

NEEDS ASSESSMENT REPORT

CHEROKEE COUNTY CTP

2021

Cherokee MOVES

Cherokee County
2022 Comprehensive Transportation Plan

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1. INTRODUCTION

ABOUT THE CTP

The last Cherokee County Comprehensive Transportation Plan (CTP) was completed in 2016 and was an update from the preceding 2008 CTP. The 2016 CTP identified multi-modal transportation improvement opportunities through the horizon year of 2040. This CTP update will build upon the previous CTP and its recommended projects to a new horizon year of 2050.

The purpose of the Cherokee County CTP update is to identify a countywide transportation vision and to prioritize transportation improvements in the near-, mid-, and long-term. The CTP will consider all forms of transportation including automobiles, transit, walking, biking, freight, and emerging transportation technologies.

When finished, the Cherokee County CTP will have completed the following tasks:

- Established a clear transportation vision, goals, and objectives
- Developed an interactive transportation model for County use
- Updated the Trails Master Plan
- Updated the Transit Feasibility Plan
- Developed a prioritized list of transportation projects for the short, mid and long terms
- Created a list of recommended transportation programs and policies

The CTP will incorporate the input and feedback from multiple public and stakeholder groups including a Technical Advisory Committee (TAC), a Citizen Advisory Committee (CAC), and the general public. These groups will be engaged through public and committee meetings, an interactive project website, an online survey, and other engagement tactics. The TAC and CAC will provide technical and practical feedback which will guide the overall development of the CTP.

ABOUT THIS REPORT

The Needs Assessment report provides an overview of the areas identified in the County for improvement based on different need categories. These categories include, roadway, technology, bicycles and pedestrians, and goods movement. Projects are also identified that would meet the identified needs. This information will serve as the foundation for further analysis and eventually lead to the development of the main deliverables of the CTP: a prioritized list of projects and a set of policy recommendations.



2. GOALS AND OBJECTIVES

The following are the Goals and Objectives for the 2022 CTP update for Cherokee County. Based on the feedback from the CTP Project Management Team and Technical Advisory Committee, these goals and objective were derived and updated from the previous 2016 CTP which consisted of nine (9) goals total.

- **Goal: Improve Connectivity & Mobility**
 - Improve roadway congestion
 - Increase connectivity between population, employment, and other activity centers
 - Enhance goods movement and improve designated truck routes
 - Support and enhance accessibility to manufacturing and distribution
- **Goal: Maintain Community Health, Safety, and Environment**
 - Increase and enhance safe active transportation facilities
 - Address high crash corridors and intersections
 - Minimize environmental impacts on natural and historic features in transportation project and implementation
 - Engage in effective public involvement and coordination strategies
- **Goal: Align Transportation and Land Use Planning**
 - Use transportation improvements to encourage development types desired by the community in specific character areas
 - Support and enhance access to accessibility to job centers, destinations, and changing land uses
- **Goal: Infrastructure Preservation**
 - Maintenance of existing transportation facilities
 - Address known capacity issues on existing roadways
 - Ensure functional classification alignment with Comprehensive Plan
- **Goal: Increase Modal Options**
 - Continue to encourage mode shift to walk, bike, and transit
 - Expand and enhance countywide multi-use trail system
 - Increase access to regional transit



3. PUBLIC ENGAGEMENT

OVERVIEW

The CTP update provides opportunities for Cherokee County to think broadly and develop a forward-thinking transportation plan. Engaging stakeholders and the public early in the development of the recommendations is key to implementing that vision. As a vital part of the CTP update, the Project Team has led public engagement and collaboration efforts with Cherokee County officials, city officials, business community members, as well as residents and surrounding area commuters. The Project Team initiated these efforts by creating a Public Participation Plan (PPP) that provides the framework for facilitating activity planning throughout the project, as difficult decisions are made for funding, prioritizing, and programming transportation projects.

The stakeholder and public engagement efforts have been strengthened by a robust, multilayered digital communications strategy. Among the most notable communication successes have been launching Cherokee Moves – the CTP update brand – and launching the public engagement survey. Additionally, the team organized several committees to help guide the CTP update development efforts including the Technical Advisory Committee (TAC) and Citizens Advisory Committee (CAC).

DIGITAL OUTREACH

WEBSITE

The team created and launched CherokeeMoves.com, a website introducing the CTP update to the public that provides access to project materials, public meeting information and details about the CTP update process. Since the launch of CherokeeMoves.com in June 2021, the site has seen over 5,000 page views.

SURVEY

The public engagement survey results will help the team understand the public priorities and goals for transportation in Cherokee County. The survey was created in SurveyMonkey and provides opportunities for respondents to rank potential projects, current and future needs and provide open-ended responses to how transportation can be improved in specific areas of Cherokee County. Since launching the survey in October, over 2,000 surveys have been completed.

DIGITAL TOOLKITS

Leveraging partner communications networks is an effective way to reach new audiences and garner additional attention for the initiative. Toolkits include articles for partners to use in their newsletters or website, social media posts and social media images. The team provided digital toolkits to stakeholder groups, including elected



officials, city governments, school districts and economic organizations to encourage visiting the Cherokee Moves website and sharing information on the project survey.

SOCIAL MEDIA

The team has provided five social media campaigns to broadcast Cherokee Moves initiatives such as the website, survey and a public meeting. Each campaign provided the public an opportunity to learn about public engagement opportunities through Cherokee County's Twitter, Facebook and Instagram platforms. Over the course of the CTP update, we have seen 33% percent of web traffic originate from social media.

EMAIL NEWSLETTERS

Communicating with stakeholders through email is an effective way to reach audiences in real-time, wherever they are. The team manages the Cherokee Moves newsletter account in MailChimp and uses it to share information about milestones, upcoming activities and ways to participate in the process. Throughout the life of the CTP update, 301 survey respondents have requested to join the email list making the total of email recipients to date 786.

STAKEHOLDER ENGAGEMENT

TECHNICAL ADVISORY COMMITTEE

Members of the Technical Advisory Committee (TAC) were identified in collaboration with the project management team and includes 23 Cherokee County and municipal representatives. The TAC will meet four times over the life of the project to provide technical input and key feedback on the CTP process and its recommendations. There have been two TAC meetings to-date: the first on April 14, 2021 and the second on October 6, 2021.

CITIZEN ADVISORY COMMITTEE

Members of the Citizen Advisory Committee (CAC) were identified in collaboration with the project management team and the TAC. The CAC is made up of involved citizens and representatives from Cherokee County and its municipalities, Cherokee County Schools, Chamber of Commerce, and the Cherokee County Office of Economic Development. The CAC will provide preliminary input on the CTP process in advance of public engagement opportunities. The CAC will meet up to four times over the life of the project and had its first meeting on October 12, 2021.

PUBLIC MEETINGS

There will be two public meetings held over the course of the CTP project. The first of the two public meetings was held on December 8, 2021, from 6 p.m. to 8 p.m. with information about current transportation modes and infrastructure in Cherokee County, details about what the Project Team has heard thus far from citizens, and opportunities



for the public to provide feedback and information about their transportation priorities within Cherokee County.

Following the in-person public meeting, a virtual meeting room (VMR), as seen in Figure 1, was launched providing similar information and opportunities to engage and provide feedback. The VMR was available for participation from December 8th through December 31st.

Figure 1 Virtual Meeting Room Preview



FEEDBACK

SURVEY FEEDBACK

The public survey is an important medium through which public feedback has been collected throughout the life of the Cherokee CTP update. The Cherokee CTP public survey went live on October 8, 2021 and was shared via the project website and County social media accounts and other County communication channels. The survey is anticipated to stay up until the end of December 2021.

To date, over 2,000 respondents have taken the survey and the following key feedback has been voiced:

- General Roadway + Congestion Feedback
 - Traffic/congestion was a top concern
 - Capacity/volume concerns specifically on I-575 and Towne Lake Pkwy
 - Safety concerns during peak commute periods
 - Roundabouts, road widening would help congestion
- Bike/Ped
 - Pedestrian safety needs to be addressed especially on Ball Ground Highway and Riverstone Parkway
 - Interest in flyover pedestrian bridges
- Transit
 - Interest in mass transit especially on Riverstone Parkway
 - Bus connection to North Springs MARTA station



over **2,000** survey responses have been collected thus far



97% of survey respondents live in Cherokee County and **31%** work there



Survey respondents live in **21** different zip codes, and the zip code with the most survey responses is **30114**

PUBLIC MEETING #1 FEEDBACK

All of the feedback collected from that meeting will be documented and included as part of the CTP process. The following key feedback was heard during the first public meeting on December 8th.

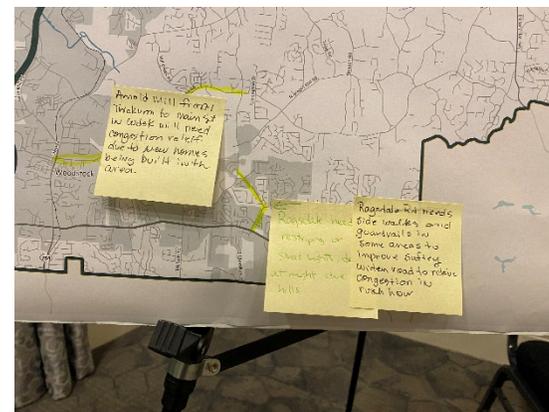
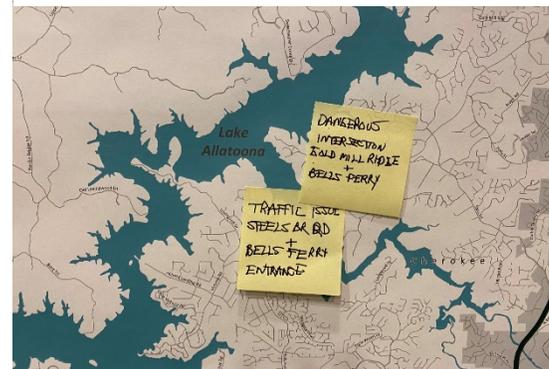
General feedback across the board was mostly focused on congestion and traffic issues with automobile travel throughout the county. Some general concerns voiced throughout the meeting were:

- Concerned about the amount of congestion on all roadways in Cherokee County
- Increasing capacity was a major theme – concern over the pace of growth and development and the inability for infrastructure to keep up that pace.
- Dissatisfied with the low quantity of sidewalks
- Investing in reducing congestion and improving transportation technology are priorities
- Aligning transportation use with land-use planning is a priority

Specific concerns and suggestions that were heard include:

- Dangerous intersection at Gold Mill Ridge and Bells Ferry Road
- Traffic issue at Steels Bridge Rd and Bells Ferry Road
- Arnold Mill from Trickum to Main Street will need congestion relief due to new homes being built in the area
- Ragsdale Rd needs restriping or streetlights, dangerous at night due to hills.
- Ragsdale Rd needs sidewalks and guard rails in some areas to improve safety.
- Ragsdale Rd should be widened to relieve congestion in rush our
- Widen SR 140 to 4 lanes
- Extend I-575 express lanes to Hwy 20
- Extend Northside Cherokee Boulevard with accompanying tie-in to multi-use trail between Chattin Drive and SR 140/Hickory Flat Hwy. Trail tie-ins would create a 12-mile loop around City of Canton.
- Improve/Widen Butterworth Road between SR 20 and Marietta Hwy. Potential for widening to 4-lanes, improved intersections with turn lanes.

Figure 2 Public Meeting Feedback

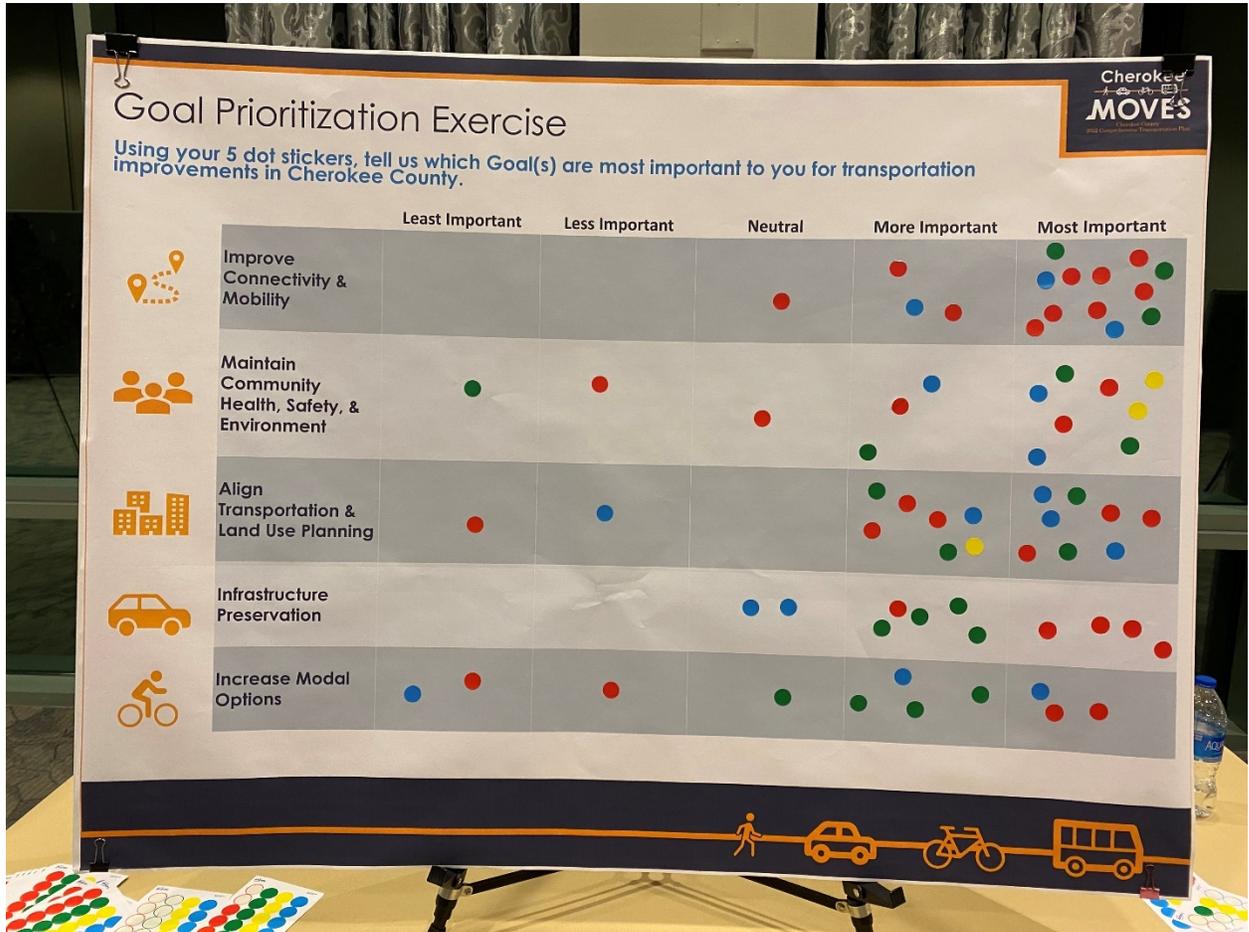


GOALS AND OBJECTIVES PRIORITIZATION EXERCISE

Public meeting participants were invited to take part in prioritizing which goals were most important to them for the CTP process. Figure 3 displays the results of this exercise and shows the highest prioritized goal to be “Improve Mobility and Connectivity,”

closely followed by “Align Transportation and Land Use Planning,” and “Maintain Community Health, Safety, and Environment.”

Figure 3 Goal Prioritization Feedback



4. EXISTING CONDITIONS SUMMARY

Throughout the review of existing conditions in Cherokee County, a number of key findings surfaced that were significant to note as the CTP process advances. These key findings are summarized below but are detailed more fully in the Existing Conditions Report.

KEY FINDINGS



Population & Employment

The areas where the highest population growth is expected is the northwest and southeast corners of the county, while the employment is expected to stay largely concentrated in the south-central areas between the Cities of Woodstock and Canton.



Land Use & Development

A shift is anticipated toward more commercial nodes along state routes according to the County's future land use map.



Travel Trends

Cobb County generates 50% of the external trips to Cherokee County daily, while the East Central Cherokee superdistrict, which includes the City of Canton, is the most popular destination for trips.



Roadway Conditions & Safety

Currently, I-575, SR 92 and SR 20 are the highest volume roadways in Cherokee County.



Programmed Projects

Programmed projects to widen SR 20 and Bells Ferry Road will mitigate major congestion points observed under current travel demand. By 2050, congestion mitigation projects may be necessary on SR 92, Sixes Road/Holly Springs Parkway/Main Street, SR 140 and SR 372 according to the ARC ABM.





Bicycle & Pedestrian Infrastructure

The County and municipalities have done a significant amount of planning in support of improving bicycle, pedestrian, and multi-use trail infrastructure. This effort is reflected in the good sidewalk coverage in downtown areas of the municipalities, recreational unpaved trails throughout the county and the multi-use trails in the Cities of Woodstock and Canton. Overall, there is a general lack of paved multi-use facilities, sidewalks and on-road bicycle facilitates connecting the municipalities and key activity centers.



Transit

Cherokee County is well served by local and regional transit services that meet a variety of customer needs and trip purposes. The ATL Xpress Bus Services serves the needs of commuters into job centers in Midtown and Downtown Atlanta and the CATS Services operated within Cherokee County.



Goods Movement

Cherokee County is a critical corridor for the north/northwestern Georgia's freight movement and the most impacted corridors are I-575, I-75, SR 92, SR 20 and SR 369. Cherokee County also has one legacy rail line, the Georgia Northeastern Railroad, managed by Patriot Rail and Ports.



