North Fulton County

Transportation Resource Implementation Program (TRIP)

Recommendations Documentation

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

December 2010

ACKNOWLEDGEMENTS

POLICY COMMITTEE

Arthur Letchas	*Alpharetta*
Mike Bodker	*Johns Creek*
Joe Lockwood	*Milton*
Jim Still	*Mountain Park*
Jere Wood	*Roswell*
Eva Galambos	*Sandy Springs*

PROJECT MANAGEMENT TEAM

Eric Graves	*Alpharetta*
Regan Hammond	*ARC*
Cindy Jenkins	*Johns Creek*
Sara Leaders	*Milton*
Carter Lucas	*Milton*
Chris Chovan	*Roswell*
Cedric Clark	*Sandy Springs*

STAKEHOLDER COMMITTEE

Alpharetta
Michael Cross
Kit Mastrangelo
Chris Owens

Johns Creek
Tim Jennette
Edward "Skip" Rolquin
Jim Warren
Mike Williams

Milton
Clyde Johnson
Matthew Marietta

Mountain Park
John McLaughlin

Roswell
Erik Alford
Rich Dippolito
Tom LaDow
Richard Mays
Becky Wynn

Sandy Springs

Sandy Abrams
Jon Drysdale
J. Scott Leonard
Chris Miller
Gabriel Sterling
Marguerite Wilson

Other Agency Representatives

Sally Bethea	*Chattahoochee River Keeper*
Kaycee Mertz	*GDOT*
Mike Lobdell	*GDOT District Office*
Tom McQueen	*GDOT*
David Cassell	*GRTA*
Doug Russ	*Johns Creek Chamber of Commerce*
Johnny Dunning	*MARTA*
Tedra Cheatham	*North Fulton Chamber of Commerce*
Ann Hanlon	*North Fulton CID*
Yvonne Williams	*Perimeter CIDs*
Tony Peters	*Perimeter CIDs*
Sheri Wilburn	*Sandy Springs Chamber of Commerce*

CONSULTANT TEAM

Kimley-Horn and Associates, Inc.
ARCADIS
Pond & Company
The Schapiro Group, Inc.
Sprinkle Consulting, Inc.
Sharon Greene + Associates
Joel Stone, Inc.
Market + Main

In addition to the participants listed above, there have been many additional municipal staff, related organizations, and involved citizens who were very engaged throughout the development of the North Fulton CTP. Although they are greater in number than can be listed here, their participation was vital to the success of this plan.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 About This Document

This report, *Recommendations Documentation*, is the third in a series of four reports associated with the North Fulton Comprehensive Transportation Plan (CTP). This document provides a highly technical and detailed overview of the planning process, the resulting recommendations, and the necessary actions for ensuring ongoing implementation. The *Transportation Resource Implementation Program (TRIP)* is a less technical summary document that is recommended for most readers wanting to familiarize themselves with the North Fulton CTP and the resulting recommendations.

The *Existing Conditions Report* is the first of the four and provides a review of the existing transportation network in North Fulton. The second report, the *Needs Assessment Report*, builds on that foundation and focuses on assessing current and future transportation deficiencies in the area.

All of the reports for the North Fulton CTP may be downloaded at www.atlantaregional.com/nfctp.

1.2 Project Background

North Fulton is comprised of six municipalities including Alpharetta, Johns Creek, Milton, Mountain Park, Roswell, and Sandy Springs, each of which has unique transportation needs. Together these municipalities form a subarea of Fulton County and greater metropolitan Atlanta. North Fulton is a significant subarea within metro Atlanta because over the past several decades, it has developed into a major employment center with some of the highest paying jobs in the region. The area also has very high land values with a very attractive housing stock and public services. North Fulton is supported by an extensive transportation network composed of roadways, sidewalks, bike lanes, and access to the ninth largest transit system in the United States. Recognizing the need for strong cross-jurisdictional and multimodal planning and coordination, the cities of North Fulton joined together with the Atlanta Regional Commission (ARC) to sponsor the development of the North Fulton CTP.

This plan will assist local governments within the North Fulton subarea by clearly defining cross-jurisdictional goals, needs, and priorities. The information that comes out of this plan can be used by local governments to update their individual transportation plans, which can then be used as input into the regional transportation planning process. While ARC typically completes needs assessments and transportation plans focusing on regional needs and solutions, a successful local transportation plan and program is also critical. One of the key results of the North Fulton CTP is a list of regionally significant cross-jurisdictional projects that the communities of North Fulton collectively support. These identified projects form the basis of future funding requests submitted to ARC and GDOT during Transportation Improvement Program (TIP) and Regional Transportation Plan (RTP) update cycles.

North Fulton County Transportation Resource Implementation Program

Atlanta Regional Commission

Kimley-Horn and Associates, Inc.

Reference Location

Legend

- North Fulton Study Area
- ARC 20-County Region
- Other Counties

Source: Atlanta Regional Commission

PICKENS
DAWSON
BARTOW
CHEROKEE
FORSYTH
HALL
NORTH FULTON STUDY AREA
BARROW
GWINNETT
PAULDING
COBB
HARALSON
DEKALB
WALTON
DOUGLAS
FULTON
ROCKDALE
CARROLL
CLAYTON
NEWTON
HENRY
FAYETTE
COWETA
HEARD
SPALDING
BUTTS
MERIWETHER

N

5 2.5 0 5 10 Miles

Figure 1-1
Study Area

1.3 Vision, Goals, and Objectives

At the outset of the project, a vision statement for the North Fulton CTP was developed in cooperation with the Project Management Team and the Stakeholder Committee. The framework and direction of the project has been rooted in this vision through the entire development of the project:

The North Fulton Comprehensive Transportation Plan's vision is to develop a functional, reliable and implementable transportation system that…

- *Supports economic vitality, environmental responsibility, innovation, and quality of life*
- *Is designed to achieve safety, connectivity, accessibility, and mobility for users of all modes and support lifelong communities enabling independence as citizens age*
- *Works cooperatively with the area's infrastructure and jurisdictional land use policies*
- *Is developed cooperatively with respect for the preservation of individual jurisdiction's community character*

Upon the establishment of the plan's vision, a list of goals and objectives was developed to further guide the long-range transportation planning process. The goals and objectives attempt to balance the goals expressed by the ARC board and committees, each government entity, citizens, and key community stakeholders. The following goals and objectives listed in Table 1-1 are aimed at supporting the successful implementation of the vision statement.

Table 1-1: Goals and Objectives

Goal	Objectives	How Objective was Addressed
Develop a functional, reliable, and implementable transportation system	Responsibly account for future growth	Used ARC projections and economic forecasting. Used regional travel demand model to test multiple transportation scenarios against growth projections.
	Ensure improvements are properly designed and maintained	Project recommendations have been developed with cross-jurisdictional coordination and with shared support, responsibility, and ownership. Recommendations for implementation monitoring have been included.
	Identify improvements that can be realized given funding constraints	All projects were grouped into priority levels based on realistic funding constraints and future funding expectations. Realistic funding sources have been identified for top priority projects.
	Identify funding sources and their respective eligibility requirements and application processes	Realistic funding resources and strategies have been documented in this report. Fact sheets have been created for each funding source including descriptions, eligibility, and contact information
Support economic vitality, environmental responsibility, innovation, and quality of life	Improve transportation facilities that support centers of economic development Identify and improve existing transportation barriers to economic vitality	Used travel demand to determine congestion-relief potential of project recommendations to improve connections between employees and available jobs. Laborshed analysis performed to determine how project recommendations affected the pool of workers within 30 and 45 minutes of employment centers.
	Identify and protect important environmental resources	Incorporated multimodal approach and TDM strategies to address regional air quality. Recommended projects that would create low-impact transportation and recreational opportunities for public exposure to existing environmental resources.
	Improve facilities and accessibility for all modes to reduce personal vehicle transportation demand	Incorporated multimodal approach and TDM strategies. Multimodal components are proposed for all roadway projects in this study. Transit-supportive land use concepts included with transit discussion in this report.
	Develop ways to address roadway congestion by using strategies to improve mobility and provide alternatives	Used travel demand to determine congestion-relief potential of project recommendations. Recommended regional distribution of projects intended to increase roadway capacity. Incorporated TDM strategies.

	Consider all users across various geographic areas and demographic sectors equitably Provide alternative transportation modes, particularly for the non-driving population	Analyzed concentrations of transit-dependent populations. Recommended multimodal improvements. Identified needs of older adults. Transit-supportive land use concepts included with transit discussion in this report. Considered the creating of new roadway, bicycle, pedestrian, and transit linkages.
Achieve safety, connectivity, accessibility, and mobility for users of all modes and support lifelong communities enabling independence as citizens age	Leverage public input and technical analysis to identify safety improvements and concerns for motorists, pedestrians, and cyclists Increase public awareness of existing safety issues	Identified safety concerns through public charrettes. Analyzed available crash safety data for identification of crash trends. Some projects specifically address safety concerns. Thorough documentation of crash analysis included in the *Needs Assessment Report.*
	Consider improving access to transit services in appropriate areas as determined by local municipalities Improve facilities for transit riders, pedestrians, and cyclists to encourage use of alternative modes Leverage existing transit infrastructure, such as existing bus routes and heavy rail stations, by targeting these areas for mixed-use or transit oriented developments where supported by local comprehensive plans Increase intermodal connectivity Ensure that the transportation plan considers multimodal uses for all roadway projects	Recommended realistic transit enhancements for the near term and a phased approach to more substantial transit improvements for the long term. Recommended multimodal enhancements with all new roadway projects. Transit-supportive land use concepts have been included with transit discussion. Provided Bicycle and Pedestrian Level-of Service Guides for prioritization of bicycle and pedestrian enhancements.
Work cooperatively with area's infrastructure and jurisdictional land use policies	Incorporate alternative transportation modes into future infrastructure design	Recommended multimodal enhancements with all new roadway projects.
	Ensure the transportation plan is consistent with current and planned local land use	Used ARC's land use maps in the transportation demand model. Reviewed existing studies, including Municipal Comprehensive Plans and Comprehensive Transportation Plans, Livable Centers Initiatives Studies, Tax Allocation District Applications, Revitalization, Redevelopment, and Master Plans, Corridor Studies, and other various studies.
	Identify and preserve right-of-way for future transportation infrastructure expansion needs	Recommendations include preservation of specific right-of-way for future transit expansion.
	Use growth models to predict where future demand will necessitate infrastructure improvements	Used ARC projections and economic forecasting. Used regional travel demand model to test multiple transportation scenarios against growth projections.

	Consider multimodal and transit-oriented design and the development of proposed transportation infrastructure in relation to land use policies and market development opportunities identified through the study	Recommended realistic transit enhancements for the near term and a phased approach to more substantial transit improvements for the long term. Transit-supportive land use concepts have been included with transit discussion.
Develop the CTP cooperatively with respect for the preservation of individual jurisdiction's community character	Ensure strong public participation	Held multiple rounds of public charrettes. Implemented a statistically valid public opinion survey. Received feedback from the public via telephone, email, and a project Facebook page.
	Include representatives from each community in the planning process	The CTP was developed in close coordination with a Project Management Team composed of staff representatives from each municipality. Regularly reported to and received input from the Stakeholder Committee as well as the North Fulton Mayors.
	Define characteristics that identify each community and encourage policies that preserve them Preserve historical, archaeological, and other cultural resources	Recommendations were vetted through public and political presentations to ensure all recommendations were supportive of local character and distinction of municipalities.
	Develop strategies for managing commuter traffic from surrounding areas to reduce impacts on local communities	Worked cooperatively with neighboring jurisdictions to develop recommendations. Used regional transportation demand model to understand regional cross-jurisdictional developments. Identified key corridors on which to focus.

1.4 Overview of Tools and Resources Used

To survey existing conditions, identify existing and future deficiencies, and create final recommendations for the North Fulton transportation system, many approaches and tools were used. The following is a summary of those tools.

Public Involvement was one of the primary methods used for developing a list of transportation needs, particularly current needs. Residents and stakeholders in the area represent the greatest source of information for those system needs that are currently causing concern. Many opportunities for public input were utilized, including public charrettes, a statistically valid public opinion survey, email correspondence, telephone calls, a project website, and comments through a project Facebook page. More information on public involvement strategies and results can be found in the following chapter of this document.

Existing Studies were reviewed for areas across North Fulton as part of the data collection process. Studies and plans reviewed include Municipal Comprehensive Plans and Comprehensive Transportation Plans, Livable Centers Initiatives Studies, Tax Allocation District Applications, Revitalization, Redevelopment, and Master Plans, Corridor Studies, and various other studies. These studies were used to identify key policies and aid in preparation of inventories of existing conditions, as well as to develop recommendations that considered work done in previous studies, thus avoiding duplication of effort.

Geographic Information Systems (GIS) is a software tool used to relay spatial information in the form of maps. Economic, census, demographic, and land data were displayed using this software. Unless noted otherwise, the maps included in this document were created using the software ESRI ArcGIS Version 9.3 (ArcView).

Census Data and American Community Survey data from the U.S. Census Bureau were obtained for the purposes of understanding population and employment trends. This information was used for identifying area employment centers, areas with greater density, areas with aging populations, and areas with lower incomes that may have different transportation needs. These data have limitations based on the size of the census tracts and because the census is conducted every 10 years. The most recent census with data available was conducted in 2000 so this data is nearly 10 years old.

The Atlanta Regional Commission's (ARC) Travel Demand Model (which utilizes the Cube suite of programs) is a computer generated simulation of travel and transit patterns in the Atlanta region. This model takes into account the existing and planned roadway network, travel behaviors, land use patterns, and socioeconomic data to recreate travel patterns of the people traveling through the area. Additional detail was added to the model, specifically within North Fulton, for the purposes of this project. The travel demand model can be used to approximate regional traffic patterns along the primary roadway network for both present and future conditions. The travel

demand model and its specific application to this project are discussed in more detail in Appendix A of this document.

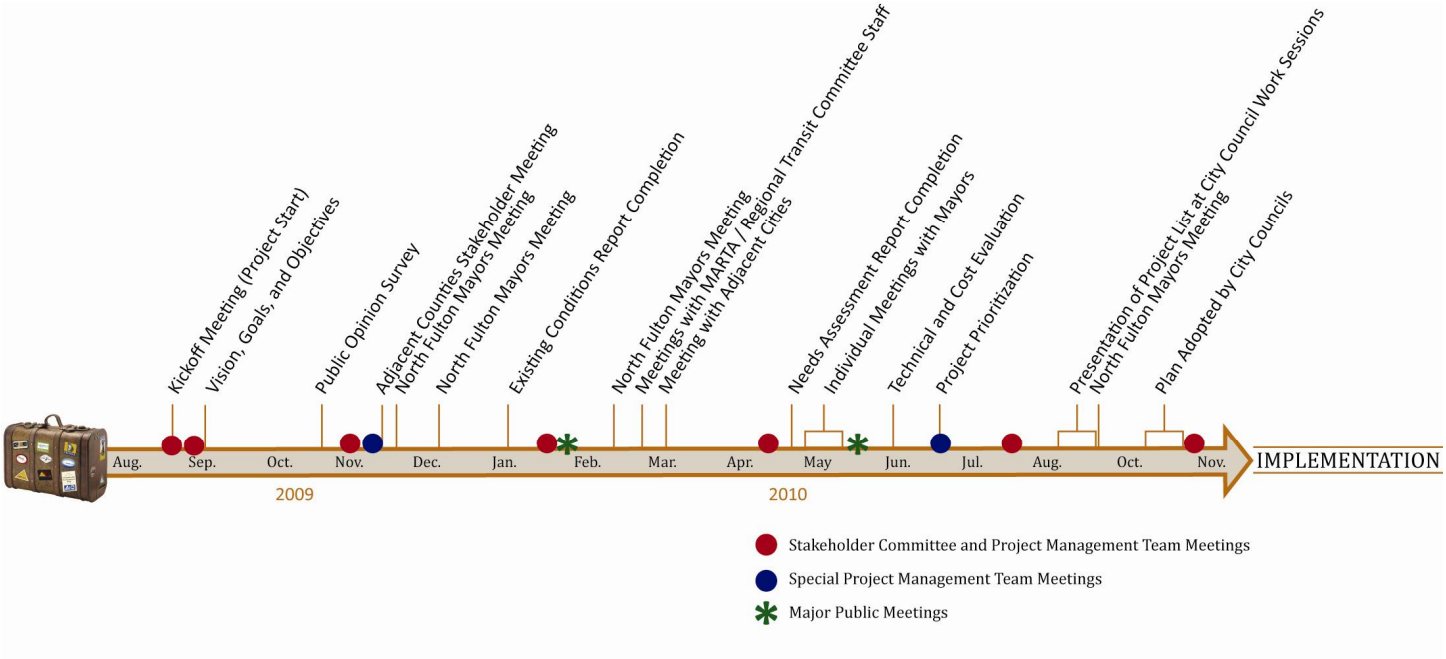
Coordination with ARC's Ongoing Planning Initiatives was necessary to develop the North Fulton plan in accordance with region-wide goals and strategies. ARC is the designated Metropolitan Planning Organization (MPO) for the Atlanta region, of which North Fulton is a subarea. Coordinating with ongoing regional initiatives that are being implemented by ARC ensures that the North Fulton CTP will be aligned with those goals that extend beyond its borders. The recommended projects are locally beneficial and yet, are still aligned with regional goals. Some of the initiatives the North Fulton CTP incorporated include the PLAN 2040 Update, Unified Growth Policy Map, Livable Centers Initiative (LCI), Strategic Regional Thoroughfares Plan, and the Regional Resource Plan.

Crash Data statistics were analyzed to identify safety needs and trends within the transportation system. This crash data was obtained from the Critical Analysis Reporting Environment (CARE) database developed by the University of Alabama and covers the years 2006-2008. This data provides insight into the nature of vehicular, bicycle, pedestrian, and commercial vehicle crashes. Geospatial data was also obtained from the Georgia Department of Transportation (GDOT) so that locations of these crashes could be identified.

2.0 COORDINATION, PUBLIC INVOLVEMENT, AND INITIATIVES

A transportation plan should be developed with consistent input from the community as well as coordination between participating jurisdictions and agencies. As part of the North Fulton CTP, numerous meetings were held with stakeholders, municipal staff, and other organizations to gain input and guide the development of the plan. Figure 2-1 (below) shows a timeline of the coordination and public involvement that has occurred.

Figure 2-1: Timeline of Coordination and Public Involvement



2.1 Project Management Team and Stakeholder Committee

Project Management Team meetings and Stakeholder Committee meetings were regularly held to guide the development of the plan. The Project Management Team consisted of a core group of municipal staff assigned by the cities of Alpharetta, Johns Creek, Milton, Roswell, and Sandy Springs. This group worked with the Consultant Team to establish project goals and deliverables, provide necessary background information, refine the project recommendations, and serve as a point of coordination for each of the cities.

The Stakeholder Committee consisted of 21 local business leaders and involved citizens appointed by the North Fulton municipalities to provide consistent input into the plan. The consultant team worked with the Stakeholder Committee to develop the Vision and Goals for the project, define transportation needs, refine the project recommendations, and prioritize projects with a regional focus. A list of project stakeholders as well as members of other project committees can be found in the Acknowledgements section of this report.

Project Management Team and Stakeholder Committee Joint Meetings were held on the following days:

- August 25, 2009 – at Roswell (Project Kick-off Meeting)
- September 8, 2009 – at Johns Creek
- November 10, 2009 – at Alpharetta
- January 26, 2010 – at Milton
- April 14, 2010 – at Mountain Park
- July 14, 2010 – at Roswell
- Final meeting to be held after completion of this report

Two additional meetings with the Project Management Team were held on these days:

- November 18, 2009 – Regionally Significant Corridors Discussion
- June 23, 2010 – Project Prioritization Work Session

2.2 Mayors Meetings and Coordination Meetings

Four North Fulton Mayors Meetings were attended by Consultant Team staff to update the mayors on the status of the project. In addition, individual phone interviews and individual in-office interviews were conducted with each mayor. These meetings occurred as follows:

- November 19, 2009 – North Fulton Mayors Meeting
- December 10, 2009 – North Fulton Mayors Meeting
- February 18, 2010 – North Fulton Mayors Meeting
- April 2010 – Individual Interviews Conducted by Phone
- May 2010 – Individual In-Office Interviews
- August 18, 2010 – North Fulton Mayors Meeting

The CTP was also discussed at City Council work sessions in each North Fulton municipality (with the exception of Mountain Park) in an effort to finalize project prioritization.

In addition, meetings were held with related organizations and nearby jurisdictions to ensure regional coordination on the following dates:

- November 19, 2009 – Adjacent Counties Stakeholder Meeting
- November 23, 2009 – GDOT Coordination Meeting
- February 24, 2010 – MARTA Coordination Meeting
- March 1, 2010 – MARTA Coordination Meeting
- March 3, 2010 – Cities of Atlanta and Dunwoody Coordination Meeting
- February 18, 2010 – *Concept3* Meeting

2.3 Public Input

Comments from the public were used to define transportation needs and to prioritize the final list of recommended projects. The most direct opportunity for engaging the public and obtaining

specific input was through a series of public design charrettes. These meetings were conducted in charrette-style format, where attendees first listened to a brief presentation on the North Fulton CTP and its mission and goals, accomplishments to date, and upcoming milestones, and then were encouraged to break up into smaller groups led by facilitators to discuss the preliminary project recommendations. In addition, a statistically valid public opinion survey was implemented and further comments also reached the Consultant Team by telephone, email, and a project Facebook page.

The first round of public charrettes was held in each North Fulton community in January 2010 during the Needs Assessment phase and focused on development of a comprehensive list of transportation needs identified in North Fulton. A detailed summary of this round of charrettes and the results can be found in the *Needs Assessment Report*.

A second round of public charrettes was held in each North Fulton community over a two-week period in May to gather public input on proposed project recommendations (Mountain Park opted for an update to be provided to the City Council in lieu of a full charrette). A total of five charrettes were held in the cities of Alpharetta, Johns Creek, Milton, Roswell, and Sandy Springs. Using transportation needs identified during the Needs Assessment phase, a list of preliminary recommendations developed by the Project Management Team and Consultant Team was presented to the public for comment. Attendees were asked to use red and green dots to indicate support or dissatisfaction for the suggested roadway, pedestrian, bicycle, and transit projects presented. This input was useful for gauging public support for each of the projects and also for gaining a sense of project priorities.

Figure 2-2: Public Charrette Held in Johns Creek

Public Input Received

More than 40 people participated in the May charrettes to provide input for the identified projects. The voting results for each meeting were compiled and general trends in opinion were observed. These results, along with comments from previous public meetings, were factored into decisions to remove projects from the list and add new projects to the list. Public comments were also used to prioritize those projects that went on to be grouped into tiers.

Vehicular Projects

Charrette attendees were given the option to comment on every project, however, most attendees chose to focus only on projects that interested them most. Among the vehicular projects, the following attracted the most interest (in votes for or against) from the public:

- Improvements to GA 400 – Adding managed lanes (HOV/HOT), creating high capacity transit; adding capacity by widening, redesigning the interchange at Holcomb Bridge Road; creating a new interchange at Riverside Road, adding the Big Creek connection bridge over the freeway.
- Improvements to State Route 9 (Roswell Road, Alpharetta Highway) – Intersection improvements, access management, and adding capacity by widening.
- Improvements to State Route 141 (Medlock Bridge Road) - Adding capacity by widening.

In general, the results indicate a strong public desire to resolve capacity issues along GA 400; however, the preferred method for resolving those issues varied widely among attendees. For instance, widening along GA 400 received one of the largest numbers of supporting votes, and likewise received one of the largest numbers of disapproving votes (22 in favor versus 14 opposed). Public opinion was also split over the installation of additional interchanges (16 in favor versus 10 opposed) and the addition of High Occupancy Toll (HOT)/High Occupancy Vehicle (HOV) lanes along the freeway (29 in favor versus 9 opposed). There was, however, strong consensus and support for redesigning the existing interchange at Holcomb Bridge Road (22 in favor versus zero opposed) as well as creating high capacity transit along the freeway (40 in favor versus 4 opposed). Another project along the GA 400 corridor that received strong public support was the Big Creek Connection - a new bridge/roadway connection from Old Alabama Road across GA 400 to Warsaw Road (21 in favor versus 2 opposed).

The other prominent north/south corridor that drew a large amount of input was State Route 9. A common theme was evident regarding the need for additional capacity and intersection improvements along the corridor. According to the results, the public highly supported intersection improvements and access management along the SR 9 corridor (26 in favor versus 1 opposed), as well as capacity improvements by widening (15 in favor versus 1 opposed).

Public opinion concerning widening of existing roads and construction of new connectors varied from project to project. Because the charrettes took place in each municipality separately, the results can be broken up by individual city. Generally, each municipality felt strongly (whether for or against) about specific projects that directly affected their city. That is, most of the opinions

expressed were regarding facilities within the subject city. The overall public opinion was divided over the widening of Hammond Drive (16 in favor versus 16 opposed) as well as the addition of a new Chattahoochee River crossing (4 in favor versus 9 opposed). However, those opposed to the improvements generally were representing the municipality in which the improvements would be made (Sandy Springs or Rowell for these projects). The public also objected to widening along Medlock Bridge Road (5 in favor versus 10 opposed).

Pedestrian/Bicycle Projects

The pedestrian and bicycle facility projects received the most public support and the least public resistance overall. Generally speaking, people expressed a desire for increased connectivity and more consistency with both types of facilities.

Enhancing the pedestrian and bicycle facilities along State Route 9 to create a continuous north-south route from Forsyth County to the City of Atlanta drew strong public support (36 in favor versus 2 opposed). Likewise, creating an east-west pedestrian and bicycle route along Riverside Road also won favor with the public (19 in favor versus zero opposed).

Connecting the Big Creek Greenway to Roswell's Chattahoochee River Walk along Riverside Drive via existing bike lanes along Old Alabama Road had a solid positive vote (26 in favor and zero opposed) with no objections from those who attended the public meetings.

Transit Projects

Many of the comments regarding transit were related to heavy rail and other forms of high capacity transit. High capacity transit along GA 400 and I-285 appears to be strongly desired by many residents of North Fulton. Additionally, an interest was expressed to revise existing MARTA bus routes to connect downtown Roswell, downtown Alpharetta, and other venues and places of interest. (MARTA's current bus routes are mainly geared towards connecting residents to the heavy rail stations in Sandy Springs.) Overall, based on the high number of positive responses and the low number of negative responses to the listed transit projects (163 in favor versus 14 opposed), there appears to be strong support for providing greater access to transit in North Fulton. Concerns were expressed regarding the funding for transit projects.

2.4 Early Opportunities

To gain early momentum and set a tone of implementation for the North Fulton CTP, several projects have been identified that could each be initiated before the completion of the final plan. Each jurisdiction within the limits of the study area was given the opportunity to select one project with which the Consultant Team could assist with implementation. Projects were selected based on their ability to support operational improvements, be implemented at a relatively low-cost, and be completed in a relatively short time frame, perhaps even as this study is in progress. Although each of the projects selected was too large to be completed before the end of the North Fulton CTP, most of the projects were able to be advanced significantly. The projects selected were:

Intersection of Medlock Bridge Road (SR 141) and State Bridge Road in Johns Creek

Johns Creek proposed improvements to the intersection of Medlock Bridge Road at State Bridge Road. Currently, the northbound right-turn lane along Medlock Bridge Road has a dedicated eastbound receiving lane. Because of geometry and sight-distance issues, this movement does not operate as a free-flow movement. Additionally, the eastbound approach along State Bridge Road has two left-turn lanes, two through lanes, and a dedicated right-turn lane. By converting the eastbound right-turn only lane to a shared through/right-turn lane and removing the dedicated receiving lane of the northbound right-turn lane, the City could improve the eastbound operations, particularly in the PM peak period, without impacting the travel conditions northbound along Medlock Bridge Road.

