate at LOS F in both peak hours. It is not uncommon for unsignalized approaches on major thoroughfares to experience delays turning onto the major street. However, it is notable that the programmed additional connectivity between E Rope Mill Road and Holly Springs Parkway may provide alternative routing options to access Holly Springs Parkway with a signalized turning movement if motorists choose to avoid delay experienced at a stop-controlled approach.

Roadway geometry, connectivity, and intersection design within the new roadway network associated with the potential future development will require further traffic impact analysis to determine individual driveway locations and intersection control configurations.

**TABLE 7: BUILD WITH DEVELOPMENT (2044) PEAK HOUR LEVEL OF SERVICE**

| Intersection                                                  | Control        | Peak Hour                                                                        | NB       | SB        | EB       | WB       | Overall         |
|---------------------------------------------------------------|----------------|----------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------------|
| 1. Wellstar Way & Sixes Rd                                    | Traffic Signal | AM                                                                               | D (50.2) | -         | C (32.3) | C (29.7) | <b>C (33.1)</b> |
|                                                               |                | PM                                                                               | E (55.1) | -         | D (40.4) | C (33.8) | <b>D (40.5)</b> |
| 2. I-575 Southbound Ramps & Sixes Rd                          | Traffic Signal | AM                                                                               | -        | D (40.9)  | D (42)   | C (23.1) | <b>C (32.2)</b> |
|                                                               |                | PM                                                                               | -        | D (51.9)  | D (42.8) | A (8.6)  | <b>C (26.3)</b> |
| 3. I-575 Northbound Ramps & Sixes Rd                          | Traffic Signal | AM                                                                               | D (50.5) | -         | A (5.7)  | B (18.8) | <b>C (20)</b>   |
|                                                               |                | PM                                                                               | E (65.8) | -         | B (16.9) | D (45)   | <b>D (43.2)</b> |
| 4. N Rope Mill Rd & Sixes Rd                                  | Traffic Signal | AM                                                                               | C (31)   | D (53.4)  | C (30.1) | D (47.3) | <b>D (39.6)</b> |
|                                                               |                | PM                                                                               | D (53)   | D (46.3)  | D (41.4) | D (46.5) | <b>D (46.6)</b> |
| 5. Sixes Rd/QT Driveway & Holly Springs Pkwy                  | Traffic Signal | AM                                                                               | D (46.2) | D (46.8)  | D (47.4) | D (48.5) | <b>D (47.6)</b> |
|                                                               |                | PM                                                                               | E (61.3) | D (41.7)  | D (41.9) | D (43)   | <b>D (42.7)</b> |
| 6. Holly Springs Pkwy & E Rope Mill Rd (South)                | *              | * Former northbound TWSC Intersection 6 realigned to connect with Intersection 5 |          |           |          |          |                 |
| 7. Holly Springs Pkwy & E Rope Mill Rd (North)                | TWSC           | AM                                                                               | -        | F (255.3) | -        | -        | <b>(3.3)</b>    |
|                                                               |                | PM                                                                               | -        | F (84.8)  | -        | -        | <b>(1.3)</b>    |
| 8. River Park Blvd/Palm St & Holly Springs Pkwy               | Traffic Signal | AM                                                                               | D (48.5) | D (50.9)  | B (16.2) | A (7.5)  | <b>B (17.1)</b> |
|                                                               |                | PM                                                                               | E (56)   | E (75)    | D (39.1) | C (28.6) | <b>D (37.5)</b> |
| 9. Holly Springs Pkwy & Palm St                               | TWSC           | AM                                                                               | -        | C (22.1)  | -        | -        | <b>(0.1)</b>    |
|                                                               |                | PM                                                                               | -        | C (21)    | -        | -        | <b>(0.1)</b>    |
| 10. Misty Hollow Way/ Toonigh Rd & Holly Springs Pkwy         | Traffic Signal | AM                                                                               | C (25.1) | D (43.9)  | D (55)   | D (44.3) | <b>D (48.8)</b> |
|                                                               |                | PM                                                                               | D (46.7) | D (38.1)  | D (37.6) | D (50.8) | <b>D (42.6)</b> |
| 11. I-575 Southbound Ramps & Ridgewalk Pkwy                   | DDI            | Programmed DDI Not Modeled                                                       |          |           |          |          |                 |
| 12. I-575 Northbound Ramps & Ridgewalk Pkwy                   | DDI            | Programmed DDI Not Modeled                                                       |          |           |          |          |                 |
| 13. Outlets Driveway/ Olde Rope Mill Park Rd & Ridgewalk Pkwy | Traffic Signal | AM                                                                               | D (47.3) | E (57)    | B (18.3) | B (18.5) | <b>C (23.5)</b> |
|                                                               |                | PM                                                                               | D (47.2) | E (60.6)  | C (31.1) | D (35.8) | <b>D (37)</b>   |



### LEGEND

Intersection LOS

Approach LOS

AM PM

Level of Service

A, B, or C

D

E

F



## Environmental Considerations

The Kimley-Horn environmental team completed a preliminary desktop environmental screening to identify potential effects of alternate I-575 and Sixes Road interchange alignments in Cherokee County, Georgia. Potential (re)alignments were buffered 200 feet to establish an Environmental Survey Boundary (ESB). Early environmental resource screening is needed for effective regulatory compliance, limiting project costs, and developing optimal design specifications. Several available online databases and mapping resources were reviewed for historic properties, archeological sites, cemeteries, streams, wetlands, ponds, potential protected species habitats, public parks, and recreational facilities. Findings are described below and maps depicting the locations of resources are provided.

### Protected Species

The United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website was used to identify federally protected species predicted to occur in the project area. In addition, Georgia's Natural, Archaeological, and Historical Resources Geographic Information System (GNAHRGIS) Ecology Module was used to identify state protected species in the vicinity of the project area. Protected species habitat suitability was evaluated using aerial imagery, Google Street View, and desktop-based environmental databases. Suitable habitat descriptions were prepared using the Georgia Department of Natural Resources (GADNR) Wildlife Resources Division website and NatureServe Explorer.