5. NEEDS ASSESSMENT

A Needs Assessment was conducted to identify areas for improvement in Cherokee County. Needs for roadway, technology (i.e., signalization, ITS, emerging technologies), bicycle and pedestrians and goods movement were all analyzed and detailed in the sections below.

These needs were identified based on the most up-to-date data available on recent crash rates, travel time, congestion, and safety/condition ratings for bridges and pavements. It should be noted that the next step in the CTP process, after identifying the needs, is to compare the those identified needs with projects and efforts the County already has planned or programmed for construction.

Transit needs are reviewed at a high level in this document and will be further detailed in the Transit Feasibility Plan Update as a separate document. Similarly bicycle and pedestrian needs are also reviewed at a high level in this document and will be further detailed in the separate Trails Master Plan update document.

ROADWAY NEEDS

Roadway infrastructure needs were identified through analysis of historical, existing, and forecasted data presented in the Existing Conditions Report. Potential project needs were categorized as either roadway, bridge, or intersection projects and were identified based on safety and congestion thresholds. Roadway project needs were identified by reviewing the following elements:

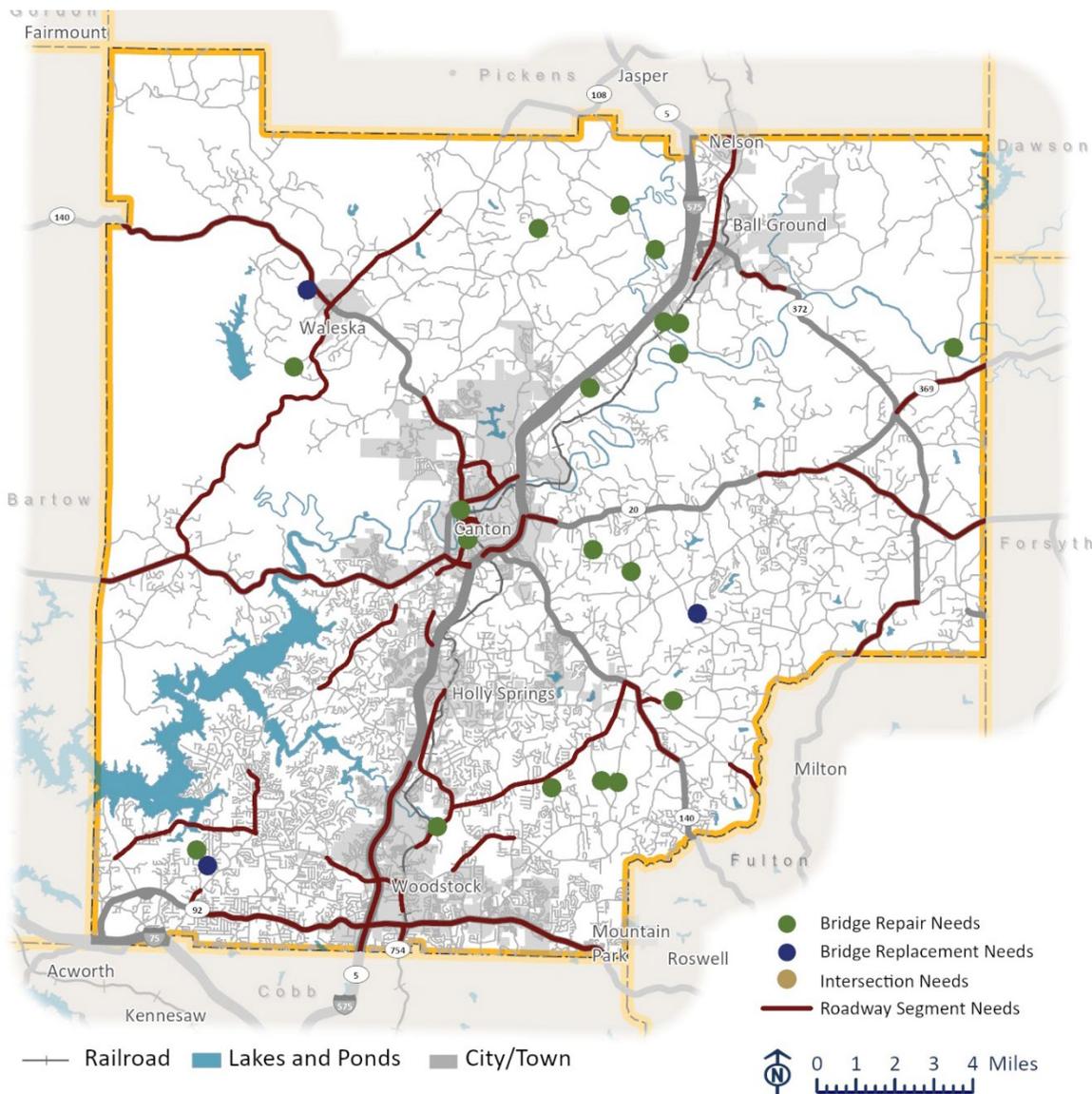
- Existing Travel Time Index (TTI) data
- Existing and projected peak period Level of Service (LOS)
- Recent crash data

Intersection project needs were identified by reviewing:

- Existing TTI data
- Recent crash data

Bridge needs were determined based on the sufficiency rating reported in the National Bridge Inventory. A map of all identified roadway needs can be seen below, in Figure 4, and more details on each type of need assessed can be found in the following sections.

Figure 4 All Roadway Projects Needs Assessment



ROADWAY SEGMENT NEEDS

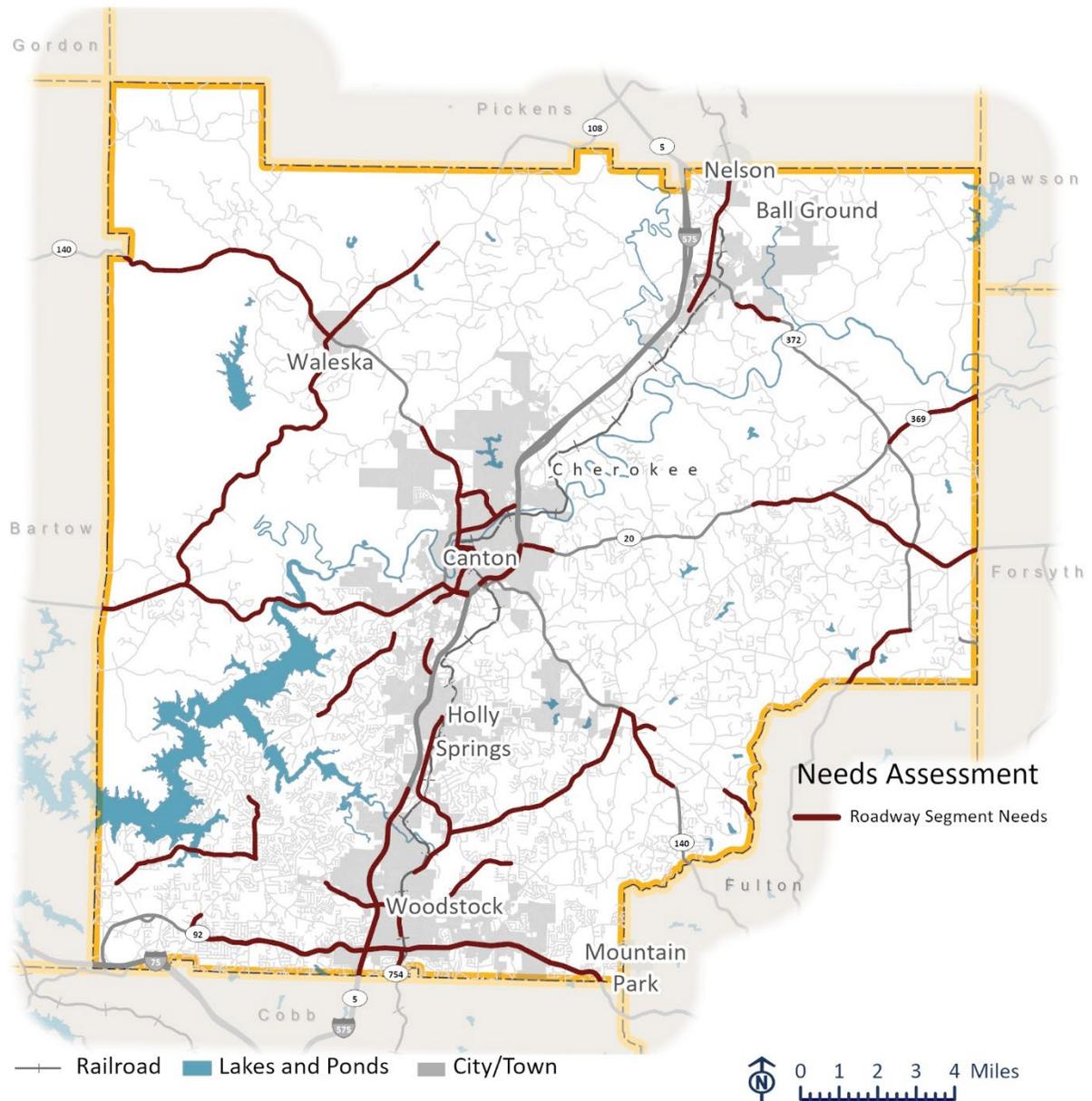
Additionally, roadways where a significant portion of the road is currently experiencing congestion during the peak hour, indicated either by having a TTI greater than about 2.5 or being one of the top five congested segments during a peak period, were identified as potential improvement locations. Generally, major roads with very poor pavement condition are the most critical sections to prioritize for basic maintenance improvements, but should not necessarily be addressed before top congested roadway segments and intersections. Elevated TTIs were generally observed along SR 20 east of I-575 adjacent to dense commercial development and along I-575 in southern Cherokee County which is the most traveled route to reach Cobb County, the largest external trip generator of Cherokee County trips.

Roadways with large portions of the segment experiencing peak period LOS of E or F in 2050 and 2020 were also identified as potential improvement locations. Locations that met LOS criteria for identified needs were generally located in southern Cherokee County near Woodstock, Holly Springs, Canton and along major roadways southeast of Lake Allatoona. These areas correspond to the county's most dense population and commercial developments as discussed in the travel trends section of the existing conditions report. A review of expected congestion locations in 2050 suggest that planned widening projects along SR 20 and Bells Ferry Road and operational improvements along SR 140 will play a significant role in mitigating congestion concerns caused by increased future demand.

Segment crash rates were calculated on all interstate, principal arterial, minor arterial, and major collector roadways for the most recent five years of complete crash data, from 2015 through 2019, where annual historical traffic count data was available. 108 roadway segments were screened as part of this process. Segment crash rates were compared to statewide averages for total crashes and injury crashes. Segments with crash rates higher than the statewide average were identified as potential improvement locations. Additionally, segments that experienced at least three fatal crashes or two bicycle or pedestrian crashes were also identified as potential improvement locations. Segments identified as safety needs were generally located on segments with significant development, which may increase conflict points along a corridor, or high rates of speed, which may result in more severe crashes.

Roadway segments with LOS of E or F were generally located in Woodstock, Holly Springs, Canton, and along major roadways southeast of Lake Allatoona.

Figure 5 Roadway Needs Assessment Map



The roadway segments identified as potential improvements based on the criteria described above is shown in Table 1. The table also indicates which of the screening criteria was met for the segment to be included as a potential improvement. A map of the corridors that were identified for potential improvement by both the congestion and safety threshold can be seen in Figure 5.

Table 1 Cherokee County Segment Needs

Road	Start	End	TTI	LOS	Safety
SR 92	W Wylie Bridge Rd	Cobb C/L		X	X
SR 92	Trickum Rd	W Wylie Bridge Rd		X	X
SR 92	Main St	Trickum Rd		X	X
SR 92	I-575	Main St			X
SR 92	Bells Ferry Rd	I-575			X
SR 92	Wade Green Rd	Bells Ferry Rd		X	X
SR 92	Woodstock Rd	Wade Green Rd		X	X
Woodstock Rd	SR 92	Kemp Drive		X	
Bells Ferry Rd	Kellogg Creek Rd	Black Oak Trail	X	X	X
Bells Ferry Rd	Ridge Rd	Butterworth Rd			X
Towne Lake Pkwy	Eagle Drive	I-575			X
Towne Lake Pkwy	I-575	Main St		X	X
Arnold Mill Rd	Neese Rd	Trickum Rd			X
Main St	Cobb C/L	SR 92		X	X
Main St	Towne Lake Pkwy/Arnold Mill Rd	Serenade Lane	X	X	X
Main St/Holly Springs Pkwy	Ridgewalk Pkwy	E Cherokee Drive		X	X
Holly Springs Pkwy	E Cherokee Drive	Sixes Rd			X
Holly Springs Pkwy	Sixes Rd	Holly St/Hickory Rd			X
Marietta Hwy	I-575	Butterworth Rd/Univeter Rd			X
SR 140/Reinhardt College Pkwy	SR 108/Fincher Rd	Salacoa Rd			X
SR 140/Reinhardt College Pkwy	Salacoa Rd	Bartow C/L			X
SR 108/Fincher Rd	SR 20/Knox Bridge Hwy	Sam Nelson Rd			X
SR 108/Fincher Rd	Sam Nelson Rd	SR 140/Reinhardt College Pkwy			X
SR 108/Fincher Rd	SR 140/Reinhardt College Pkwy	Dry Pond Lane/Dixon Rd			X



SR 140/Hickory Flat Hwy	Sugar Pike Rd	E Cherokee Drive	x	x
Hickory Rd/Batesville Rd	Hickory Flat Hwy	Lower Birmingham Rd	x	
Batesville Rd	Rowe Rd	Fulton CL	x	
SR 20/Knox Bridge Rd	Bartow C/L	SR 108/Fincher Rd		x
SR 20/Knox Bridge Rd	SR 108/Fincher Rd	Butterworth Rd	x	
SR 20/Knox Bridge Rd	Butterworth Rd	Marietta Hwy	x	
SR 20	Marietta Hwy	I-575	x	x
SR 20/Cumming Hwy	Marietta Hwy	SR 20/Hickory Flat Hwy		x
SR 20/Cumming Hwy	I-575 NB	Brooke Park Drive	x	x
SR 20/Cumming Hwy	E Cherokee Drive	SR 369/Hightower Rd		x
SR 20/Cumming Hwy	SR 369/Hightower Rd	SR 372/Ball Ground Rd/Freehome Hwy		x
SR 20/Cumming Hwy	SR 372 Ball Ground Hwy	Holbrook Campground Rd		x
SR 20/Cumming Hwy	SR 372 Ball Ground Hwy	Forsyth C/L		x
SR 140/Waleska St	W Main St	Marietta Hwy/Riverstone Pkwy		x
SR 140/Waleska St	Marietta Hwy/Riverstone Pkwy	Reinhardt College Pkwy	x	x
SR 140/Waleska St	Reinhardt College Pkwy	Laurel Canyon Park	x	x
SR 140/Waleska St	Laurel Canyon Park	Puckett Creek Rd/Lower Burris Rd	x	
W Marietta St	Marietta Rd	E Main St	x	x
North St	SR 140/Waleska St	E Main St		x
E Main St	SR 140/Waleska St	E Main St		x
Marietta Rd	Marietta Hwy	Hickory Flat Hwy		x
Marietta Rd	Hickory Flat Hwy	East St	x	x
Ball Ground Hwy	Howell Bridge Rd	SR 372/Gilmer Ferry Rd		x
Ball Ground Hwy	SR 372 Gilmer Ferry Rd	Hwy 372		x
Ball Ground Hwy	Hwy 372	Baker St		x



SR 372/Birmingham Hwy	Liberty Grove Rd	Birmingham Hwy				x
SR 372	Cherokee Village Drive	Conns Creek Rd			x	x
I-575	Cobb C/L	SR 92	x	x		
I-575	SR 92	Towne Lake Pkwy	x	x		
I-575	Towne Lake Pkwy	Ridgewalk Pkwy	x			
I-575	Ridgewalk Pkwy	Sixes Rd	x	x		x
I-575	SR 140/Hickory Flat Hwy	SR 20/Cumming Hwy	x			
Kellogg Creek Rd	Old Alabama Rd	Bells Ferry Rd				x
Riverstone Pkwy	SR 20/Waleska Rd	I-575				x
SR 369/Hightower Rd	SR 372/Ball Ground Hwy	Yellow Creek Rd				x
E Cherokee Drive	Main St	SR 140/Hickory Flat Hwy				x
Reinhardt College Pkwy	SR 140/Waleska Rd	Riverstone Pkwy				x

Moving forward in the CTP process, each identified need will be reviewed in detail to determine potential improvements (projects) that can be made to address that need. Identified needs indicated by TTI or LOS analysis may require capacity improvement projects to mitigate congestion issues while safety indicated needs may require operational improvements to enhance safety along the corridor.



INTERSECTION NEEDS

Intersections with approaches having a TTI of 2.5 or greater were identified as potential improvement locations. There are no intersections with an AM TTI above 2.5 and only two intersections experienced a PM TTI above 2.5.

Similar to the segment safety analysis, crash data from 2015 through 2019 was reviewed at 104 intersections in Cherokee County. An intersection was identified as a potential improvement location if a high percentage of crashes resulted in injury and fatality crashes or if the intersection had experienced a high proportion of potentially dangerous types of crashes, such as angle and run-off-the-road crashes. Additionally, intersections that experienced at least two bicycle or pedestrian crashes were also identified as potential improvement locations.

A table listing the intersections identified as potential improvements based on the criteria described above is shown in Table 2 below. The table also indicates which of the screening criteria was met for the segment to be included as a potential improvement. Potential improvements indicated by TTI analysis may require capacity improvements at the intersection while safety indicated needs may require operational improvements to enhance safety at the intersection.