Upon analyzing the intersection using Synchro (modeling software), the benefits of adding a third eastbound through lane, as described above, were confirmed and the inclusion of a westbound right-turn overlap that will operate simultaneously with the southbound left-turn movement was recommended. A number of meetings have been conducted with representatives of GDOT, including visits to the field to observe current conditions. A final memo has been provided to GDOT, and Johns Creek will continue to work closely with engineers at GDOT to move the project forward.

Safety Improvements to Juniper Street in Mountain Park

The City of Mountain Park would like to install guardrail at the dead-end of Juniper Street. The street slopes down toward the dead-end and terminates with only a single wooden rail as a barrier before a several-story drop. Initial cost estimates indicate the project would cost between $25,000 and $37,000 depending on grading requirements where the guardrail would be installed. If a retaining wall or other significant grading measure is required for support, the cost would be at the high end of this range or potentially higher. Because the area is not on or near a state route, funding is unlikely to be available from GDOT. If a funding source is found through GDOT, the City of Mountain Park would likely still have to provide a match to build the project (20 percent would be $5,000 to $7,000). The next steps for this project will be for the City to continue to work with GDOT to identify funding and prioritize money within their annual budget for this repair.

Intersection of Marietta Highway (SR 120) and Atlanta Street (SR 9) in Roswell

The intersection of Marietta Highway (SR 120) and Atlanta Street (SR 9) in Roswell has a sharp turning radius when turning right from southbound State Route 9 onto westbound State Route 120 (the radius is approximately 48 feet). The right-turn lane that facilitates this movement is also narrow (8 feet wide), and as a result, trucks making this right turn often travel over the curb and onto the sidewalk. There is also an adjacent historic retaining wall at this corner of the intersection that is being damaged by trucks that run over the curb. Design modifications have been proposed for this intersection that would slow damage occurring to the adjacent existing historic wall and better maintain the roadway shoulder by providing a larger turning radius to accommodate large trucks. A conceptual design for the project has been developed and conversations have taken place

with GDOT to start the process of implementing these improvements. The next steps involve working further with GDOT to identify funding to begin design and construction.

Intersection of Jett Ferry Road and Spalding Drive in Sandy Springs

The intersection of Jett Ferry and Spalding Drive is currently a four-way stop condition that is experiencing heavy queuing of vehicles on all four legs at peak periods of the day. Two possible improvements were investigated as part of this project: upgrading by installing a signal and upgrading by installing a roundabout. After reviewing both options it was determined that a roundabout would be preferred at this intersection due to the following negative impacts of a traffic signal:

- Signalization would require widening for the addition of turn lanes
- Signalization would negatively impact the character of the surrounding area by introducing poles, signal heads, and visible wires
- Signalization would require regular maintenance and timing

The suggested solution is to install a roundabout that forgoes the need for new devices that have to be powered and maintained. A roundabout also provides opportunities for landscaping that would better fit into the existing character of the area. Because not all locations are suitable for roundabouts due to geometric and operational constraints, an intersection layout has been created to evaluate whether a roundabout is feasible. Because this is a project that Sandy Springs will not likely construct without Federal or State aid, the Consultant Team has initiated discussions with GDOT to determine if special funds could be available for roundabout projects and how to proceed with application for this money. The concept design has also been sent to GDOT for their review and comment. Once it is determined that funding opportunities are available for this project type, a more detailed cost-estimate will be prepared to determine feasibility. Conversation and review of the project is expected to be concluded at the end of September 2011. At that time, based on the results of these conversations, a decision will be made regarding whether or not to advance the project further.

Intersection improvements at Crabapple Crossroads in Milton

Crabapple Crossroads is a five-way intersection at the juncture of Broadwell Road, Mid-Broadwell Road, Mayfield Road, Crabapple Road (SR 372), and Birmingham Highway (SR 372) in the City of Milton. This convergence of several high-volume roadways at this intersection creates heavy queuing during peak periods of the day. Previous studies have shown that traffic flow through this intersection is restricted in part by a high demand for left-turn movements and too few turning lanes. In addition, the peak periods are extended and compounded beyond common commuter-related conditions due to the proximity of three public schools. As part of a previous study, a long-range plan was developed for improving this intersection, which includes a phased approach for implementing interim improvements. As part of the Early Opportunities effort of the North Fulton CTP, the potential for implementing some of these interim improvements was further discussed with City staff and cost estimates were developed for some of these improvements. Part of the

interim improvements taken from the previous study included installing northbound and southbound left-turn lanes (along Broadwell Road and Birmingham Highway (SR 372) respectively). In addition, the idea of prohibiting westbound left-turning movements along Mayfield Road was considered. In the process of implementing these improvements, the necessary acquisition of the right-of-way needed to install the two turn lanes would set the stage for the eventual creation of a raised landscaped median along Broadwell Road/Birmingham Highway (SR 372), which is part of the long-range concept. The cost of the two turn lanes and the left-turn restriction would collectively be approximately $250,000. The next steps for implementation involve City staff further considering these projects and then identifying and prioritizing funding.

2.5 Regionally Significant Corridors

The North Fulton CTP has been developed in advance of another regional planning study that is focusing on regional corridors throughout the entire metropolitan area - the Strategic Regional Thoroughfares Plan. This on-going study led by ARC began in 2010 and will formally designate a regional network of metro Atlanta's most critical thoroughfares. Once the network of regional thoroughfares has been selected for the entire metro Atlanta region, it will be used to prioritize roadway projects in future updates of the Regional Transportation Plan and develop cross-jurisdictional policies that protect the functionality of these corridors.

In November 2009, the Project Management Team determined that a beneficial strategy for the North Fulton CTP would be to preemptively identify regionally significant corridors within North Fulton in preparation for the Strategic Regional Thoroughfares Plan. Three key corridors within North Fulton were selected, and one of these key corridors will be nominated to become the subject of a more in-depth case study being performed as part of the Strategic Regional Thoroughfares Plan. Initial findings from the North Fulton CTP will be used to aid and inform the Thoroughfares Plan thereby positioning North Fulton to receive the maximum benefit from this future planning study. The following corridors have been proposed by the Project Management Team to be included in the Strategic Regional Thoroughfares Plan:

- State Route 9
- State Route 92/State Route 140
- State Route 140/Rucker Road/State Route 120/State Bridge Road

This list has been provided to ARC and the process for finalizing these routes is currently on-going. These corridors can be seen in Figure 2-3.

North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

- Regionally Significant Corridors
- Expressways
- Other Roadways in Study Network
- Other Major Roads
- Study Area
- Counties
- Other Cities

Source: GDOT, ARC GIS Data

N

1 0.5 0 1 2 Miles

Figure 2-3
Regionally Significant Corridors

3.0 TRANSPORTATION FUNDING

The number and scale of transportation projects required to keep pace with the increase in travel demand is growing nationwide, across the state of Georgia, and locally in North Fulton. Meanwhile, the financial resources available to local and state departments of transportation are either holding steady or dwindling.

Competition among states and municipalities for transportation funding is growing as a simple function of supply and demand – fewer dollars available for projects and more projects needed than ever.

In undertaking this plan, the municipalities of North Fulton have taken the first step in positioning themselves for future funding. For implementation of this plan to be successful, the municipalities must continue to coordinate efforts in the following:

- Jointly advocating for North Fulton projects regardless of which city they are located in.
- Understanding existing funding sources (and their requirements) and prioritizing projects for those dollars.
- Keeping abreast of potential new funding sources and adopting policies (to qualify for these sources) consistently across municipal boundaries.
- Advancing local and regionally significant (specifically cross-jurisdictional) projects to various levels of completion to be in position to accept funding where other projects may fall short.

Within the Atlanta region, a multitude of interests are represented. This inherently places Atlanta at a disadvantage when competing for transportation funds due to a perception that efforts between municipalities and agencies are not coordinated. When no over-arching priorities are established among competing applications for funding, this perception is reinforced and reduces the likelihood that *any* project from the region will be selected. The efforts of the North Fulton municipalities can be an example of a unified, coordinated effort for the rest of the Atlanta region.

Three tiers of transportation projects are presented for consideration. Tier 1 projects are generally the highest priority of projects specific to North Fulton and conceivably could be funded using traditional funding sources. Tier 2 projects are the next level of priority and should be considered if additional funding sources become available or if Tier 1 projects are delayed, modified, or do not qualify for funding. Tier 3 projects are the lowest priority of the three tiers. While the Tier 3 projects are still of importance to North Fulton, funding does not appear likely. Tier 3 projects could be considered if additional funding sources become available or if Tier 1 and 2 projects are delayed, modified, or do not qualify for funding.

Traditional Funding Sources

Tier 1 projects will most likely be funded by traditional federal and state funding sources; however, these projects could be funded by additional sources, if available.

The Safe Accountable Flexible Efficient Transportation Act – A Legacy for Users (SAFETEA-LU) is the most recent federal authorization bill for transportation spending. This bill has expired and been extended a number of times under continuing resolutions from the U.S. House and Senate. Federal funding is provided to the state in two forms – formula-based general funds, which fund the bulk of Transportation Improvement Program (TIP) projects and competitive applications, which are typically granted in smaller amounts. Any earmarks provided by federal legislation are taken from the formula-based funds provided to the state and region.

General funds that typically finance TIP projects include:

- High Priority Projects (HPP)
- National Highway System (NHS)
- Surface Transportation Program (STP)
- Highway Safety Improvement Program (HSIP)
- Local Maintenance and Improvement Grant Program (LMIG)
- Congestion Mitigation and Air Quality (CMAQ)

Competitive applications that can finance projects excluded from the TIP or augment the funding for TIP projects include:

- Safe Routes to School (SRTS)
- Recreational Trails Programs
- Transportation Enhancement (TE)
- Livable Centers Initiative (LCI) – local program funded by the STP
- Georgia Transportation Enhancement (GATEway)

In addition to the SAFETEA-LU extensions, one-time grants have been given in the form of Transportation Investment Generating Economic Recovery (TIGER) grants and TIGER II grants. These grants were intended for job creation and to help bridge the gap to future authorization. These federal funds, whether from federal authorization or one-time grants, are primarily administered by GDOT and ARC.

Legislation is currently under development at the federal level for a new authorization of funding. A new federal transportation bill would reestablish funding targets and federal transportation policy. The new bill is expected to be a turning point for new policies and funding formulas in recognition of a number of national issues – obesity, rising fuel prices, and the need for alternative fuel sources. With the new authorization, significant changes to the general and competitive funding forms are anticipated; however, the nature and extent of the changes are unknown at this time.

State funding is primarily provided by the gas tax and is pooled with federal funding sources to finance the Georgia Statewide Transportation Improvement Program (STIP), which includes the Atlanta Transportation Improvement Program (TIP). The TIP for the metro Atlanta region is a collection of projects from around the region that have been prioritized to receive federal funding. The TIP is developed by ARC from locally and regionally adopted long-range plans and then

managed or implemented by GDOT. The TIP is a dynamic plan in that projects are removed or added several times in a given year based on issues with permitting approvals, shifts in public opinion, and shifts in public policy. Because of the dynamic nature of the TIP at all stages of development and implementation, both ARC and GDOT have a stake in the development and implementation of the plan.

The scarcity of funding resources combined with increasing needs for maintenance and construction have led to new trends in the project selection process. Historically, projects have been prioritized based on need - typically a 20-30 year list of projects - and placed in line to receive funding. Recently, more and more projects have been delayed due to lack of funding, as well as lagging permitting.

Given the competitive environment, municipalities must act strategically in their pursuit of funding. Project need will always play a large role in the prioritization of projects – the greater the benefit, the greater the chance of funding. Benefit/cost ratios remain important to ensure that public dollars are used efficiently. In addition to considering project need, the trend of regional, state, and federal selection criteria is to consider other ways to prioritize projects and spread the benefit. This trend can be found in a recent draft of the federal reauthorization bill [editorial bolding]:

> *"Providing transportation **choices** and creating **livable communities** is essential to improving mobility for all users and ensuring that the transportation system enhances our quality of life. Expanding access to **sustainable modes** of transportation, and incorporating long-term mobility needs into the **community planning** process will yield significant **benefits for public health and the environment**."*
>
> *The Surface Transportation Authorization Act of 2009:*
> *A Blueprint for Investment and Reform (June 18, 2009)*

To best maintain competitiveness in future years, the North Fulton municipalities should develop projects that are multimodal, multijurisdictional, and multifaceted.

Multimodal

The cost of building the roads that would accommodate the inherent vehicular demand is not affordable in the best of times. This is one reason that projects that provide for and *promote* alternative modes of transportation can be attractive projects. Funding agencies have recognized the need to provide alternatives to the single-occupant vehicle. It may not be possible to build enough roads to handle the public's demand for mobility, but it is entirely possible to create attractive travel options for residents. These options, such as pedestrian/bicycle facilities, transit, HOV, and even TDM strategies, among others – will allow changes in behavior over time and ultimately reduce the inherent demand on the roadway network. In addition, multimodal projects can be more cost-effective to build than constructing facilities that only serve one mode. For instance, constructing a vehicular lane with the addition of a bike lane would cost less if built at the same time rather than building separately.

Multijurisdictional

Not every county or municipality can get their priority projects funded. Every local jurisdiction has a project that is important to the local community, yet has difficulty getting funding. A multijurisdictional project allows funding agencies to "spread the wealth" and provide funding that benefits more than one local community. At times, local projects that benefit one community are perceived as a detriment to another community. This public disagreement often delays projects indefinitely and leads to an increase in project costs. Multijurisdictional projects address these potential disagreements early in the planning stages and typically lead to a smoother implementation process.

Multifaceted

A recent trend in project funding is the crossing of historical agency borders. Many transportation projects have incorporated elements of land use (in the form of access management) and environmental consideration (mitigation of impacts). Historically, few projects have included the potential environmental benefit of transportation improvements that are combined with sound land use planning.

An example of a recent change in this trend is the Partnership for Sustainable Communities formed by the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA). These three agencies have pledged to ensure that housing and transportation goals are met while simultaneously protecting the environment, promoting equitable development, and helping to address the challenges of climate change. The partnership is designed to remove the traditional federal government silos that exist between departments with different priorities and strategically target the agencies' transportation, land use, environmental, housing, and community development resources to provide communities the resources they need to build more livable, sustainable communities.

The decision-making process for funding potential projects is only becoming more complex; however, this complexity can be a benefit as complex projects create the potential for funding from multiple sources. Multimodal projects could be funded using trail funds as well as roadway dollars. Landscaping on multijurisdictional projects could be enhanced to provide gateway features entering each community. The complexity of the projects and funding will require a great deal of coordination between the North Fulton communities and the other communities in the Atlanta region.

Potential Funding Sources

The communities of North Fulton should consider additional funding sources to provide flexibility in project development and to maximize the potential funds available to match federal and state dollars. Additional local revenue could be used to advance local and regionally significant projects to various levels of completion to be in position to accept funding where other projects may fall

short. The term "shovel ready" has become commonplace in funding discussions. Having projects designed and permitted, with right-of-way acquisition complete, means projects are "shovel ready" and in an advantageous position to win new federal grants. Having projects at this level of completion takes time and money – money that's frequently not available from state or federal resources. There are, however, a number of other potential revenue sources for the communities of North Fulton. These include but are not limited to the proposed regional one-cent sales tax (the Transportation Investment Act of 2010, or House Bill 277), a Special Purpose Local Option Sales Tax (SPLOST), expanded or additional Community Improvement Districts (CID), and additional property taxes.

Transportation Investment Act of 2010

Georgia residents will be voting in the 2012 primary elections on a referendum for a one-percent sales tax to fund transportation projects. A list of projects to be funded by the tax will be developed by a Regional Transportation Roundtable – made up of local elected officials – prior to the referendum. If this referendum passes, up to $9 billion could be made available for transportation projects in the Atlanta region over the life of the tax (10 years). Of the total revenue from the tax, 15 percent would be distributed to local governments. An estimated $10 million would be available to the North Fulton municipalities through this local distribution. Ideally, this money would be utilized to develop or provide local matches for smaller-scale projects not included on the referendum's list of regionally significant projects.

In the Transportation Investment Act there are two scenarios that may require significant increases in the amount of local matches required for state grants. If the Regional Transportation Roundtable cannot agree to a project list for the referendum, the local match required for state grants will increase to 50 percent of a project's total cost instead of the typical match of 20 percent. If the project list is agreed upon, the referendum takes place, and does not pass, a local match of 30 percent will be required. Conversely, if the referendum passes, the local match required for LMIG grants will be reduced to 10 percent.

Special Purpose Local Option Sales Tax

A SPLOST is typically a one percent sales tax levied by a local government for project funding. These projects can include construction of schools, municipal buildings, prisons, transportation projects, etc. Most of these taxes have a 4- to 5-year term limit and are approved by voters through a local referendum. A North Fulton SPLOST would generate an estimated $77 million annually if all municipalities were to participate.

Property Taxes

Property taxes may also be a mechanism to raise revenues for transportation projects. There are approximately 156,000 homes within the North Fulton municipalities. An example increase of $200 in residential annual property tax per home could generate approximately $31.2 million in

additional annual revenue. Although public perception and opinion need to be evaluated, it is clear that increases in residential property taxes could help alleviate funding gaps.

Similarly, increased taxes on commercial properties could supply a significant amount of money for transportation projects. For example, a one mill tax increase on all commercial properties in North Fulton (one mill equals one tenth of one percent) could provide approximately $9 million annually.

Community Improvement Districts

A Community Improvement District (CID) can be a good partner for the municipalities of North Fulton in leveraging funds toward priority projects in the CID's area. A CID is a self-taxing district that uses additional commercial property taxes to help develop and accelerate infrastructure improvement projects. CIDs may tax office, industrial, or retail properties, but not residential properties. A simple majority of owners may elect to create a CID; however, the majority must represent at least 75 percent of the taxable value of property. North Fulton has two CIDs; the Fulton Perimeter CID, which together with the DeKalb Perimeter CID comprise the Perimeter CID, and the North Fulton CID. Combined, these entities have invested over $20 million in northern Fulton County and northern DeKalb County infrastructure over the past 10 years.

The levels of funding to be expected from a CID composed of all of the commercial properties in North Fulton can be assumed to be similar to the estimates provided in the commercial property tax example above.

4.0 MODEL RESULTS

Following the Needs Assessment analyses and development of a draft project list, all vehicular/capacity projects under consideration were separated into scenarios to be evaluated for congestion reduction. Initial modeling of the 2030 E+C scenario served as the base model or "No-Build" comparison for all projects analyzed in this study. Projects were allocated to scenarios such that they did not interact with each other. This allowed the team to test the isolated results of individual projects.

Traffic forecasts for 10 different scenarios were run using modified versions of the ARC model. Subsequent to the model runs, GIS analysis was used to evaluate the percent change in the intensity, duration, and extent of congestion for each project relative to the No-Build scenario, as described in Section 5.2 Project Prioritization. These results then accounted for approximately one-third of the score used in the evaluation matrix.

After the projects were grouped into Tiers 1, 2, and 3, two additional composite model runs were conducted. The first run included all Tier 1 projects, while the second model run included both Tier 1 and Tier 2 projects. The collective benefits of all projects within the two tiers could then be determined by comparing the Build scenarios to the No-Build scenario. Level-of-Service maps, regional and subregional metrics, and laborshed analyses relating to Perimeter Center and Windward were all used to assess the impacts of the Tier 1 and Combined Tier 1 & 2 projects.

4.1 Level-of-Service

In comparing the Tier 1 and Combined Tier 1 & 2 Level-of-Service maps to that of the 2030 E+C, level of service changes on many segments of the improved roadways are evident, including along SR 9 in Alpharetta and Milton, and Jones Bridge Road and McGinnis Ferry Road in Johns Creek. In other cases, parallel roadways show improvement in level-of-service including GA 400 north of Windward Parkway. Many of the roadways within North Fulton are projected to have significant congestion by 2030, and in some cases, improvements to the roadway, while decreasing the overall delay on the road, are not sufficient enough to change the operations from level-of-service F to level-of-service E. In that way, viewing the level-of-service maps can be limiting since the full effect of the improvements is not illustrated.

4.2 Regional and Subarea Metrics

As in the 2010 E+C and 2030 E+C analyses, regional and subarea metrics were calculated to document the overall impacts of the vehicular improvements in Tier 1 and the Combined Tier 1 & 2. Table 4-1 shows the metrics from the 2030 E+C model for reference. In comparing both the Tier 1 and Combined Tier 1 & 2 scenarios to the 2030 E+C, the following changes can be noted:

- Vehicle miles traveled (VMT) increased by nearly 250,000 miles per day along arterials within North Fulton, resulting from the improvements to a number of the arterials. Conversely, VMT along interstates within the subarea decreased because destinations could often be reached more quickly using arterials instead of interstates.

- Vehicle hours traveled (VHT) along both interstates and arterials were reduced because the overall capacity within the system was increased. Travel times along arterials improved. Likewise, trips diverted off of the interstates reduced congestion for those that continued to travel along the interstates.
- Similar to the reduction in total VHT within the subarea, the percent of congested VHT and total delay were reduced between the 2030 E+C scenario and the Combined Tier 1 & 2 scenario.
- Person trips along both interstates and arterials increased between the 2030 E+C and the Combined Tier 1 & 2 scenario, indicating that a sufficient amount of latent demand exists within the system. Severe congestion often results in fewer people making trips, particularly discretionary ones. Improvements to the capacity of roadways can then allow additional travel.
- Regional travel metrics changed in a similar pattern to that the subarea travel; however, the degree of change was smaller in the regional metrics because North Fulton is a relatively small portion of the metropolitan region.

Table 4-1: 2030 E+C Facility Statistics

2030 E+C Subarea Facility Statistics	Daily Interstates/Ramps Expressways	Daily HOV	Daily Arterials/ Collectors
VMT	6,018,197	0	8,069,381
	42.72%	*0.00%*	*57.28%*
VHT	212,876	0	553,662
	27.77%	*0.00%*	*72.23%*
% Congested VHT	93.17%	0.00%	84.96%
Total Delay	108,061	0	291,435
	27.05%	*0.00%*	*72.95%*
Person Trips	18,954,731	0	34,497,258
	35.46%	*0.00%*	*64.54%*
2030 E+C Regional Facility Statistics	**Daily Interstates/Ramps Expressways**	**Daily HOV**	**Daily Arterials/ Collectors**
VMT	75,162,791	2,066,519	110,672,442
	40.00%	*1.10%*	*58.90%*
VHT	2,537,861	65,319	5,494,316
	31.34%	*0.81%*	*67.85%*
% Congested VHT	86.64%	86.40%	67.68%
Total Delay	1,242,544	30,071	2,271,379
	35.06%	*0.85%*	*64.09%*
Person Trips	247,635,603	20,936,621	468,714,422
	33.59%	*2.84%*	*63.57%*

Table 4-2: 2030 Tier 1 Facility Statistics			
2030 Tier 1 Subarea Facility Statistics	**Daily Interstates/Ramps Expressways**	**HOV**	**Arterials/ Collectors**
VMT	5,962,729	0	8,259,029
	41.93%	*0.00%*	*58.07%*
VHT	209,133	0	539,317
	27.94%	*0.00%*	*72.06%*
% Congested VHT	90.67%	0.00%	82.52%
Total Delay	105,288	0	271,792
	27.92%	*0.00%*	*72.08%*
Person Trips	18,848,222	0	35,169,108
	34.89%	*0.00%*	*65.11%*
2030 Tier 1 Regional Facility Statistics	**Daily Interstates/Ramps Expressways**	**HOV**	**Arterials/ Collectors**
VMT	75,070,378	2,065,232	110,804,222
	39.94%	*1.10%*	*58.96%*
VHT	2,526,984	65,250	5,465,340
	31.36%	*0.81%*	*67.83%*
% Congested VHT	86.51%	86.50%	67.30%
Total Delay	1,233,263	30,023	2,238,862
	35.21%	*0.86%*	*63.93%*
Person Trips	247,382,544	20,936,515	469,129,437
	33.55%	*2.84%*	*63.62%*

Table 4-3: 2030 Combined Tier 1 & 2 Facility Statistics			
2030 Combined Tier 1 & 2 Subarea Facility Statistics	**Daily**		
	Interstates/Ramps Expressways	**HOV**	**Arterials/ Collectors**
VMT	5,963,219	0	8,320,643
	41.75%	*0.00%*	*58.25%*
VHT	208,606	0	532,387
	28.15%	*0.00%*	*71.85%*
% Congested VHT	90.46%	0.00%	82.29%
Total Delay	104,653	0	263,316
	28.44%	*0.00%*	*71.56%*
Person Trips	19,141,842	0	35,581,903
	34.89%	*0.00%*	*65.02%*
2030 Combined Tier 1 & 2 Regional Facility Statistics	**Daily**		
	Interstates/Ramps Expressways	**HOV**	**Arterials/ Collectors**
VMT	75,063,184	2,062,721	110,851,962
	39.93%	*1.10%*	*58.97%*
VHT	2,524,334	65,088	5,455,534
	31.38%	*0.81%*	*67.81%*
% Congested VHT	86.44%	86.50%	67.17%
Total Delay	1,230,654	29,903	2,227,898
	35.28%	*0.86%*	*63.86%*
Person Trips	247,613,001	20,964,400	469,488,343
	33.55%	*2.84%*	*63.61%*

Reviewing overall travel statistics for the three scenarios, as opposed to metrics broken out by roadway facility, a couple of phenomena are reinforced:

- Incremental improvements (from 2030 E+C to Tier 1 and from Combined Tier 1 to Combined Tier 1 & 2) show that increased roadway capacity results in increased amounts of travel (VMT) and decreased time traveling (VHT) within the subarea.
- Similar trends can be seen within the region; however, the magnitude of differences between scenarios is smaller since North Fulton is a relatively small part of the overall 20-county region.