Federally protected species include the monarch butterfly (*Danaus plexippus*), Cherokee darter (*Etheostoma scotti*), gray bat (*Myotis grisescens*), and tricolored bat (*Perimyotis subflavus*). Potentially suitable habitat for the monarch butterfly occurs statewide in open habitats that contain milkweed and other nectar-producing plants and may be present within rights-of-way within the ESB. Suitable habitat for the Cherokee darter occurs in small- to medium-sized streams that include gravel and cobble substrates in moderate to swift currents. Such habitat likely exists in Toonigh Creek, the Little River, and other perennial streams intersecting the ESB. Suitable foraging habitat for the gray bat occurs above waters with forested shorelines. Such habitat is present along stretches of Toonigh Creek, the Little River, and other streams intersecting the ESB. Suitable habitat for the tricolored bat occurs in all trees and forested areas statewide and in cracks and crevices of bridges and culverts. Such habitat exists throughout the ESB.

State protected species include the lined chub (*Hybopsis lineapunctata*) and pink ladyslipper (*Cypripedium acaule*). Suitable habitat for the lined chub occurs in pools in small- and medium-sized streams over sandy substrates and near the shoreline in sections of rivers with moderate currents. Such habitat likely exists in Toonigh Creek, the Little River, and other perennial streams intersecting the ESB. Suitable habitat for the pink ladyslipper occurs in upland pine and mixed pine-hardwood forests with acidic soils. Such habitat likely exists within the ESB.





## Critical Habitat

The IPaC report does not indicate the presence of federally designated Critical Habitat for any federally listed species within the survey area.

## Jurisdictional Waters

The National Wetland Inventory (NWI) and National Hydrography Dataset (NHD) were utilized to predict where jurisdictional waters such as streams, wetlands, and ponds might occur throughout the survey area. The NWI and NHD resources indicated one river, nine streams, two wetlands, and one freshwater pond within or intersecting the survey area.

Based on observations from aerial imagery and LIDAR (Light Detection and Ranging) data, twenty-four possible wetlands were identified within the survey area in addition to the NWI and NHD mapped features. Aerial imagery and LIDAR also indicated the freshwater pond shown on NWI to be non-existent.

Anticipated impacts are likely to be within the United States Army Corps of Engineers (USACE) Regional General Permit thresholds and these types of permits are routinely used for roadway projects. Further analysis of impacts, avoidance and minimization measures, and compensatory mitigation costs would be required when proposed improvements are identified and under design development.

See the attached **Figure 32** for a display of the survey area's anticipated water resources.

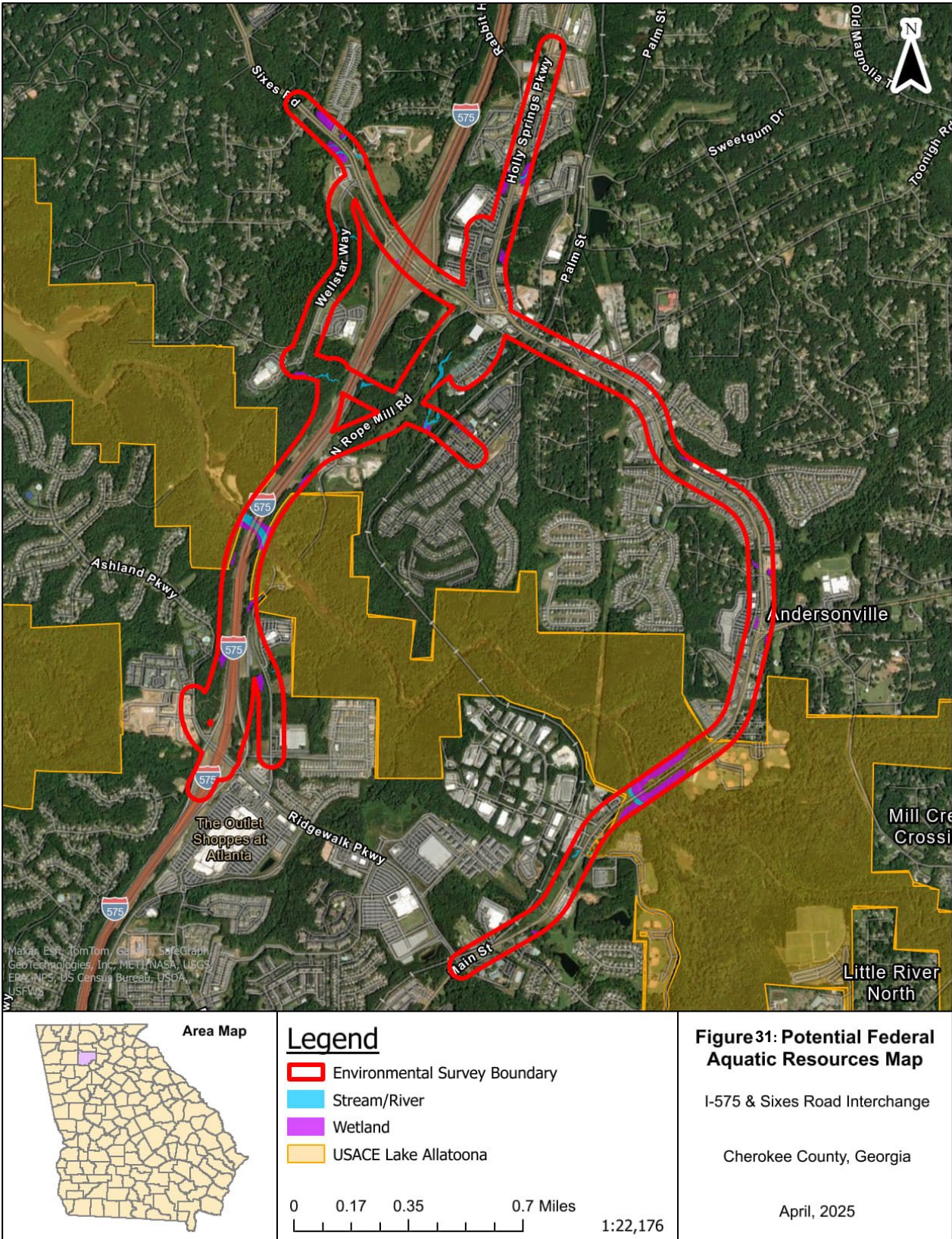


FIGURE 32: POTENTIAL FEDERAL AQUATIC RESOURCES MAP

## Cultural Resources

A review of the GNAHRGIS database (<https://www.gnahrgis.org>) and the Cherokee County GIS revealed that there are 27 properties 50 years old or older within the project area (**Table 8**). None of these are currently listed on the National Register of Historic Places (NRHP). In addition, GDOT Bridge ID #057-0001-0 was evaluated in the 2012 Georgia Historic Bridge Survey (GHBS) and found to be not eligible.