Figure 6 Intersection Needs Assessment Map

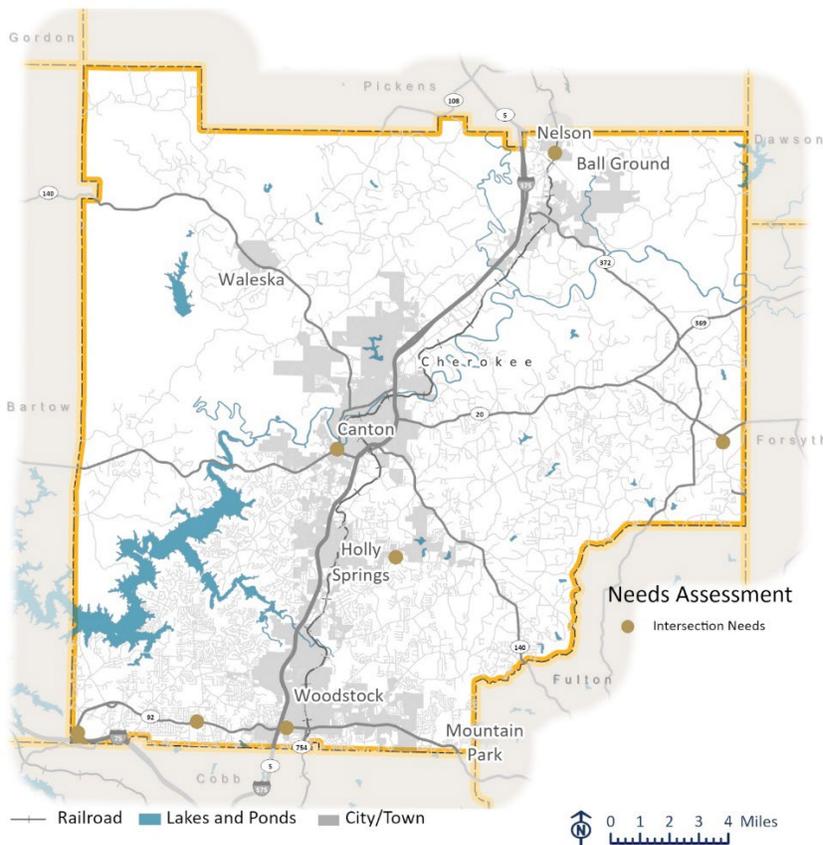


Table 2 Cherokee County Intersection Needs

Intersection	TTI	Safety
I-75 SB Ramp at SR 92		X
SR 92 at Northpoint Parkway		X
SR 92 at Robin Road		X
SR 92 at Parkway 575		X
I-575 NB Ramps at SR 372/Canton Highway		X
Hickory Road at New Light Road		X
Holbrook Campground Road at Bill Bagwell Drive	X	
SR 20/SR 140 at SR 20/Marietta Highway	X	

In addition to the intersections identified with TTI above 2.5, there are other locations with relatively high TTI, representing the most congested intersections in the County. These intersections are listed in Table 3 below. In combination with the intersections listed above, these represent critical locations for potential improvements.

Table 3 Top Congested Intersections

Intersection	TTI (Peak Period)
GA-20/Marietta Hwy at GA-20/GA-140	2.00 (AM)
Arnold Mill Road at GA-140/Hickory Flat Hwy	1.76 (AM)
Holly Springs Pkwy at Toonigh Road	1.74 (AM)
GA-92/Alabama Road at Bells Ferry Rd	1.68 (AM)
Holly Springs Pkwy at Sixes Rd	1.67 (AM)
Bells Ferry Rd at Towne Lake Pkwy	2.21 (PM)
S Main St at Arnold Mill Rd	2.18 (PM)



Select Link Analysis

A select link assignment procedure was undertaken using the ARC ABM as the underlying dataset. These select link assignments identify the origin, destination, and paths of all trips that travel through specific links identified in the setup of the assignment. The County requested nine intersections to be evaluated in this analysis. A select link assignment was performed for each approach leg to the intersection. The results from the 2020 and 2050 ARC models were compared to understand where the largest volume growth was occurring between and within these intersections.

The following table lists the percent change in volume for each approach between the 2020 and 2050 ARC models and the resulting approaches to focus on for improvements. It should be noted that the County is currently addressing some of these intersections which will be reflected in the Universe of Projects list.

Table 4 Intersection Improvements by Approach

Intersection	Volume Growth (2020 to 2050)				Approach Improvements
	NB	SB	EB	WB	
SR 92 at Trickum Road	52%	27%	15%	13%	NB
Arnold Mill Road at North Arnold Mill Road/Barnes Road	47%	31%	65%	74%	EB, WB
I-575 at Towne Lake Parkway Interchange	22%	27%	7%	4%	NB, SB
East Cherokee Drive at Holly Springs Parkway	8%	32%	-	4%	SB
I-575 at Riverstone Parkway Interchange	20%	70%	32%	59%	SB, WB
Riverstone Parkway at Waleska Street/SR 140	41%	19%	43%	90%	WB
SR 92 at Bells Ferry Road	34%	12%	31%	23%	NB, EB
SR 140 at East Cherokee Drive	49%	83%	80%	36%	SB, EB
SR 140 at Hickory Road/Batesville Road	49%	80%	17%	11%	NB, SB



BRIDGE NEEDS

Bridges were identified as potential improvement locations based on their sufficiency rating. Bridges with a sufficiency rating below 50 are considered the highest priority and may qualify for federal replacement funding to assist with project costs. Bridges with a sufficiency rating between 50 and 80 are also potential improvement locations however they are a lower priority than bridges with lower ratings. Bridges with a rating between 50 and 80 may qualify for federal repair funding to help offset project costs and allow preemptive improvements to be made to avoid further deterioration.

Bridges in Cherokee County with a sufficiency rating below 80 are identified as qualifying for either federal repair or replacement funding. The bridges in Cherokee County identified for repair or replacement can be seen below, in Figure 7 and Table 5.

Figure 7 Bridge Needs Assessment Map

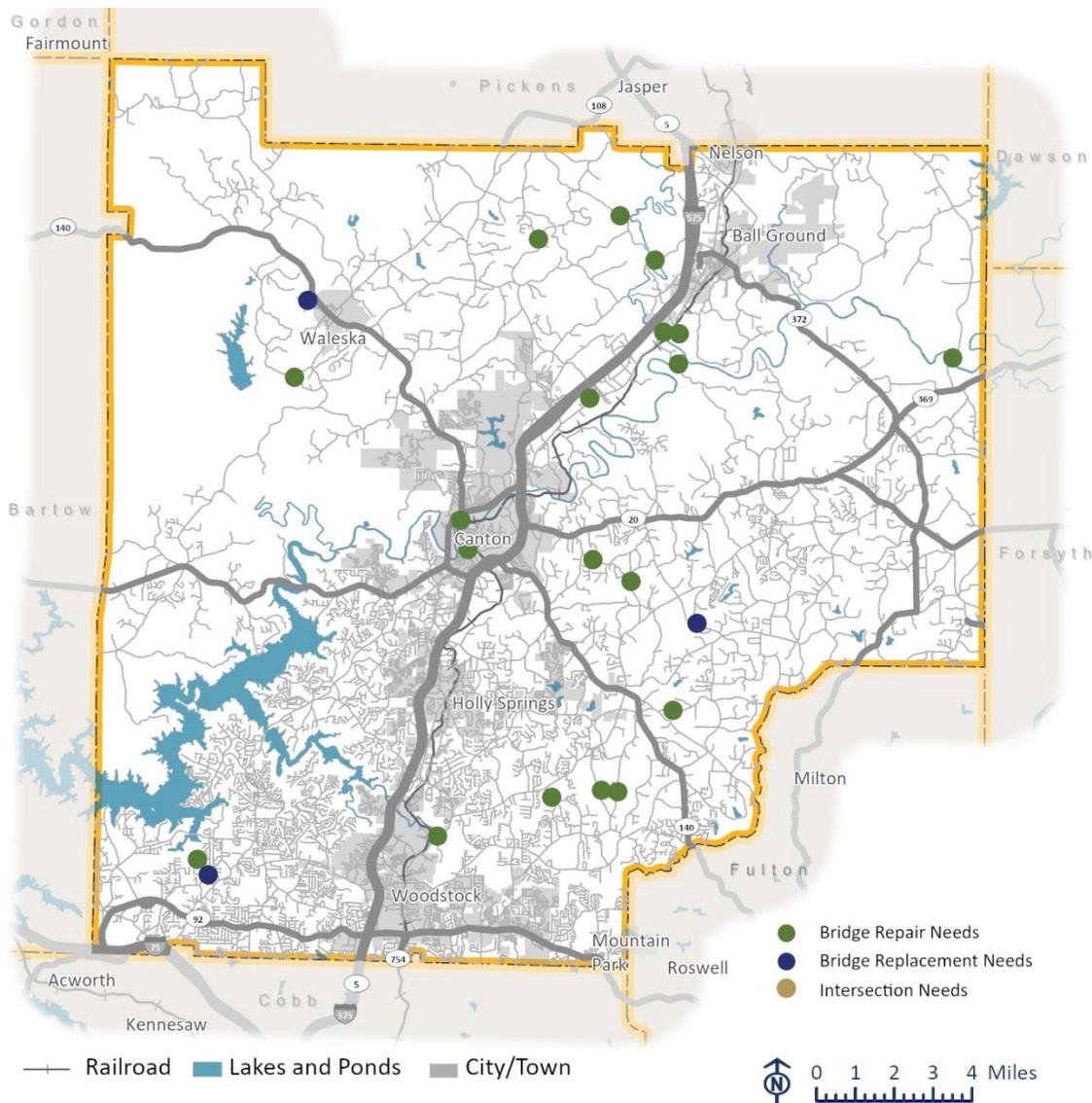


Table 5 Bridge Needs

Road	Crossing	Sufficiency Rating
Bradshaw Lane	Toonigh Creek	72.5
Canton Highway	Sharp Mountain Creek	56.6
Chelsea Lane	Kellogg Creek	72.4
Damascus Road	Soap Creek	77.7
E. Cherokee Drive	Etowah River	67
Epperson Road	Canton Creek	59
Epperson Road	Canton Creek Trib	72
George Gray Lane	Shoal Creek	46.7
Kemp Drive	Kellogg Creek	45.1
Leo Taylor Lane	Sharp Mtn. Creek Trib.	44.5
Little Refuge Road	Shoal Creek	69.5
Lower Birmingham	Mill Creek	76.4
Lyon Dairy Road	Sharp Mountain Creek	54.2
Main Street (M-9018)	Little River	66.6
Marietta Street	Canton Creek	64.7
Roberts Road	Etowah River Trib.	70.8
Tripp Road	Mill Creek	76.9
Upper Bethany Rd	Bluff Creek	60
Waleska Street	Etowah River	78.6
Yellow Creek Road	Etowah River	62

TECHNOLOGY NEEDS

Technology is an important tool to actively manage traffic and congestion. Technology needs can consist of better utilizing already deployed technology, like optimizing and coordinating signal timing, or installing new technologies on the roadways. This section outlines several technology needs identified in Cherokee County, including signalizations, intelligent transportation systems (ITS) and emerging technologies that would help improve safety and mobility in the County.

SIGNALIZATION

Based on the population and development growth in Cherokee County, the County's transportation network has experienced increased congestion and travel times. With



this growth has come new and expanded development that has put more demand on the existing transportation system and changed traditional travel patterns. Optimizing signal timing and synchronization along heavily traveled corridors is a low-cost, short-term, opportunity to improve capacity while avoiding higher cost, long-term, road widenings. Highlighted corridors that would benefit the most from signal optimization and synchronization improvements include SR 92, SR 20, Bells Ferry Road, and densely developed sections of SR 140.

The corridors that would benefit most from signalization improvements include SR 92, SR 20, Bells Ferry Road, and portions of SR 140.

In addition to operational improvements at intersections such as turning lanes and signal phasing, opportunities to improve safety for pedestrians and bicyclists should be prioritized as well. It is important to ensure that intersection improvements include compliance with the Americans with Disabilities Acts (ADA), i.e., median refuges, pedestrian countdown timers, accessible ramps, and lengthening crossing times for pedestrians.

This section screens the previously identified intersections based on their operational or safety needs and identifies other ITS/signalization opportunities in Cherokee County. Intelligent Transportation Systems (ITS) technologies aid in providing the traveling motorist with travel time information and allow traffic engineers to monitor and make real-time decisions for traffic conditions. Like many local agencies, Cherokee County has deployed a variety of ITS technologies. The deployment allows the County to be flexible and agile by involving the emerging technologies and using them to address any needs that may arise. Cherokee County should continue to incorporate ITS into its extensive signal network to provide innovative solutions to accommodate current and future traffic needs. These systems allow for better connectivity, more coordinated and smarter transportation networks. ITS systems include the use of CCTV, connected vehicle technologies, and wireless communications such as 4G and broadband radio.

SPECIFIC INTERSECTION OPERATIONAL AND SAFETY NEEDS

As outlined in the intersection needs above, several intersections were identified based on congestion and crash analysis. Table 6 lists the eight intersections identified as having intersection needs. Congestion was identified by observed travel time index (TTI), which depicts the ratio of time it actually takes to make a trip during a peak hour versus the time to make the same trip in free-flow conditions. The last two intersections in the table have a PM peak period TTI greater than three, indicating it takes more than three times as long to travel through the intersection when congested compared to uncongested conditions. These are the two intersections in the County identified in the Existing Conditions Report as having a TTI of greater than 2.5, which generally triggers the need for operational or capacity improvements. The crash analysis identified



intersections with elevated crashes over a five-year period, intersections with crashes involving bicyclist and/or pedestrians, and intersections with high crash severity.

Table 6 Intersections Identified for Operational and Safety Needs

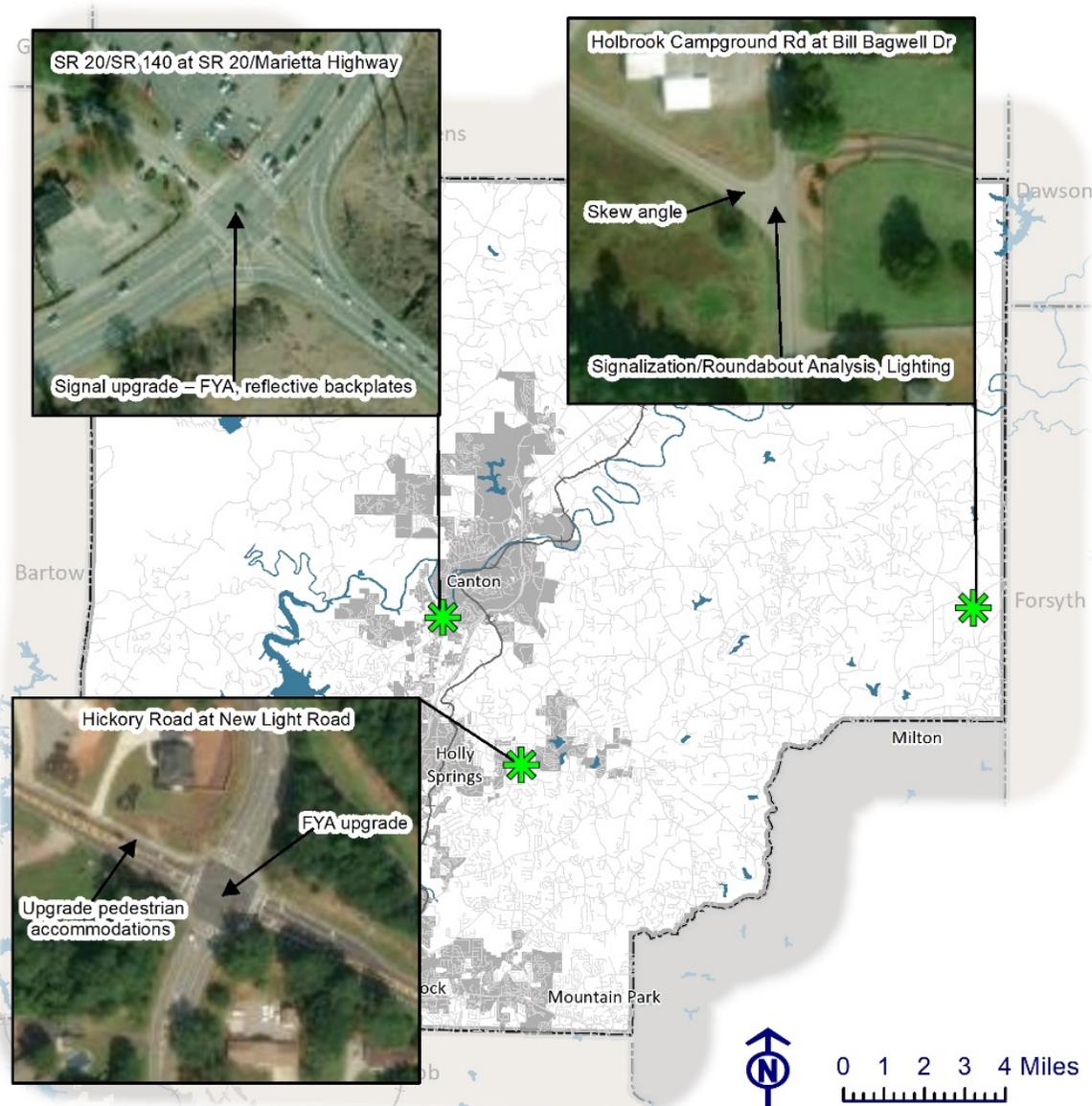
Intersection	PM TTI (2019)	5-yr crashes	Safety (Manner)	Safety (Injury/Fatality)	Safety (Bike/Ped)
I-75 SB Ramp at SR 92*		122	50% Angle		
SR 92 at Northpoint Parkway*		203	50% Angle		
SR 92 at Robin Road*		239			1 bike, 2 ped (1 fatal + 2020 ped fatality)
SR 92 at Parkway 575*		209			2 bike, 1 ped
I-575 NB Ramps at SR 372/Canton Highway		22	82% Angle	68% Injury + 1 fatality	
Hickory Road at New Light Road		24	58% Angle		
Holbrook Campground Road at Big Bagwell Drive	3.67				
SR 20/SR 140 at SR 20/Marietta Highway	3.1				

*Maintained by GDOT SigOps

Of the eight previously screened intersections, five intersections were identified as being maintained under GDOT jurisdiction and were therefore excluded from further evaluation. GDOT exclusively manages these intersections under their SigOps program to improve traffic and reduce congestion while managing signal timing, which can have safety benefits. The intersection needs list indicates the first five intersections listed above were flagged for safety and the other two remaining intersections were flagged for congestion. The safety and operational review identified the following proposed improvements to address specific intersection needs, which are summarized in Figure 8 Specific Intersection Operational and Safety Needs Figure 8 and further detailed below.