Table 4-4: 2030 E+C Statistics

2030 E+C Subarea Statistics	Total	Per Capita
Daily VMT	14,087,578	39.30
Daily VHT	766,538	2.14
8-Hour Peak VMT	7,916,394	22.09
8-Hour Peak VHT	539,400	1.50

2030 E+C Regional Statistics	Total	Per Capita
Daily VMT	187,901,752	27.56
Daily VHT	8,097,496	1.19
8-Hour Peak VMT	105,823,341	15.52
8-Hour Peak VHT	5,562,006	0.82

Table 4-5: 2030 Tier 1 Statistics

2030 Tier 1 Subarea Statistics	Total	Per Capita
Daily VMT	14,221,758	39.68
Daily VHT	748,450	2.09
8-Hour Peak VMT	8,019,082	22.37
8-Hour Peak VHT	527,189	1.47

2030 Tier 1 Regional Statistics	Total	Per Capita
Daily VMT	187,939,832	27.57
Daily VHT	8,057,574	1.18
8-Hour Peak VMT	105,873,940	15.53
8-Hour Peak VHT	5,534,325	0.81

Table 4-6: 2030 Combined Tier 1 & 2 Statistics

2030 Combined Tier 1 & 2 Subarea Statistics	Total	Per Capita
Daily VMT	14,283,862	39.85
Daily VHT	740,993	2.07
8-Hour Peak VMT	8,062,842	22.49
8-Hour Peak VHT	522,574	1.46

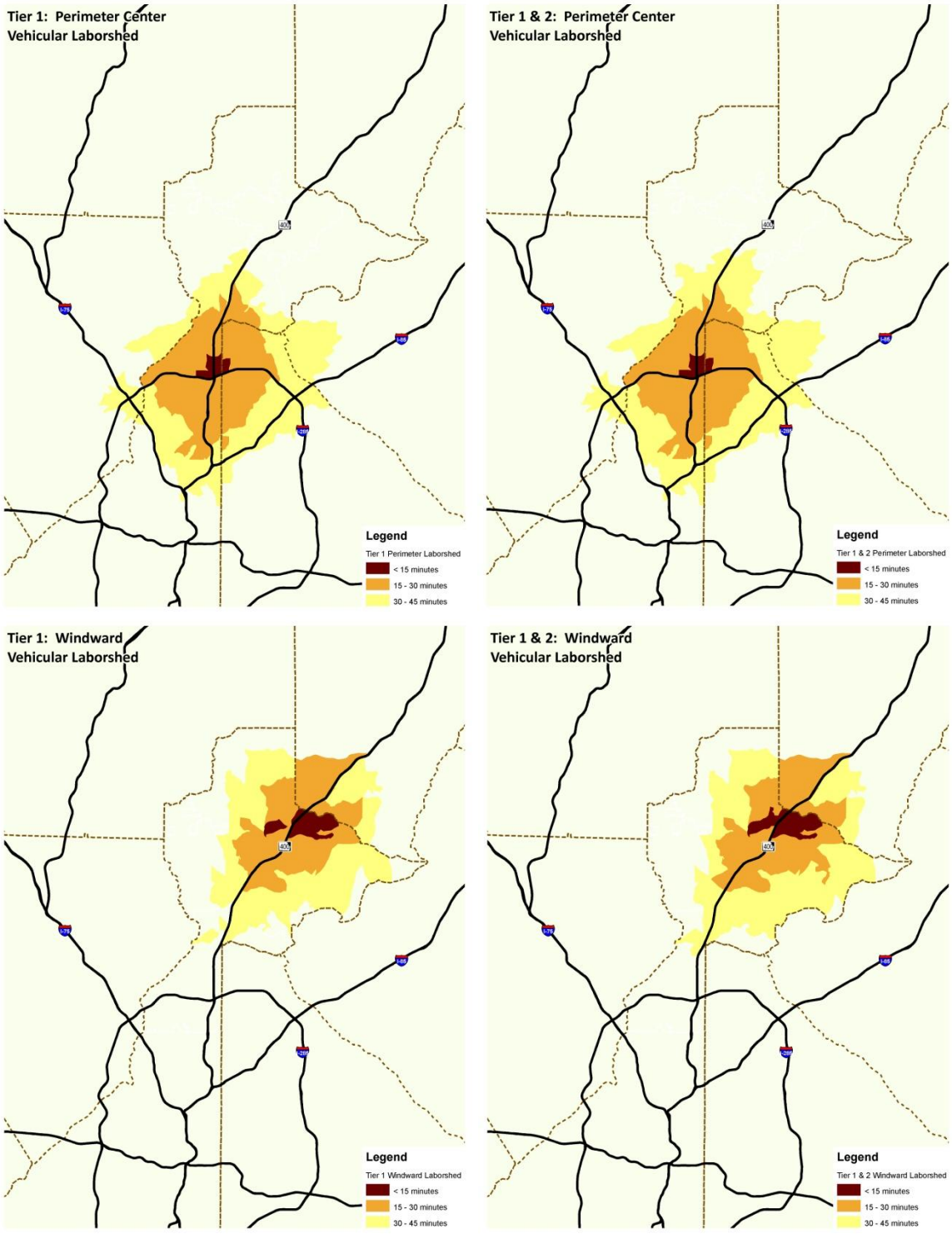
2030 E+C Regional Statistics	Total	Per Capita
Daily VMT	187,977,867	27.57
Daily VHT	8,044,956	1.18
8-Hour Peak VMT	105,907,533	15.54
8-Hour Peak VHT	5,526,924	0.81

Source: ARC Travel Demand Model, Georgia Regional Transit Authority (GRTA), Kimley-Horn and Associates, Inc.

4.3 Laborshed Analyses – Vehicular

Laborshed analyses were conducted to determine how many workers live within 15-, 30-, and 45-minutes of one of the two primary employment centers in North Fulton: Perimeter and Windward. During the Needs Assessment phase, laborsheds were analyzed for both the 2010 E+C and 2030 E+C scenarios. Following the selection of projects in Tier 1 and Tier 2, two additional laborshed analyses were conducted.

Figure 1: Travel Time to Employment Centers



Source: ARC Travel Demand Model, Georgia Regional Transit Authority (GRTA), Kimley-Horn and Associates, Inc.

The first laborshed analysis assessed the number of potential workers within 15-, 30-, and 45-minutes given the implementation of the Tier 1 projects. The second laborshed was calculated using the implementation of Combined Tier 1 & 2 projects.

Table 4-7 shows the number of workers within the 15-, 30-, and 45-minute laborsheds for the 2030 E+C, 2030 Tier 1, and 2030 Combined Tier 1 & 2 scenarios. Because a small number of Tier 1 and Tier 2 roadway improvements occur around the Perimeter employment center, no expansion in the 15- and 30-minute laborsheds occur with the Tier 1 or Combined Tier 1 & 2 scenarios; however, some expansion is recognized for the 45-minute laborsheds. Improvements to I-285, GA 400 and transit that are outside of the funding Tiers are expected to increase the laborsheds for Perimeter Center.

The initial (2030 E+C) size of the Windward laborshed is much smaller than that of Perimeter due to fewer vehicular options near Windward. Many of the vehicular capacity projects in Tiers 1 and 2 reduce congestion along a number of key roadways leading to the Windward employment center. For those two reasons, the 15-, 30-, and 45-minute laborsheds all grow significantly from the 2030 E+C scenario to the proposed scenarios.

Multi-county improvements such as managed lanes on GA 400, the collector-distributor system, and major transit improvements will increase the laborsheds beyond what exists with the Tier 1 and Tier 2 projects.

Table 4-7: Laborshed Breakdown

Workers within Laborsheds	Perimeter			Windward		
	2030 E+C	Tier 1	Tier 1 & 2	2030 E+C	Tier 1	Tier 1 & 2
< 15 minutes	3,061	3,061	3,061	2,296	6,717	7,113
< 30 minutes	115,737	115,737	115,737	32,354	55,024	62,530
< 45 minutes	277,577	278,987	284,253	116,325	138,003	142,178

Source: ARC Travel Demand Model, Georgia Regional Transit Authority (GRTA), Kimley-Horn and Associates, Inc.

5.0 PROJECT SELECTION AND PRIORITIZATION METHODOLOGY

5.1 Project Selection

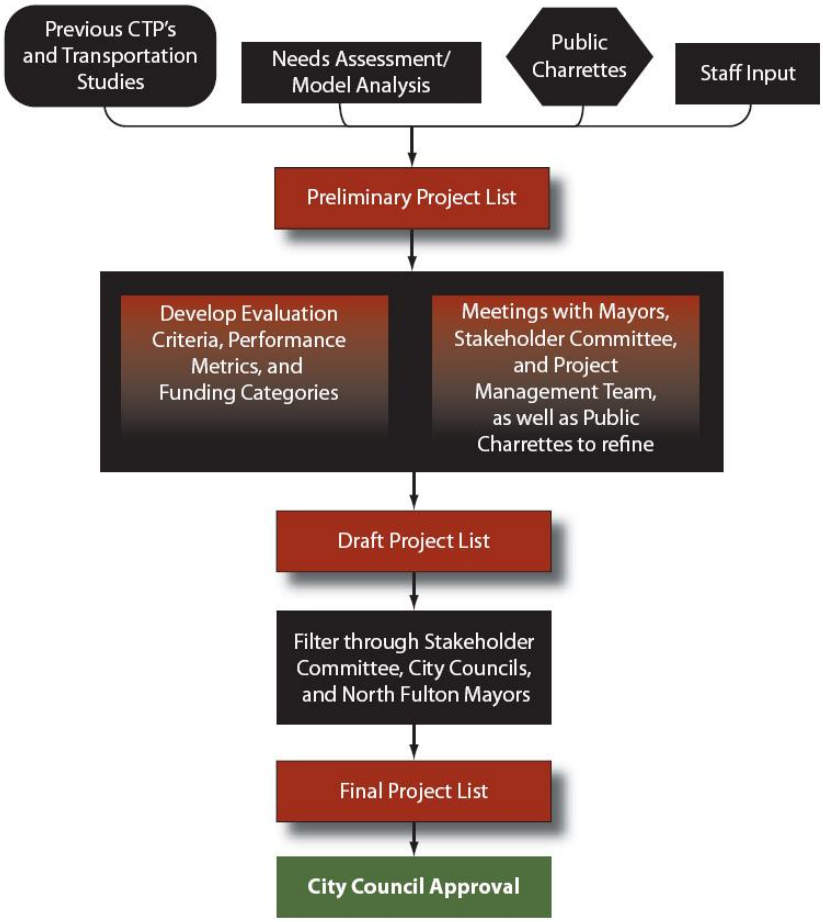
The initial list of project recommendations was generated using numerous sources of information. Quantitative analysis and qualitative input were used to develop the preliminary list, with attention paid to previously completed studies, so as to build on and utilize existing recommendations.

Five of the six jurisdictions within North Fulton have completed transportation plans or transportation components of larger comprehensive plans, as well as small area studies such as LCIs, corridor studies, and new connection plans. A review of these plans was completed early in the project to understand the previously identified needs. The plans were reviewed again during the recommendations process to identify the regionally significant projects that have already been proposed. ARC's *Envision6* plan, which is the current RTP/TIP, was also reviewed to establish a list of regionally significant projects that have already been approved.

In addition to researching existing plans, the results of the Needs Assessment analysis and the travel demand model were used to understand mobility deficiencies and to determine related recommendations. The results of the Needs Assessment analysis provided input into all modes of travel: bicycle and pedestrian, transit, and vehicular. Results of the 2030 Existing Plus Committed model analysis primarily provided insight into the development of vehicular recommendations. Roadways that were projected to be over capacity in the year 2030 were candidates for potential widening projects or new connection projects.

The final source of input into the preliminary list of recommendations was feedback from the staff, public, and

Figure 5-1: Project Selection and Prioritization Process



elected officials of the six jurisdictions. Regular coordination with the Project Management Team provided insight into projects that are needed by North Fulton and are likely to be acceptable to a majority of residents and commuters. The Needs Assessment charrettes provided perspective on multimodal deficiencies according to the residents of the area. Finally, input from the Mayors (Policy Committee) and some City Council members shaped the preliminary list of recommendations.

The list of preliminary recommendations was quite lengthy. The subsequent months involved a great deal of technical assessment and multijurisdictional coordination to refine the list of projects into the final list of recommendations documented in this report.

5.2 Project Prioritization

Following the creation of the preliminary recommendation list, a number of measures were used to filter and prioritize the projects. All measures were considered qualitatively, and no one measure defined a project's priority alone. The tools used to evaluate the projects are explained in the following subsections.

5.2.1 Evaluation Matrix

An evaluation matrix was developed to assess each of the projects relative to the priorities of the North Fulton CTP. Reduction in vehicular congestion, creation of new connections, improvements to bicycle, pedestrian, and transit modes, environmental/social impacts, collision reduction, and transportation demand management were all considered in this matrix. The content within the matrix was primarily consistent with *Envision6* and the GDOT project prioritization process along with guidance from the Vision and Goals of the North Fulton CTP. Projects were assigned values within each of the categories, with a possible total score of 100 points, so that they could be compared to all other projects. Reduction in recurring congestion accounted for 30 of the 100 points and was broken into three main categories: intensity, duration, and extent. These categories and the methodology for calculation using the ARC travel demand model are identical to that of the recurring congestion analysis used in *Envision6*.

Intensity of congestion refers to how much worse travel time is during the peak period versus the off-peak period. For instance, if it takes five minutes to travel a road in the off-peak times, but it takes 10 minutes during the peak, the intensity of the peak is twice the off-peak. If a new project results in a peak period travel time of 7.5 minutes, the reduction in travel delay is 50 percent.

Reduction in duration of congestion focuses on how many hours out of the day a roadway is over capacity. If a road is currently congested 12 hours per day and a new project reduces the over-capacity hours to 8 hours, the reduction in hours is 33 percent. Extent of congestion refers to the overall vehicle-hours of delay on a roadway. Reduction from 500,000 to 400,000 vehicle-hours constitutes a reduction of 100,000 vehicle-hours of delay.

Project scores ranged from the low 20s to the low 50s. On average, bike/pedestrian-only projects tended to score lower than vehicular improvements because they do not result in significant reductions to vehicular delay. However, because projects for each of the three mode categories were compared to one another, this variance was effectively eliminated.

5.2.2 Opinion of Probable Cost, Operations and Maintenance Costs

Opinions of Probable Cost (OPC) were completed for all projects using the ARC costing tool. This planning level cost-estimating tool considers design, right-of-way, and construction costs for new capital projects. Some projects have detailed budget information available. For other projects, more detailed estimates will be completed upon conceptual and design phases of the projects; however, using the ARC tool provided a consistent method of estimation for a planning study of this nature. Consistent with revenue calculations, all costing (design, right-of-way, and construction) was considered in 2010 dollars.

20-year Operations and Maintenance (O&M) costs were developed using research of statewide roadway maintenance costs conducted as part of the IT3 (Investing in Tomorrow's Transportation Today) project. Roadway improvement projects were estimated at $13,500 per lane-mile per year for 20 years (assuming 2010 dollars). Multiuse trail projects were estimated as half-lane projects. O&M costs were not considered in the OPC of a project, but the long-term cost associated with a project was taken into consideration during the prioritization process.

5.2.3 Annual Benefit

Approximate annual benefit was calculated for all vehicular projects using results of the travel demand model. Reductions in person-hours of delay, freight-hours of delay, and wasted fuel are considered to be benefits of a project.

5.2.4 Benefit-Cost Ratio

A relative comparison of the benefits resulting from a project compared with the costs associated with constructing it was used to evaluate projects on the list. Benefits were estimated for 20 years and were divided by the projected cost (capital and O&M) of the project. Calculations were performed in 2010 dollars.

5.2.5 Constructability

Projects were given a score between 1 and 5 to rate their relative levels of constructability. Projects with a score of 1 were considered to be extremely difficult to construct, often due to properties impacted, environmental concerns, etc. Projects given a score of 5 were expected to have very few impacts and were considered relatively straightforward. Because project details are not available, this assessment was somewhat subjective.

5.2.6 TIP / RTP Status

The current RTP (*Envision6*) was reviewed to assess which North Fulton projects (or similar projects) have already been approved as part of the existing RTP. Approximately half of the roadway projects exist in some form in the current RTP, while the majority of bike/pedestrian projects do not. Inclusion in the current RTP does not guarantee inclusion in *Plan2040*; however, projects that are recommended in both the current RTP and the North Fulton CTP may indicate strong contenders for funding.

5.2.7 Public Comment

The final metric considered to determine prioritization was public comment. This metric specifically references the results of the Recommendations Charrette voting process documented earlier in this document. Residents of the six jurisdictions were asked to use green dots for projects they liked (up to two dots per project) and red dots for projects they did not like (up to two dots per project). The number of dots per project was tallied for the six charrettes to provide insight into project popularity according to all North Fulton residents polled.

The Project Management Team, Stakeholder Committee, Mayors and City Councils have also provided valuable feedback regarding projects that is not directly considered as part of the toolbox but has been used throughout the project selection and prioritization process to influence the inclusion of projects in the final list of recommendations.

6.0 MULTI-COUNTY PROJECTS

6.1 Regional Location and Multi-County Projects

Given its location north of the City of Atlanta, North Fulton is extremely dependent on the operations of GA 400 and I-285. GA 400 provides access not only into the central city but also to the north, well beyond the limits of North Fulton. I-285 provides east/west access to the other critical interstates of I-75 and I-85 as well as to the south side of metro Atlanta. These facilities are part of an Atlanta regional picture that is larger than just North Fulton alone. Likewise, transit routes and operations are part of a larger regional context. Not only does access of the freeways and transit extend beyond the limits of the northern part of the county, but the ability to fund improvements along them also extends beyond the capabilities of North Fulton. For this reason, recommendations to GA 400, I-285, and major transit systems have been separated from the funding-oriented projects listed later in this report. Recommendations regarding the Multi-County projects are made here, but without regard to specific funding sources. The extents of these recommendations can be seen in Figure 6-1.

6.2 Multi-County Roadway Recommendations

As people continue to move to North Fulton and other nearby commercial and business centers expand, more demand is created along the GA 400 corridor. At one time, common solutions would have included the addition of general purpose lanes as demand exceeded capacity; however, cities and metropolitan regions have begun to realize that attempting to out-build congestion is not sustainable. The addition of general purpose lanes to GA 400 would not solve the long-term congestion issue. Meanwhile, the cross-section of GA 400 would rapidly become similar or larger than that of the downtown Connector, impacting existing properties and removing tree cover. Additionally, funding this type of project would be difficult, as federal funding for widening with general purpose lanes is disappearing and is being replaced with funding for projects with multimodal improvements.

GA 400 Roadway Recommendations

Recommendation: Provide managed lanes along GA 400 with interchanges at key crossings.

In limited areas, some general purpose widening may be a logical recommendation; however, the construction of a managed lane system is more likely the necessary approach for the entire corridor. Today, no HOV or HOT lanes exist along GA 400, meaning that no travel time incentives exist for those who carpool. The express buses that run along GA 400 have been able to take advantage of the reinforced shoulders for bypassing queues; otherwise, no travel time incentives would exist for taking transit either. The construction of a managed lane system provides travel time incentives for those that carpool (likely HOV 3+), those that take transit, and those that opt to pay for a reliable trip. Most other major interstates in the region already have HOV lanes, and the

North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC
20-County
Region

Legend

Multi-County Projects

- Transit
- Vehicular
- Expressways
- Other Roadways in Study Network
- Other Major Roads
- Study Area
- Counties
- Other Cities

Source: GDOT, ARC GIS Data

N

1 0.5 0 1 2 Miles

Figure 6-1
Multi-County Projects

addition of managed lanes to GA 400 is critical to the creation of reliable trips along the corridor. Although a number of scenarios are being considered, preliminary modeling shows that the construction of a 2-lane reversible managed lane system has the ability to reduce delay by over one million person-hours per day.

Conceptual work on the GA 400 managed lanes system will commence in late 2010 or early 2011 as part of a GDOT project. During that process, more detail will be determined on the numbers of lanes, locations of managed lane interchanges, and potential pricing scenarios. Additionally, analysis of the existing GA 400 interchanges should also occur, as many of them currently operate at a substandard Level-of-Service and likely will require modifications or reconstruction with the construction of a managed lane system.

Recommendation: Provide collector-distributor system from south of I-285 to Spalding Drive, parallel to GA 400.

Another key project being considered along GA 400 is the collector-distributor (C/D) system from south of I-285 to Spalding Drive in Sandy Springs. This roadway system potentially would include two lanes in each direction parallel to GA 400, providing access not only to GA 400 and the I-285 C/D system but also to Hammond Drive through a half-diamond interchange (currently under construction), Abernathy Road, and other Sandy Springs roadways. This additional access to Sandy Springs would allow vehicles to access the southern portion of North Fulton without having to directly use GA 400. This C/D system has the potential to reduce delay by approximately 400,000 person-hours per day according to preliminary modeling.

I-285 Roadway Recommendations

Recommendation: Monitor and support the recommendations of the revive285 study, particularly managed lanes and transit recommendations along the corridor.

Just as GA 400 is a critical component of north-south access within North Fulton, I-285 provides critical access east and west between I-75 and I-85. The top end Perimeter is severely congested during peak periods and currently is being studied as part of the r*evive285 Top End* study. A No-Build Alternative and three Build Alternatives are being considered:

- Alternative 4 includes express bus and operational improvements
- Alternative 6A includes express bus and operational improvements as above in addition to managed lanes and reservation of future enhanced transit right-of-way
- Alternative 6B is very much like 6A above but with lane reconfiguration of the existing general purpose lanes

The results of the *revive285* study will provide recommended improvements to the Top End that, in conjunction with improvements to GA 400, likely will result in significant improvements to both vehicular and transit access within and around North Fulton.

6.3 Transit and Land Use Recommendations

As North Fulton continues to experience growth over the next two decades, expanded regional and local transit service should be considered as a compliment and alternative to roadway investments. Effective transit service and land use are inextricably linked. Efficient transit cannot exist without the appropriate mix and density of land uses surrounding the stations and routes. Likewise, concentrated density without transit can create an excess of vehicular trips that overwhelms a roadway system. Atlanta's significant growth over the last 30 years was guided by major investments in automobile mobility, which allowed different types of land uses to be separated from one another. The lack of growth boundaries for the metro region (bodies of water, mountain ranges, defined urban growth boundaries, etc.) allowed people to live further and further away from the central city and to commute long distances to work. The combination of these two factors along with other considerations has resulted in the sprawling development patterns that are common throughout metro Atlanta. North Fulton is an example of this sprawling low-density development enabled by the construction of GA 400.

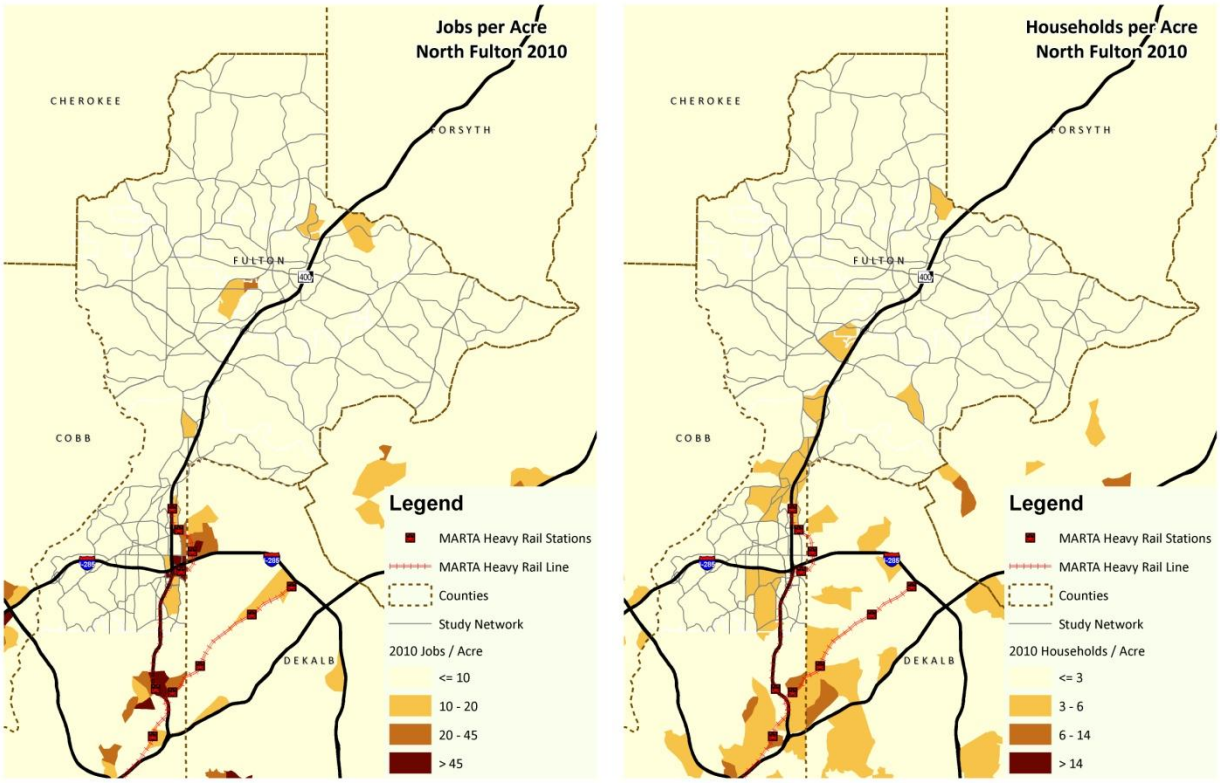
As documented in the Existing Conditions report, North Fulton has three MARTA heavy rail stations and 12 MARTA bus routes. The heavy rail stations are located in Sandy Springs while the majority of bus service is along or parallel to SR 9 in Sandy Springs and Roswell. Some bus service also exists east of GA 400, primarily along North Point Parkway in Alpharetta. Limited express bus service is also provided by GRTA.

Figure 6-2 shows the jobs per acre and the households per acre, respectively, in 2010 throughout North Fulton. In these figures, employment and household estimates are mapped by Traffic Analysis Zone (TAZ) as used in the travel demand model. Note that the residential densities throughout most of North Fulton are three units per acre or less – a density assumed to be too low for effective local bus service. The TAZs with residential densities between three and six units are located mostly along the SR 9 corridor in Sandy Springs and Roswell where existing local bus routes currently operate. Employment densities are greatest around the Medical Center station as well as the Dunwoody station, which is adjacent to Sandy Springs. The Windward employment center and areas within Roswell and the North Fulton CID are also denser than the minimum transit threshold.

Transit and Land Use Recommendations

Because of its purpose as a transportation plan, this study does not directly address land use changes within the North Fulton cities; however, some land use discussion relative to transit is warranted. If North Fulton is interested in pursuing additional transit routes and modes in the future, some changes to key locations within the Cities will be necessary to sufficiently support an enhanced system.

Figure 6-2: Employment and Housing Densities in North Fulton



Source: ARC Travel Demand Model and Kimley-Horn and Associates, Inc.

Existing MARTA Rail Station Recommendations

Recommendation: If increasing transit opportunities within North Fulton is a priority, support increases in density, particularly residential density, around the existing MARTA rail stations.

Land use changes should first occur around the existing MARTA heavy rail stations. When MARTA was designed in the 1970s and 1980s, station area plans were created for each heavy rail station. However, many of the plans were not implemented and the densities and mix of uses around the stations that are necessary to efficiently support transit are lacking today. Figure 6-3 shows the households and jobs per acre, respectively, within the ½ mile buffers of each of the four northernmost rail stations. This socioeconomic data was derived from the ARC travel demand model.

The household density around the MARTA stations fall within the lowest tier, with the exception of some portions of the northernmost two buffer areas. Overall, the number of households surrounding these rail stations is extremely low. The parking decks located at these stations allow commuters to park at the stations and to ride transit into the central city; however, relatively few people live within a reasonable walking distance of any of the stations. Employment density around the stations is better than the household density. Northside and St. Joseph's Hospitals,

Figure 6-3: Employment and Household Densities near MARTA Stations

Source: ARC Travel Demand Model and Kimley-Horn and Associates, Inc.

other medical facilities, and the Concourse ("King and Queen") buildings provide for a strong employment base around the Medical Center station. Perimeter Mall and some large office complexes fall within the Dunwoody station buffer area. Although many large employers fall within the ½ mile buffers of the rail stations, many of them require walking trips of 50 to 100 percent greater distance due to significant barriers such as GA 400 and I-285, lack of pedestrian connections, or superblocks surrounded by parking. Concentrating more dense residential uses and further increasing jobs around the MARTA stations will provide residents and employees around the stations more multimodal transportation opportunities and will also increase the ridership potential to the MARTA system.

GA 400 Rail Extension Recommendations

The results of this study identified the need for a high-capacity regional transit service to operate along or parallel to GA 400 as far north as Windward Parkway. Through the public outreach activities there was support for this concept and significant interest in extending MARTA's existing heavy rail service northward through North Fulton. Similar to this feedback, the results of the *Concept3* Report recommend a 13.3 mile light rail (LRT) line within the GA 400 corridor. Based on work completed for this study, there are several obstacles to moving forward with either of these rail options in the short term, including the following:

Capital Costs: Using an order of magnitude cost per mile methodology, the *Concept3* Report estimated implementation of the three-phased LRT projected would be $1 billion. The *Concept3* Report also included an order of magnitude cost per mile estimate to expand heavy rail service in the area. Based on the information from the report, the heavy rail cost per mile estimate was approximately 3.6 times higher than the LRT cost per mile figure. Assuming a heavy rail extension would follow the same alignment as the recommended LRT project, the order of magnitude estimate for the heavy rail extension would be approximately $3.6 billion.