GNAHRGIS shows numerous previously recorded archaeological sites in the Lake Allatoona area; however, only three of these are within what would likely be the footprint of the proposed improvements. All three have been recommended not eligible for the NRHP, and at least two have been destroyed by development occurring since the time they were identified. See historic resources, ineligible bridges, and public and government properties in **Figure 33**.

**TABLE 8: PROPERTIES 50 YEARS OLD OR OLDER WITHIN PROPOSED PROJECT AREA**

| Address                                        | Parcel ID     | Type/Style        | Construction Date | GNAHRGIS ID |
|------------------------------------------------|---------------|-------------------|-------------------|-------------|
| 4979 Holly Springs Parkway                     | 15-0633-0030  | No Academic Style | 1887              | 11830       |
| On Toonigh Creek, E side of Sixes Rd           | 15-0563-0001  | Grist Mill        | N/A               | 11832       |
| 675 N Rope Mill Road                           | 15-0634-0020  | Church/Cemetery   | 1900              | 11831       |
| Atlanta, Knoxville, & Northern Railroad (ATKN) | N/A           | Railroad          | 1896              | N/A         |
| Enon Cemetery                                  | 15-0879-0002  | N/A               | ca. 1955          | N/A         |
| 7336 Main Street                               | 15-0880-0005  | Ranch             | 1950              | N/A         |
| 7330 Main Street                               | 15-0880-0005  | Ranch             | 1950              | N/A         |
| 7230 Main Street                               | 15-0880-0001  | Ranch             | 1960              | N/A         |
| 6535 Old Highway 5 (Mobile Unit Park)          | 15-0810-0002  | Mobile Unit Park  | 1968              | N/A         |
| 6355 Old Highway 5                             | 15-0775-0016  | No Academic Style | 1968              | N/A         |
| 6317 Old Highway 5 (Texaco Gas Station)        | 15-0775-0017  | No Academic Style | 1970              | N/A         |
| 101 Seth Ridge Drive                           | 15-0738-0024  | No Academic Style | 1975              | N/A         |
| 102 Seth Ridge Drive                           | 15-0738-0023  | No Academic Style | 1975              | N/A         |
| 5142 Main Street                               | 15-0633-0029  | Ranch             | 1955              | N/A         |
| 5075 Main Street                               | 15-0633-0016  | Bungalow          | 1940              |             |
| 5142 Old Highway 5                             | 15-0633-0020  | Ranch             | 1955              | N/A         |
| 4992 Old Highway 5                             | 15-0634-0012  | Ranch             | 1968              | N/A         |
| Toonigh Baptist Church                         | 15-0633-0034  | Church            | 1950              | N/A         |
| Lebanon Methodist Church                       | 15-0634-0020  | Church/Cemetery   | 1900              | N/A         |
| 655 North Rope Mill Road                       | 15-06335-0006 | Ranch             | 1965              | N/A         |
| 650 North Rope Mill Road                       | 15-0635-0014  | Ranch             | 1965              | N/A         |
| 101 Hause Drive                                | 15-0635-0009  | Compact Ranch     | 1945              | N/A         |
| 643 North Rope Mill Road                       | 15-0662-0002  | Ranch             | 1955              | N/A         |
| 635 North Rope Mill Road                       | 15-062-0001   | Ranch             | 1975              | N/A         |
| 624 North Rope Mill Road                       | 15-0662-0002  | Ranch             | 1965              | N/A         |
| 617 North Rope Mill Road                       | 15-0661-0003  | No Academic Style | 1955              | N/A         |
| 605 North Rope Mill Road                       | 15-0661-0002  | No Academic Style | 1955              | N/A         |