Figure 8 Specific Intersection Operational and Safety Needs



HICKORY ROAD AT NEW LIGHT ROAD

This intersection is a fully signalized intersection located in the residential section of the City of Holly Springs. The intersection has dedicated left turn lanes on all approaches and dedicated right turn lanes on the westbound and southbound approaches. Fifty-eight percent of the total crashes at this intersection are angle crashes which indicates a potential need for dedicated left turn phases and improved sight distance. Flashing Yellow Arrow (FYA) turn signals show many benefits in applications such as this. FYAs reduce angle crashes as they serve as a reminder to drivers to use caution when proceeding through the intersection and reduce turning speeds. This intersection

appears to have undergone a realignment in its history to create a safer signalized intersection and eliminate skews.

Pedestrian accommodation should also be considered in this location. This area is heavily residential with park and recreation areas located east of the intersection. Increasing pedestrian visibility will reduce the risk of pedestrian-involved crashes and encourage traffic calming.

Potential improvements to address the operational and safety needs at this intersection include:

- FYA upgrade including replacing the existing protected permissive five-section signal heads with four-section FYA signal heads to both approaches on Hickory Road. A three-section FYA signal head would also be added to both approaches of New Light Road.
- Upgrading ADA ramps and pushbuttons, adding countdown pedestrian signal heads, continuing the sidewalk on the west approach through the intersection toward park facilities and residential areas.

HOLBROOK CAMPGROUND ROAD AT BILL BAGWELL DRIVE

This intersection is a minor stop-controlled T intersection located near the County's eastern border with Forsyth County. Bill Bagwell Drive is a minor arterial that connects Holbrook Campground Road with SR 20/Cumming Highway, a principal arterial. It is used as cut through for drivers wanting to avoid the signal to travel westbound on SR 20/Cumming Highway. The TTI at Holbrook Campground Road and Bill Bagwell Drive was determined to be 3.67 in the PM peak. This intersection also has a skew and would benefit from realignment to improve safety for left turning vehicles. Realignment of the Bill Bagwell Drive approach will help with sight distance on Bill Bagwell Drive and promote traffic calming through the area. Alternatively, to address operational needs, a roundabout would allow more gaps in traffic for side street vehicles and reduce speeds through the intersection.

SR 20/SR 140 AT SR 20/MARIETTA HIGHWAY

This intersection is a fully actuated signalized intersection and currently has MaxTime. There are dedicated left and right turn lanes on SR 20/Marietta Highway in the northbound and southbound directions. The westbound approach has a through-left lane and a dedicated right turn lane. This intersection currently operates with a TTI of 3.1, which is an indication of issues with congestion. This intersection would benefit from increasing capacity by adding dual left turn lanes to the southbound and westbound approaches. This would accommodate the commuter traffic in the peak period who use this route to access I-575. It is also recommended to upgrade all signal heads to larger LED bulbs and retroreflective backplates to increase visibility for drivers and upgrade pedestrian push buttons and signal heads on all approaches to better accommodate pedestrians wishing to cross the intersection.

PEDESTRIAN CROSSINGS

The existing conditions found that SR 92 had a significant amount of bicycle and pedestrian crashes. Four fatal crashes occurred at or near the Bells Ferry Road crossing with SR 92, indicating that a bike or pedestrian crossing assistance device be installed, an example of which can be seen in Figure 9. To encourage safe driving behaviors, a bike signal detection and crossing alert detection should be installed at this intersection.

Figure 9: Bike or Pedestrian Crossing Assistance Device (TAPCO)



PEDESTRIAN FLASHING BEACONS

The existing conditions found that there was a high number of crashes along Marietta Highway and Riverstone Parkway in Canton and can be seen in Figure 10. Within the crash location, it was found that there were numerous pedestrian friendly land uses, such as parks, restaurants, retail stores, and the high school. However, there are few crossings available for bikes or pedestrians within this area, likely contributing to pedestrian and bicycle-related crashes. It should also be noted that there are few sidewalks or pedestrian crossings at intersections along these corridors.

Figure 10: Pedestrian Flashing Beacons (Texas A&M Transportation Institute)



SCHOOL ZONE WITH FLASHING LIGHTS

Joseph Knox Elementary School has flashing lights on Knox Bridge Highway, but not on the street adjacent to the school, Riverbend Way. It is recommended to include flashing lights at the school zone speed limit sign along this corridor in both directions. An example of school zone with flashing lights can be seen in Figure 11.

Figure 11: School Zone with Flashing Lights (IndyStar)



ITS/AMTS technology can improve traffic flow through the dissemination of real-time information

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ITS also known as, Advanced Traffic Management Systems (ATMS) encompass a broad range of innovative communication equipment to monitor and control traffic as well as transmit information to drivers about travel options. Types of ITS/ATMS equipment include real-time signal coordination, cameras, sensors, and dynamic message signs. Such technology provides the opportunities to enhance traffic flow and reduce congestion during peak travel times and special events. Coordinating ITS/ATMS implementation plans with public safety departments, such as Law Enforcement, Fire and

Rescue, and Medical Transportation, is important as emerging technology can greatly benefit emergency response times.

With the implementation of ITS/ATMS technologies, the inclusion of a Traffic Management Center (TMC) could be beneficial to the County. A TMC would enable the County to monitor traffic operations along heavily traveled corridors in real time, as well as improve deployment of response times during traffic incidents and alert drivers to resulting changes in travel times. Additionally, consideration should be given to housing other departments such as law enforcement and fire and emergency management services to more efficiently deploy multiagency response.

It is important to note that establishing a TMC would require significant coordination between the County, local jurisdictions, and GDOT in terms of operations. With that in mind, the County and local jurisdictions should continue to monitor the need for a central location for traffic management. An alternative would be working with GDOT to include the County’s principal arterials, such as SR 92, as a corridor in their SigOps Program, which manages traffic signals on major corridors throughout the Atlanta Metropolitan area.

ADDITIONAL ITS DEPLOYMENTS AT SIGNALIZED INTERSECTIONS

Considering the traffic signal locations, fiber optic cables, and radio communications infrastructure outlined in the Existing Conditions Report, the County could install ITS technologies at additional intersections to improve operations. Table 7 shows the list of materials and costs associated with a typical ITS installation. As the County implements more ITS devices, it will become more beneficial to develop its own Traffic Management Center.



Table 7 Cost Estimate for Typical ITS Installation

List of Materials	Unit	Quantity	Cost	Total
CCTV	EA	1	\$8,500	\$8,500
CONNECTED VEHICLE ROADSIDE UNIT	EA	1	\$10,000	\$10,000
FIBER PATCH PANEL, 12 PORT	EA	1	\$800	\$800
FIELD SWITCH, TP E-CB	EA	1	\$2,500	\$2,500
SFP FIBER MODULE, TP 1-CC	EA	2	\$350	\$700
FIBER OPTIC CLOSURE 12 SPLICE	EA	1	\$1,050	\$1,050
OUTSIDE PLANT FIBER OPTIC CABLE, LOOSE TUBE 12 FIBER	LF	100	\$3	\$300
PULLBOX, TP 7	EA	1	\$1,613	\$1,613
CONDUIT NM, TP 3, 2"	LF	100	\$650	\$65,000
BROADBAND RADIO	EA	1	\$7,000	\$7,000
4G MODEM	EA	1	\$2,000	\$2,000

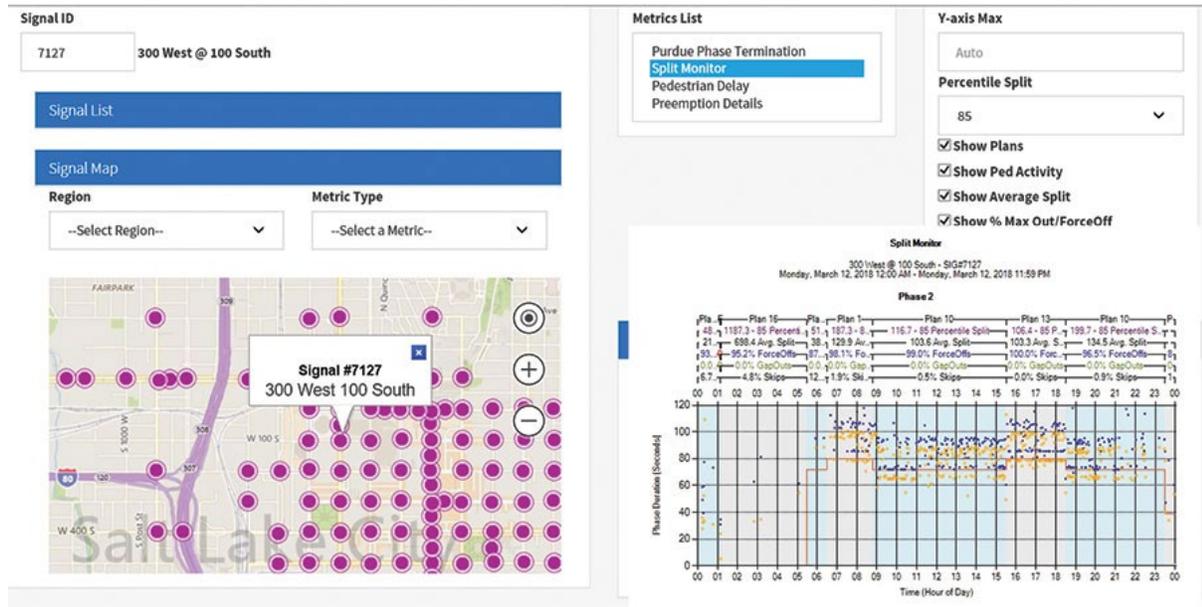
ADAPTIVE SIGNALS WITH RADAR DETECTION/MAXTIME SOFTWARE

ITS technology allows Cherokee County the capability to communicate directly with traffic signals to coordinate corridors and alleviate congestion. As noted in the Existing Conditions Report, MaxTime firmware is currently installed on 81 percent of the signal controllers and five ramp meter controllers in Cherokee County. Because MaxTime allows for remote communication with signal equipment, it would prove beneficial to have this capability at all remaining traffic signals in the County. This will enable the County and GDOT to monitor all signals remotely and will include the ability to update signal timings remotely and preparing signals for emergency vehicle preemption and freight signal priority.

No specific projects were identified for SigOps. However, as part of the MaxTime/MaxView conversion, these signals will be able to communicate with the SigOps traffic control center. By converting the remaining signals to MaxTime firmware, all signals in Cherokee County will be part of a regional traffic signal operations platform from which GDOT can deploy resources to remotely monitor and troubleshoot any deficiencies.



Figure 12 MaxTime/MaxView Software (FHWA)

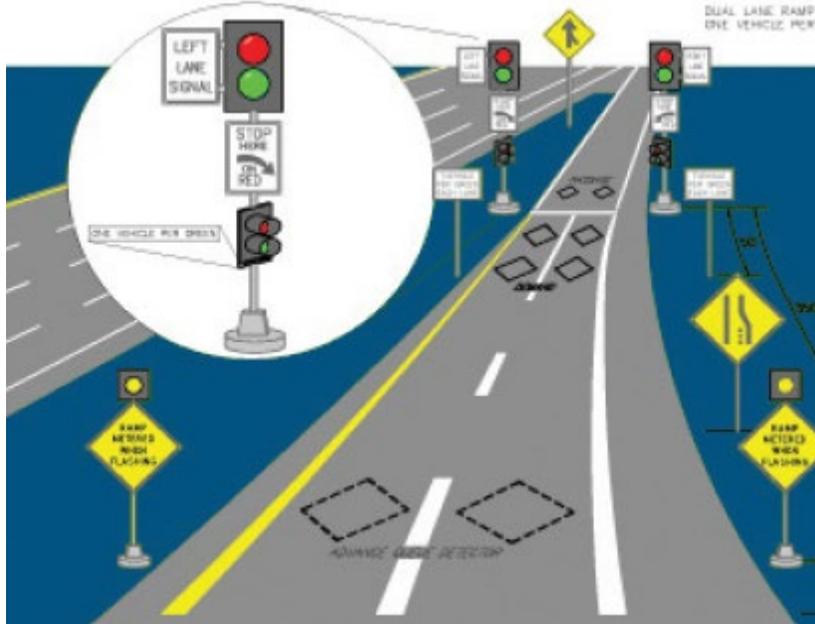


RAMP METERS

Ramp Meters are traffic signal devices located on limited access on ramps, placed strategically to control the flow of vehicles on freeways during peak hours. As noted in the Existing Conditions Report, these devices currently function in five locations in Cherokee County. However, there is a need to expand the program, especially at the I-575 and SR 20 interchange. Due to congestion at this location in the southbound direction, installation of a meter at the SR 20 entrance to I-575 may help alleviate congestion during peak travel periods. However, the County may also benefit from additional GDOT coordination on existing ramp meter use and hours of operation. A schematic of ramp meters can be seen below, in Figure 13.

5 ramp meters are already installed in Cherokee County. Installing more where there is increased demand, truck percentages and safety concerns can help mitigate future congestion.

Figure 13 Ramp Meters (Nevada DOT)



As congestion and volume builds throughout the County, additional ramp meter locations should be identified based on projected traffic volumes, increased freight traffic percentages and demand, and presence of safety concerns on freeways.

Freeway sections with weaving and merging conditions, regular traffic queues in peak periods and high-speed differentials stand to benefit greatly with the implementation of

ramp meters. These signal devices also use MaxTime firmware to allow for flexibility in traffic control. According to the GDOT ITS Design guide, there are two warrants for ramp meter justification: Freeway Right Lane and Entrance Ramp Flow Rate and Freeway Speed. The freeway flowrate needs to be greater than 2,000 vehicles per hour and the ramp should have greater than 400 vehicles during a typical 15-minute period. The freeway speed warrant maintains that the general purpose lanes' speed is less than 55 mph within two miles of the entrance ramps.

DEDICATED SHORT RANGE COMMUNICATIONS (DSRC) / CELLULAR RADIOS

Due to the recent rulings made by the Federal Communications Commission (FCC), DSRC will be transitioned to cellular radios in order to adhere to the frequency requirements of transportation safety. GDOT's Phase 2 deployment in 2021 installed DSRC along SR 92 in Cherokee County. Therefore, these signals should be converted to cellular radios in order to align with the FCC ruling. Even though these radios will not serve their true capacity until CV technology is further advanced and vehicle manufacturers start including onboard units in their vehicles, these radios can provide signal preemption for emergency vehicles with the purchase of onboard units.

SR 20 remains the most heavily traveled state route in the county. It is recommended that the County continue to make this corridor a priority for emergency vehicle preemptions and eventually Connected Vehicle (CV) deployment.

EMERGING TECHNOLOGY

Upon completion of identifying needs and gaps in the current existing technology system, thought was given to projects outside of what currently exists. From looking at

best practices nationwide, as well as looking at local level plans and studies, several projects were identified as potential improvements.

CAV TECHNOLOGY

Connected/Automated vehicles (CAV) are quickly becoming the future of mobility. CAV technology can range from driver assistance, such as adaptive cruise control and “lane keep assist”, all the way to driverless full automation of the vehicle. The Federal Highway Administration (FHWA,) has found that equipping passenger, freight, and transit vehicles with CAV technology can generate safety benefits related to human driving errors, such as fatigue and distraction.

GDOT is actively researching and deploying CAV architecture, such as dedicated short-range communications (DSRC) at intersections and next-generation highway striping to provide infrastructure improvements for connected vehicle applications and beyond. Looking ahead, the state's ultimate goal is to have 100% deployment of DSRC on interstates, at signalized intersections on state routes and freight networks. CAV and other emerging technology should be kept at the forefront as recommendations are made to improve traffic operations throughout the County.

Figure 14 EV Charging Stations (Detroit Free Press)



ELECTRIC VEHICLE (EV) CHARGING STATIONS

Currently, there are 16 EV charging stations in Cherokee County (Figure 14). However, none were located north of Canton, and most were found to be in Woodstock. As the shift to EV continues with the American Jobs Plan aiming to construct a national network of 500,000 EV chargers by 2030, Cherokee County should conduct a study to identify future

installation areas within the County to assist residents who require electric to charge their vehicles.

SMART WOODSTOCK PLAN IMPLEMENTATION

The City of Woodstock completed their Smart Woodstock plan in 2020 and identified several technological needs. These needs encompass improving existing lighting with solar and smart streetlights, installing smart parking meters to replace older models, and introducing an autonomous transit shuttle, as seen in Figure 15, in the downtown area for residents and visitors alike.

Proposed Projects: Solar and Smart Streetlights on Main Street on Woodstock, Smart Parking Meters in Downtown Woodstock, Autonomous Transit Shuttle Feasibility Study in Downtown Woodstock.