Operating Cost: The *Concept3* Report also developed order of magnitude cost per hour estimates to estimate annual operating and maintenance (O&M) costs for heavy rail and LRT. The order of magnitude operating cost estimate for *Concept3*'s LRT alignment was $24 million. Based on information in the *Concept3* Report, the cost per hour estimate for heavy rail is double the cost per hour estimate for LRT. Assuming the same Level-of-Service would be provided on a heavy rail extension as the service levels proposed for the *Concept3* LRT alignment, the order of magnitude annual operating cost for the heavy rail extension would be approximately $48 million.

Funding: In order to implement the heavy rail extension or the LRT alignment, the various partners within the Atlanta region would need to agree that the project was a priority and should pursue federal funding through the Federal Transit Administration (FTA) New Starts program. This is a competitive grant program in which local agencies must document their ability to achieve "Medium" or higher ratings for several technical and financial criteria. One of the key criteria is a cost-effectiveness measure, which compares project ridership estimates to the capital costs to implement the project. Based on ridership projections developed for this study using existing land use patterns, neither the heavy rail nor the LRT project would achieve a competitive cost-effective rating. Additionally, the partners in the region would need to document that they have the ability to fund at least 50 percent of the total project costs. Based on the order of magnitude cost estimates, this would be approximately $500 million for the LRT project and approximately $1.8 billion for the heavy rail project. Given the level of transportation investment needed for the Atlanta region, this level of local dollars used for one project would be a significant challenge.

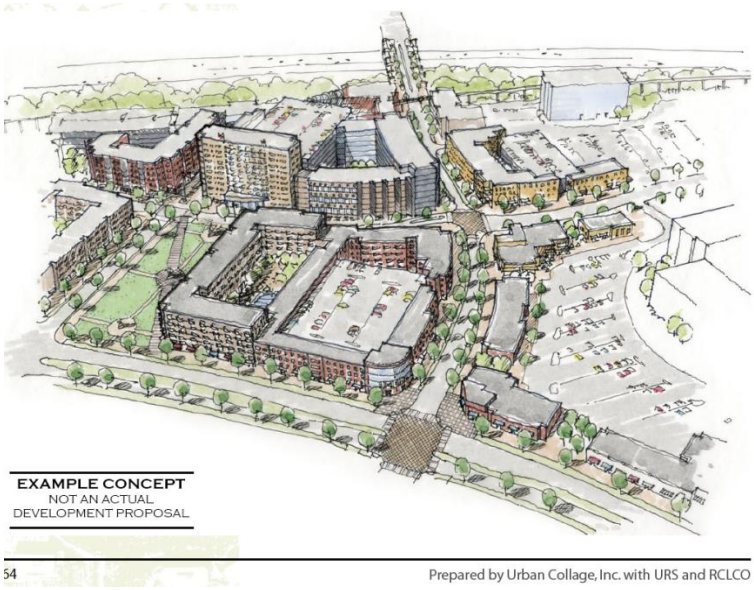
In addition to the capital funding challenges, on-going funding for operations would be a major issue. It is likely that MARTA would be the operator of either the heavy rail extension or LRT project. Given MARTA's on-going challenges to provide funding for local bus service, the prospect of adding $24 to $48 million annually in long-term operating costs is likely not feasible without a significant increase in operating funds.

Current Land Use Patterns: Because of the low-density development throughout North Fulton, it is difficult to project a successful extension of rail (either heavy or light) up the GA 400 corridor at this time. Accessibility to new rail stations likely would occur via automobile because few residential and employment uses are located within a ½ mile of the proposed rail corridor. Land use changes need to occur around the proposed transit stations to provide necessary ridership base for the future extensions.

Recommendation: Implement high capacity transit enhancements within the GA 400 corridor through the following phased approach:

- *Short term* – Initiate express bus operations within managed lanes along GA 400 for the near future. This concept is consistent with an on-going GDOT study that is evaluating the construction of High Occupancy Vehicle/High Occupancy Toll (HOV/HOT lanes) along GA 400. It is recommended that express buses would share the HOV/HOT lanes and could either connect to the MARTA rail station at North Springs or continue to major destinations farther south toward downtown Atlanta.
- *Short term* – At the same time the express bus service is being implemented, it is recommended that GDOT and the North Fulton region preserve right-of-way within the corridor for future potential rail transit (heavy or LRT), if future land use and development patterns and associated ridership levels support the level of investment required. This strategy should also include identifying and securing property for potential future transit stations.
- *Mid term* – Promote clustered walkable development at appropriate densities around key express bus stations in anticipation of permanent rail stations. As transit routes are added along the GA 400 corridor, particularly accessing locations within North Fulton, cities can encourage land use changes around the key station areas. Some transit-oriented developments that are being considered at this time include the North Point TOD, the Holcomb Bridge Road TOD, and the Windward area, each near GA 400.

Figure 6-4: North Point LCI Sample Concept



Source: North Point LCI

- *Long term* – Potentially extend rail in the GA 400 corridor to Windward Parkway (either heavy or light rail) if development at key stations increases and sufficient ridership is projected. Develop station area plans for the proposed rail stations / stops.

The concentration of walkable, higher-intensity residential and employment uses around the BRT stations will provide an increased ridership base for the GA 400 transit corridor. A cyclic process can be initiated: improved transit access can encourage increased densities around the stations. The concentration of residents and employees around the stations reinforces the need for transit. In future years, it is possible that with focused energy in appropriate areas, the extension of rail could become a reality. This land use strategy of concentrating walkable developments also

enables commercial areas near GA 400 to absorb greater growth while limiting increased congestion and infringement upon lower intensity areas away from the corridor.

Arterial Express Bus Recommendations

Recommendation: Conduct detailed analysis to evaluate the potential for implementing express bus or Bus Rapid Transit service along the following corridors:

- *Arnold Mill Road (SR 140) / Rucker Road, tying in to GA 400 transit*
- *Marietta Highway (SR 120) / Alpharetta Highway (SR 120) / Old Milton Parkway (SR 120) / State Bridge Road*

Consistent with the recommendations from the Transit Planning Board's *Concept3* report, the results of this study identified a need for an enhanced regional east-west transit service connecting jurisdictions within North Fulton with adjacent counties. These findings were also consistent with feedback received from the local jurisdictions indicating that a key component of the transit network that is missing is express bus or Bus Rapid Transit (BRT) service between major activity centers within North Fulton and the adjacent counties.

Figure 6-5: GRTA Xpress Commuter Bus

It should be noted that the recommendation for BRT along State Bridge Road differs from the *Concept3* Report, which recommends Abbotts Bridge Road for this section of the alignment. As part of the recommended detailed analysis of this corridor, both alignments would be evaluated based on a series of technical criteria.

The goal of the enhanced east-west service will be to provide competitive travel times (to vehicular travel) between major activity centers and employment nodes along the corridors. While specific features of the express bus service or BRT service were not analyzed in this study, they could include the following: frequent rush hour service, traffic signal priority, and the potential for dedicated transit-only lanes and queue-jumper lanes at major intersections, where applicable.

In addition to increasing the density around existing MARTA rail stations and future high capacity transit stations along GA 400, it will be important for the Cities to consider the redevelopment potential of key nodes along some of the more regional corridors that are projected to support future bus routes or enhanced transit service.

Figures 6-4, 6-5, and 6-6 show portions of three of the regionally significant corridors in North Fulton that are recommended for future transit. As various forms of transit are considered along

corridors such as Holcomb Bridge Road, Old Milton Parkway, and SR 9, important redevelopment should take place at key nodes.

Figure 6-6 shows ¼ mile and ½ mile buffer areas around the intersections of Georgia 400 at Holcomb Bridge Road and SR 9 at Holcomb Bridge Road. Currently, much of Holcomb Bridge Road is commercial land use with large surface parking lots. Some residential is located near the interchange, but it is relatively sparse.

Transit facilities provide the greatest mobility and see the highest levels of ridership when they are built around land uses that are reasonably dense and walkable. While land uses do not need to be mixed for transit to operate effectively, it often helps to locate different uses near one another. By concentrating residential, commercial, and often office uses in close proximity to one another, opportunities for walking are provided internal to the development. The concentration of origins and destinations also creates efficient opportunities for transit. In contrast, if these same densities and land uses were spread out over a much larger area, much like conventional development patterns, opportunities for walking and transit trips would turn into automobile trips.

A common concern arising from dense land uses is the resulting increase in automobile trips on the roadway network in the vicinity of new dense developments. Figure 6-7 focuses on addressing this particular scenario. Locally, if growth were to be concentrated into a walkable area, intersections and corridors on the surrounding roadway network would see an increase in vehicular trips. However, looking more regionally, if the same level of growth were to be spread out in an automobile dependent pattern, the net increase in vehicular trips would be greater and those vehicular trips would be more regional in nature, thereby increasing the overall impact on the roadway network. If zoning requirements are well-thought out and walkable site development incorporates good transportation principals, many of the vehicular trips attributed to new developments could avoid these main intersections and corridors completely. Examples of good transportation principals that support this concept include building a grid-style network with backage roads parallel to the main corridor and bypass roadways around main intersections,

Opportunities exist along the Old Milton Parkway (Figure 6-7) corridor for a better mix of uses, particularly at the interchange where office primarily is concentrated. Additionally, the Alpharetta Downtown Master Plan LCI formulates a strong plan for redevelopment opportunities along SR 9 at Webb Bridge Road (Figure 6-8).

Figure 6-6: Land Use and Transit Holcomb Bridge Road

Transit is related to walkability, mixed-uses, and density.

Dense areas with a mixture of uses are inherently more walkable. Nearly every transit trip begins and ends as a walking trip.

Figure A:
Density comparisons for high density residential

Current maximum allowable density- 5-8 units/acre.

If there's an enhanced transit future, higher densities in strategic locations will better support this goal.

15 units/acre

30 units/acre

Future Land Use
Current Municipal Policy (2010)

- low density residential
- medium density residential
- high density residential
- general commercial
- office/professional
- parks and recreation
- public/institutional
- existing and potential transit routes

- 1/4 mile radius around each node
- 1/2 mile radius around each node

Pedestrians will typically walk around 1/4 mile to reach destinations, but in some cases up to 1/2 mile to reach significant destinations such as rail stations.

Transit-Supportive Residential Density Thresholds

Type of Transit Service	Residential Density Threshold (Dwelling Units/Acre)
Basic Bus Service	7
Premium Bus Service	15
Rail Services	20-30

Source: Ewing 1996

Transit-Supportive Employment Density Thresholds

Type of Transit	Minimum Employment Density (Jobs/Acre)
Frequent, High Capacity Transit Service	25 (clustered near transit station)
Light Rail	50 preferred target

Source: Puget Sound Regional Council 1999

Redevelopment of Key Nodes:

Node 1:
State Route 9 and Holcomb Bridge Road
Potential Transit Enhancement Route

The current future land use is Office/Professional and General Commercial. Higher density residential housing would need to be considered to support transit ridership. This mix of uses would aid in the node becoming both a trip origin as well as a destination.

Node 2:
Georgia 400 and Holcomb Bridge Road
Potential Transit Enhancement Route

The current maximum allowable density for the Medium Residential Density designation is 3-5 dwelling units per acre according to City of Roswell Ordinance. The maximum residential density for the High Density Residential designation is 5-8 dwelling units per acre. Higher residential densities are needed to support premium bus service which offers greater frequency and more routes. Residential densities of around 20-30 units per acre (Figure A) are typically needed to support heavy rail transit such as (MARTA).

Additional Corridor Comments:

A Mixed-Use future land use category would help foster redevelopment goals. This will offer additional flexibility in the areas surrounding the proposed transit nodes, creating greater opportunities for reduced automobile trips.

The on-going Comprehensive Plan update process offers an opportunity to consider alternative scenarios, if transit is desired.

Figure 6-7: Land Use and Mobility
State Bridge Road/Old Milton Parkway

Future economic growth will place additional demands on the transportation network. How well the transportation network functions in the future will largely be determined by the shape of that future growth.

Focusing growth into multimodal developments will create less congestion than the same amount of growth spread out over a large area.

Consolidating growth into strategically designed locations can eliminate some vehicular trips by providing the options of walking, biking, or transit - options that will not be available if growth is distributed across the region.

A well-designed land use plan at major transportation nodes (such as major intersections) can create efficiencies in the transportation system, both locally and regionally.

Figure A:
Alpharetta Downtown Master Plan - LCI
Source: Alpharetta Downtown Master Plan

Figure B:
Density comparisons for high density residential

Current maximum allowable density- 10 units/acre

If there's an enhanced transit future, higher densities in strategic locations will better support this goal.

Pedestrians will typically walk around 1/4 mile to reach destinations, but in some cases up to 1/2 mile to reach significant destinations such as rail stations.

Figure C:
LCI design elements

textured pavement

pedestrian amenities
Source: Alpharetta Downtown Master Plan

Redevelopment of Key Nodes:

Node 1: State Route 9 and State Bridge Road
Intersection of existing and proposed transit routes.

Create conditions which support walkability, cycling, and transit. Growth that allows for mode choices will create fewer new vehicular trips. (Figure A)

Preserve the mobility and function of main thoroughfares through access management, signal timing, and good connectivity. Improved connectivity will create alternate routes which can facilitate local trips.

Current allowable density is 10 units/acre. Higher density will better support transit goals. (Figure B)

Node 2:
State Bridge Road and Georgia 400
Intersection of two proposed transit routes

Diversifying uses in this node would provide greater opportunity for walkability and transit. The development of a mixed-use future land use category which incorporates residential uses would further these goals. The potential transit node can thus become both a trip origin while continuing to serve as an office center destination. (Figure C)

Additional Corridor Comments:

Incorporate design elements shown in the LCI Master Plan in both nodes to create a transit oriented node identity. (Figure C)

The on-going Comprehensive Plan update for the City of Alpharetta offers an opportunity to consider alternative scenarios, if transit is desired.

Local Bus Service Recommendations

Recommendation: Work with MARTA to evaluate the existing local bus network in relationship to changing travel patterns based on recent demographic and land use changes, growing employment nodes, and multi-purpose activity centers, as well as the potential impact of major development projects planned in the near term. The fiscally constrained evaluation should focus on balancing the need to continue to provide effective and efficient transit service to the traditional major destinations within the Atlanta region with the local circulation needs among the North Fulton jurisdictions.

A common theme from the key leader interviews was that the current transit system does not reflect the recent development patterns within the region and within the local jurisdictions. This input was verified during the study's technical analyses. The existing conditions analysis identified 12 existing MARTA routes that provide service within the North Fulton area; however, only four of these routes currently provide service among multiple North Fulton jurisdictions. The predominant focus of the existing transit network is to provide access to MARTA's rail stations. Similarly, the results of the transit needs assessment identified areas with growing transit-dependent populations and evolving employment activity centers in locations where the existing transit network is not designed to serve as a competitive alternative to the automobile.

Whether or not transit service along SR 9 is elevated from local bus service to express bus / BRT, land uses and densities can be modified or increased at particular nodes to further support the transit that exists in the corridor.

SR 9 has a significant amount of retail along the corridor, as can be seen in Figure 6-8, some of which may be available for redevelopment in the next 10 years. As redevelopment occurs along this corridor, some of the commercial properties could be converted to residential or mixed-use developments. By enhancing the supporting roadway network parallel to SR 9 and around some of its key intersections, opportunities could be provided for drivers to avoid SR 9 to reach local destinations, thereby freeing up capacity along SR 9 to serve more regional trips. Redevelopment of key nodal parcels in a pedestrian-friendly design can change the pattern of travel along portions of the corridor and reduce automobile trips.

Transit Facility Recommendations

Recommendation: When planning for near-term and long-term enhancements to the transit system, ensure that opportunities for park-and-ride and transit centers are maximized.

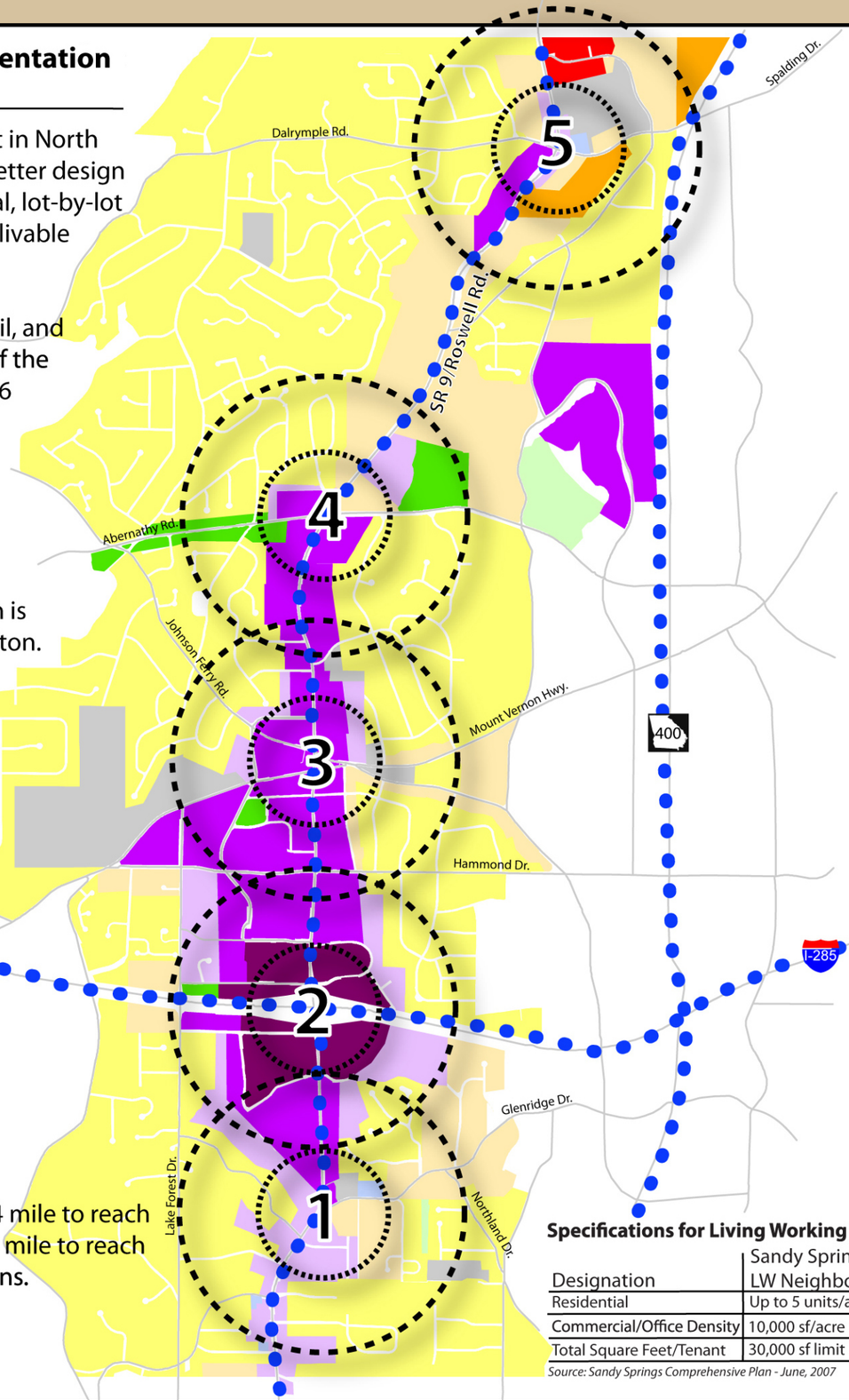
The North Fulton region currently has two bus park-and-ride facilities: the Windward Park-and-Ride, which is served by three MARTA routes (140, 143, and 185) and the Mansell Park-and-Ride, which is served by two MARTA routes (85 and 140). Based on feedback received during public outreach activities and from the local jurisdictions, there is a desire for additional park-and-ride facilities as well as transit centers, as passenger demand warrants, along existing and planned transit corridors. In general, there are many parts of the region that are likely to continue to follow the current low density, suburban development pattern well into the future. Given the traditional

Figure 6-8: Land Use and Implementation State Route 9

Many redevelopment opportunities exist in North Fulton which make implementation of better design standards possible. Although incremental, lot-by-lot improvements can make corridors more livable and more functional.

Some imbalances between housing, retail, and office space have developed as a result of the changing economy. North Fulton has 85.6 square feet of retail space per resident. This is twice the national average of 43.7 square feet per person. As facilities age, redevelopment becomes more likely.

The median year of construction of retail buildings in Sandy Springs is 1983, which is by far the oldest of the cities in North Fulton.



Future Land Use
Current Municipal Policy (2010)

- low density residential
- medium density residential
- high density residential
- living-working neighborhood
- living-working community
- living-working regional
- commercial/retail
- office center
- parks and recreation
- public/institutional
- existing and potential transit routes

1/4 mile radius around each node

1/2 mile radius around each node

Pedestrians will typically walk around 1/4 mile to reach destinations, but in some cases up to 1/2 mile to reach significant destinations such as rail stations.

Existing Conditions

Redevelopment Possibilities

Specifications for Living Working Categories

Designation	Sandy Springs LW Neighborhood	Sandy Springs LW Community	Sandy Springs LW Regional
Residential	Up to 5 units/acre	Up to 20 units/acre	Over 20 units/acre
Commercial/Office Density	10,000 sf/acre	25,000 sf/acre	Over 25,000 sf/acre
Total Square Feet/Tenant	30,000 sf limit	100,000 sf limit	Case-by-case

Source: Sandy Springs Comprehensive Plan - June, 2007

Redevelopment of Key Nodes:
Sandy Springs offers an example of mixed-use future land use category designations. Nodes 1-5 illustrate the following categories:

Living-Working Neighborhood
This is the lowest intensity option of the three living working designations. These areas are intended to serve a single neighborhood or small group of adjacent neighborhoods, and to be compatible neighbors to lower density residential neighborhoods.

Living-Working Neighborhood Example

Source: Sandy Springs Comprehensive Plan November, 2007

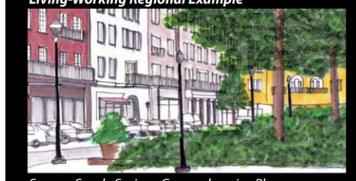
Living-Working Community
This is a medium intensity/density category that is intended to serve a group of adjacent neighborhoods and to be compatible with low and medium density residential neighborhoods.

Living-Working Community Example

Source: Sandy Springs Comprehensive Plan November, 2007

Living-Working Regional
This is a high intensity/density category that applies adjacent to major transportation interchanges and/or rail transit stations (with the exception of the Livework area at Dunwoody Place and Roswell Road). These areas have significant concentrations of employment.

Living-Working Regional Example



Source: Sandy Springs Comprehensive Plan November, 2007

travel behavior of residents in this type of development, the provision of a local bus connection to an enhanced regional transit system likely would not be cost-effective; however, there is a greater potential to capture portions of this population with park-and-ride facilities associated with the enhanced regional east-west and north-south service recommendations.

Additionally, based on the previously described recommendations, the potential near-term restructuring of the existing local transit service and implementation of enhanced regional east-west and north-south bus service likely would result in increased transfer activity for passengers. For the convenience of passengers and efficiency of the future system, transfer locations would likely be required at key route intersections.

To successfully implement this recommendation, the Coordinating Committee should work with MARTA staff to gain a clear understanding of the agency's standard for implementation of a new facility including, but not limited to, the following: property size, appropriate adjacent land uses, passenger activity, level of transit service, and opportunities for transit-oriented development around the facility.

Recommendation: Work with MARTA to determine a suitable location in North Fulton for a bus maintenance facility.

MARTA buses are currently stored and maintained far south of North Fulton and this causes longer initial/return trips (or deadheading) at the beginning and end of the day. A new bus maintenance facility in North Fulton would increase the efficiency of MARTA's existing bus operations and improve MARTA's ability to provide expanded service in the future.

7.0 NORTH FULTON REGIONAL PROJECTS

Following the completion of the project prioritization metrics, each project was able to be compared with the others to determine its relative priority in the list. As discussed in the funding section, three tiers of North Fulton specific projects were created:

- Tier 1: $500 million, the approximate cost of projects currently in the *Envision6* RTP in North Fulton (not including projects along GA 400, I-285, or significant transit projects)
- Tier 2: Up to $500 million, approximately the amount that North Fulton could earn with the 1 percent sales tax referendum
- Tier 3: All remaining projects that currently do not have a targeted source of funding. A number of options could be considered for raising transportation dollars, but none can be relied upon at this time.

7.1 Tier 1 Project List

Projects in Tier 1 are those of highest priority to the jurisdictions within North Fulton and to North Fulton as a whole. These projects will be competing with projects from around the region for a place in the *Plan2040* RTP and will be the initial focus of the jurisdictions following the adoption of the plan. A map of all Tier 1 projects can be seen in Figure 7-2 on page 54.

Table 7-1: Tier 1 Bike / Pedestrian Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
BP101	Big Creek Greenway Connection to Forsyth County	Connect Big Creek Greenway at Marconi Drive (currently under construction) to Forsyth County's trail system.	$10,000,000
BP102	Big Creek Greenway Connection to Chattahoochee River Walk	Connect Big Creek Greenway to Roswell's Chattahoochee River Walk along Riverside Road via existing bike lanes along Old Alabama Road south of Holcomb Bridge Road.	$4,000,000
BP103	Morgan Falls/Power Easement Multiuse Trail	Construct a multiuse trail within power line easement from existing trail system in Cobb County, crossing Chattahoochee River with new bicycle and pedestrian bridge, through Morgan Falls Park, east to Colquitt Road, north to Pitts Road - Project to link to other on-road bike facilities, including City of Dunwoody.	$16,000,000
BP104	East-West Bike/Pedestrian facility/route	Enhance bike/ped facilities along Riverside Road beginning at Eves Road, along Eves Road to Holcomb Bridge Road, and along Holcomb Bridge Road from Eves Road to Gwinnett County, creating a complete east-west bike/ped route through North Fulton.	$6,000,000

BP105	Johns Creek Connection to Big Creek Greenway	Connections made from Big Creek Greenway at Webb Bridge Road along Webb Bridge Road to Webb Bridge Park and from future Big Creek Greenway east of Marconi Drive down powerline easement to existing trail at Park Bridge Parkway. Grade separation only at Webb Bridge Road. At-grade crossings elsewhere.	$6,000,000
BP106	Milton Connection to Big Creek Greenway	Connection made from SR 9 to 1,500 feet east of Union Hill Road (at future Forsyth Co Big Creek Trail) via Webb Road to Morris Road to McGinnis Ferry Road and through Union Hill Park. At-grade crossings at all roadways.	$10,000,000

Figure 7-1: Big Creek Greenway

Four of the six bike/pedestrian projects are related directly to the extension of the Big Creek Greenway. The first two extend the greenway north to Forsyth County (tying in to the proposed Forsyth extension) and to the south (to the Chattahoochee River Walk in Roswell). The greenway is a valuable asset to North Fulton, and many of the Cities would like to have improved access to it. Two proposed projects are east/west extensions of the greenway, allowing residents of Johns Creek and Milton to have access to Big Creek. The two remaining bike/pedestrian projects are east/west facilities that connect to jurisdictions outside of the North Fulton region. The Morgan Falls trail will utilize the existing power easement to provide cyclists and pedestrians access throughout Sandy Springs. In its entirety, the project is proposed to cross the Chattahoochee River to Cobb County and to connect to Dunwoody and its future network of bike/pedestrian accommodations. The east-west bike/pedestrian facility travels along a number of the roadways in Sandy Springs and Roswell and along the Chattahoochee River, connecting from the Chattahoochee River on the west to Gwinnett County on the east.