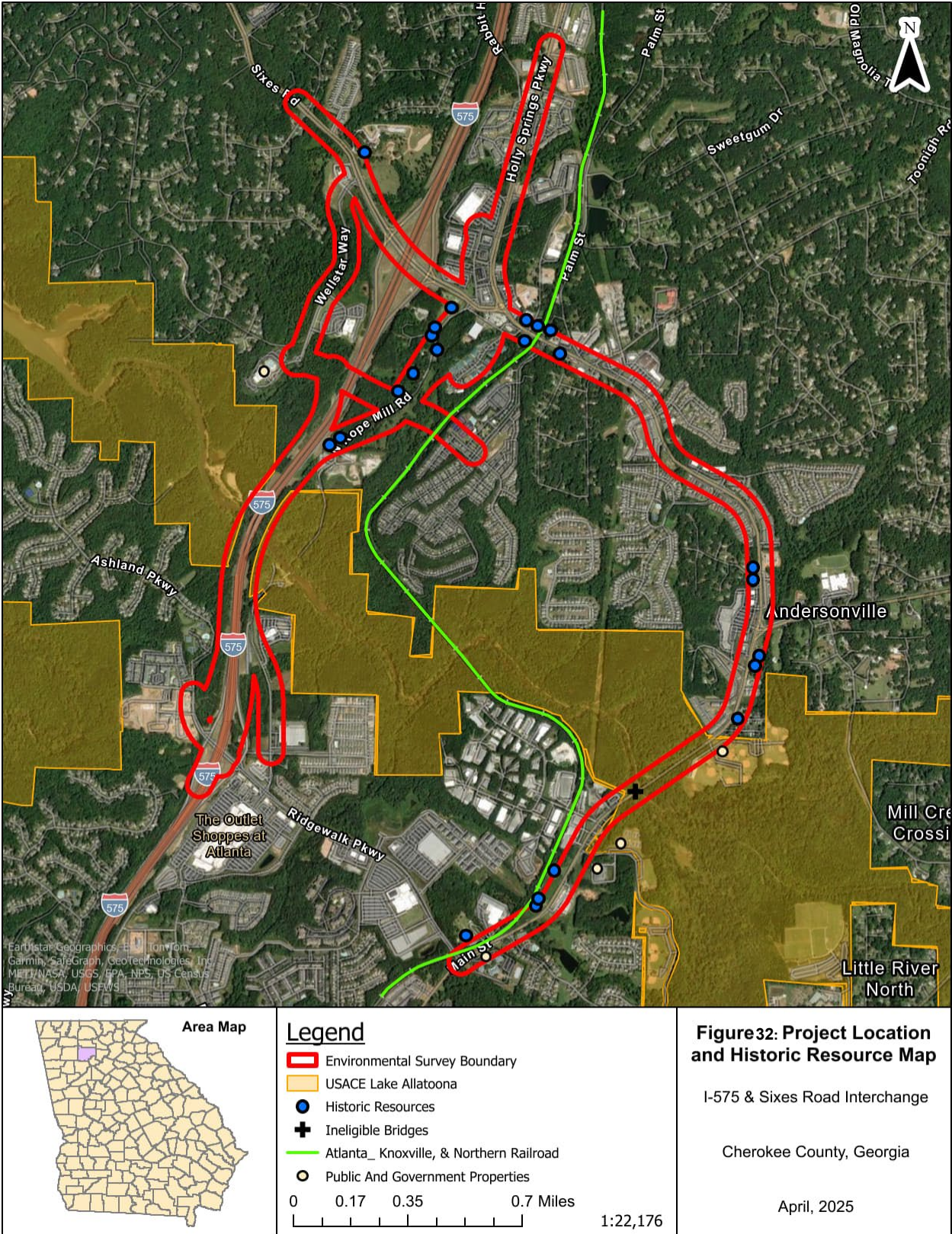


FIGURE 33: PROJECT LOCATION AND HISTORIC RESOURCE MAP

## NEPA

Kimley-Horn conducted a desktop screening for public lands, potential low income/poverty and minority population communities, and other resources that could influence the project alignment. Section 4(f)-protected public land identified in the project area includes the USACE Lake Allatoona Property, Cherokee County Government Complex/Recreation Center, Cherokee Tennis Center, South Cherokee Baseball, and the Cherokee County Aquatic Center (**Table 9**). For USDOT-funded projects, public parks and recreational facilities, and NRHP-eligible and listed historic resources are protected by Section 4(f) of the USDOT Act. Impacts adversely affecting these resources would have to be approved by the agency with oversight after alternatives analysis had first demonstrated that there was no prudent and feasible alternative available that avoided the impacts. In Georgia, impacts to cemeteries must be permitted under OCGA §36-72. The permitting process can be lengthy and expensive, requiring genealogical research, archaeological investigations, and coordination with the next of kin of the deceased. Consequently, we would recommend exploring all avoidance alternatives before initiating the permitting process.

**TABLE 9: PUBLIC PROPERTIES WITHIN PROPOSED PROJECT AREA**

| Address                                                                 | Parcel ID                          |
|-------------------------------------------------------------------------|------------------------------------|
| Cherokee County Government Complex/Recreation Center - 7545 Main Street | 15-0922-00001                      |
| South Cherokee Baseball - 6625 Old Hwy 5                                | 21-0324-0102 (federal land parcel) |
| Cherokee Tennis Center - 155 Brooke Boulevard                           | 21-0324-0102 (federal land parcel) |
| Cherokee County Aquatic Center - 1200 Wellstar Way                      | 15-0661-0001                       |
| USACE Lake Allatoona Property                                           | 21-0324-0102 (federal land parcel) |

The screening identified that low income and poverty communities are not within the survey area. United States Census Bureau American Community Survey data was analyzed (see **Table 10** below), and nine census tracts were identified within the survey area. Census Tracts 910.01, 910.09, 907.09, 907.04, 907.03, 907.10, 909.12, 908.05, and 908.06 were identified in the project area.

**TABLE 10: CENSUS DATA FOR POTENTIAL EJ COMMUNITIES**

| Location                    | Total Population | Minority Population | Low-Income Population |
|-----------------------------|------------------|---------------------|-----------------------|
| Project Area Census Tracts* | 46,087           | 10,414 (22.6%)      | 3,649 (7.9%)          |
| Cherokee County             | 272,243          | 59,978 (21.8%)      | 17,693 (6.5%)         |
| Georgia                     | 10,822,590       | 5,145,059 (47.5%)   | 1,461,317 (13.6%)     |

Source: U.S. Census Bureau American Community Survey (ACS) 2023 Past 12 Months

\*Census tracts include 910.01, 910.09, 907.09, 907.04, 907.03, 907.10, 909.12, 908.05, and 908.06.



## Design Considerations

### Roadway Design

Kimley-Horn developed draft horizontal and vertical alignments based on GIS contour data and geometric guidelines outlined in the GDOT Design Policy Manual (DPM), Revision 7.3, and AASHTO's "A Policy on Geometric Design of Highways and Streets, 2018, 7<sup>th</sup> Edition." Contours allowed our team to understand the general existing topography. New location alignments attempted to follow existing ridgelines to optimize drainage and minimize grading. The roadway locations were developed to minimize impacts to environmentally sensitive areas, existing utilities, and right of way (ROW).

Intersection skew angles for each traditional intersection were developed to meet the minimum required 75-degree angle. This offers several benefits including minimized exposure time for vehicular and pedestrian crossing movements and improved driver visibility and sight distance. Other operational considerations were made for potential alternative intersection designs, such as roundabouts.

Functional classification data, obtained from GDOT, is critical in roadway design as it categorizes roads based on their purpose and usage, ensuring effective traffic management and an optimized design that meets the public's needs.

Sixes Road is classified as a major collector, connecting Bells Ferry Road to the west and I-575 and Holly Springs Parkway to the east. Holly Springs Parkway (W-3 and W-4) is classified as a minor arterial, providing connectivity between SR 20 to the north and SR 92 to the south with local roads, facilitating regional travel. Holly Springs Parkway is proposed to be widened to a four-lane section with a raised median to accommodate increased traffic and provide access management to facilitate traffic more efficiently and control turning movements.

Access Roads (NC-3a and NC-3b) along I-575 will be classified as a collector road and will provide direct access to residential, commercial, and industrial properties. These two access roads will create connectivity between Ridgeway Parkway and the proposed Wellstar Way Bridge Road. These access roads will aid in diverting local traffic away from I-575.