Figure 15: Autonomous Shuttle (International Airport Review)

SUMMARY OF TECHNOLOGY NEEDS

Key needs and opportunities identified for ITS and signalization in Cherokee County are listed below. It should be noted that no notable needs were identified for fiber optic cable and the GDOT 511 camera system.

KEY ITS & SIGNALIZATION NEEDS

HICKORY ROAD AT NEW LIGHT ROAD

- Flashing Yellow Arrows with dedicated left turn phases to increase decision sight distance
- Upgrade ADA ramps and pushbuttons, adding countdown pedestrian signal heads
- Continue the sidewalk on the west approach through the intersection toward park facilities and residential areas

HOLBROOK CAMPGROUND ROAD AT BILL BAGWELL DRIVE

- Realignment of side street approach to improve safety for left turning vehicles
- A roundabout would allow more gaps in traffic for side street vehicles and promote traffic calming through the area.

SR 20/SR 140 AT SR 20/MARIETTA HIGHWAY

- LED Signal head upgrade and retroreflective backplates to increase visibility for drivers
- Pedestrian push buttons and countdown pedestrian signal heads on all approaches

FREIGHT SIGNAL PRIORITY ON SELECT REGIONAL TRUCK ROUTES

- SR 20
- SR 369
- Ball ground Hwy

PEDESTRIAN CROSSINGS

- Pedestrian, bike, and school safety crossing improvements at Bells Ferry Road/SR 92, Marietta Highway/Riverstone Parkway, and Joseph Knox Elementary School flashing lights

OTHER TECHNOLOGY NEEDS AND OPPORTUNITIES

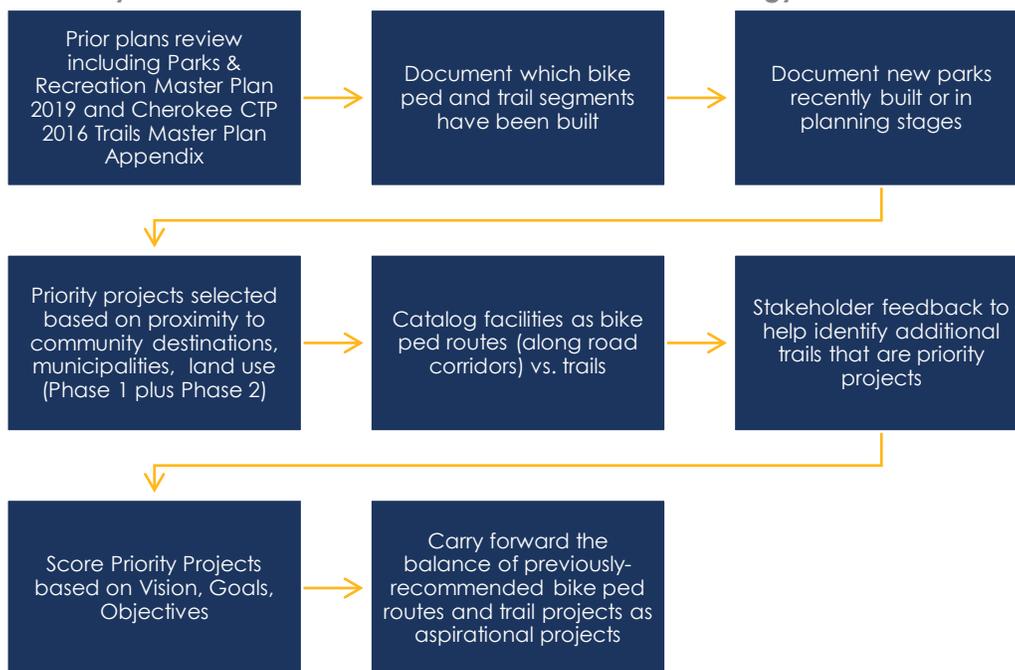
- MaxTime/MaxView software countywide
- Adaptive Signals with Radar Detection
- Ramp Meters (at I-575 and SR 20)
- Cellular Radio Deployment on SR 20
- Electric Vehicle Charging Study
- Railroad event broadcasting at Holly Street and Main Street Railroad Crossing

BICYCLE AND PEDESTRIAN NEEDS

Addressing bicycle and pedestrian needs is crucial to developing a comprehensive transportation system that accounts for all users. Adding multi-modal infrastructure connecting existing infrastructure and activity centers will help address cyclist and pedestrian needs as well as provide legitimate alternatives to automobile travel. The following section outlines specific bicycle and pedestrian improvements in the county based on previous planning, activity center locations, connectivity and safety needs.

The bicycle and pedestrian needs analysis was unique in the Cherokee CTP process as a large set of projects had already been identified in previous planning efforts. Because of the number of existing planned bicycle and pedestrian projects (over 800 projects), the Project Team’s role was centered around identifying priority projects within these existing plans. The process the Project Team followed to identify these priority projects is detailed below.

Figure 16: Bicycle and Pedestrian Needs Assessment Methodology



The bicycle and pedestrian needs assessment involved a multifaceted analysis approach. The Project Team first reviewed previous bicycle, pedestrian, trail, and small area planning studies and documented which facilities have been built. Parks, along with community destination, were identified as part of a multi-phase bicycle and pedestrian needs selection analysis that looked at proposed facilities proximity to key destinations and land uses. The facilities were then cataloged based on their type. Initial findings of this process were presented to stakeholders to help refine and identify additional priority projects. The priority projects will move forward based in the project



evaluation phase of the CTP which will score potential projects based on the plan's vision, goals, and objectives. The remaining balance of previously recommended projects will be carried forward as "aspirational" projects. The final identified priority projects will continue to evolve as the Project Team continues bicycle and pedestrian project evaluation as part of the Trails Master Plan update.

PREVIOUS PLANNING STUDIES REVIEW

The Project Team reviewed bicycle, pedestrian, trail and small area planning studies for the County and its municipalities to be able to identify bicycle and pedestrian improvements priority needs. Plan review included the following studies:

- Cherokee Comprehensive Transportation Plan 2016
- Woodstock Greenprints Parks and Trails Master Plan
- Woodstock Town Center LCI Plan (2013 Update)
- Woodstock LCI Highway 92 Extension (2015)
- Bells Ferry LCI Plan (2006)
- 2015 Canton Forward (LCI Plan)
- Holly Springs Downtown LCI Plan (2013)
- Southwest Cherokee Parks and Trails Plan (2021)

A variety of shared use path improvements, on-road bicycle and pedestrian improvement needs were identified in prior plans. Due to the high number of potential improvements identified in previously-completed planning studies, the Project Team focused on narrowing down the list to arrive at a more manageable selection of priority bicycle and pedestrian improvement needs.

A multi-step process was utilized to select for priority bicycle and pedestrian needs based on previously-completed plans, with an addition of a few key links and pedestrian crossing improvements. The selection process included the following steps:

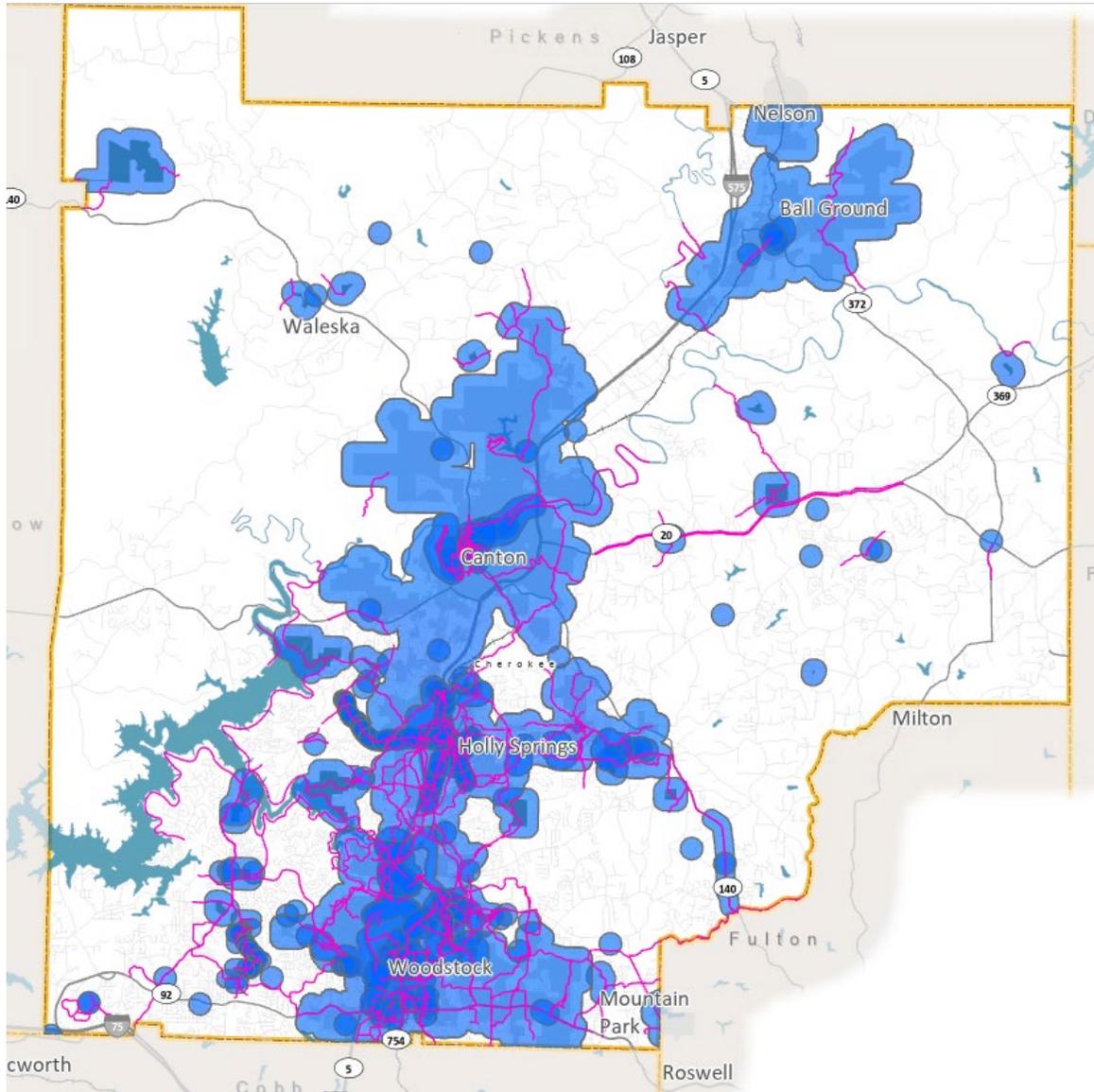
- Phase 1:
 - A. Screening Prior Plan Recommendations for Municipal Limits, Parks and Schools
 - B. Adding Recommendations for Key Missing Links between Town Centers and Major Activity Centers
- Phase 2: Screening Recommendations Based on Land Use Types
- Identifying Candidates for Pedestrian Crossing Improvements

PHASE 1A: SCREENING PRIOR PLAN RECOMMENDATIONS FOR MUNICIPAL LIMITS, PARKS AND SCHOOLS

During the first step of prioritizing bicycle and pedestrian facility's needs, the Project Team utilized a screening approach based on proximity to existing town centers, parks and schools. A quarter-mile buffer was drawn around municipalities, parks and schools. Transit stops were found to be located primarily inside Canton City limits and those were considered to be included as part of municipal buffer. Bicycle, pedestrian and multi-use path improvements identified in prior plans that overlapped with the quarter-

mile buffer were selected for consideration. Some duplicate projects were removed (for example, different alignments of the same planned trail based on two different plans.)

Figure 17 Quarter-Mile Buffer Target Area around Municipalities, Parks, and Schools with Bicycle and Pedestrian Improvements Selected in Phase 1



PHASE 1B: ADDING RECOMMENDATIONS FOR KEY MISSING LINKS BETWEEN TOWN CENTERS AND MAJOR ACTIVITY CENTERS

After the initial screening of recommendations from prior plans, several key additional links were identified that connect between municipalities and key activity centers, and are listed below in Table 8.

Table 8 Missing Link Recommendations

Corridor	Recommended Link
SR 92 from Woodstock West to Bells Ferry Road	Convert sidewalk to sidepath on one side
Etowah River Trail from Canton to Ball Ground	Near Hwy 372
Waleska Road (SR 140) through Canton	Sidewalks from Riverstone Parkway up to the edge of the municipal limits
SR 140 beyond Canton out to Waleska	Bikeable shoulder
Reinhardt College Parkway from Riverstone Parkway to SR 140 in Canton	Sidepath on one side and sidewalk on the other side
Reservoir Drive in Canton from Reinhardt College Parkway to 1 Mission Point	Multi-use path to connect to Hickory Log Creek Reservoir trail, Teasley Middle School
Marietta Highway from I-575 Interchange North of Woodstock to Bells Ferry Road in south Canton	Sidewalk on one side, sidepath other side
Marietta Highway from Bells Ferry Road to Riverside Drive in South Canton	Provide a sidewalk on second side, close sidewalk gaps where sidewalks are existing
Marietta Road from Marietta Highway at Bells Ferry Road in South Canton to Dr John Pettit Street in Canton	Close sidewalk gaps, widen sidewalk on one side to sidepath
Univeter Road Sidepath from Marietta Highway (Cherokee Co) to Pinecrest Road in South Canton	Recommended for sidepath; this corridor has a transit stop, Kenney Askew Park, Cherokee County Child and Family Services along this stretch
Canton Highway from I-575 Interchange in Canton to GA 5 BS (Howell Bridge Road) in Ball Ground	Sidepath one side
Howell Bridge Road from Canton Highway in Ball Ground to Sharp Mountain Creek	Sidepath (trail along Sharp Mountain Creek)
Gilmer Ferry Road/Ball Ground Road from Valley Street in Ball Ground to Etowah River	Sidepath (to connect to Etowah River Trail)



Canton Highway from Howell Bridge Road to AW Roberts Drive/Gilmer Ferry Road	Sidewalk one side/sidepath other side (In Ball Mount)
Canton Highway from AW Roberts Drive/Gilmer Ferry Road in Ball Ground to Nelson Park	Sidepath one side

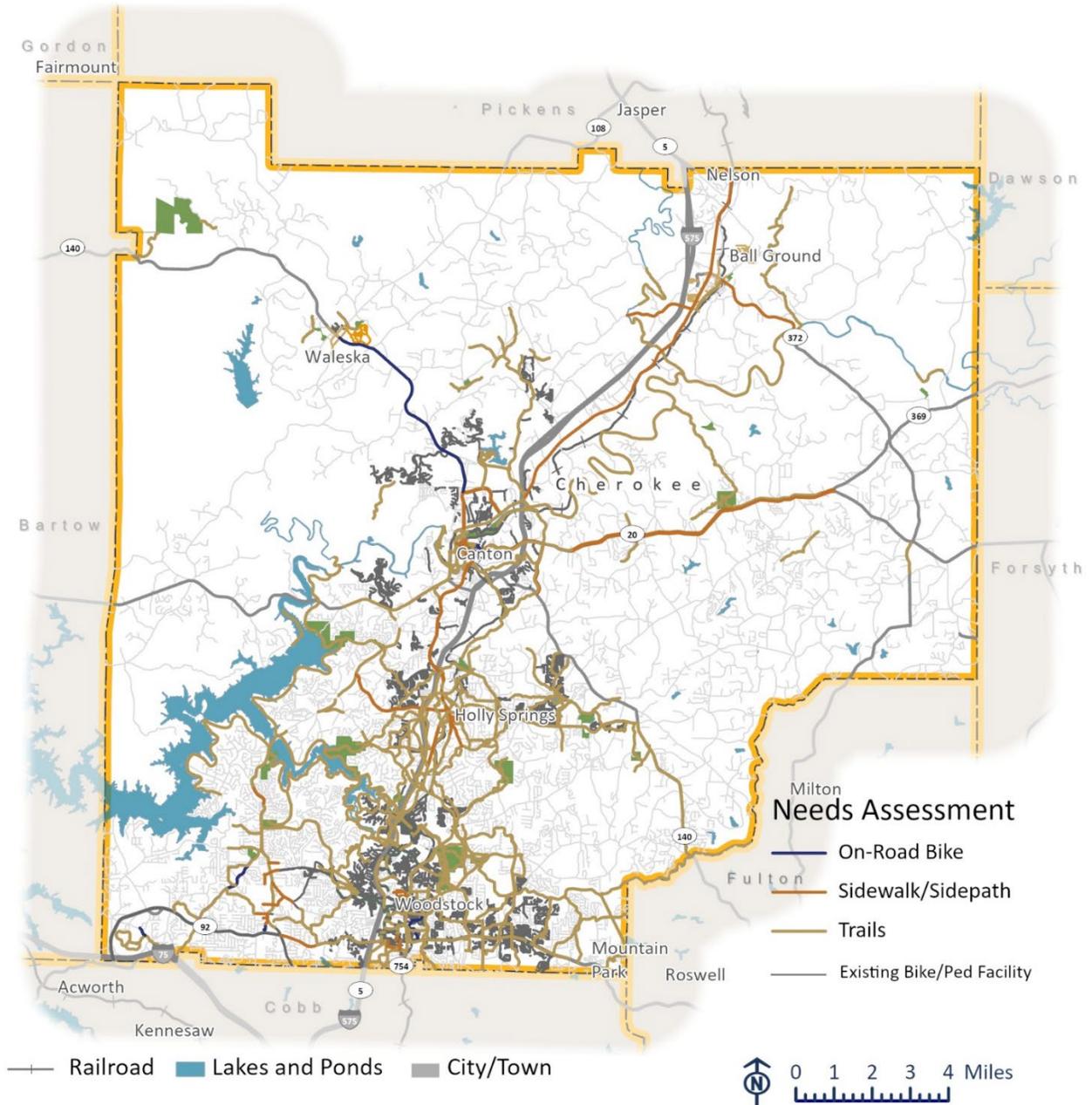
The table and map below illustrate the resulting bicycle and pedestrian facilities needs after the Phase 1A and 1B analysis was complete. Several of the longest trail stretches identified in the needs assessment process in this phase included Lake Allatoona trail sections and Etowah River Trail sections.