Table 7-2: Tier 1 Vehicular Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
VH101	Capacity Improvements to Abbotts Bridge Road (SR 120)	Widen to 4 lanes from Parsons Road to Peachtree Industrial Boulevard.	$28,000,000
VH102	Capacity Improvements to SR 9 (Hamby Road to Academy Street)	Widen to 4 lanes from Hamby Road in Forsyth County to Academy Street.	$119,000,000
VH103	Capacity Improvements to Arnold Mill Road (SR 140)	Widen to 4 lanes from Cherokee County to Rucker Road. Done in conjunction with Rucker Road and Houze Road improvements.	$46,000,000
VH104	Operational Improvements to Rucker Road	Enhance facility to become a divided two-lane cross-section with a grass swale median and turn lanes from Hardscrabble Road to Wills Road.	$18,000,000
VH105	Operational Improvements to Atlanta Street (SR 9)	Remove reversible lanes from Marietta Highway to Riverside Road and widen to 4 lanes. (Does not include new bridge at Vickery Creek or grade separation of intersection with Azalea Drive)	$12,000,000
VH106	Capacity Improvements to Windward Parkway	Widen to 6 lanes from Deerfield Parkway to Union Hill Road.	$40,000,000
VH107	Operational Improvements to Hardscrabble Road	Enhance facility to become a divided two-lane cross-section with a grass swale median and turn lanes from SR 92 to Crabapple Road.	$16,000,000
VH108	Capacity Improvements to McGinnis Ferry Road	Widen to 4 lanes from Union Hill Road to Sargent Road.	$57,000,000
VH109	Capacity Improvements to Hammond Drive	Widen to 4 lanes from Roswell Road (SR 9) to Glenridge Drive and widen to 6 lanes from GA 400 to the DeKalb County border. Install bicycle lanes and sidewalks on both sides where widening occurs. Infill gaps in existing sidewalk from Mount Vernon Highway to Roswell Road (SR 9) and Glenridge Drive to GA 400 to create a continuous sidewalk network.	$29,000,000
VH110	Operational Improvements to Houze Road	Enhance facility to become a divided two-lane cross-section with a grass swale median and turn lanes from Rucker Road to Mansell Road.	$18,000,000
VH111	Capacity Improvements to Kimball Bridge Road	Widen to 4 lanes from Old Milton Parkway (SR 120) to Jones Bridge Road.	$21,000,000
VH112	Capacity Improvements to Jones Bridge Road	Widen to 4 lanes from Taylor Road to Douglas Road.	$28,000,000

The remaining projects included in Tier 1 are vehicular / capacity improvements. It is important to note that all capacity improvements recommended in this report should also include bike /

pedestrian enhancements. In some cases, the roadway being considered may not be suitable for certain types of bike accommodations. If bike access cannot be accommodated on a specific roadway, a sidepath or route along a nearby parallel facility should be considered.

While the projects are listed separately, many of them are intended to work together as a system of projects. For example, the Arnold Mill Road widening should be considered in conjunction with the Rucker Road and Houze Road improvements. The Hardscrabble improvements will also have an effect on the aforementioned roadways. Rucker Road and Houze Road were first recommended as 4-lane divided roadways; however, both Roswell and Alpharetta were hesitant to recommend full widening of these roadways given the surrounding land uses and character as well as in consideration of potential right-of-way impacts. Both projects were then scaled back to operational improvements to be done in conjunction with each other to partially accommodate the additional traffic resulting from growth in the area. Detailed study of the four projects should be done at one time, with actual right-of-way acquisition and construction occurring in phases. It will be important to first construct the Rucker Road and Houze Road improvements before implementing improvements to Arnold Mill Road.

Because the Kimball Bridge Road project and the Abbotts Bridge Road project are a part of the same roadway corridor, those projects should be studied together as well.

Other capacity improvement projects include the widening of SR 9, Windward Parkway, McGinnis Ferry Road, and Jones Bridge Road. The Hammond Drive project includes roadway widening, but some sections include just sidewalk improvements. Finally, the removal of the reversible lane along SR 9 has some capacity improvement, but the significant motivation for moving this project forward is for the safety improvements anticipated with the removal of the reversible lane. Project fact sheets have been created for each of the Tier 1 projects and can be found in Appendix B.

North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

- Regional Projects - Tier 1
- Bike/Ped
- Vehicular
- Expressways
- Other Roadways in Study Network
- Other Major Roads
- Study Area
- Counties
- Other Cities

Source: GDOT, ARC GIS Data

Figure 7-2
North Fulton Regional Projects Tier 1

7.2 Tier 2 Project List

Projects listed in Tier 2 are still of high priority to those in North Fulton. Some of the projects in particular require additional study and will be discussed in more detail below.

Table 7-3: Tier 2 Bike / Pedestrian Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
BP201	Medlock Bridge Road Multiuse Trail/Sidepath	Create trail from Gwinnett County to State Bridge Road, connecting to the existing trail at State Bridge Road.	$6,000,000
BP202	Westside Parkway/SR 9 (or parallel roadway) Bicycle Route Designation from Forsyth County to City of Atlanta	Enhance bike/ped facilities along this corridor (or along a nearby parallel facility where development on SR 9 precludes), creating a continuous north-south route.	$10,000,000

Two bike/pedestrian projects are included in Tier 2. The first is the creation of a formal trail along Medlock Bridge Road from Gwinnett County to State Bridge Road. The bike lanes or trail disappear or become part of the right-turn lane in many cases, which has resulted in a number of bicycle collisions with vehicles. This trail would be an important safety improvement.

The Westside Parkway / SR 9 bike route designation is meant to mirror the north-south accessibility of the Big Creek Greenway on the west side of GA 400. In many places, SR 9 is not suitable for bicycle travel; therefore, further study is required to find if the parallel route that has been identified is appropriate.

Table 7-4: Tier 2 Vehicular Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
VH201	Capacity Improvements to Holcomb Bridge Road (SR 140)	Enhance facility with operational improvements including turn lanes, median, and other access management between Nesbit Ferry Road and Gwinnett County.	$16,000,000
VH202	Capacity Improvements to Holcomb Bridge Road (SR 140)	Enhance facility with operational improvements including turn lanes, median, and other access management between Old Alabama Road and Nesbit Ferry Road.	$31,000,000
VH203	Capacity Improvements to Old Milton Parkway (SR 120)	Widen to 6 lanes and further access management from GA 400 to Kimball Bridge Road, additional auxiliary lanes from GA 400 to North Point Parkway.	$37,000,000
VH204*	New Connection - Big Creek Connection	Construct a new bridge over GA 400 north of Holcomb Bridge Road connecting Old Alabama Road to Warsaw Road.	$43,000,000

VH205*	Interchange Redesign - Holcomb Bridge Road at GA 400	Redesign Holcomb Bridge Road interchange, potentially involving a diverging diamond interchange from Warsaw Road to Holcomb Woods Parkway.	$50,000,000
VH206	Capacity Improvements to Jones Bridge Road	Widen to 4 lanes from Old Alabama Road to State Bridge Road.	$37,000,000
VH207	Capacity Improvements to State Bridge Road	Widen to 6 lanes from Medlock Bridge Road (SR 141) to Peachtree Industrial Boulevard.	$30,000,000
VH208†	Operational Improvements to Interchange at GA 400 and Northridge Road	Provide capacity and operational improvements to Roberts Drive and Dunwoody Place at the interchange and a roundabout at Somerset Court.	$1,200,000
VH209	Capacity Improvements to Spalding Drive	Add one northbound right-turn lane along Winters Chapel Road and add one westbound travel lane (becoming a left-turn only lane) along Spalding Drive. Includes a wider/rehabilitated bridge over Crooked Creek.	$3,000,000
VH210	Operational / ATMS Improvements to Interchange at I-285 and Riverside Drive	Revise design to include two-lane storage for ramp meter system (including signal upgrades), install new signal at westbound ramps with fiber interconnect, mast arms, and pedestrian facilities.	$1,400,000
VH211	Capacity and Operational Improvements to Old Alabama Road	Widen to 4 lanes between Nesbit Ferry Road and Jones Bridge Road and provide operational improvements between Jones Bridge Road and Buice Road.	$35,000,000
VH212	Capacity Improvement to Glenridge Drive	Widen along Glenridge Drive from Royervista Drive to High Point Road	$3,000,000

* Project is related to ongoing study of Holcomb Bridge Road interchange

† Costs provided by Sandy Springs due to detail of intersection improvements

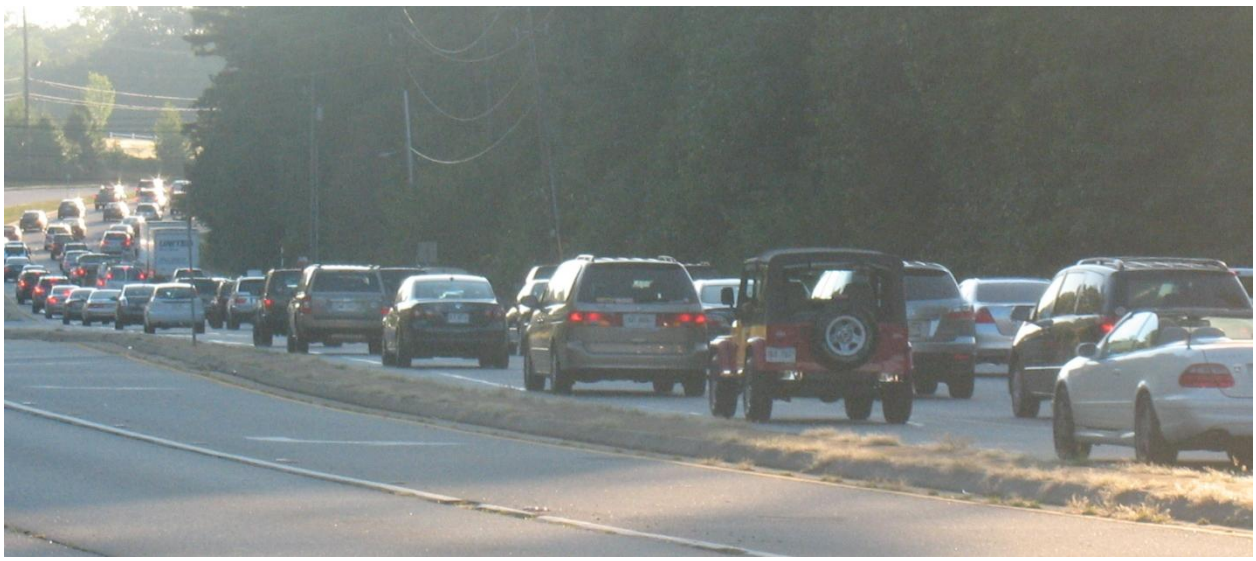
A number of key operational recommendations are included in Tier 2. Holcomb Bridge Road between Old Alabama Road and Gwinnett County should be enhanced to include turn lanes, medians, other access management features, and signal timing improvements to improve operations along the corridor. More extensive improvements that would satisfy expected demand were found not to have necessary public support. The interchange of GA 400 at Holcomb Bridge Road should be redesigned to improve access onto and off of GA 400. The City of Roswell will be conducting a corridor study along Holcomb Bridge Road between Warsaw Road and Holcomb Woods Parkway to assess possible solutions to the interchange and corridor deficiencies. This could include the publicly supported Big Creek connection between Old Alabama Road and Warsaw Road and complete redesign of the interchange (potentially including a diverging diamond at the interchange). Another concept that could be considered is a new northbound slip ramp from GA 400 to Old Alabama Road (south of Holcomb Bridge Road). This ramp would provide direct access from GA 400 northbound to Old Alabama Road without the need to access Holcomb Bridge Road. Turning movements from northbound GA 400 to eastbound Holcomb Bridge Road to northbound

Old Alabama Road could then be prohibited, improving operations and eliminating weaving in this short section of Holcomb Bridge Road.

A number of operational and short widening projects are being recommended in the City of Sandy Springs. Improvements to two interchanges, GA 400 at Northridge Road and I-285 at Riverside Drive, are included in the Tier 2 list. Additionally, some short widening sections along Spalding Drive and Glenridge Drive are recommended to relieve current bottlenecks within the City and to surrounding jurisdictions.

Three widening projects have been included in Tier 2: widening of Old Milton Parkway, Jones Bridge Road, and State Bridge Road. A widening project along Old Alabama Road is also included. This project is one section of a larger widening concept between Holcomb Bridge Road and Buice Road. A significant amount of traffic along Old Alabama Road diverts to Nesbit Ferry Road according to select link analysis in the travel demand model. Given this split, a widening is proposed between Nesbit Ferry Road and Jones Bridge Road with additional operational improvements between Jones Bridge Road and Buice Road. The remaining project between Holcomb Bridge Road and Nesbit Ferry Road is discussed in more detail in Tier 3.

Figure 7-3: Holcomb Bridge Road During the Morning Peak Hour



North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

- Regional Projects - Tier 2
- Bike/Ped
- Vehicular
- Expressways
- Other Roadways in Study Network
- Other Major Roads
- Study Area
- Counties
- Other Cities

Source: GDOT, ARC GIS Data

Figure 7-4
North Fulton Regional Projects Tier 2

7.3 Tier 3 Project List

The final projects are those that fall into Tier 3 of the project list. These projects are still recommended even though they are of lower priority than the two previous tiers. If funding can be located for these projects and all projects within Tiers 1 and 2 have been completed, these projects should be pursued by the jurisdictions.

Table 7-5: Tier 3 Bike / Pedestrian Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
BP301	Various Big Creek Greenway Connections	Provide direct connections to existing activity centers (employment, services, etc.) from existing Big Creek Greenway.	$8,000,000
BP302	New Bike/Pedestrian Chattahoochee River Crossing (Spalding Drive to Eves Road)	Construct a new river crossing (bike and pedestrian only) extending Spalding Drive to connect to Eves Road, ending at Holcomb Bridge Road.	$12,000,000

Two bike / pedestrian projects are included in Tier 3. The first builds upon the existing Big Creek Greenway system. The current greenway is an outstanding amenity to those traveling along it, but in some cases, the greenway does not connect to destinations within North Fulton that are less than one mile away from it. This project would improve connectivity from the greenway to some of the local destinations so that those who live and work around the greenway can have better access to it.

The second project was originally recommended as a full vehicular / bike / pedestrian project across the Chattahoochee River. Both Sandy Springs and Roswell were reluctant to move forward with the project as recommended due to the right-of-way impacts that likely would result. The cities did agree on the concept of a bike / pedestrian only connection that would provide much needed access to cyclists and pedestrians but with less overall impact.

Table 7-6: Tier 3 Vehicular Projects

Proj. #	Project Name	Project Description	Opinion of Probable Cost
VH301	Capacity Improvements to Medlock Bridge Road	Widen to 6 lanes from Gwinnett County to Medlock Crossing Parkway.	$26,000,000
VH302	Capacity and Operational Improvements to Old Alabama Road	Add median and operational improvements at intersections between Holcomb Bridge Road and Nesbit Ferry Road.	$24,000,000
VH303	Capacity Improvements to Holbrook Campground Road/Hamby Road	Widen sections of Holbrook Campground Road, Hopewell Road, and Hamby Road to State Route 9.	$59,000,000
VH304	Capacity Improvements to Haynes Bridge Road	Widen to 4 lanes from Old Alabama Road to Mansell Road.	$27,000,000

The final vehicular projects are listed in this section. Widening recommendations are made along Medlock Bridge Road, Holbrook Campground/Hamby Road, and Haynes Bridge Road. In lieu of a traditional widening project, a grade separation at the intersection of Medlock Bridge Road and State Bridge Road could be considered. The remaining portion of the Old Alabama Road improvements is also included in this tier. The section includes operational improvements such as medians and turn lanes instead of a traditional widening project.

North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

Regional Projects - Tier 3

- Bike/Ped
- Vehicular
- Expressways
- Other Roadways in Study Network
- Other Major Roads
- Study Area
- Counties
- Other Cities

Source: GDOT, ARC GIS Data

Figure 7-5
North Fulton Regional Projects Tier 3

8.0 ADDITIONAL RECOMMENDATIONS

8.1 Transportation Demand Management

Transportation Demand Management or Travel Demand Management (TDM) involves the use of policies and strategies to reduce travel demand, specifically travel demand by automobiles. TDM is promoted in many urbanized areas as a cost-effective way to reduce traffic congestion, reduce air pollution, and increase the person-carrying capacity of the transportation system. This section summarizes existing TDM initiatives in the North Fulton area, suggests additional TDM strategies that could further improve travel conditions in the area, and identifies an action plan to implement those strategies.

8.1.1 Existing Programs

Existing TDM programs include both regional and local initiatives. Regional initiatives include ARC's RideSmart program and the outreach activities of the Clean Air Campaign. These regional initiatives work cooperatively to provide and promote travel options in the Atlanta region. Local initiatives include activities by the Perimeter Transportation Coalition and North Fulton CID, both of which interact with employers and employees on a regular basis.

ARC's RideSmart service provides helpful information on using carpools, vanpools, transit, and bicycles as alternatives to driving alone. It offers ride-matching service to persons interested in finding a suitable carpool, vanpool, or schoolpool (carpooling to school). They also sponsor the Guaranteed Ride Home program, which provides a free ride home to carpoolers or vanpoolers in the event that a mid-day emergency requires traveling home outside the normal commute hour. This service takes away many apprehensions people have about leaving their car at home.

The Clean Air Campaign is a non-profit organization who provides free employer assistance, education and information regarding TDM opportunities in the metro area. In essence, they are the "feet on the ground" to reach out to commuters through the employers and promote the many services and opportunities provided throughout the region. They even offer cash and prizes as incentives to get people to carpool, vanpool, ride transit, walk to work, bike to work, or telework.

Similarly, Transportation Management Associations (TMAs) provide similar outreach and education in local areas. Perimeter Transportation Coalition (PTC) is the TMA providing education, outreach, and advocacy in the Perimeter area. PTC coordinates directly with large employers and their employees in the Perimeter area, providing education about TDM opportunities, helping people take advantage of the resources and opportunities made available through RideSmart and the Clean Air Campaign. They also provide traveler information about shuttles, transit, walking and

biking in the Perimeter area. PTC is currently the only TMA serving a portion of the North Fulton area. Areas of North Fulton outside the PTC's area are served by the Clean Air Campaign.

It should also be noted that, while not specifically classified as a TDM strategy, the existing transit service in the North Fulton area also reduces auto travel and congestion.

Additionally, Fulton County school policies have a huge impact on travel to/from public schools. Fulton County schools provide bus transportation to all students outside a designated "walk" zone. Discussion has recently occurred about the size of that walk zone. On the face of the issue, it might seem that a larger walk zone would encourage more walking to school; however, based on the amount of discussion about traffic problems associated with parent drop-off at numerous schools, decreased busing may actually increase parent drop-offs, thus increasing traffic congestion.

8.1.2 TDM Strategies

Considering the density of development, heavy traffic flows and levels of congestion in the North Fulton area, there seems to be significant opportunity to further reduce single-occupant auto travel through additional TDM efforts in North Fulton. While TDM implementation is inexpensive compared to capital improvement programs, many will still require the commitment of staff resources to engage in outreach, education and promotion of alternative transportation options. Many communities have added or designated a bike coordinator, rideshare coordinator, TDM coordinator, or similar position to facilitate these initiatives. In fact, many initiatives can be undertaken with little additional cost beyond the staff time necessary to take the initiative. Following is a description of a variety of TDM strategies, followed by a short list of those that align well with the conditions and opportunities for TDM in North Fulton.

A broad range of TDM strategies is being used across the nation, falling generally into the following categories:

- Informational – TMA's and other organizations seek to inform the traveling public of all the options that exist to reduce single-occupant trip making. These programs often focus on educational programs for transit, biking, carpooling, vanpooling, or teleworking.
- Parking – strategies that seek to manage parking locations and/or use through fees, enforcement, or incentives.
- Alternative mode infrastructure and services – these strategies follow the "if you build it, they will come" philosophy, improving infrastructure for walking, biking, and transit.
- Road pricing – including varying tolls by time of day, creating "car free" zones

Within these categories, there is much variety and creativity in the specific strategies and programs being used. Based on the conditions and opportunities in North Fulton, the following strategies are recommended for consideration, followed by necessary steps for implementation.

Flex Time and Teleworking – Both teleworking (i.e. working from home) and Flex Time (working alternate hours) reduce trips during the peak hours, which can have a significant effect on reducing congestion and air pollution. Atlanta demonstrated this well during the 1996 Olympics, when much of the city altered normal travel patterns to accommodate the millions of visitors who were traveling between Olympic venues. Although the Clean Air Campaign and the PTC are already promoting these activities, further increasing the awareness and education of both employers and employees about these options can be even more significant. Specific awareness and ad campaigns can further increase these activities.

Transit and shuttle services - Many employers in the Perimeter area currently run independent shuttles between their offices and nearby MARTA stations. The NFCID is investigating the demand and potential benefits of operating a local circulator service between major destinations, including MARTA park-and-ride and transit stations. A possible partnership between employers, Cities, and the CIDs could implement a shared shuttle or circulator service to improve transit accessibility and to reduce auto travel.

Biking and walking infrastructure – This North Fulton TRIP is recommending additional walking and bicycle infrastructure beyond that which the Cities currently have planned and programmed. Investment in this infrastructure by the Cities and CIDs shows potential to continue to increase walking and biking in the North Fulton area.

Education and cultural awareness – Education and cultural awareness can have a big impact on the choices people make. Many communities routinely sponsor events to raise awareness and educate people about using transit or bicycle travel, and have seen commensurate increases in use. The PTC and the Clean Air Campaign undertake these initiatives, but the Cities have much to contribute as well.

Variable road pricing and managed lanes – With the planned addition of managed lanes to the GA 400 corridor, variable pricing will likely be used on that corridor to discourage travel during the traditional peak periods. Also, these managed lanes will encourage carpooling and transit ridership.

Development codes – Several specific requirements or limits within each city's development codes have a direct impact on travel. For example, some communities require facilities for bicycle parking and showers/changing facilities at all commercial and large office uses. Preferential parking for carpools and vanpools can also be required. Additionally, the parking requirement itself can be a TDM strategy if parking maximums are put in place. Parking minimums can be reevaluated to ensure excess parking is not being required.

School-related TDM strategies – School-related TDM strategies are an important consideration to any community. National data indicates that travel to schools represents between 10-15 percent of morning peak period trips and that walking or biking to school has declined from 42 percent in 1969 to 13 percent in 2005. Meanwhile, school bus costs represent between 7-12 percent of a school system's total budget. (According to information from Fulton County Schools, the current

budget allocates approximately 5% to student transportation. However, some equipment purchases have been removed from the current budget to save costs.) Finally, the health benefits of walking and biking have been widely documented by the Centers for Disease Control (CDC).

The Federal Safe Routes to Schools (SRTS) program encourages communities to improve walking conditions to schools to reduce traffic, improve air quality, and promote healthy life styles. SRTS was created by Section 1404 of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users Act* (SAFETEA-LU), is funded through the Federal Highway Administration, and is administered by state DOTs. SRTS seeks to create safe routes through engineering, enforcement, encouragement, and education. It is not a mandatory program, but a grant program available to communities who share similar goals.

Some Fulton County schools are already encouraging parents and students to use the buses, walk, or bike to school to reduce traffic congestion and air pollution via their school newsletters. This and more promotion campaigns, special events, and contests can encourage parents, students, and staff to reduce automobile travel to schools (marketing TDM). These efforts should also include education of pedestrian and bicycle safety. "Walking School Buses," in which a parent walks a group of students to and from school, could also be promoted in all schools.

Figure 8-1: School Bus Loading at a North Fulton Elementary School

Both the school system and the Cities could work to further reduce barriers to non-motorized transportation. For example sidewalks, crosswalks, bicycle lanes, and bicycle parking will make walking and biking both easier and safer.

Parking management at high schools should be considered. Where school-related traffic congestion has become a problem, free parking should be re-considered. Some schools are now managing their parking to discourage driving to school. Parking proceeds can then be used to improve facilities for walking and biking to school.

A longer-term strategy deals with the actual size and location of the schools themselves. Many communities are increasingly focused on smaller school sizes, which has the effect of reducing the need for bus transportation and increases the percent of students walking and biking to school. In 1969, 45% of elementary school students lived less than one mile from their school; today, fewer

than 24% live within this same distance.[1] This trend can be reversed by coordinating the policies of the school system with the community's transportation and quality of life goals. As an example, the City of Davis, California was able to eliminate its school buses entirely – that represents over $46 million per year in the Fulton County Schools budget.

8.1.3 Action Plan

Following is a list of steps recommended for growing TDM strategies in North Fulton:

Recommendation: Determine level of investment desired for TDM strategies.

Successful implementation of TDM strategies will require on-going dedicated staffing and resources. The Coordination Committee, as described in the Implementation Monitoring section of this report, should determine what level of investment the Cities will jointly make in TDM implementation.

Recommendation: Select which TDM strategies are most appropriate for implementation in North Fulton given the amount of resources available to manage those programs.

Once a level of investment and resources has been established, the Coordinating Committee should implement strategies provided in this report such those in Table 8-1.

Table 8-1: TDM Action Plan

TDM Strategy	Entities Engaged	New or Additional Efforts
Promoting flex time and teleworking	PTC, Clean Air Campaign	Cities and CIDs
Transit and shuttle services	MARTA, employer shuttles	Cities and/or CID's
Biking and walking infrastructure	CIDs, Cities	CIDs, Cities
Education and Awareness	PTC, Clean Air Campaign	Cities
Variable Road Pricing		Georgia DOT/SRTA (GA 400)
School TDM strategies	Certain individual schools	Cities and Fulton Schools

8.2 Pedestrian Level-of-Service Guide

8.2.1 Walkability as a Regional Mode of Transportation

Pedestrian access is typically thought of and designed at a very local scale such as in a small downtown, a neighborhood, a streetscape, or even within an individual development. In a larger,

[1] Noreen C. McDonald (2005), *Children's Travel: Patterns and Influences*, dissertation, University of California Transportation Center

more regional planning focus, walkability is a critical consideration but in a different context. Regional mobility for pedestrians is defined by having a regional collection of localized walkable places and how those places relate to each other and the surrounding area.

The existence of localized walkable places can have a major impact on how regional trips occur. For instance, if enough complimentary trip destinations can be consolidated into a walkable area such as a downtown, a user can then make one trip to that downtown by any mode and complete the remainder of trips on foot. If all of those individual trip destinations, which would otherwise be located together in a downtown, are spread out over a much larger area, then they become primarily accessible by automobile. In this way, walkable places are complementary to alternative modes of travel such as transit and cycling, which are likewise not typically effective in regions with sprawling development patterns. Every transit trip begins and ends as a pedestrian trip. If a regional collection of walkable places such as corridors, neighborhoods, shopping districts, and employment centers is assembled, then these places can be linked together by a transit and cycling network that could then lessen the need for single occupancy vehicle trips.

Figure 8-2: Examples of Walkable Neighborhood Streets

Grant Park – Atlanta, GA Decatur Downtown –Decatur, GA

Source: http://www.cnu.org/

An initial regional collection of walkable places has already been identified within North Fulton through the completion of LCI studies and the development of the Unified Growth Policy Map (UGPM). These areas, indicated on During the Existing Conditions Phase, the entire study network was analyzed to establish an existing Pedestrian LOS value for each segment of roadway. The study network totals approximately 319 centerline miles and the average mile of North Fulton roadway has a Pedestrian LOS score of 3.83, equal to a grade of "D". More detailed information on the existing level of service on the study network can be found in the *Existing Conditions Report* as well as the *Needs Assessment Report*.

, may still be developing their local pedestrian networks, yet because they have already been identified, they can serve as a framework for creating a more regional network of pedestrian facilities.