Another roadway classified as local is Wellstar Way (W-1). It will be widened and lighting added for increased visibility and to promote pedestrian traffic in and around the Wellstar Cherokee Health Park and Cherokee County Aquatic Center.

N Rope Mill Road (NC-2), north of Wellstar Way Bridge Road, will be realigned to minimize impacts to existing residential structures and environmental resources, including avoiding impacts to the Lebron Church Cemetery. It is classified as a local road.

Wellstar Way Bridge Road is a new east-west roadway which bridges I-575 and offers connectivity between Wellstar Way and North Rope Mill Road. It will likely be classified as a minor collector and provide a raised median for controlled access and minimal conflict points. The Wellstar Way Bridge Extension (NC-5), if constructed, will be a minor collector that provides increased local access between N Rope Mill Road and residential areas.

Both slip lanes (NC-4a and NC-4b) are classified as part of the interstate network and will allow vehicles to smoothly transition between high-speed interstate travel and the local streets. The slip lanes will maintain the operations and capacity of I-575. There are adequate horizontal and vertical clearances





from Ridgeway Parkway to construct fly over bridges to span the existing I-575 NB entrance ramp and I-575 SB exit ramp.

The key to advancing both the slip lanes (NC-4a and NC-4b) and the access roads (NC-3a and NC-3b) across the Little River and through the USACE management area is to remain entirely within the existing GDOT easement for the I-575 corridor. With approximately 124 – 128 feet of available right of way on either side of the I-575 system, this should allow adequate width to accommodate two lanes in each direction with appropriate lanes, shoulders, and tie-ins along with reserve width for a future I-575 widening should that be needed in the future.

**Figure 34** shows an example of what the future cross-section could look like.

Proposed bridges on this project include locations on the northbound (NB) and southbound (SB) access road over Little River, NB and SB slip lanes over the access roads, Wellstar Way Bridge over I-575, Wellstar Way Bridge Road over Georgia Northeastern Railroad, Holly Springs Parkway over Georgia Northeastern Railroad, and Holly Springs Parkway over Little River. Structural design for each bridge, including span lengths and configurations, foundation design, hydraulic analysis, and maintenance considerations will follow the GDOT Bridge and Structures Design Manual, Revision 3.6.

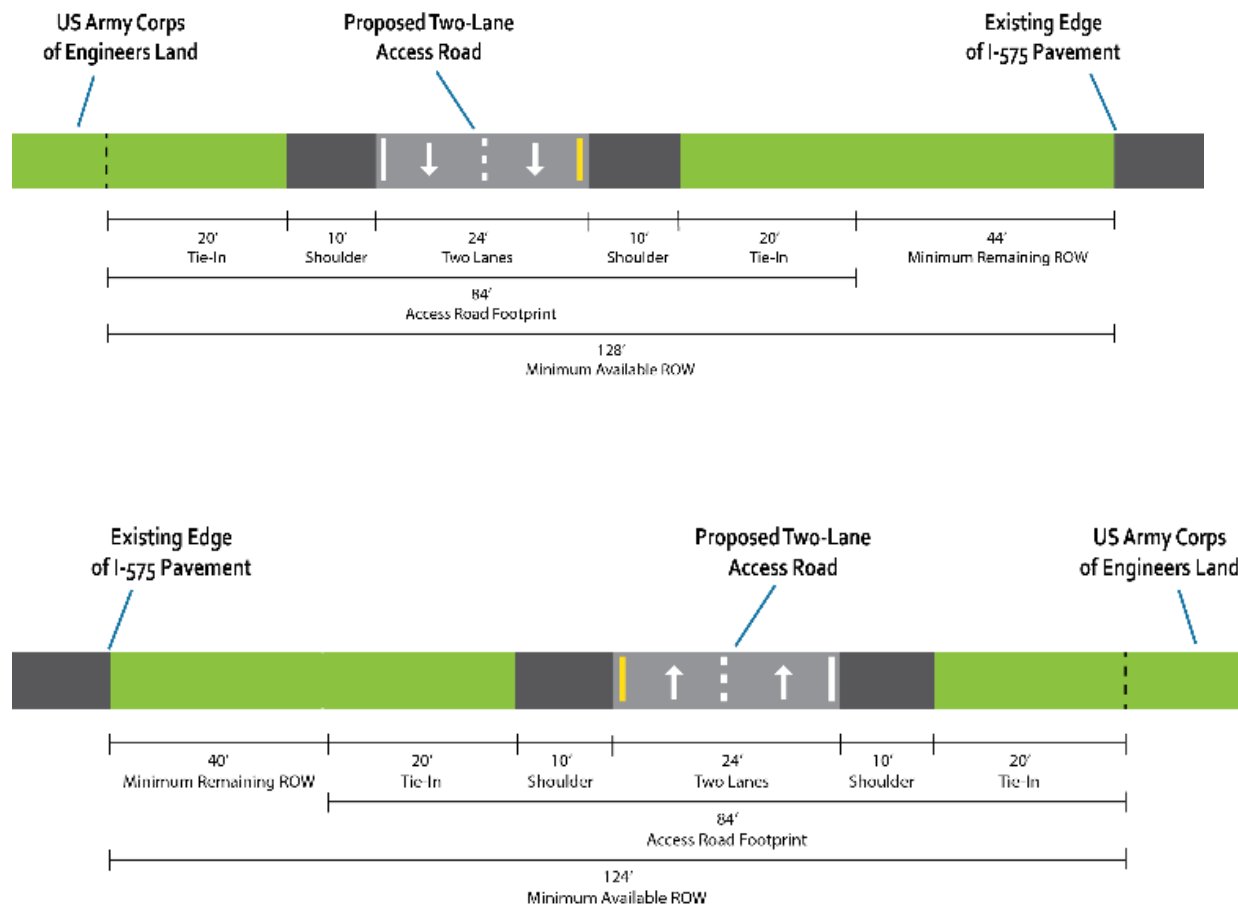
## Railroad and Utilities

At least one recommended project in the Wildcat Plan will impact railroad right-of-way. Early, transparent coordination with the railroad owner is vital to the successful implementation of any project that affects railroads. The project partners should put together a team and develop a plan for projects affecting the railroad that minimizes detrimental impacts on railroad operations and real estate. An experienced railroad consultant can help to strategize for railroad conversations, navigate the railroad permitting process, and develop a concept plan to bring to the railroad.