Table 9 Bicycle, Pedestrian and Multi-Use Trail Needs Identified within 1/4 Mile of Key Destinations and along Corridors Linking Municipalities

Project Type	Number of Individual Projects	Total Length in Miles
Sidewalk	132	44.90
Multi-Use Path or Trail	633	354.55
Sidepath	16	20.66
On-Road Bike Facilities	12	7.22
Bikeable Shoulder	4	5.88



Figure 18 Bicycle and Pedestrian Improvements Selected after Phase 1, Overlaid with Existing Bicycle and Pedestrian Facilities



PHASE 2: SCREENING RECOMMENDATIONS BASED ON LAND USE TYPES

Considering the number and total length of bicycle and pedestrian needs identified as a result of the initial selection, the Project Team added a further screening step. Bicycle and pedestrian facilities needs were further analyzed for overlap with specific land use



types and overlay districts which are expected to generate a higher number of bicycle and pedestrian trips, including the following:

- Overlay Districts (Mixed Use Overlay, Highway 92 Overlay, Bells Ferry Overlay)
- Zoning types such as office/institutional, commercial, civil, neighborhood commercial, mixed-use commercial and Central Business District

The resulting more limited bicycle and pedestrian needs assessment list excluded Etowah River Trail sections between Canton and Ball Ground while keeping portions of Lake Allatoona Trail. Some potential recommendations were added back in in Canton due to overlap with commercial areas.

Figure 19 illustrates projects selected based on zoning and overlay districts in Phase 2. A total of 286 projects with a combined length of approximately 195 miles were selected.

Figure 19 Projects Based on Zoning and Overlay Districts in Phase 2

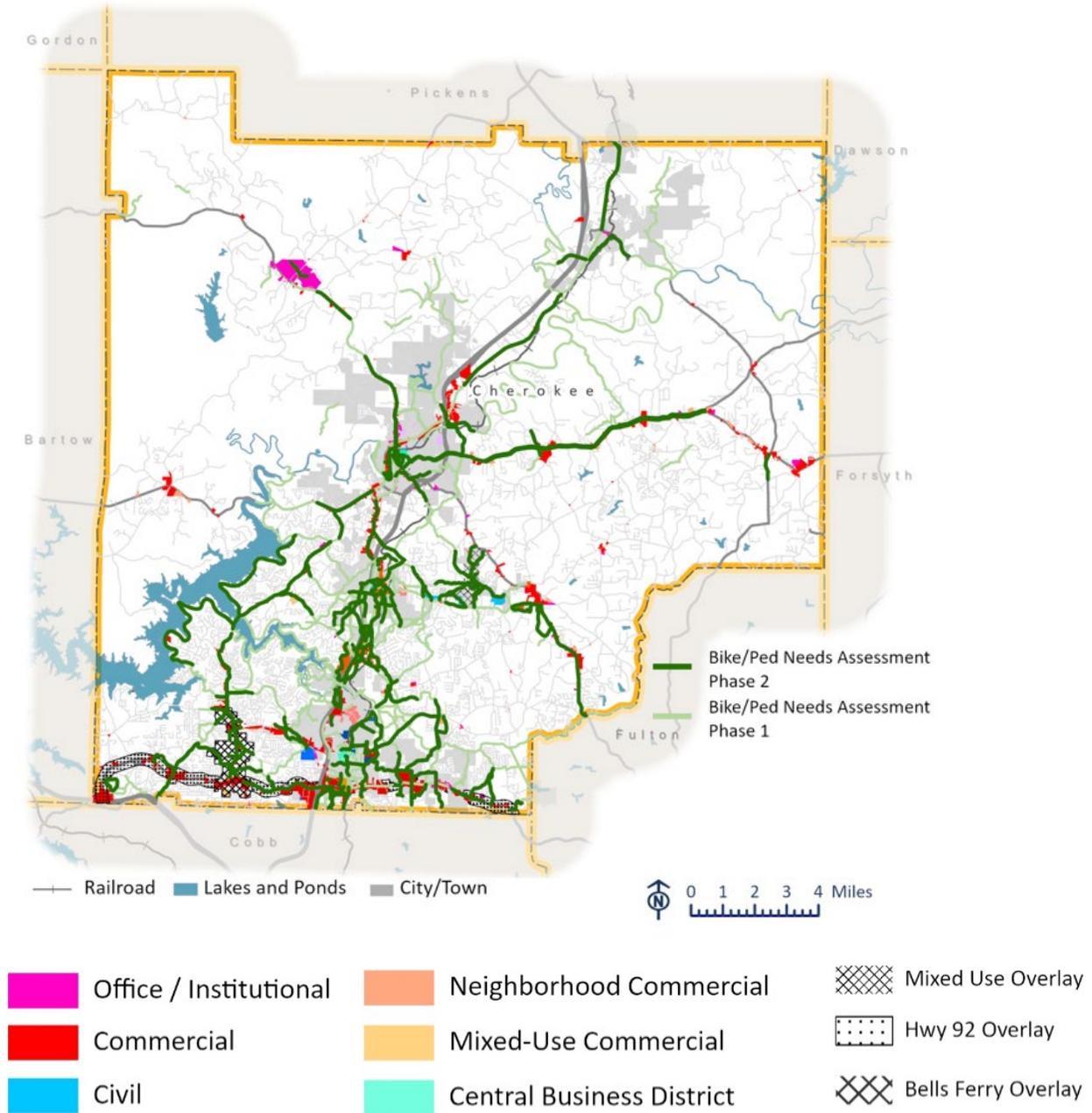
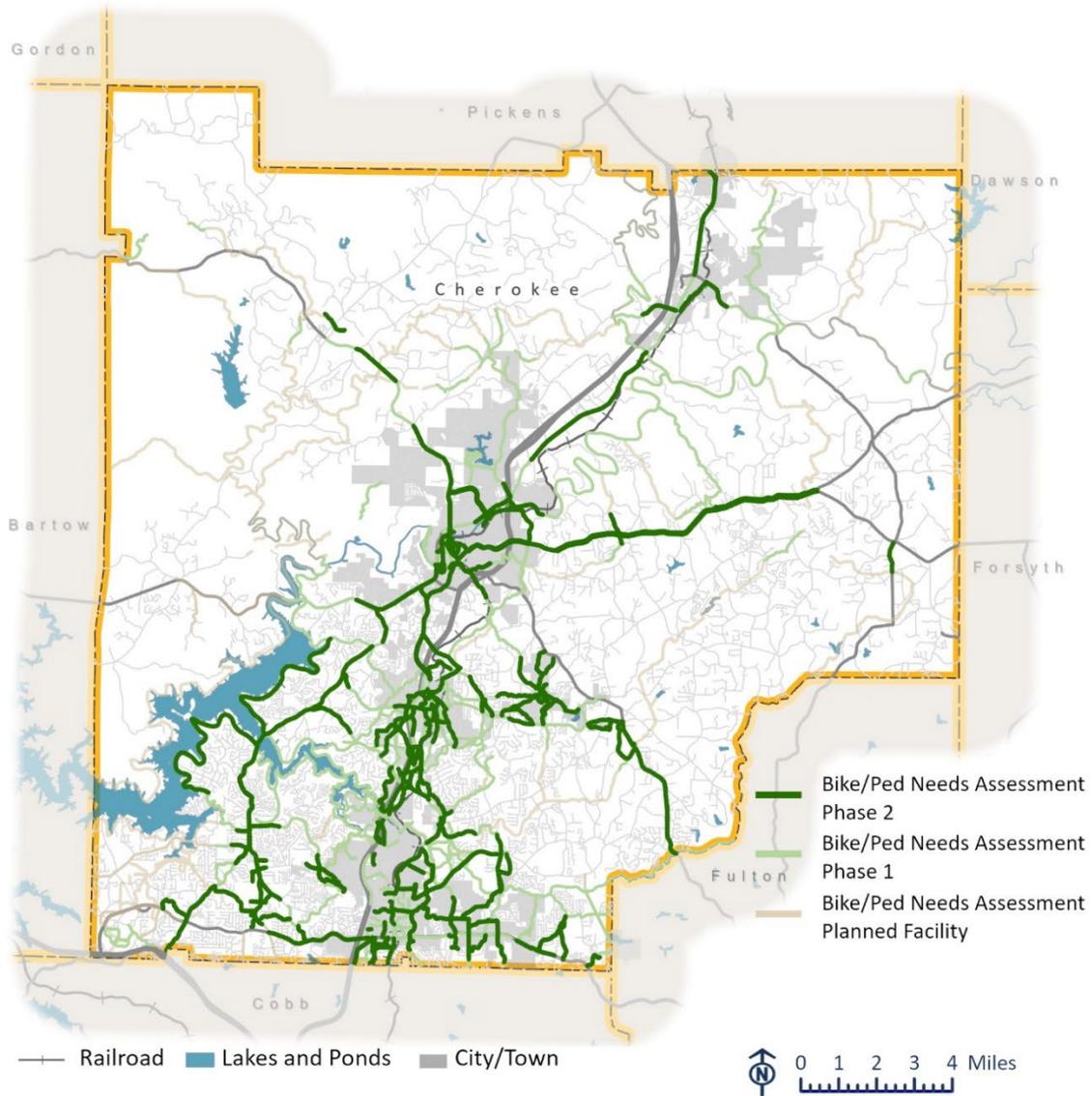


Figure 20 illustrates the projects selected in Phase 2, as well as Phase 1 results and the wider universe of planned bicycle and pedestrian improvements.

Figure 20 Bicycle and Pedestrian Improvements Selected after Phase 2, with Phase 1 Results and Additional Planned Bicycle and Pedestrian Facilities



IDENTIFYING CANDIDATES FOR PEDESTRIAN CROSSING IMPROVEMENTS

In addition to linear project needs, the Project Team looked at potential pedestrian crossing improvements. The table below contains initial pedestrian crossing improvements that have been identified based on a review of prior plans and pedestrian crash data. While some starting ideas for potential treatments are included, those locations require follow-up analysis to identify appropriate treatments and countermeasures.



Table 10 Pedestrian Crossing Improvements

Crossing	Potential Improvement
<p>SR 92 at Robin Road (near Kroger)</p>	<p>Evaluate for LPIs and additional lighting and other enhancements; existing signalized pedestrian crossing present, multiple pedestrian crashes in the vicinity including a fatality (1/25/2020)</p>
<p>SR 92 at Sharon Way in Woodstock</p>	<p>Evaluate for LPIs, additional lighting and visibility enhancements; existing signalized pedestrian crossing, multiple pedestrian crashes including a fatality</p>
<p>Arnold Mill Rd. at Hubbard Rd. In Woodstock</p>	<p>Evaluate for LPIs, additional lighting and visibility enhancements; existing signalized pedestrian crossing, one pedestrian fatality</p>
<p>Woodstock: Highway 92 Trail Crossing for Noonday Creek Trail (underpass)</p>	<p>Highway 92 LCI Study Recommendation</p>
<p>Woodstock: Highway 92 Trail Crossing for Rubes Creek Trail</p>	<p>Evaluate for a mid-block crossing with a Pedestrian Hybrid Beacon or other enhancements; Highway 92 LCI Study recommendation</p>
<p>Canton: Riverstone Parkway approximately 600 feet east of Waleska Road and west of Hospital Drive</p>	<p>Evaluate for a potential midblock crossing with a Pedestrian Hybrid Beacon or other visibility enhancements; one pedestrian fatality (11/20/2019); bus stops and a variety of commercial destinations present</p>
<p>Canton: Waleska Road at Old Donaldson Road</p>	<p>Evaluate for realignment, roundabout, or pedestrian crossing improvements; confusing geometry and bus stop at this intersection; pedestrian crash resulting in severe injury (8/9/2019)</p>



PRIORITY BICYCLE AND PEDESTRIAN NEEDS

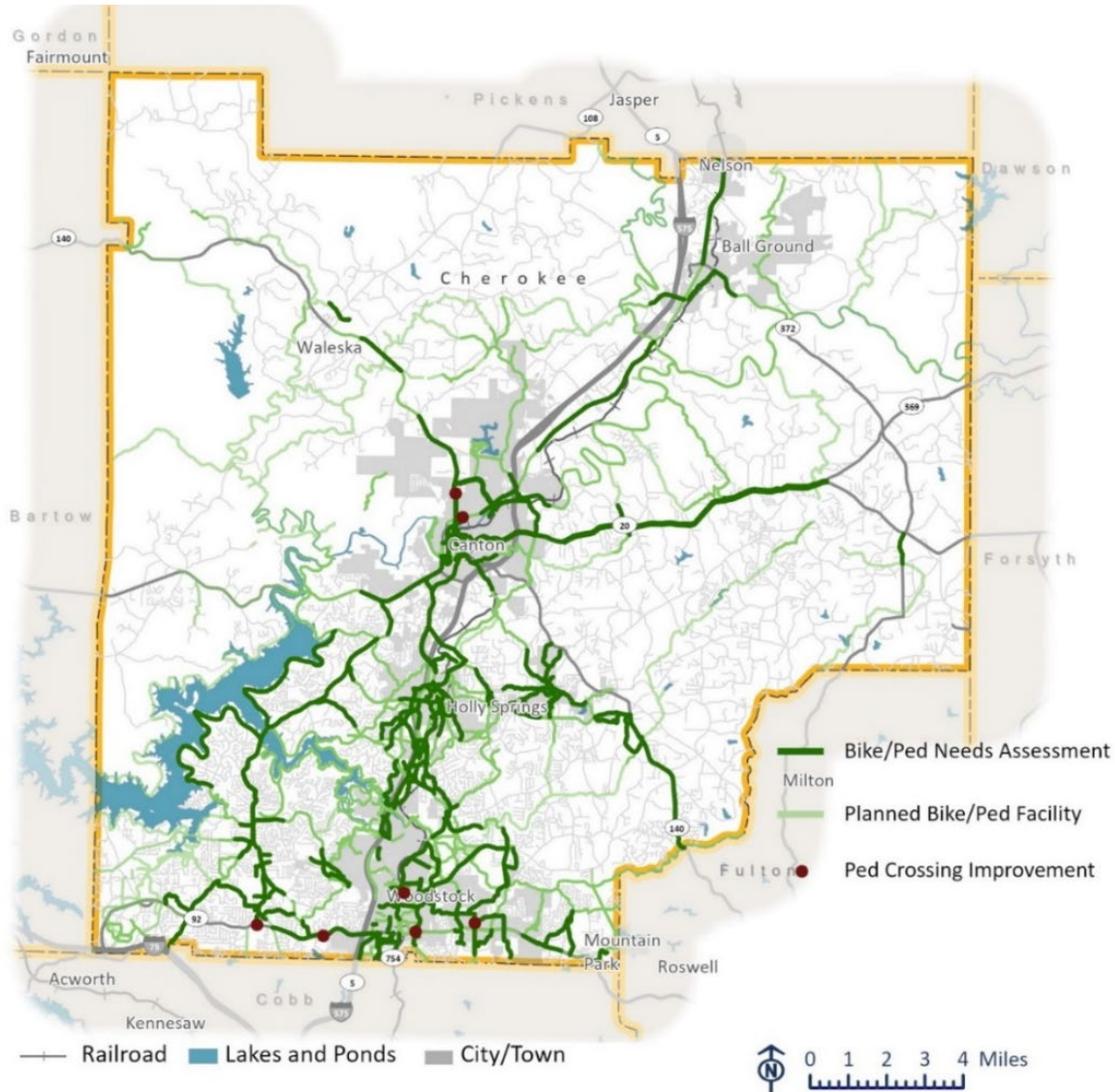
As discussed in previous sections, the study team combined planned bicycle and pedestrian improvements from multiple past planning studies. Several iterations of bicycle and pedestrian project selection took place based on proximity to land uses and key activity centers likely to generate higher numbers of bicycle and pedestrian trips. In addition, several bicycle and pedestrian links between municipalities and activity centers not identified in prior planning studies were added for consideration. Additional pedestrian crossing needs were identified, based on prior planning studies and pedestrian crashes.

Table 11 Priority Bicycle and Pedestrian Improvement Needs

Figure 21 illustrates the resulting priority bicycle and pedestrian improvement needs (in dark green), with a wider network of all planned bicycle and pedestrian improvements (in lighter green). Pedestrian crossing improvement needs identified are also included. These Phase 2 identified priority needs/projects will continue to evolve as the methodology is refined as part of the Trails Master Plan process and as projects are continually reviewed by the Project management Team (PMT) and relevant stakeholders. Initial feedback on these priority projects from the PMT can be reviewed below.



Figure 21 Priority Bicycle and Pedestrian Improvement Needs



INITIAL STAKEHOLDER FEEDBACK & NEXT STEPS

In addition to the objective analysis discussed above, the Project Team also utilized stakeholder feedback to identify priority projects for the County. The stakeholder group identified the need to prioritize key north-south and east-west corridors throughout the county. The following projects were identified as priority projects from stakeholders:

- Kellogg Creek Road Corridor
- Bells Ferry Road Corridor
- SR 20 – from Canton east to Forsyth County
- Little River Corridor to Forsyth County
- Mill Creek from Hickory Flat to SR 20
- SR 108 between Sutallee and Waleska – bikeable shoulder

- Holly Street from Holly Springs Parkway to city limit – upgrade to sidewalks and bike lanes

The next step for the Project Team will be to refine the priority projects based on stakeholder feedback as part of the Trails Master Plan update. Then, the Team will catalog facilities appropriately (Bicycle/pedestrian Routes or Trails) based on a facility typology developed with the County. Ultimately, the priority projects will move forward as part of the overall CTP project evaluation process and non-priority projects will be deemed as “aspirational.”