8.2.2 Potential Pedestrian Improvements on the Study Network

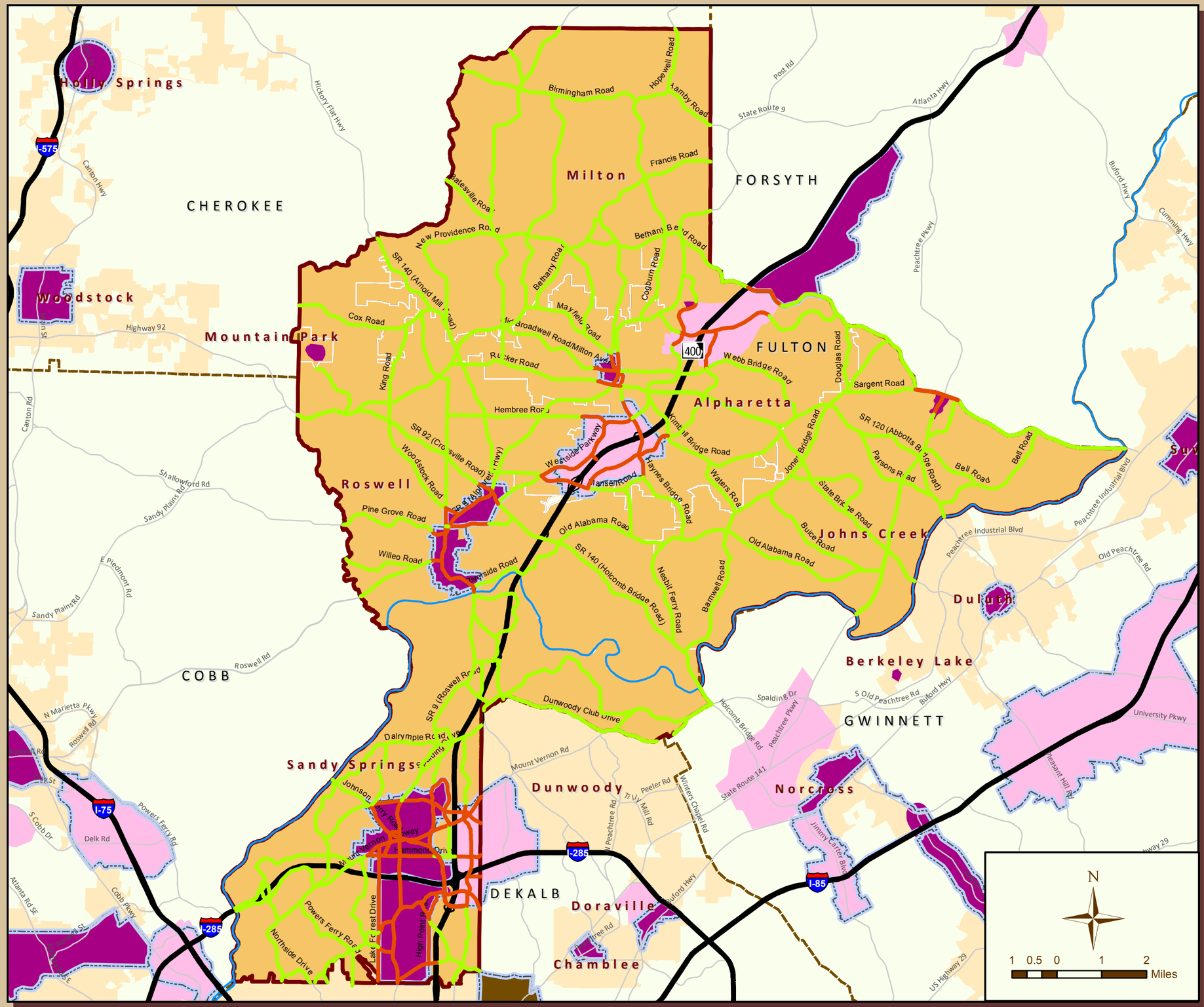
This section of the report focuses on potential improvements to pedestrian accommodations specifically along the North Fulton CTP study network. These routes not only connect major walkable destinations to one other, but also serve as thoroughfares facilitating regional trips for all modes of travel. For these reasons, it was determined that a minimum standard of pedestrian facilities should be provided on all roadways included in the study network, while a higher standard should be provided where the study network passes through regionally designated walkable places. A map of the study network and minimum pedestrian accommodation thresholds can be seen Figure 8-3.

As described in the *Existing Conditions Report*, Pedestrian Level-of-Service (LOS) is the metric used in this study for evaluating pedestrian accommodation. The Pedestrian LOS value models a pedestrian's perception of safety and comfort along a given roadway. This value is calculated by considering such factors as presence of sidewalks, width of sidewalks, width of any buffer between the sidewalk and the roadway, presence of on-street parking, volume of vehicular traffic, and average speed of vehicular traffic. The Pedestrian LOS methodology is the same technique that is now slated for inclusion in the 2010 *Highway Capacity Manual.* This Pedestrian LOS calculation is described in further detail in Appendix C of the *Existing Conditions Report*. A Pedestrian LOS score, ranging from "A" (best) to "F" (worst) can be calculated. This stratification of Pedestrian LOS scores into letter grades is shown in Table 8-2.

Table 8-2: Pedestrian Level-of-Service Score Stratification

Level-of-Service (LOS)	LOS Score
A	< 1.50
B	1.51—2.50
C	2.51—3.50
D	**3.51—4.50**
E	4.51—5.50
F	> 5.50

During the Existing Conditions Phase, the entire study network was analyzed to establish an existing Pedestrian LOS value for each segment of roadway. The study network totals approximately 319 centerline miles and the average mile of North Fulton roadway has a Pedestrian LOS score of 3.83, equal to a grade of "D". More detailed information on the existing level of service on the study network can be found in the *Existing Conditions Report* as well as the *Needs Assessment Report*.



North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

- Level-of-Service Goal
  - Level-of-Service B
  - Level-of-Service C
- LCI Areas 2000-2008
- Regional Center
- Town Center
- Station Community
- Other Major Roads
- Expressways
- Chattahoochee River
- Study Area
- Other Cities
- Counties

Figure 8-3
Pedestrian and Bicycle Level-of-Service Guide

After the network was analyzed for existing Pedestrian LOS scores, the Project Management Team selected a minimum threshold of Pedestrian LOS "C" for the overall study network and a minimum threshold of Pedestrian LOS "B" within those areas of particular emphasis to be the target level of accommodation for pedestrians. These minimum target thresholds, shown in Figure 8-3 form a Pedestrian Level-of-Service Guide that can be used by municipalities when considering future roadway improvements.

The roadways were analyzed for potential improvements that would bring those roadways that have a Pedestrian LOS below the target threshold up to the desired level of accommodation. When the data was collected for the Pedestrian LOS calculation, additional data on the roadside profile was also collected, which is helpful in deciding on potential pedestrian improvements such as constructing a sidewalk. This additional data includes characteristics of the shoulder and adjacent grading such as whether the shoulder is flat, sloping, or contains a ditch. These characteristics were used to develop the recommendations described in this section.

A sidewalk is the most common element needed to achieve a desired Pedestrian LOS; however, there are many cases where a relatively high level of accommodation can be achieved even in the absence of a sidewalk. This situation frequently occurs on low-volume local and minor collector streets with typical or greater than typical lane widths. Likewise, there are some situations where a sidewalk alone is not enough to achieve a desired Pedestrian LOS. This occurs along very high-volume high-speed roadways where a buffer may be needed between pedestrian walkways and the flow of vehicular traffic.

The resulting recommended improvements for individual roadway segments in the study network include seven possible categories for each evaluated segment:

- Currently meets Pedestrian LOS threshold
- Sidewalks exist on both sides of street (but segment does not meet Pedestrian LOS threshold)
- Sidewalk exists on one side, construct sidewalk on opposite side with minimal grading
- Sidewalk exists on one side, construct sidewalk on opposite side with significant grading
- Minimal sidewalk coverage exists, construct sidewalks on both sides with minimal grading
- Minimal sidewalk coverage exists, construct sidewalks on both sides with significant grading
- Detailed corridor study needed (DCSN)

The segments, with their respective recommendation designations, can be seen graphically in Figure 8-4 and are listed with more detail in the data tables of Appendix C. Following is a description of each of the individual recommendation categories.

Currently meets Pedestrian LOS threshold

Approximately 87 miles (27 percent) of the study network currently meets the targeted Pedestrian LOS threshold. The data for the calculations reflect the *typical* conditions across segments of different lengths, so although a segment may meet the overall threshold requirement, some gaps in

pedestrian infrastructure could exist. Given that these segments already meet the minimum identified Pedestrian LOS thresholds, they are not included in this recommendations list.

Existing Sidewalk Both Sides

After those segments that meet the targeted Pedestrian LOS were identified, the balance of the study network was reviewed to determine if complete sidewalk coverage exists on both sides of the street while some other factors are preventing them from performing at the desired Pedestrian LOS. Even though these sections do not meet the desired Pedestrian LOS criteria, improvements to these segments may be seen as lower priority than constructing a sidewalk where none currently exists. Improvements to these facilities may be worth considering if they are in a state of disrepair or if the improvements can be accomplished in conjunction with other roadway improvement projects. This *Existing Sidewalks Both Sides* category includes just over 20 miles of roadway, or approximately 6 percent of the study network.

Construct Sidewalk on One Side, Minimal Grading

These roadway segments already have complete sidewalk coverage on one side of the street, but the corridor does not meet the Pedestrian LOS threshold. However, the deficient side of the roadway is relatively flat so that a sidewalk could be constructed with minimal grading.

The analysis identified 6.4 miles of roadway, 2 percent of the study network, which are categorized as *Construct Sidewalk on One Side, Minimal Grading*.

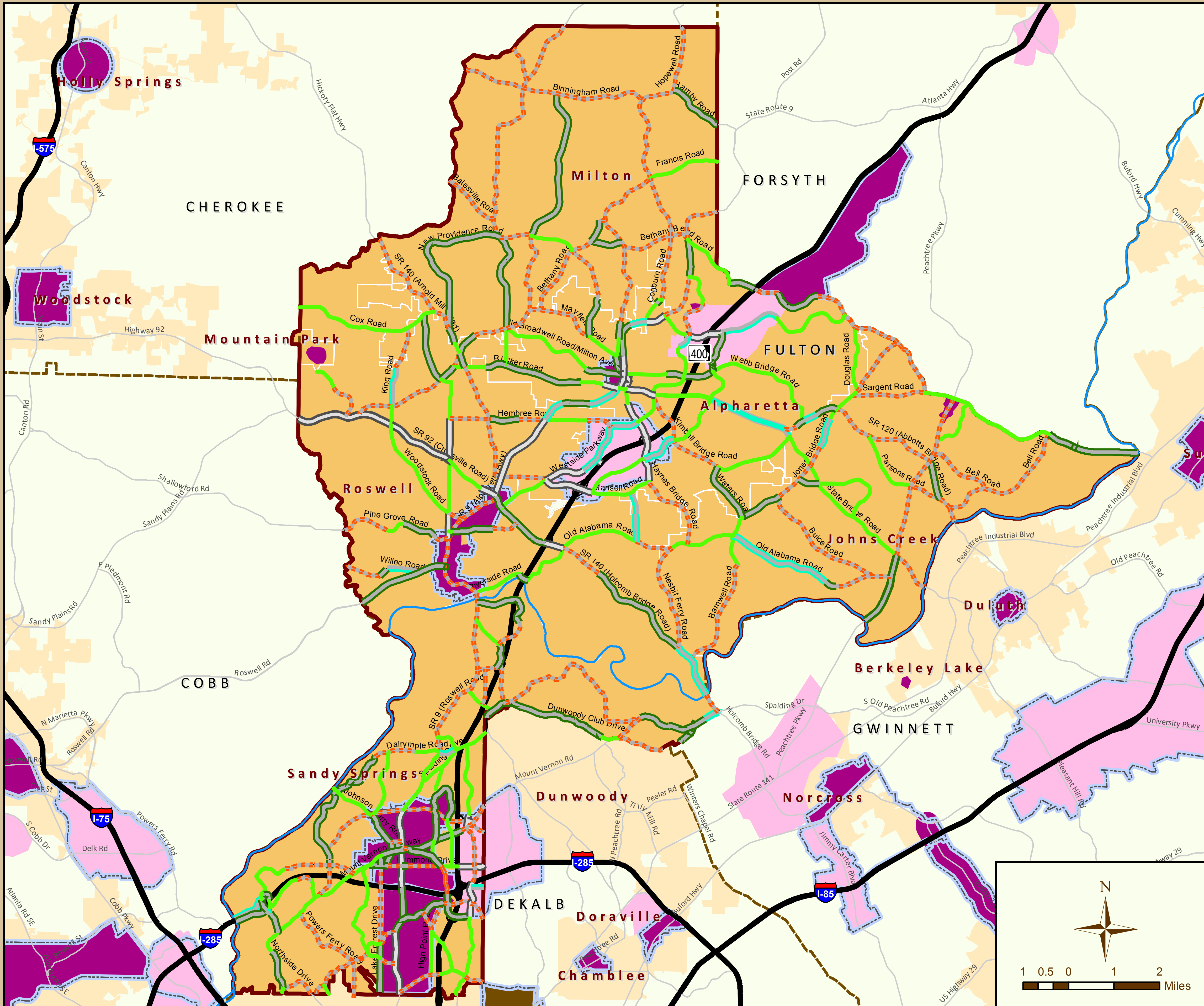
Construct Sidewalk on One Side, Significant Grading

No sections qualified for inclusion into this category, so it is not shown on the Figure 8-4; however, this category would indicate that sidewalk currently exists on one side of the street, but the corridor does not meet the Pedestrian LOS threshold but does at least have full coverage on one side of the road. The "Significant Grading" distinction means that significant reshaping of swales or shoulders would be required to construct this sidewalk.

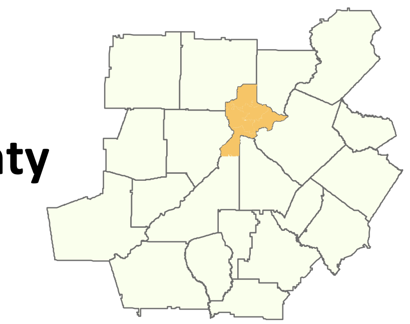
North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.



Reference Location



Legend

Pedestrian Facilities Recommendations

- Currenlty Meets Pedestrian Level-of-Service - 86.7 mi
- Existing Sidewalk, Both Sides - 20.3 mi
- Construct Sidewalk, 1 Side, Minimal Grading - 6.4 mi
- Construct Sidewalk, 2 Sides, Minimal Grading - 10.5 mi
- Construct Sidewalk, 2 Sides, Significant Grading - 67.6 mi
- Detailed Corridor Study Needed - 127.2 mi
- Study Network
- Expressways
- Chattahoochee River
- Other Major Roads
- Study Area
- Counties
- LCI Areas 2000-2008
- Regional Center
- Town Center
- Station Community
- North Fulton Cities
- Other Cities

Figure 8-4
Pedestrian Level-of-Service Recommendations

Construct Sidewalk on Both Sides, Minimal Grading

These roadway segments do not have complete sidewalk coverage on either side of the street and do not meet the minimum Pedestrian LOS. However, both sides of the roadway are relatively flat and sidewalks could be constructed with minimal grading.

The analysis identified 10.5 miles of roadway, 3 percent of the study network, which are categorized as *Construct Sidewalk on Both Sides, Minimal Grading*.

Construct Sidewalk on Both Sides, Significant Grading

These roadway segments also do not have complete sidewalk coverage on either side of the street and do not meet the minimum Pedestrian LOS. Along these segments, however, the side of the roadway has a sloping shoulder. Consequently, while construction of a sidewalk appears feasible, significant grading and reshaping of swales or shoulders would be required to construct the sidewalks.

The analysis identified 68 miles of roadway, 21 percent of the study network, which fall into the category *Construct Sidewalk on Both Sides, Minimal Grading*.

Detailed Corridor Study Needed (DCSN)

Many study segments present minimal opportunity for providing sidewalks, often due to steep ditches or other changes in grade in proximity to the edge of the roadway. Specific recommendations for the potential provision of pedestrian facilities on these segments (127 miles, or approximately 40 percent of the study network) would require extensive and detailed operational-level investigations of the constraints and opportunities along these corridors. Closing these challenging gaps could greatly increase connectivity of the walking network in North Fulton and improve neighborhood linkages, thereby promoting increased walking activity and leading to associated public health, environmental, and energy savings benefits.

8.2.3 Pedestrian LOS Analysis Summary

Recommendation: Adopt the Bicycle and Pedestrian Level-of-Service Goals as shown in Figure 8-3 as an area-wide policy.

- *Establish an annual pedestrian infrastructure improvement allocation within the budget of each municipality.*
- *Set the pedestrian projects within or near Regional Centers, Town Centers, and Station Communities (as defined by ARC's Unified Growth Policy Map) as being the highest priority.*
- *To the fullest extent possible, provide accommodation for pedestrians as part of all roadway projects.*

Table 8-3 below shows a summary of the pedestrian facility recommendations by segment and by associated mileage. The results are also shown on Figure 8-4.

Table 8-3: Summary of Pedestrian Recommendations				
Facility Type	**# of Segments**	**Segment %**	**# of Miles**	**Mileage %**
Currently Meets Pedestrian LOS	105	29%	87	27%
Existing Sidewalk (but does not meet Pedestrian LOS)	28	8%	20	6%
Construct Sidewalk on One Side, Minimal Grading	9	3%	6	2%
Construct Sidewalk on One Side, Significant Grading	0	0%	0	0%
Construct Sidewalk on Both Sides, Minimal Grading	13	4%	11	3%
Construct Sidewalk on Both Sides, Significant Grading	85	24%	68	21%
DCSN	120	33%	127	39%

Source: Sprinkle Consulting, Inc.

8.3 Bicycle Level-of-Service Guide

8.3.1 Introduction

Bicycles have potential as an alternative mode of travel on a regional scale. Although there are inherent limitations compared to the freedom offered by an automobile, if adequate facilities are in place, a cyclist can comfortably and safely travel for many miles to reach destinations. Cycling can also be combined with adequate transit coverage to provide access to a nearly unlimited range of destinations. Bicycles can be stored on MARTA buses, which are each equipped with bicycle racks and bicycles are also allowed on MARTA trains. When roadway facilities are designed appropriately, cycling can also provide safe and efficient transportation in more urbanized pedestrian-friendly environments. Cycling, transit, and walking work well in conjunction with one another, and the combination of these modes can provide an adequate alternative for many single occupancy vehicle trips.

8.3.2 Potential Bicycle Improvements

Similar to the previous section of this report, Pedestrian Level-of-Service Guide, this section focuses on potential improvements to bicycle accommodations specifically along the North Fulton CTP study network. The study network is composed of routes that not only connect major multimodal destinations to one other, but also serve as regional thoroughfares facilitating long regional trips. It was determined that a minimum level of accommodation for bicycles should be provided on all roadways included in the study network, while a higher level of accommodation should be provided where the study network passes through regionally designated multimodal places. A map of the study network and minimum bicycle accommodation thresholds can be seen in Figure 8-3 on page 69.

Bicycle Level-of-Service (LOS) is the metric used in this study for evaluating bicycle accommodation. Data used for calculating this metric includes roadway geometric characteristics, such as widths of lanes, roadways, gutters, buffers, and sidewalks, as well as observed roadway characteristics including lane counts, configuration (undivided, divided, or use of a two-way left-turn lane), posted speed limit, roadside profile, pavement condition, and cross-section type (curbed or open shoulder). Traffic volume and heavy vehicle percentage data were also included. More information about this calculation can be seen in Section 8.2.2 of this report as well as in Appendix C of the *Existing Conditions Report*.

During the Existing Conditions Phase, the study network was analyzed for the existing Bicycle LOS scores. The Project Management Team selected a minimum threshold of Bicycle LOS "C" for the overall study network and a minimum threshold of Bicycle LOS "B" within those areas of particular emphasis to be the target level of accommodation for cyclists. These minimum target thresholds, shown in Figure 8-3, form a Bicycle Level-of-Service Guide that can be used by municipalities when considering future roadway improvements.

The roadways were analyzed for potential improvements that would bring those roadways with a Bicycle LOS below the target threshold up to the desired level of accommodation. When the data was collected for the Bicycle LOS calculation, additional data was collected to facilitate the evaluation of potential roadways. This data included total width of asphalt, presence of a raised median, presence of curb and gutter, and roadside profile (flat, sloping, or ditch). These characteristics were used to develop the recommendations described in this section. Because of the detailed nature of designing improvements for bicycles along a given corridor, much of the regional study network requires further study at a more detailed level than is provided for in this study. In light of these corridor-specific challenges, three priority corridors were selected for more detailed analysis of their potential for improvement.

Typically, a striped bicycle lane is the most desirable facility for cyclists along roadways. However, there are many cases where a relatively high level of accommodation can be achieved even in the absence of a striped shoulder or bike lane. This situation frequently occurs on low volume local and minor collector streets with typical or greater than typical lane widths. Likewise, there are some situations where bike lanes alone are not enough to achieve a desired Bicycle LOS. This occurs along very high-volume high-speed roadways where a more substantial separation may be needed between bike lanes and the flow of vehicular traffic.

The recommended improvement strategies for individual roadway segments include seven possible recommendation categories for each evaluated segment:

- Currently meets Bicycle LOS threshold
- Existing facility (but segment does not meet Bicycle LOS threshold)
- Roadway restripe candidate for bike lanes
- Roadway restripe candidate for wider shoulders

- Construct paved shoulders
- Detailed corridor study needed (DCSN), yet potential for path adjacent to the road
- DCSN

The segments with their respective recommendation designations can be seen in Figure 8-5 and are listed with more detail in the data tables of Appendix C. Following is a description of each of the individual recommendation categories.

Bicycle LOS Threshold Met

Approximately 63 miles (20 percent) of the study network currently meets the targeted Bicycle LOS threshold. The data for bicycle calculations reflects the *typical* conditions across segments of different lengths, so although a segment may meet the overall threshold requirement, some gaps in bicycle infrastructure could exist. Although bicycle accommodations should be included in any roadway project, because these segments already meet the minimum identified Bicycle LOS thresholds, these segments are not included in this recommendations list.

Existing Facility

After those segments that meet the targeted Bicycle LOS were identified, the balance of the study network was reviewed to determine if bicycle lanes exist on both sides of the street while some other factors prevent them from performing at the desired Bicycle LOS. An existing facility was counted as having a bike lane if a shoulder three feet wide or wider was present on the roadway. While standard bike lanes are a minimum of four feet wide, a three-foot shoulder may provide an acceptable bicycle accommodation. Even though these sections with bike facilities do not meet the desired Bicycle LOS criteria, improvements to these segments may be seen as lower priority than constructing bike lanes where none currently exist. Improvements to these segments may be worth considering if they are in a state of disrepair or if the improvements can be accomplished in conjunction with other roadway improvement projects. This *Existing Facility* category includes approximately one mile of roadway, or less than one percent of the study network.[2]

Roadway Restripe Candidates

Restriping an existing roadway to allow more room for cyclists is one of the easiest improvements to make. This option is available on roadways where existing lane widths are wider than necessary, and the striping can be moved to provide more room on the shoulders. This is a relatively inexpensive improvement to make if the option is available. Therefore, roadway restriping was the first option analyzed for the study network that might involve some form of improvement.

[2] An additional 12.5 miles of roadway on the analysis have bike lanes/shoulders. These roadways, likely because of the paved shoulders, are included in the *Bicycle LOS Met* category.

North Fulton County
Transportation Resource
Implementation Program

ATLANTA REGIONAL COMMISSION

Kimley-Horn and Associates, Inc.

Reference Location

ARC 20-County Region

Legend

Bike Facilities Recommendations

- Currenlty Meets Bicycle Level-of-Service (LOS) - 63.4 mi
- Existing Facility (LOS Currenlty Unmet) - 1.0 mi
- Restripe Bike Lane - 7.4 mi
- Restripe Shoulder - 1.4 mi
- Add Paved Shoulder - 16.3 mi
- Restripe Shoulder (LOS Would Still Be Unmet) - 3.7 mi
- Add Paved Shoulder (LOS Would Still Be Unmet) - 4.19mi
- Detailed Corridor Study Needed - 221.8 mi
- Study Network
- Expressways
- Chattahoochee River
- Other Major Roads
- Study Area
- Counties
- LCI Areas 2000-2008
- Regional Center
- Town Center
- Station Community
- North Fulton Cities
- Other Cities

N

1 0.5 0 1 2 Miles

Figure 8-5
Bicycle Level-of-Service Recommendations

Two types of roadway restriping candidate projects were identified. The first includes those roadways that have space to stripe full, four-foot wide (or wider) bike lanes. The second includes roadways that have space available to stripe three- to four-foot shoulders.

The analysis identified 7.4 miles of roadway, or two percent of the study network, that can be categorized as *Restripe for Bike Lanes* category. An additional 1.4 miles, or less than one percent of the study network was identified as *Restripe for Paved Shoulders*.

Figure 8-5 also depicts some segments where the existing pavement could accommodate a shoulder or bike lane based on the dimensions described above, but such a facility would not bring the segment's performance to the appropriate threshold. These have been noted to illustrate that the possibility for a facility does exist, but because they would not achieve the desired performance, for summary purposes they are counted among the *Detailed Corridor Study Needed (DCSN)* category (see below).

Add Paved Shoulder

The next level of analysis was to identify potential for the addition of paved shoulders to roadways with rural (without curb and gutter) cross-sections. While more expensive than restriping projects, constructing paved shoulders on the outside of the existing edge of pavement is still much less expensive than projects that involve reconstruction of the roadway. For a segment to be considered a candidate for adding paved shoulders, it must meet two criteria:

- have an open shoulder cross-section
- have a relatively flat roadside profile to eliminate the need for significant regrading

Of the remaining unclassified segments, 21 miles, 6.4 percent of the study network, meet these criteria.

Figure 8-5 depicts some segments where the existing cross section could facilitate the construction of a paved shoulder, but such a facility would not bring the segment's performance to the appropriate threshold. These have been noted to illustrate that the possibility for a facility does exist, but because they would not achieve the desired performance, for summary purposes they are counted among the *Detailed Corridor Study Needed* category (see below).

Detailed Corridor Study Needed (DCSN)

Many study segments present minimal opportunity for improving bicycling conditions through any of the identified roadway retrofit strategies discussed above. Specific bicycling-related improvements to these segments (222 miles, approximately 70 percent of the study network) will require extensive and detailed operational-level investigations of the constraints and opportunities along these corridors. Several specific opportunities, which are briefly discussed below, can and should be investigated by the implementing jurisdictions to better accommodate bicycling on the DCSN-designated corridors. Closing these challenging gaps can greatly increase connectivity of the

bicycling network and improve neighborhood linkages, thereby promoting increased bicycling activity and leading to associated public health, environmental, and energy savings benefits.

Some DCSN corridors may be potential "sidepath" candidates. Sidepaths are shared-use paths adjacent to the roadway yet within the same right-of-way. Individual corridor studies would be needed to verify the extent of available rights-of-way as well as the design options and feasibility of developing a sidepath along any given segment.

It is important to note that while sidepaths appear to many to be appropriate bicycle facility alternatives, crash statistics and operational challenges from across the United States and around the world provide ample warning that in many settings, they are not. It is important to keep bicyclists and motorists within one another's field of vision at intersections and driveways where bicycles may come into conflict with tuning vehicles. Roadways with many driveways and intersections are typically not suitable for sidepaths for this reason. AASHTO *Guide for the Development of Bicycle Facilities,* pp.33-35 provides more information. Preliminary corridor-specific design is needed for each facility to determine its feasibility from an operational/safety standpoint. For more information on the design requirements of sidepaths see Petritsch, T.A., B.W. Landis, H.F. Huang, and S. Challa, "Sidepath Safety Model: Bicycle Sidepath Design Factors Affecting Crash Rates" *Transportation Research Record 1982,* Transportation Research Board, Washington, DC, 2007.

In a limited number of cases, jurisdictions should consider the use of alternative routes for DCSN corridors. Provision of a bicycle facility on a built-out arterial may be financially or otherwise infeasible. However, there may be an alternative lower-volume local street, perhaps only a block away that could sufficiently accommodate bicycle travel while still providing reasonable access to commercial destinations along an arterial roadway. An alternative street might be made to accommodate bicyclists better through geometric or operational improvements, such as implementation of a bicycle boulevard design. Again, a detailed operational analysis would be required to confirm if the potential implementation of improved parallel routes could be applied along a particular corridor.