Additional design criteria must be considered for roadway projects affecting railroad corridors. Vertical and horizontal clearance, grading, and other design factors contribute to complex engineering considerations on projects crossing railroads. Electrical, water, and sewer utilities also have special requirements, and utilities in the corridor will require a lease agreement. The project partners should reference the railroad's design criteria when developing the engineering for railroad-adjacent projects.

Bridges over railroads often cost tens of millions of dollars. However, in the Wildcat area, the track is much lower than surrounding properties and roadways, which should reduce the costs of overpasses somewhat. Other cost considerations are permits, flagging support, and railroad safety training and railroad protective insurance for those accessing the property during design and construction. These costs are partially accounted for in the Planning Level Cost Estimates, but more detailed costing efforts should flesh out railroad-related costs more.





**FIGURE 34: PROPOSED I-575 ACCESS LANE CROSS SECTION (SOUTHBOUND – TOP, NORTHBOUND – BOTTOM)**

# Bicycle and Pedestrian Recommendations

## Larger System Connectivity

Sidewalk coverage in and around the study network is strong where there is development present but often lacking in between locations of major developments. Strengthening the connectivity of the pedestrian network in addition to the roadway improvements recommended in this study would improve mobility for all road users.

The trail network in and around the study area primarily consists of sidepaths on Olde Rope Mill Park Road and Ridgewalk Parkway as well as recreational trails in Olde Rope Mill Park. There are also multiple trails in Woodstock near the study area. The improvements recommended in this project have the potential to also include sidewalks or other pedestrian and bicycle facilities that could connect people to these existing facilities.

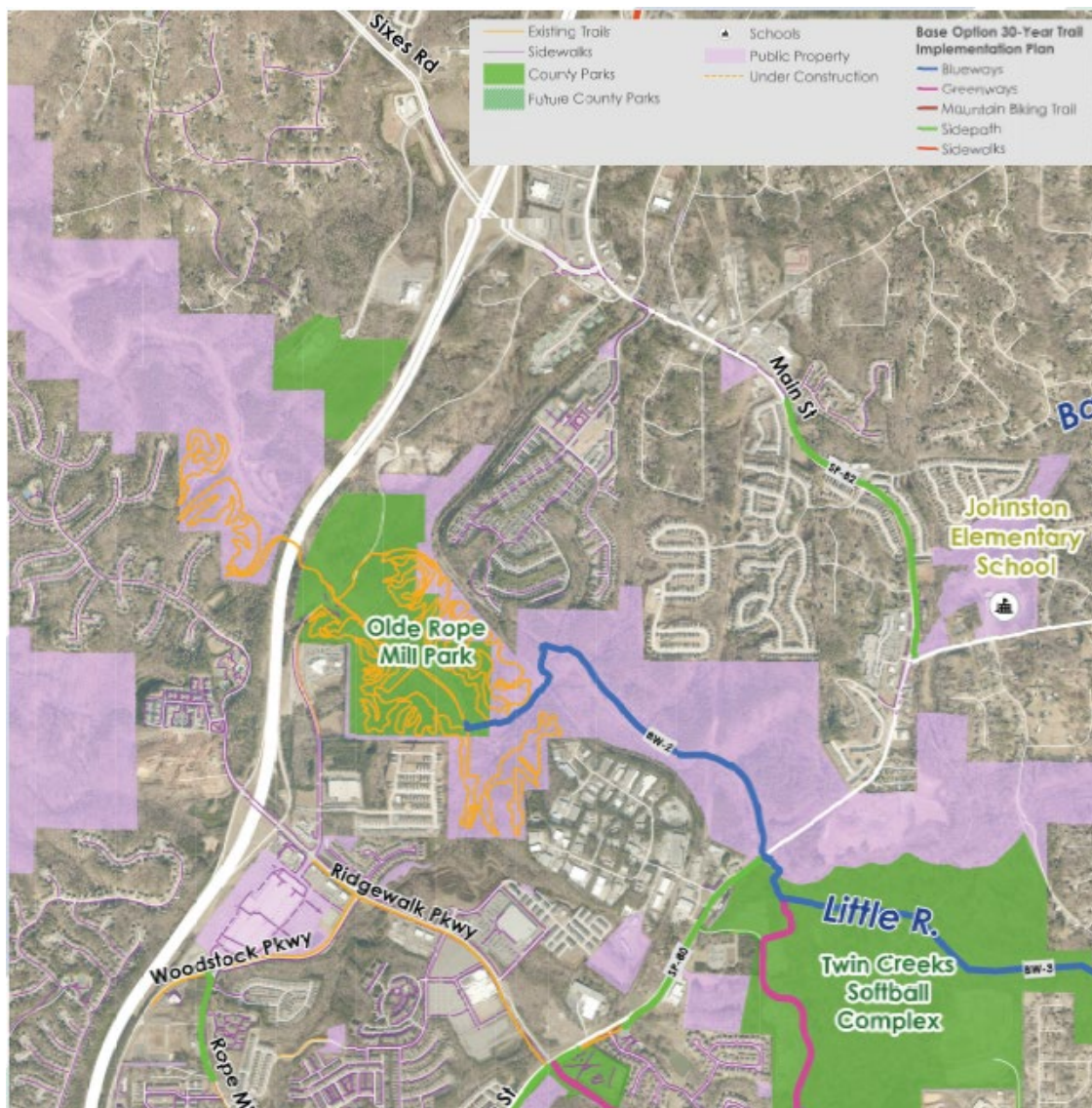


FIGURE 35: CHEROKEE COUNTY GREENWAYS & TRAILS MASTER PLAN (ENHANCED OPTION 30-YEAR PLAN)



The Enhanced Option 30-Year Trail Implementation Plan from the Cherokee County Greenways & Trails Master Plan (**Figure 35**) includes plans for multiple trails that could connect to the study network. The most relevant planned trails are a series of sidepaths along Sixes Road and Holly Springs Parkway that would provide a smooth pedestrian connection on those roads as far south as Ridgewalk Parkway and beyond.