GOODS MOVEMENT NEEDS

The Existing Conditions document provided relevant goods movement information to set the stage for further analysis. This information included the existing state and regional freight network and existing freight movements by volume and percentage on roads in Cherokee County, most recent planning for freight based on the *Georgia Statewide Freight and Logistics Plan (2016)*, the *Statewide Strategic Transportation Plan and 2050 Statewide Transportation Plan (SSTP/SWTP) (2021)* as well as the *Atlanta Regional Commission's Freight Plan (2016)*. This section will overlay this supporting information with future land use patterns and projected future roadway levels of service (LOS) to provide a needs assessment for freight and logistics for Cherokee County. The section will end with a look to future technologies and their potential impact on freight in the County.

FREIGHT MODES

Freight is moved primarily by truck in Cherokee County. There is one existing legacy freight rail line that runs north-south through the middle of the County (the Georgia Northeastern Railroad or GNRR) that connects to the CSX rail network in Marietta. From an infrastructure planning perspective, the primary need for legacy rail is safety – both at railroad crossings and to ensure that track and bridges are in safe and usable condition. When entrepreneurs consider locations for manufacturing facilities, Cherokee County's development leaders should ensure rail safety and continue to promote the logistics opportunities presented by the railroad.

While there is one existing legacy freight rail line running in Cherokee county, the majority of freight movements occur using trucks.

While the legacy rail line provides some relief, the vast majority of contemporary freight movements by volume and value in Cherokee County occur using trucks. For purposes of evaluation in Cherokee County, truck freight can be divided into three categories as described below:

- Long haul – typically conducted with FHWA Class 7 and 8 vehicles – large box trucks and semi-trucks.
- Local freight – typically accomplished with a variety of vehicle types including medium sized box trucks for larger parcel deliveries, grocery trucks, beverage trucks, garbage trucks, cement trucks, and fuel trucks, etc.
- Last mile delivery – this is typically done with vans and smaller box trucks and includes home delivery and e-commerce.

LONG HAUL AND LOCAL FREIGHT

Long haul and local freight are largely conducted along roads classified as part of the state or regional freight networks. Long haul vehicle movements will likely continue to be concentrated along interstates – especially I-75 in the far southwestern corner of the

county. The primary unmet need for long haul freight is truck parking.¹ While the Atlanta region's primary demand for warehousing and trucking support is to the south and east of Cherokee County, the interchange vicinity at SR 92 and I-75 could provide an opportunity for long haul trucking support including parking and refueling or recharging. This location would provide access for freight moving through the region on the way to points north as well as serve freight needs in the northwestern sector of the Atlanta Region.

Local freight movements, while still relying on the backbone of the freight highway network, are also more likely than long haul to require access to local roads. As such, it is important to remember that freight vehicles are larger, heavier, and have unique turning movements. County planners and local public works departments need to be cognizant of these vehicle characteristics and the importance of safety and maintenance in roadway design for local freight vehicles with origins and destinations within the County outside established freight roadway networks. County planners should observe semi and large box truck movements on various corridors to determine if their existence represents an unmet freight need or simply avoidance of traffic congestion. Unmet needs could potentially be funded through GDOT's newly launched Freight Lump Sum Program, whereas congestion avoidance may warrant truck restrictions. Additionally, weight restricted bridges could have the effect of metering trucks from some facilities but could be a hindrance to allowing trucks access to other potentially desirable facilities.

LAST MILE DELIVERIES

Last mile deliveries already expanding rapidly, are expected to become even more common in future years as Cherokee County grows in population and local travel times increase along with traffic congestion. County planners and local government partners should incorporate the staging and idling needs of delivery vehicles in street designs and in housing and commercial development layouts. New delivery models are beginning to reshape the industry. For example, efficiency of goods movement is increased when last mile deliveries are concentrated at neighborhood delivery facilities and/or lockers accessible to multiple vendors at central locations within office and residential complexes. Thoughtful design can substantially reduce the negative impact of delivery vehicles on the road network and limit the tendency to block travel lanes and create traffic safety hazards.

FUTURE LAND USE AND FREIGHT NEEDS

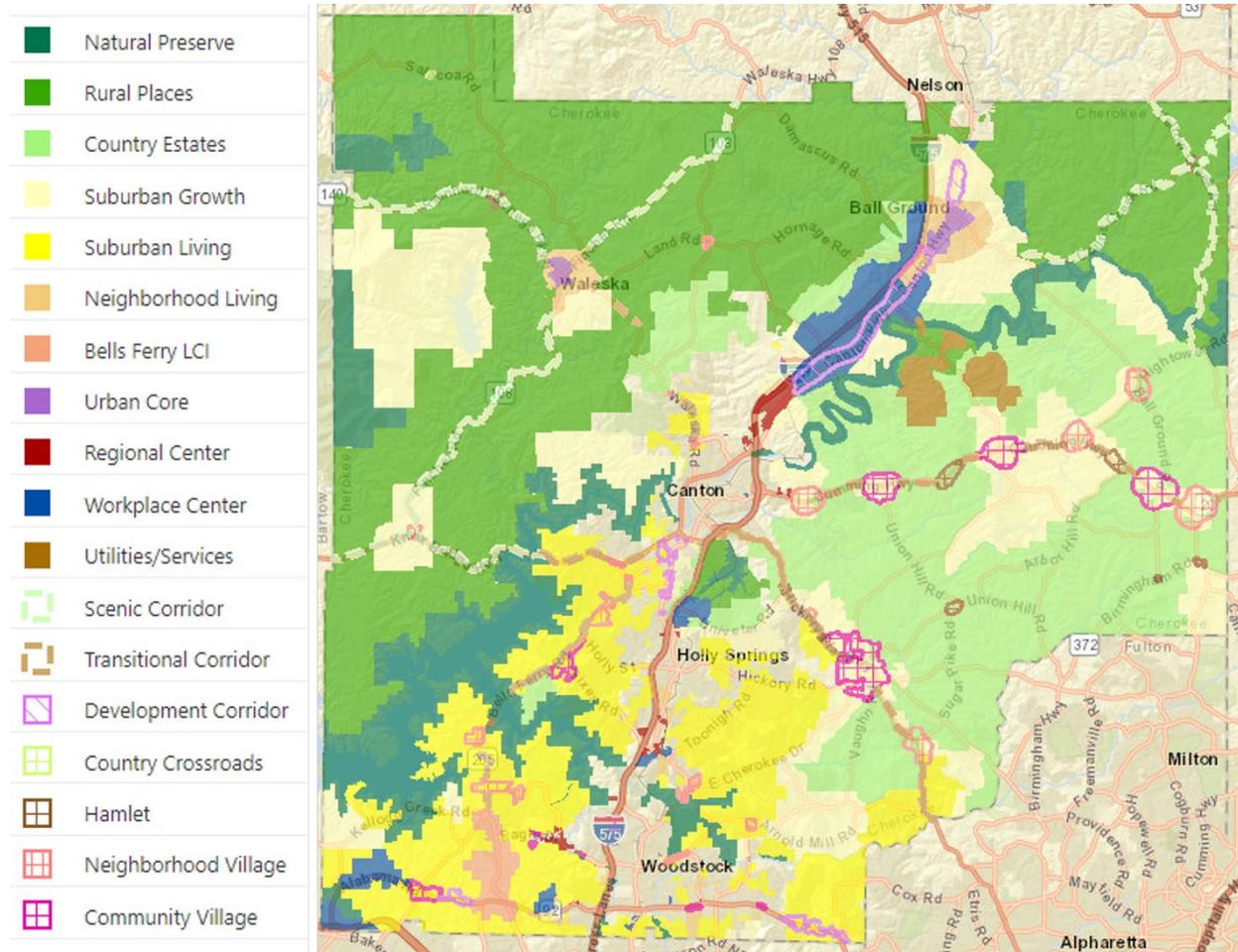
The County's future land use map² reflects the desire to maintain character areas roughly sketched as rural, suburban, and urban. The land use map concentrates future economic growth in certain areas and further categorizes the type of growth sought in

¹ In the future, truck parking could also include electric vehicle support for either hydrogen fuel cells or battery charging in partnership with Cobb Electrical Membership Corporation (EMC), which serves southwestern Cherokee County.

² <http://gis.cherokeega.com/html5viewer/?viewer=taxparcels> (de-select all except "future land use")

descending order of allowed intensity from, for example, “Workplace Centers” to “County Crossroads.”³ From a freight and logistics perspective, the future land use map highly constrains freight-oriented development that would be served by long haul trucking. With the exception of residential deliveries, freight destinations are restricted to specific nodes. These land use restraints will likely continue to have the intended effect of channeling freight movements along select corridors. Two of the County’s future land use character areas most promotive of freight-oriented development are discussed below.

Figure 22 Future Land Use in Cherokee County (Source: Cherokee County Geocortex Viewer)



WORKPLACE CENTER⁴

The Workplace Center future land uses (dark blue on the map in the figure above) are most likely to generate freight movements. These are concentrated in two areas (1) along SR 92 near the southern border of Cherokee County and along I-575, and (2)

³ <https://www.cherokeega.com/planning-and-zoning/comprehensive-plan/character-areas/>

⁴ [https://www.cherokeega.com/planning-and-zoning/resources/documents/comp%20plan/Workplace and Waste.pdf](https://www.cherokeega.com/planning-and-zoning/resources/documents/comp%20plan/Workplace%20and%20Waste.pdf)

along the Canton Highway/Ball Ground Highway paralleling I-575. Workplace Centers include research facilities and light industrial uses that could rely on relatively high volumes of semi-trucks and large box trucks. As SR 92 is a regional truck route and I-575 a state truck route, this development concentration will further leverage the existing freight network. The area between Canton and Ball Ground to the west of I-575 is projected as a Workplace Center as well. Currently the road network in this area is not developed for freight uses and could benefit from connective roadways between Bishop Road and Long Road and/or a frontage road along the west side of I-575 to access those parcels designated as Workplace Center.

Of note, Canton Highway/Ball Ground Highway is further distinguished as a “Development Corridor” that could accommodate industrial uses and therefore extensive freight activity. This corridor is also served by existing legacy rail. County and local officials should therefore consider the movement characteristics of large vehicles when working with developers to ensure that new development safely and effectively accommodates freight in its connection to the freight network. The main road is configured as a three lane with sufficiently generous turning aprons at most intersections south of Airport Drive but narrows to two lanes north of that point toward the City of Ball Ground. As traffic volumes grow along this segment, and as it transitions from rural needs to more industrial needs, a center turning lane may be needed and more robust traffic control may be beneficial at key intersections. A new interchange for I-575 at Fate Conn Road, for example, would provide access to parcels along Heard Drive and Bishop Road to the north and along Canton Highway to the south reducing travel time and distances for local and regional freight movements.

DEVELOPMENT NODES AND CORRIDORS⁵

Cherokee County also constrains development activity for the purpose of maintaining what are referred to as character areas. To focus development activity, the County has designated nodes with categories such as regional centers, villages and hamlets that limit development to locally appropriate intensities of commercial use. These uses are typically focused on retail such as grocery stores, restaurants, and shopping and services. These uses are typically constrained to arterials such as SR 92, SR 140, SR 20 and Bells Ferry Road. SR 140 and Bells Ferry Road, on the segments south of Canton, are not considered part of the regional freight network, yet will likely have substantial local freight operations as commercial activity increases in the development nodes based on the County’s future land use map.

FUTURE ROADWAY LEVELS OF SERVICE

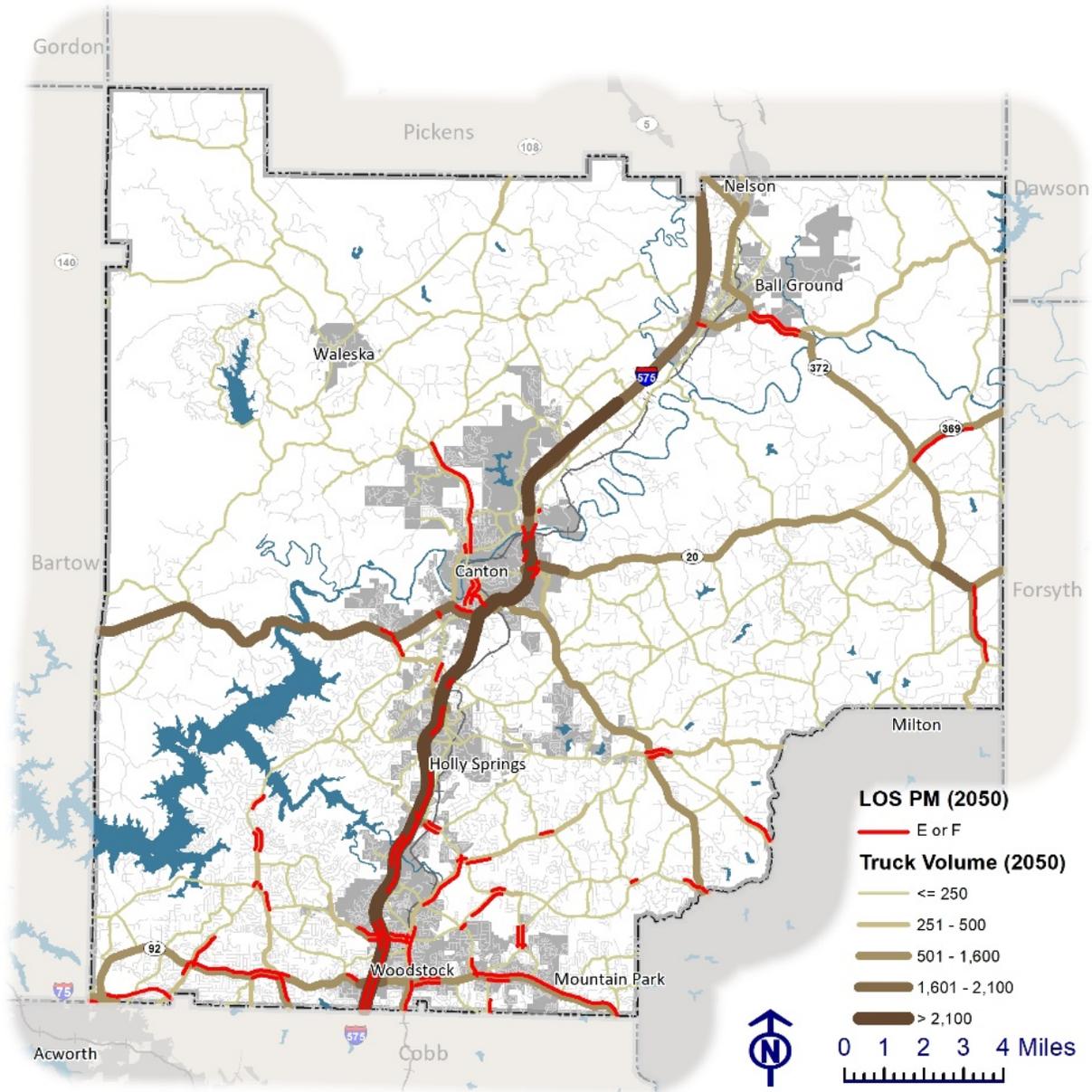
As Cherokee County continues to prosper, the Atlanta Regional Commission projects that it will grow in population by more than 44 percent by 2050.⁶ This will increase the pressure to accommodate freight travel demand resulting from increased truck traffic congestion and increasing travel times between activity centers. The 2050 afternoon

⁵ <https://www.cherokeega.com/planning-and-zoning/comprehensive-plan/character-areas/>

⁶ <https://atlantaregional.org/atlanta-region/county-profiles/ Cherokee-county/>

peak period LOS as predicted by the Atlanta Regional Commission's activity-based model compared with projected truck volumes are shown in the maps below.

Figure 23 2050 Projected Level of Service and Truck Volumes from ARC Activity Based Model



Without additional transportation investments beyond those indicated in the RTP, travel time increases will be most pronounced along existing highly trafficked corridors in the more densely populated southern part of the County and around (but not in) central Canton. SR 92 will likely experience significant and growing time delay, especially in the westbound direction from the Cobb County line all the way to Woodstock Road near the Oak Grove neighborhood.

The above issues are aggregated with other areas of concern for freight movements in 2050 in Cherokee County in the list below:

- I-575 through Holly Springs and Woodstock
- SR 92 between Woodstock Road and Bells Ferry Road
- SR 92 between Neese Road and the Cobb County line
- SR 140 (Hickory Flat Highway) from I-575 to Fulton County Line
- Hopewell Road south of SR 20 into Forsyth County
- SR 369 (Hightower Road) east of SR 372 (Ball Ground Road) into Forsyth County
- SR 372 east of Ball Ground to Conns Creek Rd

To address existing congestion and to mitigate some of the projected future congestion, GDOT has roadway widening projects planned for SR 20 and SR 140, along with the improvements in adjacent Bartow County of widening Cass White Road and adding a double roundabout interchange at I-75 and Cass White Road. These projects should be aligned with the County's future land use plans to ensure that freight needs are addressed.

Generally speaking, the increase in travel times represented by projected deteriorating levels of service will impact all levels of freight movement and will likely lead to spillover effects as secondary roads, most of which are not on the freight network, become attractive time saving alternatives to primary routes. Planning for legitimate and necessary freight movement along the freight routes could become challenging if the routes are also used to avoid traffic congestion along the state and regional truck routes. Collaboration between County planners and local land use managers and enforcement will be necessary to limit negative outcomes.