Three preliminary corridor studies for selected routes are included in the following section and provide examples of the sort of detailed analysis that could be performed with detailed corridor studies for other segments.

8.3.3 Bicycle LOS Analysis Summary

Recommendation: Adopt the Bicycle and Pedestrian Level-of-Service Goals as shown in Figure 8-3 as an area-wide policy.

- *Establish an annual bicycle infrastructure improvement allocation within the budget of each municipality.*
- *Set the bicycle projects within or near Regional Centers, Town Centers, and Station Communities (as defined by ARC's Unified Growth Policy Map) as being the highest priority.*
- *To the fullest extent possible, provide accommodation for bicyclists as part of all roadway projects.*

Table 8-4 shows a summary of the facility recommendations by segment and by associated mileage. The recommendations are also shown in Figure 8-5.

Table 8-4: Summary of Bicycle Recommendations

Facility Type	# of Segments	Segment %	# of Miles	Mileage %
Currently Meets Bicycle LOS	77	21%	64	20%
Existing Facility (but does not meet Bicycle LOS)	2	0.6%	1	0.3%
Restripe Candidate	19	5%	12	4%
Add Paved Shoulders	30	8%	21	6%
DCSN	232	64%	222	70%

Source: Sprinkle Consulting, Inc.

8.3.4 Additional Bicycle Evaluations for Priority Corridors

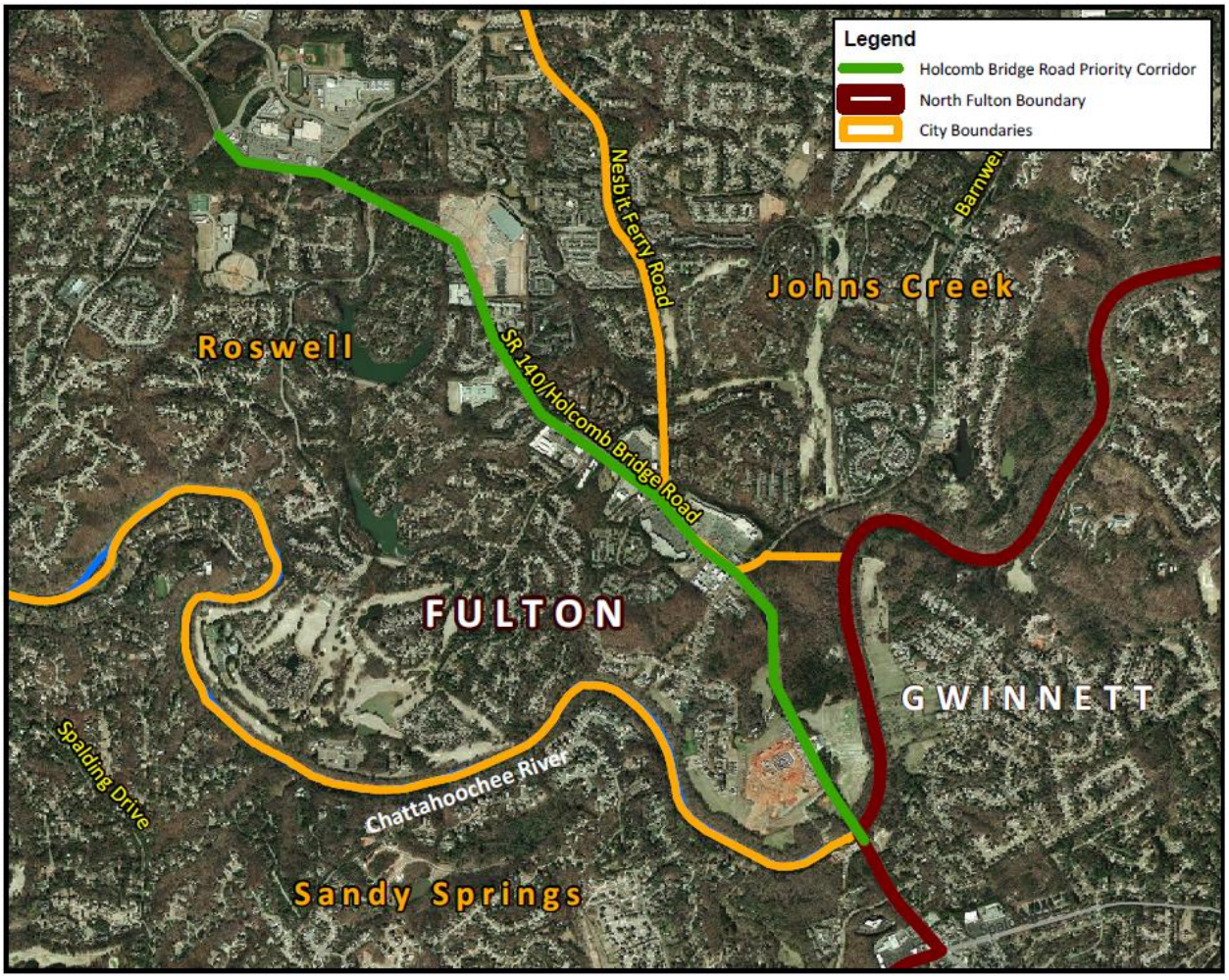
In addition to the system-wide recommendations described above, the consultant team reviewed three priority corridors in greater detail to identify more specific bicycle facility recommendations, as appropriate. The first two corridors—portions of Holcomb Bridge Road and SR 9 were designated for the DCSN category, meaning they warranted closer study as neither were appropriate for re-striping or shoulder widening, due to the roadway cross-section and right-of-way character. The third corridor, a portion of Medlock Bridge Road actually meets the targeted Bicycle LOS and currently has very wide bike lanes but is the site of an unusual concentration of bicycle crashes.

Holcomb Bridge Road

Holcomb Bridge Road between Eves Road and the Gwinnett County line at the Chattahoochee River was reviewed. The most feasible improvement for bicycling along this section of Holcomb Bridge Road may be a sidepath adjacent to the eastbound lanes. This section is approximately 3.1 miles long, and spans three distinct segments evaluated in the *Existing Conditions Report* (136.3, 136.4,

and 136.5). All three of these segments were found to currently operate at Bicycle LOS "E". These three segments are all four lanes wide, either undivided or with a two-way left-turn lane, and carry in excess of 35,000 vehicles per day at a posted speed of 45 miles per hour. There is a narrow shoulder (approximately 18 inches wide) on the segment between Nesbit Ferry Road and the river, but this does not constitute a bicycle facility. Here bicyclists are sharing a 12-foot-wide outside lane with motor vehicles throughout the corridor, which is an insufficient width to allow safe passing of cars on such a high volume roadway. There is not enough pavement width to allow for re-striping to accommodate bike lanes or paved shoulders. The roadway is mostly lined with curb and gutter, with the exception of sections east of Barnwell Road, making widened shoulders an option for only that portion, and even within that section there are intermittent parcels with curbs in place. Given the traffic conditions, five-foot-wide bike lanes or shoulders (adjacent to 11-foot travel lanes) would be necessary to approach the designated performance threshold of Bicycle LOS "C" if either re-striping or widened shoulders were a practical option in this corridor.

Figure 8-6: Holcomb Bridge Road Priority Corridor



Source: Sprinkle Consulting, Inc., Kimley-Horn and Associates, Inc., Aerials Express 2008, ARC GIS Data

Given the challenges facing this corridor with respect to the less expensive options of re-striping or shoulder widening, this corridor was identified as being in need of further study to find an appropriate bicycle facility improvement. One approach to improving bicycle mobility through such a challenging corridor is to identify possible alternate routes on nearby parallel roadways that can bring bicyclists close to their final destinations, shortening their period of exposure to the challenging corridor. The neighborhood streets in the areas near the Holcomb Bridge Road corridor are mostly curvilinear and frequently terminate in culs-de-sac, leaving very limited interconnectivity that could serve bicyclists in search of alternate routes. There are no roadways that directly parallel this facility; however, one roadway that is loosely parallel, connecting to Holcomb Bridge Road in two places, is Steeplechase Drive. This is a two-lane roadway that actually has bike lanes over most of its length, but the circuitous route between its two intersections with Holcomb Bridge Road—which are just over a mile apart along Holcomb Bridge Road—is approximately 2.25 miles, and there are no access points to Holcomb Bridge Road in between. Because this alternate route is indirect and twice as long as the primary facility, this route will not be suitable alternative for regional bicycle travel. No apparent utility corridors, parks, schools, or other large public parcels exist near this corridor that would be suitable for a trail facility that could serve as a practical alternative to travelling directly along Holcomb Bridge Road.

Another approach to accommodating bicycles directly along this corridor is to develop a pathway adjacent to the roadway, sometimes called a sidepath. Such facilities can serve the needs of many bicyclists, including those who are not comfortable riding in the street or on a bike lane or shoulder, but they should be designed with extreme caution, given the well-documented operational concerns associated with them. These concerns are described in the AASHTO *Guide for the Development of Bicycle Facilities*. Among these concerns is the positioning of two-way traffic (trail users) to the right of the directional flow of motor vehicles on one side of the road, which is contrary to the normal rules of the road, and places bicyclists and other trail users in a position other than where motorists are likely to scan for conflicts, especially when turning. Some of these concerns can be mitigated by careful planning and design strategies intended to control the speed of cyclists along the path and increase the visibility of the trail and its users to motorists in advance of conflict points.

In addition to the operational concerns associated with sidepaths, such facilities require a considerable amount of right-of-way if they are to be properly designed and constructed. The AASHTO *Guide for the Development of Bicycle Facilities* recommends that if such facilities are designed that they be separated from the roadway as much as possible, and that a recommended minimum separation of five feet be maintained between the edge of the roadway's shoulder (or curb face) and the pathway, unless a suitable barrier is provided. The AASHTO Guide also recommends a width of 10-12 feet for shared use paths, and some distance is needed to return to existing grade within the right-of-way. Taken together, these minimum widths add up to a practical minimum width of 17 feet of available right-of-way for the construction of a sidepath. If the terrain requires significant grading or drainage engineering to make the area between the road and the

limits of the right-of-way usable, then the costs of construction may be so high as to render such a project infeasible.

The Consultant Team reviewed parcel maps and aerials from the Fulton County GIS website to ascertain the likelihood of right-of-way along Holcomb Bridge Road that would be sufficient to allow construction of a sidepath facility. In general, the right-of-way is very constrained throughout the area under consideration between Eves Road and the Chattahoochee River. The overall right-of way is variable in width along this corridor, beginning at approximately 100 feet wide just east of Eves Road, constricting to as narrow as approximately 72 feet as it approaches Nesbit Ferry Road, and remaining less than 90 feet through the intersection with Barnwell Road. There is generally more right-of-way available adjacent to the eastbound side of the roadway in the two miles between Eves Road and Barnwell Road. In some portions, the available right-of way may exceed the necessary 17 feet, but the limits are highly variable, with significant portions providing less. There are even portions where the turn lanes providing access to adjacent commercial properties appear to have been constructed outside the right-of-way as depicted on the map.

East of Barnwell Road, the right-of-way widens considerably and maintains a consistent width of approximately 130 feet from about a quarter mile east of Barnwell Road to the Chattahoochee River (and North Fulton border). There appears to be over 30 feet of right-of-way available on both sides of the road throughout this section, but there is steep elevation change on both sides of the road, going up from the road on the north side and down from the road on the south side. Review of parcel and topographic information in the County's GIS system indicate that there may be sufficient room adjacent to the eastbound side of the roadway for a sidepath facility before the existing grade begins to fall away most severely. If a sidepath facility is constructed here, it will need to be sufficiently separated or shielded from the more severe changes in grade. The AASHTO Bike Guide recommends a minimum distance of five feet between the edge of a shared use path and any slope steeper than 1:3.

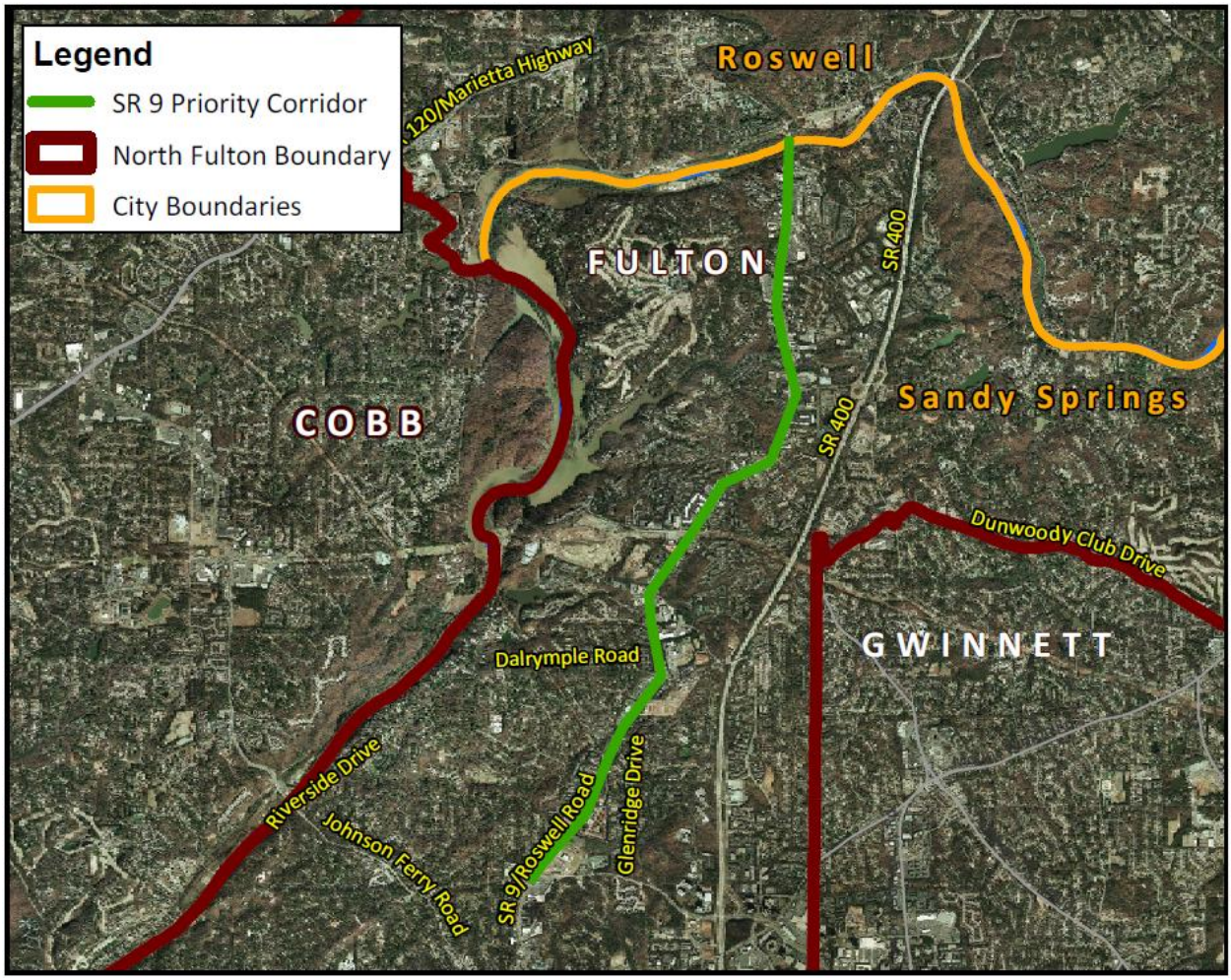
Given the overall circumstances of this corridor, the most feasible improvement for bicycling along this section of Holcomb Bridge Road may be a sidepath adjacent to the eastbound lanes. This facility would need to be carefully designed to counteract the operational concerns associated with sidepath facilities, especially at intersections with other roadways and commercial driveways. Due to the tightly constrained right-of-way west of Barnwell Road and the steep roadside terrain east of Barnwell Road, a sidepath adjacent to eastbound Holcomb Bridge Road will likely require extensive stretches of railing on one or both sides to separate the trail from both motor vehicle traffic and steep grades. Extensive railings or boardwalk construction and areas of extensive earthwork will likely have a significant impact on the cost of constructing such a facility. Also given the highly variable and constrained character of the right-of-way along this section of Holcomb Bridge Road, it is highly likely that construction of a sidepath facility will necessitate the acquisition of additional right-of-way along much of the subject corridor, pending detailed survey of parcel boundaries and topography. Such right-of-way acquisition could significantly increase the cost of such a project. It's possible that much of this right-of-way acquisition could occur gradually over time as the corridor redevelops.

SR 9 (Roswell Road) from Abernathy Road to the Chattahoochee River

SR 9 (Roswell Road) between Abernathy Road and the Chattahoochee River was evaluated. This section is approximately 5.3 miles long and spans three segments evaluated in the existing conditions report. A separate sidepath on the east side of SR 9 may be the best option to accommodate bicyclists. The segments between Abernathy Road and Dalrymple Road (segment 223.3 in Appendix C) and between Dalrymple Road and Northridge Road (segment 223.4) were each found to currently operate at Bicycle LOS "E," while the segment between Northridge Road and the River (segment 223.5) was found to be operating at Bicycle LOS "D" (the performance expectation for all three segments is Bicycle LOS "C"). The roadway has a consistent cross section throughout the entire study corridor, with four travel lanes and a two-way left-turn lane. The roadway is generally between 50 and 53 feet wide, with approximately 10 feet per lane. The outside lanes in the northernmost segment were measured to be 10.5 feet wide. The corridor carries in excess of 30,000 vehicles a day at posted speeds between 35 and 45 miles per hour. The already narrow lane widths make re-striping for bike lanes an infeasible option, and existing curb and gutter throughout the corridor makes widened shoulders similarly infeasible.

The area around the corridor has limited potential parallel route options. A parallel route along other arterial and collector roads could be traced by a sequence of Abernathy Road, Glenridge Drive, Spalding Drive, and Trowbridge Drive. This sequence would offer better accommodation in some sections—Glenridge Drive, Spalding Drive and Trowbridge Drive each operate at a bicycle level of service "C." But, this route would lengthen a through-trip between Abernathy Road and Trowbridge Drive from 1.9 miles to almost 2.9 miles. This would also leave few opportunities to cross back to any destinations along SR 9. A connection to the southern end of Colquitt Road (south of Pitts Road) could be made by exploring potential easements connecting the driveways of multi-family housing developments that are adjacent to Trowbridge Drive and Colquitt Road. Such a connection would benefit the mobility of local residents and provide a lengthened through-route for recreational trips, but would not improve access to destinations along the primary corridor. Additionally, the section of Colquitt Road north of Pitts Road and Northridge Road, while a lower volume road than Roswell Road, still operates at a Bicycle LOS "D," due to its relatively narrow lanes and lack of shoulders. All of the alternative routing scenarios would result in a virtual bypass of the primary corridor with limited return access and would add considerable extra distance to through-trips, while only providing very intermittent stretches of substantially improved bicycling conditions.

Figure 8-7: State Route 9 Priority Corridor



Source: Sprinkle Consulting, Inc., Kimley-Horn and Associates, Inc., Aerials Express 2008, ARC GIS Data

Similar to the Holcomb Bridge Road Section, another potential approach to accommodating bicycles in this corridor may be to develop a sidepath. Such facilities must be designed carefully to avoid creating additional safety concerns, such as conflicts at driveways and intersections. If designed appropriately, such facilities can improve overall bicycling mobility while preserving access to destinations along primary corridors. A review of Fulton County GIS records of parcel boundaries shows that a space for potential sidepath development does exist throughout much of the SR 9 corridor between Abernathy Road and the Chattahoochee River. The east side of the road appears to have the most right-of-way available and would therefore be the most likely side for construction of a sidepath. Proceeding north from Abernathy Road, the first mile of State Route 9 to the intersection with The Wyngate, approaching Dalrymple Road has at least 80 feet of right-of-way, and in most sections more than 100 feet. The area between the existing curb line and the apparent limits of the right-of-way is approximately 15-20 feet from Abernathy Road to the intersection with Spalding Drive, but then widens out considerably north of Spalding Drive. This widened portion does include some relief in the terrain, so some grading and a retention wall may be needed if a

path were placed farther from the roadway. Approaching, through, and north of the intersection with Dalrymple Road the right-of-way along the east side of SR 9 narrows considerably and appears to barely include the existing sidewalk in some places. The right-of-way widens north of Trowbridge Drive, but there is some elevation change close to the roadway in this area; large County-owned parcels around the Fulton County State Court North Annex at 7741 Roswell Road may provide some flexibility for pathway construction through this stretch. The right-of-way remains wide enough to accommodate a sidepath up to the intersection with Grogan's Ferry Road and Hampton Drive, at which point it becomes very constrained, leaving less than 10 feet outside of the roadway on the east side.

After the intersection with Pitts Road and Ison Road, the right-of-way again appears to leave 20 feet or more to the east of the existing curb line, and maintains adequate room all the way through the intersection with Northridge Parkway, where it again narrows to only 70 feet across, leaving the east side boundary just three feet away from the edge of the roadway. This constrained section continues through the intersection with Huntington Place Drive, a run of over one-half mile. Through the remainder of the corridor, the east side right-of-way appears to contain ample lateral space for a sidepath facility. Commercial driveway crossings would be especially frequent in this northernmost stretch; any facility constructed here must be very carefully designed to successfully manage the conflicts between trail users and turning motorists at these crossings, as well as those found throughout the rest of the corridor.

The generally narrow right-of-way throughout the SR 9 Corridor may require significant lengths of railing to separate the trail facility from the roadway in constrained sections, and may also require acquisition of right-of-way at numerous points, pending a detailed survey of parcel boundaries and topography.

Medlock Bridge Road

The 1.6 mile section of Medlock Bridge Road between the Gwinnett County line at the Chattahoochee River and State Bridge Road, covering two segments analyzed in the *Existing Conditions Report* (73.0 and 73.1) was evaluated. Changes in pavement markings may be the best way to improve bicycle safety in this area. This is a four-lane, divided roadway, with a posted speed limit of 55 miles per hour south of Old Alabama Road and 45 miles per hour north of Old Alabama Road. Traffic volumes in this corridor are high, exceeding 30,000 vehicles per day throughout the corridor. Despite the high volume and high speed character of the corridor, both segments currently rate well for bicyclists with Bicycle LOS grades of "B," largely due to unusually wide shoulders—averaging 8 feet wide or more that offer distinctly separate space for bicycle operation within the cross section.

Figure 8-8: Medlock Bridge Road Priority Corridor

Source: Sprinkle Consulting, Inc., Kimley-Horn and Associates, Inc., Aerials Express 2008, ARC GIS Data

Although this section of roadway already meets the targeted Bicycle LOS (LOS "C"), this corridor was selected for further study because of an unusually high concentration of bicycle crashes. The corridor was reviewed to determine if the crashes were related to any infrastructure issues, or if any changes could be recommended that would correct any identified safety issues.

There are no parallel routes that could replace this stretch of Medlock Bridge Road. Bicyclists who are connecting to westbound Old Alabama Road could take a circuitous shortcut over neighborhood streets via Chelsen Wood Drive and Waits Ferry Crossing, shortening what would have been a trip in excess of 1.7 miles along major thoroughfares into a trip of approximately 1.2 miles along local streets. This option only benefits travel along one of many routes that are served by the Medlock Bridge corridor.

Bicycle crash data from incidents along this section of Medlock Bridge Road was reviewed. While this location did have a notable concentration of crashes as reported in the Critical Analysis

Reporting Environment (CARE) database and by Georgia DOT, it is still a very limited data set. There were six incidents within the subject corridor, which makes it difficult to determine broad patterns with certainty. This is a common issue with bicycle crash data, which tends only to get reported by law enforcement if there are injuries or significant property damage. Regardless, the reports do provide some insight into the crash incidents. Some observations about the documented bicycle crashes that occurred along this section of Medlock Bridge Road include:

- All of the crashes are reported as having occurred during daylight conditions. This is not consistent with typical bicycle crash patterns.
- Three of the crashes were reported as angle crashes.
- At least two of the crashes appear to have involved bicyclists riding against traffic.
- At least three happened at midblock locations.

A possible treatment for Medlock Bridge Road could be to restripe the existing bike lanes into buffered bike lanes. This would be accomplished by creating a buffer – two solid lines separated by approximately 3 or 4 feet with chevron markings – along the side of the main travel lanes. Adjacent to the curb would be a five-foot bike lane. This configuration provides an inexpensive way to increase the level of accommodation for bicyclists along this busy corridor.

While increasing separation between bicyclists and motor vehicles can result in increased safety and comfort, it is important to keep bicyclists and motorists within one another's field of vision at intersections where bicycles may come into conflict with tuning vehicles. For this reason the proposed buffered bike lane treatment shown in Figure 8-9 should be striped so that bicyclists travel close to the curb along typical sections and are brought out from the curb in advance of intersections.

Figure 8-9: Medlock Bridge Road Buffered Bike Lane Concept

Source: Sprinkle Consulting, Inc., Fulton County GIS (background aerial)

This section of Medlock Bridge Road includes a number of right-turn lanes that periodically interrupt the existing bike lane space, and it appears that it would be difficult to continue a full-size bike lane through the right-turn lanes. It may be possible to mark a bike slot on the left side of the right-turn lane, indicating the preferred position for through-moving bicyclists within a lane shared with right-turning motorists. The pavement marking also includes a slot where right-turning bicyclists are directed to the right side of the right-turn lanes. It may be advisable to post R4-4 signs (Begin Right Turn Lane Yield to Bikes, Figure 8-10) at these locations, to increase motorists' awareness of their obligation to yield.

Figure 8-10: Sign R4-4

Source: Manual on Uniform Traffic Devices (MUTCD)

The proposed bike lane markings are also widened to the full width of the shoulder at intersections and driveway cuts that do not include right-turn lanes, and the line between the bike lane and the travel lanes would be indicated by a double white skip-dash pattern.

The crash data for this corridor does indicate that some crashes may have been associated with bicyclists riding against traffic. The directional arrows of the bike lane markings will help remind bicyclists of the fact that each bike lane is a one-way facility. If wrong-way riding is observed to be a continuing issue in this corridor, then it is also recommended that R5-1b (Bicycle Wrong Way) and R9-3c (Ride with Traffic) signs be installed at points along the corridor.

Figure 8-11: Signs R5-1b and R9-3c

Source: MUTCD

8.4 Access Management

8.4.1 Introduction

The official definition of access management from the Federal Highway Administration (FHWA) is "the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed." Per the Transportation Research Board *Access Management Manual*, access management is defined as "the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway."

Good access management implementation may require a property owner to lose perceived convenient access to their properties. While this idea may be received with opposition, the continued negative factors of poor access management can result in customers avoiding the unsafe and/or congested roadway.

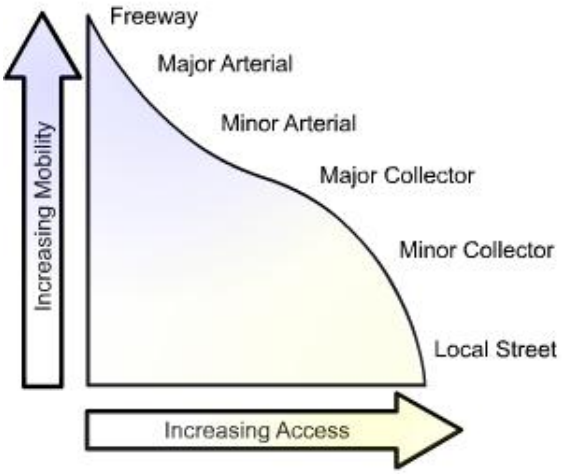
Poor access management can have negative results:

- Higher accident rates
- Less efficient roads
- Increased cut-through traffic in residential areas
- Longer commute times
- Higher fuel consumption and emissions

One traditional solution to the loss of mobility along a major arterial highway is expanding the roadway to accommodate more traffic. An alternative approach may be access management, which can allow preservation of the existing roadway corridor while maintaining traffic flow by improving the ability to access destinations along the roadway. Depending upon the volume of traffic on a roadway and the cause of congestion, access management can delay or even eliminate the need to widen a road, saving taxpayer money in the process.[3] Figure 8-12 shows the relationship between access and mobility.