Other sidepaths are planned on Toonigh Road and E Cherokee Drive. These sidepaths are potential connection points for pedestrians in the study network that would connect Holly Springs Parkway to residential centers and schools.

## Policy Recommendations for Study Area

To help accomplish the goals of the Cherokee County Greenways & Trails Master Plan, sidepaths should be constructed on Holly Springs Parkway as part of the widening project. If sidepaths are not immediately feasible due to cost or other factors, sidewalks should be constructed, or right-of-way should be reserved for the future construction of sidepaths. Further, the Holly Springs Parkway improvements should consider new potential crossing locations and any existing crossings that may need improvement.

On new roadways or roadways recommended for other improvements, sidewalks should be built to improve pedestrian connectivity to new developments. Where possible, sidepaths should be considered. At a minimum, sidewalks should be constructed on the northbound access lane to connect N Rope Mill Road to Olde Rope Mill Park; however, sidewalks should not be constructed on either of the slip lanes.

Cherokee County should consider using potential to its Unified Development Code (UDC) and/or utilizing public-private partnerships (P3s) to work together with developers to provide greenspaces and additional pedestrian and bicycle connections in the study area.



## Planning Level Cost Estimates

High level cost estimation was performed for each section of the project. Pavement section assumptions were based on likely typical sections for each project section as well as GDOT guidance. Traffic control, stormwater drainage items, and erosion control items were given a lump sum value per mile based on recent experience. Drainage values differed depending on if the roadway is to have a closed drainage system with curb and gutter versus a rural open shoulder. Proposed traffic signals, reconstructed existing signals, and roundabouts were given a per each value. Sidewalks, side paths, medians, light posts, and sodding were given a unit cost per foot. Grading complete was assumed to be 30% of the total construction cost and a 30% contingency was added to the final construction costs. Environmental mitigation, commercial and residential right-of-way and displacements, utility costs, and preliminary engineering were included to yield total project cost. Inflation and number of years to construction were also determined. High level planning cost estimates are included in **Table 11**.

**TABLE 11: HIGH LEVEL PLANNING PROJECT COSTS**

| Project ID | Short Name                        | Years to Expenditure | Cost Categories |             |             |             |              | Cost (2025)  | Inflation (3%/year) | Inflation (5%/year) | Total Cost (low) | Total Cost (high) |
|------------|-----------------------------------|----------------------|-----------------|-------------|-------------|-------------|--------------|--------------|---------------------|---------------------|------------------|-------------------|
|            |                                   |                      | Environmental   | PE          | Utility     | R/W         | Construction |              |                     |                     |                  |                   |
| I-1        | Sixes @ HSP Realignment           | 7                    | \$0             | \$1,320,000 | \$209,000   | \$7,280,000 | \$3,510,000  | \$12,319,000 | \$2,832,000         | \$5,015,000         | \$15,151,000     | \$17,334,000      |
| W-3        | HSP Widening Phase I              | 10                   | \$0             | \$3,636,000 | \$1,389,000 | \$6,420,000 | \$22,490,000 | \$33,935,000 | \$11,671,000        | \$21,342,000        | \$45,606,000     | \$55,277,000      |
| W-4        | HSP Widening Phase II             | 10                   | \$500,000       | \$4,235,000 | \$1,417,000 | \$4,640,000 | \$25,060,000 | \$35,852,000 | \$12,330,000        | \$22,547,000        | \$48,182,000     | \$58,399,000      |
| W-1        | Wellstar Way Improvements         | 10                   | \$0             | \$1,437,000 | \$921,000   | \$3,140,000 | \$7,910,000  | \$13,408,000 | \$4,611,000         | \$8,432,000         | \$18,019,000     | \$21,840,000      |
| W-2        | Commercial Drive Improvements     | 10                   | \$0             | \$1,021,000 | \$255,000   | \$1,390,000 | \$6,860,000  | \$9,526,000  | \$3,276,000         | \$5,991,000         | \$12,802,000     | \$15,517,000      |
| NC-1       | I-575 Bridge Connector            | 12                   | \$0             | \$3,310,000 | \$0         | \$3,970,000 | \$23,610,000 | \$30,890,000 | \$13,152,000        | \$24,584,000        | \$44,042,000     | \$55,474,000      |
| NC-2       | N Rope Mill Reconstruction        | 12                   | \$500,000       | \$1,716,000 | \$0         | \$3,650,000 | \$6,480,000  | \$12,346,000 | \$5,256,000         | \$9,826,000         | \$17,602,000     | \$22,172,000      |
| NC-3a      | Access Lanes (east side)          | 20                   | \$0             | \$2,720,000 | \$0         | \$1,710,000 | \$20,950,000 | \$25,380,000 | \$20,459,000        | \$41,961,000        | \$45,839,000     | \$67,341,000      |
| NC-4a      | Slip Lanes (east side)            | 20                   | \$0             | \$1,973,000 | \$0         | \$0         | \$16,440,000 | \$18,413,000 | \$14,843,000        | \$30,442,000        | \$33,256,000     | \$48,855,000      |
| NC-3b      | Access Lanes (west side)          | 20                   | \$500,000       | \$2,664,000 | \$0         | \$680,000   | \$17,350,000 | \$21,194,000 | \$17,085,000        | \$35,040,000        | \$38,279,000     | \$56,234,000      |
| NC-4b      | Slip Lanes (west side)            | 20                   | \$0             | \$3,004,000 | \$0         | \$0         | \$25,030,000 | \$28,034,000 | \$22,599,000        | \$46,349,000        | \$50,633,000     | \$74,383,000      |
| NC-5       | Neighborhood Connector (optional) | 20                   | \$500,000       | \$2,542,000 | \$0         | \$3,590,000 | \$13,420,000 | \$20,052,000 | \$16,164,000        | \$33,152,000        | \$36,216,000     | \$53,204,000      |



## Funding Opportunities

Cherokee County can explore funding sources at various levels to support the implementation of the recommended improvements. This may include a combination of local, state, federal, and other non-governmental or quasi-governmental opportunities:

### Local Funding Opportunities

In Georgia, local governments may pursue a Transportation Special Purpose Local Option Sales Tax (TSPLOST) to fund transportation projects within their jurisdiction. Cherokee County can pursue a TSPLOST under the TSPLOST 2 program to raise local funds for transportation projects, including the recommendations in the Wildcat Plan. TSPLOST funds may be able to fully fund some projects locally. For larger projects, the local funds can be used as a match to secure partnerships.