While impacts from freight movement are less of a concern in Cherokee County than in other Atlanta Region counties with substantially higher levels of light industrial – especially warehouse – activities, there are tools that Cherokee County could consider to lessen the negative impacts of freight growth. These include size and weight restrictions on certain roads, freight signal priority (FSP), and road design that either simplifies or discourages freight movements depending on the goals of particular corridors.

TECHNOLOGY AND FREIGHT

Given that freight and logistics are highly sensitive to price and in light of existing and future government incentives, emerging technologies are likely to mature and be implemented with a potentially major impact on freight movements in Cherokee County. Electrification, autonomy, and drones are representative of these changes and areas that County leaders should track and leverage as appropriate to best serve the economic interests of the County.



FREIGHT SIGNAL PRIORITY (FSP)

As previously mentioned, FSP is one tool that can be used to ensure efficient movement of cargo and alleviate congestion on key corridors within the county, several FSP projects are proposed along the following routes:

- SR 20: Serves as a Regional Truck Route and oversized route for GDOT, experiencing 4.6% to 10% of truck traffic.
- SR 369: Serves as a Regional Truck Route and is a viable alternative to I-285 for travel.
- Ball Ground Highway: Provides east-west access to Gainesville for freight and experiences up to 10% truck traffic.

ELECTRIFICATION

A rapid movement towards electrification in the transportation sector will impact Cherokee County in multiple ways. Drivers of many vehicle types from cars, buses, trucks, drayage vehicles, etc. will need new ways to “fuel” their movements. Historically, electricity distribution was largely independent of transportation; this is changing and the change will require planning and coordination to ensure that these systems interact effectively. County-level planning will play an important role in this transition. Land use, facility siting, electricity distribution, and permitting practices will all need to evolve to accommodate new and spatially different demands. To support freight in this transition, County planners should collaborate early on with utilities and logistics firms (or freight components of key manufacturers) to ensure a smooth and effective transition that will positively position the County for future economic growth. If and when regional planning advances electrification initiatives, County leaders should leverage the opportunity to fund planning support and pilot projects.

RAILROAD CROSSINGS

There are 65 railroad crossings in Cherokee County, with 16 employing road gates and 1 having pedestrian arms. The gates and arm were found at track crossings in areas with higher traffic volumes. Looking at congestion and roadway volumes in the county, it was found that there is potential for a railroad event broadcasting at the intersection of Holly Street and Main Street railroad crossing. Event broadcastings use cameras to detect trains, which triggers a broadcast of the trains approach, length, and expected time to clear. These announcements can help avoid at-grade collisions and provide the public with information about wait times.

AUTONOMY

While not happening as quickly as originally projected in the mid-2010s, autonomous vehicle technology continues to advance. Small scale pilots are showing the way forward and the impact on the freight and logistics sector promises to be significant. Indeed, given the advantages to freight logistics, trucking companies could become

some of the first to adopt connected and autonomous vehicles (CAV). Cherokee's mild climate and relative lack of snow and ice make it a desirable location to advance autonomy especially with last mile deliveries. County planners should keep track of trends in autonomy and their impacts on freight and be prepared to adjust roadway designs to enable County residents to take advantage of the logistics efficiencies and safety benefits offered by new technologies.

DRONES

As with autonomy, drone technology continues to advance. Drone deliveries are already technically possible and primary movement in the field is now shifting to policy and administrative frameworks for allowing and managing the technology. Cherokee County is well situated to leverage drone technologies as it has a centrally located airport, a wide bisecting freeway, and suburban arterials that provide pathways into areas of commercial and residential freight/delivery demand. The demand for goods to be delivered will increase along with County population and a correlating rise in travel times that in turn decreases the willingness to spend time traveling to physical brick-and-mortar retail locations. This combination of factors will increase the business case for drone deliveries. The industry will require 'drone highways' with air rights for travel and ITS assets to manage vertical space. Cherokee officials should support emerging innovations whether with drones or autonomous vehicles (and accompanying electrification infrastructure) as means to maintain the rural and suburban character of the County while also accommodating growth.

FREIGHT NEEDS SUMMARY

The following key needs and specific areas of concern were identified through the freight and goods movement needs assessment:

- Roadway capacity improvements planned for the county may be insufficient for future freight needs
- Support for innovative technologies will help the county best leverage these opportunities
- Spillover effects to the county's character areas from freight growth need to be considered
- Truck parking is a critical need across the state including Cherokee County
- Traffic signals can be programmed to improve freight movements
- Careful freight movement planning for areas designated as Workplace Centers is critical to their success

Table 12 Freight Needs Summary

Need Type	Areas of Concern
Technology	Freight signal priority along SR 20
Technology	Freight signal priority along SR 369
Technology	Freight signal priority along Ball Ground Highway
Railroad Crossings	Railroad event broadcasting at the intersection of Holly Street and Main Street railroad crossing
Capacity	I-575 through Holly Springs and Woodstock
Capacity	SR 92 between Woodstock Road and Bells Ferry Road
Capacity	SR 92 between Neese Road and the Cobb County line
Capacity	SR 140 (Hickory Flat Highway) west of SR 20
Capacity	Hopewell Road south of SR 20 into Forsyth County
Capacity	SR 369 (Hightower Road) east of SR 372 to Forsyth County
Capacity	SR 372 east of Ball Ground to Conns Creek Road
Design	Provide support for Connected, Autonomous, and Electric Vehicles
Design	Consider freight signal priority
Design	Consider road design to influence freight movement
Policy	Consider truck parking near I-75/SR 92 interchange
Policy	Explore drone safety and drone air access rights
Policy	Consider size and weight restrictions on residential streets



6. TRANSIT FEASIBILITY STUDY OVERVIEW

This chapter provides an overview of transit needs identified at this stage of the CTP update. Transit needs are organized in three major categories sourced from an overlay gap analysis, a regional connectivity analysis and community identified needs. A detailed assessment of Cherokee County's transit needs will be described in a separate report, entitled the Transit Services Assessment, which will be completed in early 2022. This will include a microtransit service assessment and fare policy analysis, which are described later in this chapter.

FIXED-ROUTE SERVICE GAP ANALYSIS

An overlay gap analysis was conducted to determine if existing fixed-route transit services adequately serve areas of existing and projected population and employment density. This analysis was also conducted to gauge how well existing fixed-route transit serves traditionally transit reliant populations within the county. These groups include seniors, disabled individuals, low-income populations and zero car households.

The CATS ADA complementary paratransit service area extends 0.75 miles from the two fixed routes. Only 4.2 percent of the county is covered within the fixed-route service area. The CATS service area provides good coverage to high density areas in Canton, but service gaps are particularly evident in southern Cherokee County.

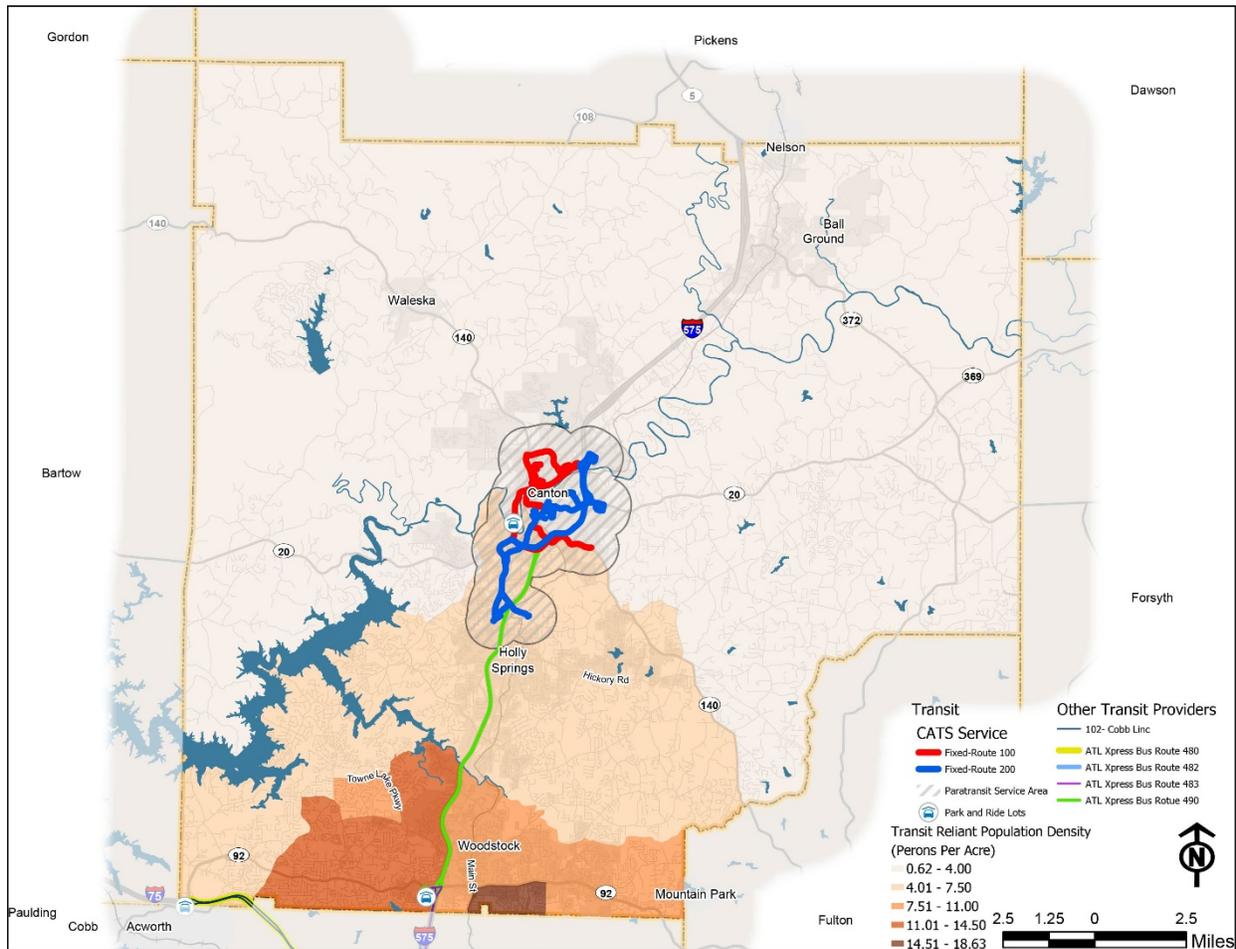
The overlay analysis for each demographic characteristic has identified gaps in the following areas:

- **Existing population density (2020)** – Service gaps in Woodstock, along SR 92, I-575, Bells Ferry Road, areas along SR 140, Towne Lake Parkway, Hickory Road, Main Street, and Ball Ground.
- **Projected population density (2050)** – Service gaps in Woodstock, along SR 92, along I-575, Bells Ferry Road, SR 372, sections along SR 140, Towne Lake Parkway, Hickory Road, Main Street, and the Macedonia and Ball Ground areas.
- **Existing employment density (2020)** - Service gap areas are located along SR 92, along I-575, and sections along SR 140.
- **Projected employment density (2050)** - Service gaps are anticipated along SR 92, along I-575, Bells Ferry Road sections of SR 140, and Main Street.
- **Transit Reliant Population**
 - **Senior population density** - Service gaps along SR 92, along I-575, sections of SR 140, Bells Ferry Road, Towne Lake Parkway, Hickory Road, and Main Street.
 - **Disabled population density** - Service gaps areas along SR 92, I-575 south of Canton and Holly Springs, sections of SR 140, Bells Ferry Road, Towne Lake Parkway, Hickory Road, and Main Street.



- **Low-income population density** - Service area gaps along SR 92, sections of SR 140, Bells Ferry Road, Towne Lake Parkway, Hickory Road, and Main Street.
- **Zero-car household density** - Service gaps are located along SR 92, sections of SR 140, Bells Ferry Road, Towne Lake Parkway, Hickory Road, and Main Street.

Figure 24 Transit Reliant Population Density and Existing Transit Service



REGIONAL CONNECTIVITY ANALYSIS

The need to better connect regional and local transit services was identified through the CTP's public and stakeholder involvement process. Currently, the service span and stop locations of CATS local bus routes do not facilitate connections between local and regional services.

ATL Xpress regional transit service provides express two bus routes from Cherokee County to Midtown/Downtown Atlanta. Below are the ATL Xpress bus routes serving Cherokee County:

- **Route 483-** Woodstock/Town Center (Big Shanty) to Midtown
 - Two morning pick up (6:30 AM, 7:30 AM departures)
 - Two afternoon return trips (5:08 PM, 5:38 PM returns)
- **Route 490-** Canton/Woodstock to Downtown
 - Two morning pick up trips (6:01 AM, 6:33 PM departures)
 - Two afternoon return trips (5:11 PM, 5:41 PM returns)

Local and regional transit services in Cherokee County are not well connected due to service span and route connectivity issues. The only park-and-ride lot within the CATS local bus service area is the Canton Park-and-Ride at Boling Park. Therefore, the only regional route with transfer opportunity with CATS local bus is Xpress Route 490. The CATS service start time of 8:00 a.m. is after the last Xpress departure from Canton (6:31 a.m., 6:33 a.m. departures). Additionally, the CATS local bus end time of 4:00 p.m. is before the first afternoon Xpress return trip arrival at the Canton Park-and-Ride (5:11 p.m., 5:41 p.m. returns). This creates a gap for transit users who want to utilize CATS local bus service to travel to Midtown/Downtown Atlanta.

In addition to the general span of service gaps, route alignment and stop locations further constrain connectivity between CATS local bus and regional express bus service. CATS Route 100 runs along SR 140 past Boling Park but does not stop at the park-and-ride lot. A CATS local bus stop should be added at the Canton Park-and-Ride to enable direct transfer opportunities with Xpress. With the loop design of the CATS local bus routes and one-hour headways, CATS local buses should start operation at least one hour before the first morning Xpress departure and continue at least one hour past the last afternoon Xpress return to enable riders at downstream stops to transfer from local to express bus.

The CATS local bus service area is only within the vicinity of Canton and does not currently serve southern Cherokee County. To facilitate connections to Xpress Route 483 local bus would need to be expanded to serve Woodstock and the Woodstock Park-and-Ride. Additional improvements that would better facilitate regional connections would be to increase CATS service frequency to more than every hour in peak commuting periods to reduced transfer time between services.

COMMUNITY IDENTIFIED NEEDS

Community identified transit needs were primarily sourced from the online public survey. The survey asked a variety of questions about improvements to multiple transportation areas, including roadways, bicycle and pedestrian facilities, and transit services. A total of 1,968 persons participated in the online survey.

Several questions directly polled the public on their satisfaction with existing transit services. Respondents were able to share their thoughts related to transit needs in an



open-ended question format. Several common themes and consensus items arose within the responses and include the following:

- There is a need to expand fixed-route bus services to additional areas in the county including Ball Ground, Riverstone Parkway, Holly Springs, Hickory Flat, Waleska and Woodstock.
- Service hours should be expanded later in the day, beyond 4:00pm.
- There is a need for increased public education and marketing of existing transit services.
- Dial-a-Ride trip reservations are often required one to two weeks in advance. There is a desire to reduce the reservation window required. On-time bus performance has also been identified as an area in need of improvement.
- There is a need for improved regional transit connections. This includes better connections to ATL Xpress park-and-rides within the county. Improved connections to Cobb County and the MARTA system, particularly the North Springs MARTA station are also desired.

MICROTRANSIT SERVICE ASSESSMENT

A key component of the Transit Services Assessment will include an assessment of microtransit services and their applicability within the County. Microtransit is a new form of demand response transit (DRT) that utilizes recent advancements in technology (i.e. ubiquitous smart phone use, automatic vehicle location (AVL) technology, and trip routing algorithms) to match riders with available vehicles. Microtransit has the potential to provide public transportation that is more flexible, cost-effective, and responsive than traditional forms of transit. There is an identified need among county leadership and community stakeholders to examine this form of transit for suitability within the County.

A variety of microtransit alternatives will be examined that may include replacing existing countywide Dial-a-Ride and/or fixed-route local bus with microtransit services. Other alternatives may include implementing microtransit service in areas of the County underserved by fixed-route bus as an adjunct to fixed-route bus. An examination of various operating models will be conducted to determine the model most suitable for Cherokee County. Microtransit systems recently implemented in peer jurisdictions (i.e. Gainesville-Hall County and Valdosta, Georgia) will be examined as case studies to identify best practices and lessons learned. A funding strategy for microtransit service will also be identified to leverage federal formula funding programs.

FARE POLICY ANALYSIS

Another major element of the Transit Service Assessment will include a fare policy analysis. This will include an analysis of Cherokee Area Transportation System's (CATS') fare structure, farebox revenues and service contracts (i.e. DHS). Fare policy recommendations will be based on the current CATS fare structure and the capabilities available through current or developing technologies. Recommendations will be



developed to maximize ridership, leverage available revenue and funding sources, and provide customers an easy-to-understand system. Changes to the current fare program will be considered. This may include developing options such as mobile fare payment solutions and a seamless integration into regional fare initiatives.

7. NEXT STEPS

PROJECT IDENTIFICATION & EVALUATION

The next step in the CTP process is to begin translating the identified needs into a list of projects for the County to implement; this is known as the Universe of Projects. The development of the Universe of Projects and project evaluation will follow these steps:

- Compare identified needs with current and planned County and municipality projects
- Evaluate all remaining projects through an evaluation framework consisting of performance measures created based on the project goals and objectives
- Categorize evaluated projects into phases over the next thirty years including an aspirational phase for projects that may not fit in that time frame as a priority

Once the final list of recommended projects is finalized, final policy recommendations will be developed to accompany that project list. These will include strategies that are more policy-oriented that will help make way for future projects. These might include recommended planning projects, traffic studies, or small area or corridor studies that need to take place to obtain further details on identified needs.