TSPLOST programs require voter approval through a referendum. Cherokee County may desire to explore options to propose a TSPLOST during an upcoming election.

### State and Federal Funding Opportunities

The State of Georgia sometimes funds projects through state sales taxes or funds allocated through the governor's budget. State funds allocated to Cherokee County may be utilized to partially fund some recommendations in the Wildcat Plan.

The Atlanta Regional Commission (ARC) and the Georgia Department of Transportation (GDOT) have programming authority over federal formula funds based on population in the region. Cherokee can qualify for these formula funds through the Regional Transportation Plan process. Additionally, other competitive federal grant programs like Better Utilizing Investments to Leverage Development (BUILD) and National Infrastructure Project Assistance (MEGA) may be options for some of these projects. See the FHWA's [Competitive Grant Funding Matrix](#) for more information on federal funding opportunities.

### Private Partnership/Quasi-Governmental Funding Opportunities

Other Resources: Public-private partnerships may be a consideration for some of the Wildcat projects, especially as they are catalytic projects for redevelopment.

A Community Improvement District (CID) is a special public-private partnership mechanism enabled by the Georgia Constitution. With cooperation from property owners, the administrative bodies of CIDs may levy taxes and fees on real property within the CID area to fund infrastructure improvement and maintenance. Metro Atlanta is home to many CIDs, including the nearby Town Center CID, that support infrastructure improvements in activity centers.

Cherokee County, with approval from the cities of Woodstock and Holly Springs, can establish a CID in the Wildcat area through local legislation. The County must also receive written consent of a majority of taxable property owners within the CID. For more information on CIDs, see Article IX, Section VII of the Georgia Constitution or [Georgia State University's article on CIDs](#).





## Wildcat Action Plan

### Action Items

To effectively address the transportation needs associated with the anticipated development density, transportation recommendations were created. Each project includes an assumed recommended timeframe, ensuring a phased and strategic approach to enhancing Wildcat's transportation infrastructure and supporting sustainable land use development while also balancing the timing of potential revenues. Through these timeframes, a seamless integration of transportation improvements that cater to both current and future needs of the community will be achieved.

In addition to project recommendations, key action items were developed to support project implementation. These action items address policy and project milestones that the project partners can take in the short-, mid-, and long-terms to advance the goals of the Wildcat Plan. Reference **Table 12** on the following page for a full list of recommended action items.

### Champions and Key Partners

Successful implementation of the transportation recommendations and development opportunities for the study area around the I-575 Sixes Road interchange relies on the collaboration and dedication of various champions and key partners. The project partners, including Cherokee County, the cities of Holly Springs and Woodstock, and COED, play a critical role in guiding and approving the necessary projects.

The project partners should engage other key stakeholders as necessary. The tables of action items below detail key partners, including USACE, ARC, GDOT, the railroad owner(s), and the River Park Neighborhood. Coordination with these stakeholders is vital to delivering recommended policies and projects smoothly and efficiently.

**TABLE 12: ACTION ITEMS**

| Policy Action Item                                                                                                                                                                                                                   | Coordination                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <b>Short-Term Actions</b>                                                                                                                                                                                                            |                                                      |
| <b>Adopt Wildcat Plan</b><br>Cherokee County, Holly Springs, and Woodstock should adopt the Wildcat Plan                                                                                                                             | N/A                                                  |
| <b>Explore Funding Sources</b><br>Explore funding sources and develop a financial plan to support the implementation of recommended improvements                                                                                     | Project Partners                                     |
| <b>Sign Memorandum of Agreement (MoA)</b><br>Create and sign an MoA between relevant authorities; The MoA should include commitments to collaborate on project implementation and plans for periodic coordination between the groups | Project Partners                                     |
| <b>Mid-Term Actions</b>                                                                                                                                                                                                              |                                                      |
| <b>Update Zoning/Development Ordinances As Needed</b><br>Review current zoning and development standards and revise code as needed to support transportation improvements and new developments                                       | Project Partners                                     |
| <b>Access Management</b><br>Evaluate existing access management standards; Consider an access management overlay zone for the Sixes Road area                                                                                        | Project Partners                                     |
| <b>Community Improvement District (CID)</b><br>Explore the creation of a CID to help fund, manage, and oversee the implementation of recommended and future improvements                                                             | Project Partners, Wildcat property owners, ARC, GDOT |
| Project Action Item                                                                                                                                                                                                                  | Coordination                                         |
| <b>Short-Term Actions</b>                                                                                                                                                                                                            |                                                      |
| <b>I-1: Engineering and Funding</b><br>Advance engineering and design for intersection realignment and explore short-term funding sources                                                                                            | Project Partners                                     |
| <b>I-1: ROW Acquisition</b><br>Acquire necessary ROW on impacted parcels                                                                                                                                                             | Project Partners                                     |
| <b>Mid-Term Actions</b>                                                                                                                                                                                                              |                                                      |
| <b>Railroad Coordination</b><br>Develop plan for railroad coordination; Make early contact with railroad owner(s) regarding impacts to railroad ROW                                                                                  | Project Partners, Railroad                           |
| <b>USACE Coordination</b><br>Coordinate with USACE regarding all projects that would impact Little River and USACE easements                                                                                                         | Project Partners, USACE                              |
| <b>W-3 and W-4: Engineering and Environmental</b><br>Advance preliminary engineering and environmental screening for Holly Springs Parkway widening                                                                                  | Project Partners                                     |
| <b>Interstate Projects: EIS</b><br>Begin environmental screening process and development of EIS for interstate-related projects (NC-1, NC-3, NC-4)                                                                                   | Project Partners, GDOT                               |
| <b>NC-2, W-1, and W-2: Advance Engineering</b><br>Begin preliminary engineering                                                                                                                                                      | Project Partners                                     |
| <b>Long-Term Actions</b>                                                                                                                                                                                                             |                                                      |
| <b>NC-5: Neighborhood Coordination</b><br>Coordinate with River Park Neighborhood to determine if NC-5 is a desired improvement                                                                                                      | River Park Neighborhood                              |



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