[3] Gattis, J. (2005). *Assess the need for implementing an access management program.* AHTD TRC 04-04. University of Arkansas; Fayetteville, AR.

Figure 8-12: Relationship Between Access and Mobility



Source: USDOT FHWA - Office of Operations, "What is Access Management?"
http://ops.fhwa.dot.gov/access_mgmt/what_is_accsmgmt.htm

As part of the North Fulton CTP, three regionally significant corridors have been identified as the primary non-freeway roadways that facilitate regional trips through North Fulton, particularly east-west movements. Because of their regional significance, the implementation of a consistent access management strategy along these roadways would benefit the six cities in North Fulton as well as the metro Atlanta region. These corridors are:

- SR 9 (Roswell Road/Atlanta Street/Alpharetta Highway/Main Street)
  - Principal Arterial (when also designated SR 120 between Marietta Highway and Old Milton Parkway)
  - Minor Arterial (everywhere else)
- SR 92 (Woodstock Road/Crossville Road) and SR 140 (Holcomb Bridge Road)
  - Principal Arterial
- SR 140 (Arnold Mill Road/Houze Road), Rucker Road, SR 120 (Old Milton Parkway), State Bridge Road
  - Principal Arterial (along State Bridge Road and when designated SR 120 between SR 9 and Kimball Bridge Road)
  - Minor Arterial (everywhere else)

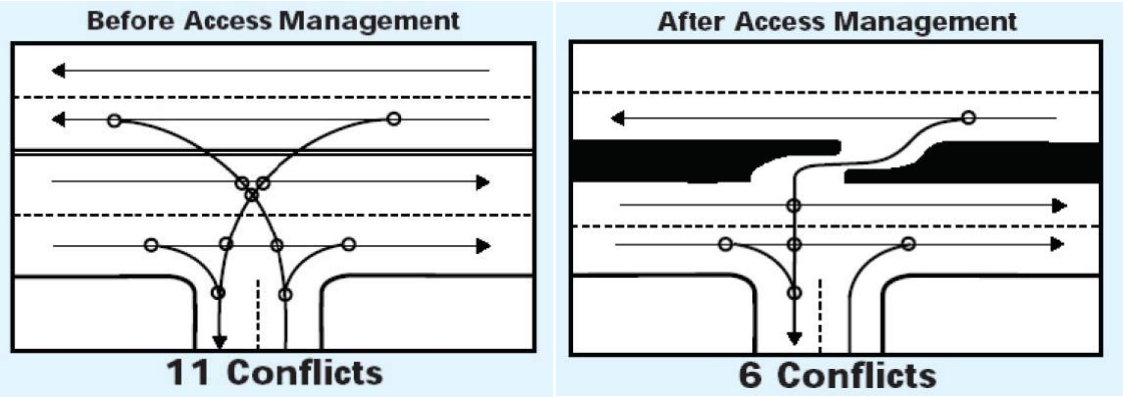
It is important to note that each of these three corridors traverse multiple cities in North Fulton. Therefore, cross-jurisdictional access management will be important. Figure 2-3 (page 17) shows the location of these three corridors.

8.4.2 General Policies

Access management reduces traffic conflicts by:

- Minimizing the number of conflict points
- Maximizing the distance between conflict points
- Providing inter-parcel connectivity, especially for slow turning vehicles.

Figure 8-13: Reducing Conflict Points by Restricting Turning Movements



Source: NCHRP

A collection of suitable access management solutions can provide consistency along a corridor. A summary of these solutions is described in this section, while a more complete "Toolbox" for access management is included in Appendix D. These solutions can generally be broken into two groups, those directly affecting the roadway facility (transportation infrastructure) and those affecting the adjacent parcels (land use and zoning).

Some of these contributors to beneficial access management include:

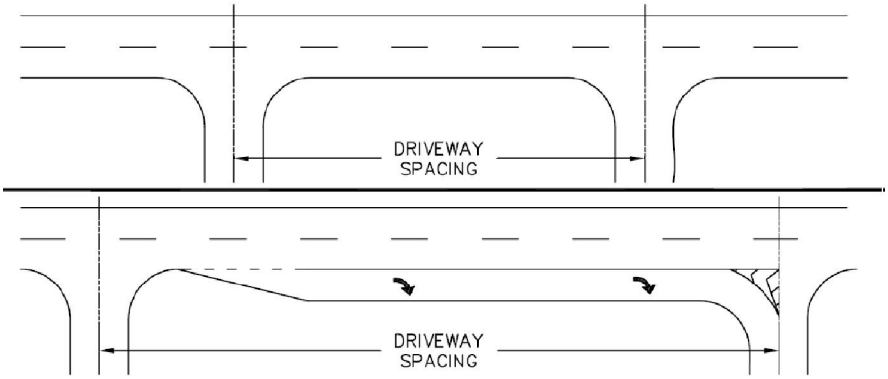
- Infrastructure Improvements
  - Driveway Alignment
  - Medians
  - Traffic Signal Coordination
  - Interchanges
- Land Use and Zoning
  - On-Site Traffic Circulation
  - Inter-Parcel Access
  - Policy Implementation

Transportation Infrastructure

Driveway Alignment

Driveway alignment is a means of controlling access and reducing vehicular conflict points along a roadway. Driveways that are "offset" from each other (across another roadway) can create driver confusion; they also increase the number of access locations for entering/exiting vehicles. Implementation of good driveway alignment concentrates turning movements to fewer points along the corridor, allowing drivers to better predict the movements of other vehicles.

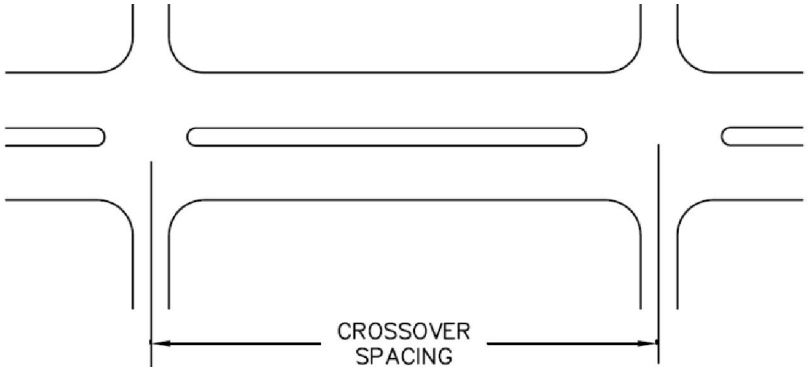
Figure 8-14: Driveway Alignment



Source: GDOT

Medians have been proven by studies to improve traffic flow, reduce congestion, and lower crash rates for certain conditions. These benefits are mostly a result of managing the left-turn and u-turn movements along a corridor. Although two-way left-turn lanes can also be considered "medians," medians that are beneficial for access management are typically raised or depressed and better control vehicle crossings along the arterial. Creating a series of appropriately spaced median breaks creates a hierarchy of decision points which are predictable and allow for more smooth traffic flow for the through movement along a corridor. These decision points include median breaks for u-turns, directional crossovers, and full-movement driveways and intersections.. The reduced number of conflict points between vehicles, pedestrians, and bicyclists also reduces the frequency of crashes when compared with intersections that allow left-turns and u-turns.

Figure 8-15: Reducing Conflict Points by Restricting Turning Movements



Source: GDOT

Full-movement median openings should be located where higher left-turn movements are expected along both the major street and minor street. Directional crossovers can be placed between these full-movement median openings, allowing left-turn and u-turn movements along the major street (but prohibiting minor street left-turns). This concept removes the left-turns and u-turns from the full-movement intersection. An alternative is the median u-turn treatment, which only allows u-turn movements along the major street. Studies have shown that a median u-turn treatment reduces the frequency of accidents when compared to a directional crossover.

Figure 8-16: Conflicts by Type of Median

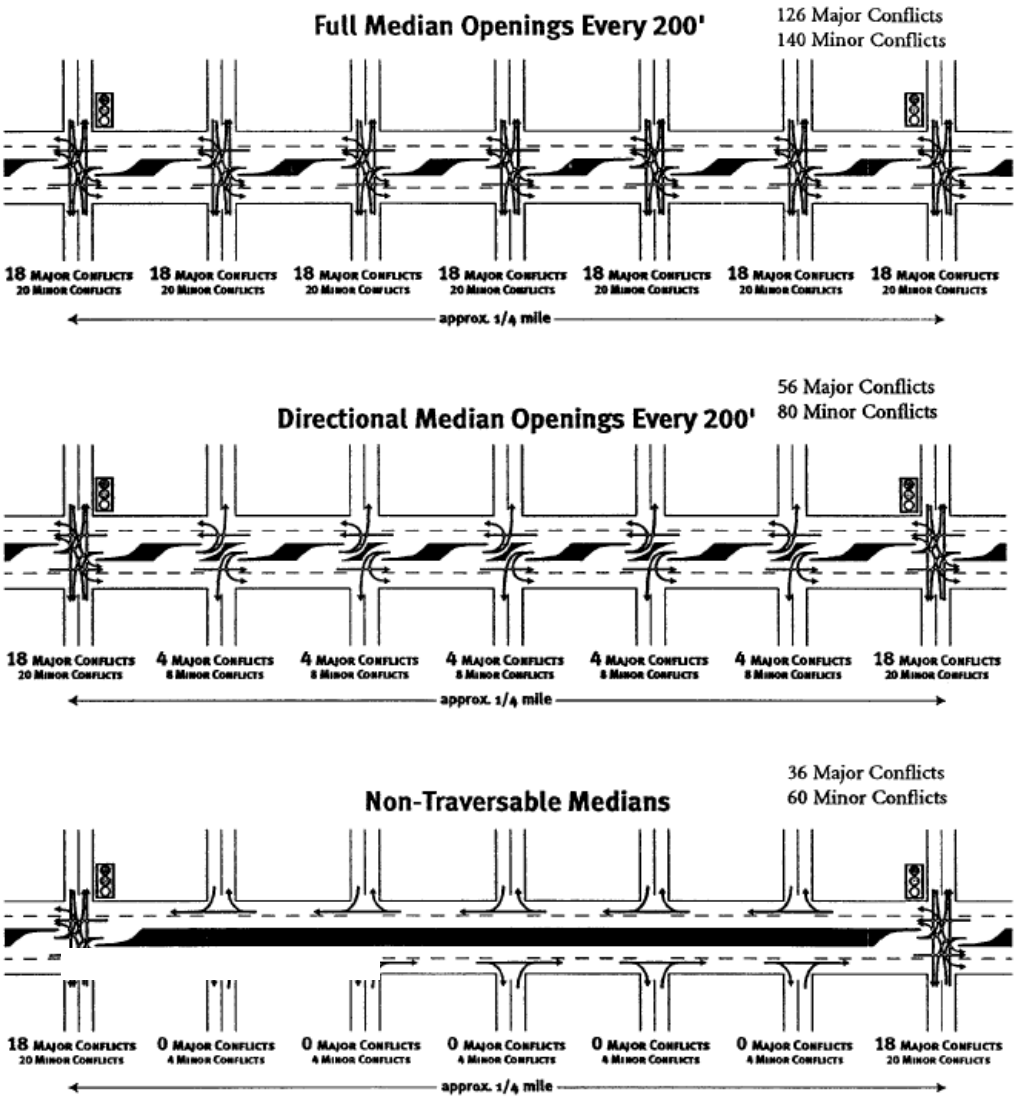


Figure 37. Conflicts at median openings.

Source: NCHRP

Traffic Signal Coordination

Traffic signal coordination refers to both the physical spacing and the optimized timing of traffic signals along a corridor. Providing adequate spacing between traffic signals can create benefits similar to driveway and median break spacing. Longer distances between traffic signals can enhance the ability to improve travel times and safety via the synchronization of traffic signals along a corridor. The coordination of traffic signals along congested roadways can decrease delay and improve travel time, safety, and emissions. As part of the Governor's Fast Forward Program,

GDOT optimizes signal timings along selected corridors throughout the metro Atlanta area, including SR 9, SR 92, SR 140, and SR 141 in North Fulton.

Grade Separation

Converting an overcapacity intersection to a grade-separated interchange can dramatically improve the operations at that location. Unfortunately, this is also a very expensive alternative when attempting to develop a solution at an intersection. Some examples of overcapacity intersections in North Fulton are:

- Alpharetta Highway (SR 9) at Holcomb Bridge Road (SR 140)/Crossville Road (SR 92)
- Alpharetta Highway (SR 9) at Old Milton Parkway (SR 120)
- Medlock Bridge Road (SR 141) at State Bridge Road
- Medlock Bridge Road (SR 141) at Abbotts Bridge Road (SR 120)
- Roswell Road (SR 9) at Hammond Drive
- Roswell Road (SR 9) at Abernathy Road

These "critical intersections" are mostly in urban locations (as opposed to rural locations); they also occur at intersections of significant north-south arterials and east-west arterials. Grade-separation has a high cost and large impacts to adjacent properties. Figure 8-17 shows the intersection of Buford Highway (SR 13/US 23) and Pleasant Hill Road in Gwinnett County. This was an at-grade intersection that experienced similar challenges as the intersections listed above, but has been converted to a grade-separated interchange. This removes the conflict between the heavy north-south through volumes and the heavy east-west through volumes.

Figure 8-17: At-Grade Intersection to Grade-Separated Interchange

An alternative to the above interchange design is a full diamond interchange. Figure 8-18 shows an example of a full diamond interchange along a roadway that is neither an interstate nor a state highway. This example is Ronald Reagan Parkway at Bethesda Church Road in Gwinnett County.

Figure 8-18: Full Diamond Interchange

Source: Aerials Express

Land Use and Zoning Policy

An access management program is effective when quality control is exercised on roadside development primarily before development occurs. This involves both comprehensive planning and land use policies/regulations. Without effective access management, three issues can have negative effects on mobility, traffic congestion, and safety:

- Separation of Uses – Properties are developed incrementally and become isolated from adjacent properties. Traffic volumes increase along the corridor because all trips between developments must use the major roadway, and numerous driveways are constructed due to the lack of parcel interconnectivity.
- Single Access Points – Larger developments sometimes only provide access to a single road, which happens to be a major roadway. This commonly occurs when there is an insufficient grid network of local streets that are parallel and/or perpendicular to the major roadway. Forcing all site traffic onto one major roadway can compromise mobility and increase congestion levels along the corridor.
- Greenfield Development – New development in rural areas often occurs without long-term access management planning and oversight. However, a roadway that seems rural and isolated often grows to become a more heavily developed corridor. This represents a constant cycle that occurs regarding land development and traffic impacts:

Land Use Change → Increased Traffic Generation → Increased Traffic Conflict → Deterioration of Traffic Flow → Arterial Improvements → Increased Accessibility → Increased Land Value → Land Use Change

The quality of access to these developments (and the developments themselves) can be improved and negative impacts can be avoided by establishing access management requirements for new "Greenfield" developments.

Figure 8-19: Vacant Development Lots (Greenfield)

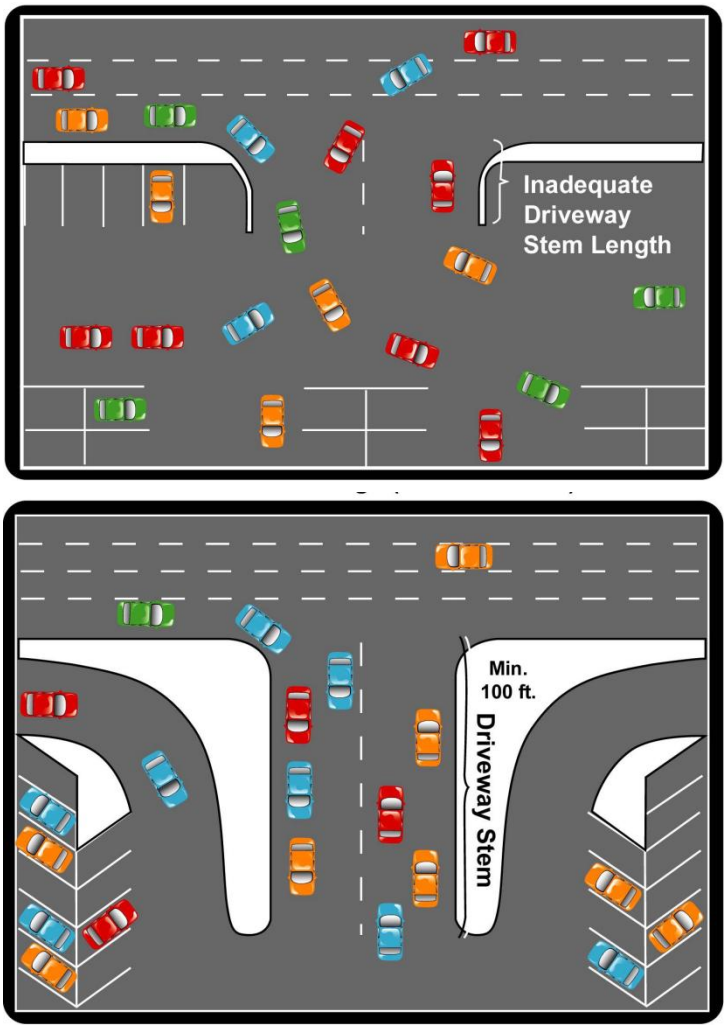
These three issues can be avoided and/or mitigated with good access management. The placement of interior drives from the major roadway can have an impact on vehicular flow along the corridor. The reduction of driveways and maintaining a focus on minimizing the number of driveways can reduce the number of conflict points that vehicles experience along a major roadway. Additionally, access directly between adjacent parcels can decrease the amount of vehicle trips that must use the corridor.

On-site traffic circulation can be improved to help avoid traffic spillback from within a development onto the public roadway. The throat of a driveway is the section between the roadway and the first internal site intersection. Lengthening the "throat" of driveways can have two positive results:

- Vehicles exiting the site are less likely to obstruct another vehicle's movement within the site
- Vehicles entering the site have a longer distance and more time to decide what their next movement within the site will be.

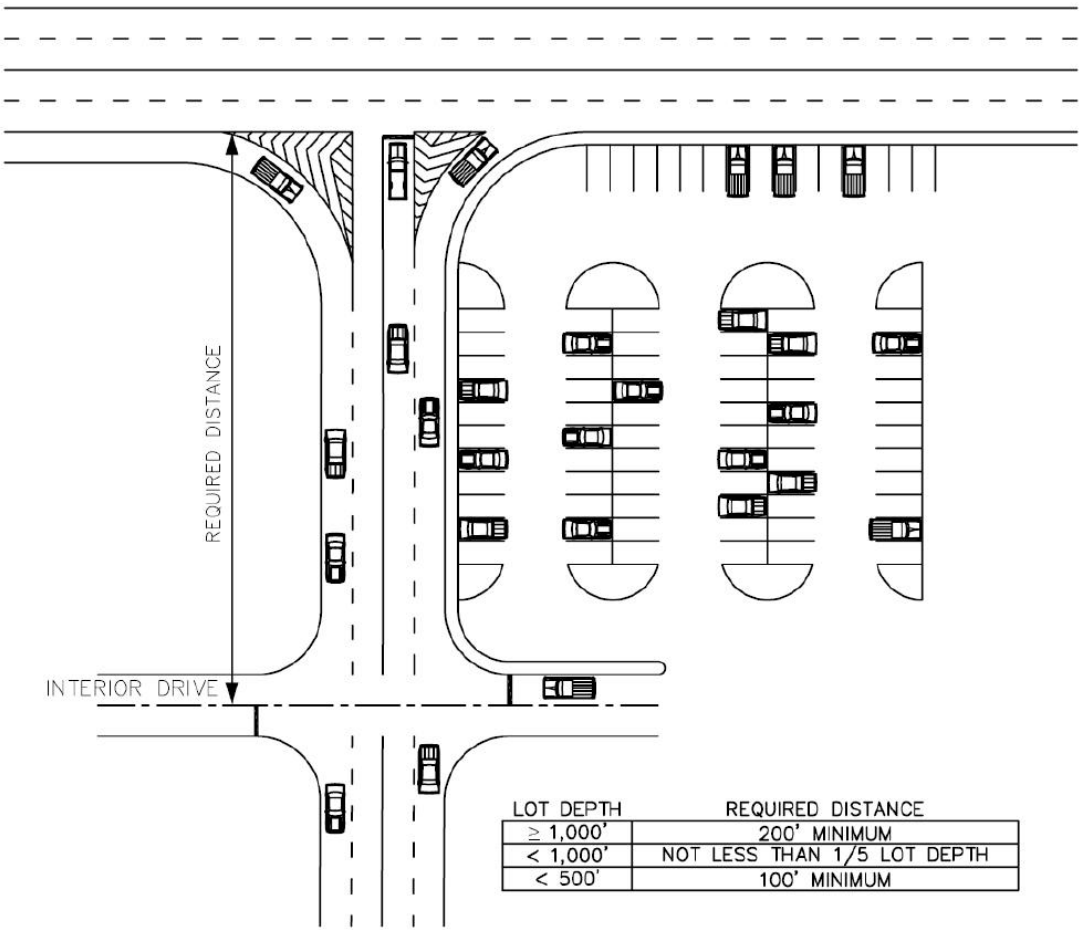
Both of these positive results decrease the possibility of traffic spillback onto the arterial.

Figure 8-20: Driveway Throat or Stem Length



Source: NCDOT Policy on Street and Driveway Access to North Carolina Highways, July 2003

Figure 8-21: Placement of Interior Drives



Source: GDOT

Land use guidelines can support access management, and both guidelines and regulation can help achieve a more effective land use and transportation connection. The focus on efficient connectivity should focus on pedestrians, bicyclists, transit, and automobiles. Land development regulations should require connections to the local street network instead of the major street as well as connections to adjacent properties; this will decrease the traffic volumes on the thoroughfare corridor, as local trips will have an alternative to using the major road.

Land use and zoning polices along a corridor have an impact on the mobility and safety of the roadway. Many properties are designed as isolated developments with no interconnectivity with adjacent properties. This increases congestion by forcing all trips between the developments onto the corridor. Additionally, this typically results in multiple driveways that increase the number of turning movement conflict points along a corridor. Interconnectivity between properties can alleviate the amount of traffic along the roadway. Providing additional access along secondary roadways also provides an alternative for traffic to access sites. Developments with one access point along a major thoroughfare guarantee that all site-generated traffic will enter and exit at that

location. Providing access to collector streets and local roads lowers the vehicular density at the primary access location.

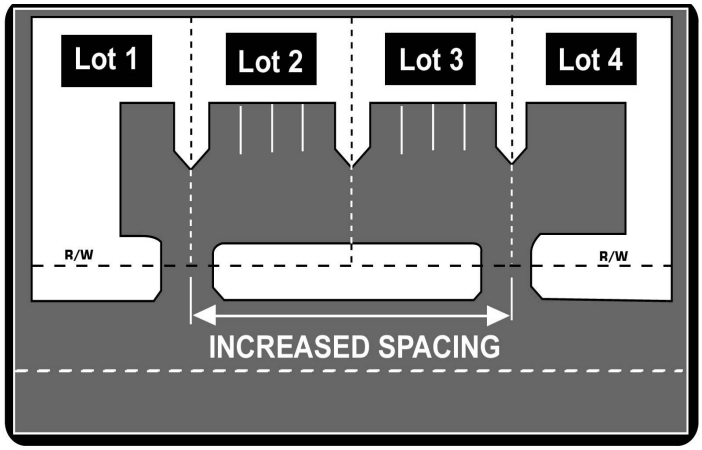
Some locations may have an inadequate local street network. Following this access management strategy may require the local government to construct and/or maintain additional roads. Culs-de-sac and permanent dead ends should be discouraged; instead, stub-outs should be provided within developments. These stub-outs can better accommodate future connections with neighboring parcels and provide a means for the gradual formation of a local street network. The Cities of Johns Creek and Sandy Springs have ordinances that dictate when dead-end streets must include a cul-de-sac and include a design criteria for culs-de-sac. There are also requirements for developments to stub-out to abutting properties for future circulation. The City of Milton also has ordinances pertaining to culs-de-sac and dead-end streets; however, the information is briefer and there is less design criteria provided.

Figure 8-22: Stub Outs to Adjacent Land for Future Connections

Cross-access agreements between multiple land parcels can further promote the opportunity for a local street network. Promoting these agreements between neighboring land owners can limit the number of driveways along a corridor. These connections can be provided via frontage roads (between the roadway and the buildings) or backage roads (on the opposite side of the buildings from the roadway).

In addition to minimizing the number of driveways, having regulations and guidelines for minimum street spacing can also improve vehicular movements and levels of congestion. One way to achieve this is to adopt minimum lot frontage requirements, which restricts the number of driveways that a parcel can have depending on how much frontage it has along a corridor.

Figure 8-23: Cross-Access Among Parcels



Source: NCDOT Policy on Street and Driveway Access to North Carolina Highways, July 2003

It should be noted that frontage roads (i.e. inter-parcel connectivity at the front of the development) can sometimes be detrimental to alternative modes of transportation. The presence of frontage roads typically increases the distance and sometimes adds obstacles between the major roadway and the buildings. This results in a less attractive trip for pedestrians, bicyclists, and users of transit. An alternative is a backage road, in lieu of a frontage road, which can still provide inter-parcel access while concurrently allowing for a shorter and easier route for walking, cycling, and local transit. The backage roads can increase street connectivity, reduce the amount of traffic on regional thoroughfares, and supply a better design for alternative modes of transportation.

Regulations should also encourage building a backage road that can be integrated into the local street system, especially when small frontage lots are unavoidable. Having good policies on the design of access points can reduce the impacts on mobility. Access management can benefit from regulations on minimum sight distance, minimum turning radii, minimum driveway widths, and maximum driveway slopes.

Managing the rate and direction of community growth can also prevent the impacts of development from outpacing the roadway capacity. Restricting the extension of utilities, conducting planning studies, and having local ordinances can support this concept.

8.4.3 Existing Ordinances

There are existing ordinances and policies adopted by the North Fulton municipalities, Fulton County, and GDOT that regulate many of the access management control features discussed above. These policies were studied to determine what access management guidelines are currently in place and how they vary among the different agencies. This policy review is summarized in the section below while a more detailed description of each of the policies has been included in Appendix D.

General Information

- The most recent publication by GDOT of its *Regulations for Driveway and Encroachment Control* is dated October 10, 2009. This sets minimum access management guidelines and requirements and applies to all state routes within Georgia. Typically, local municipalities may adopt more stringent requirements for state routes and other roadways within their jurisdiction if they deem it necessary.
- There are no longer any areas of unincorporated Fulton County remaining in North Fulton; However, the three newer cities (Johns Creek, Milton, and Sandy Springs) have adopted access management policies that are very similar to the previously applicable *Fulton County Driveway Manual* (May 2005). These three cities have ordinances with quantifiable criteria for the minimum spacing of driveways, median openings, signalized intersections, and uninterrupted ingress/egress lengths. Overall, the Fulton County guidelines are slightly less strict than the GDOT guidelines.
- The Cities of Roswell and Sandy Springs have additional guidelines for inter-parcel connectivity, but not with quantifiable criteria.

Summary of City Ordinances:

- THE CITY OF ALPHARETTA ordinances do not include criteria specific to access management. Correspondence from city staff indicated the optimum minimum driveway spacing requirement of 300 feet between adjacent driveways.
- THE CITY OF JOHNS CREEK ordinances include requirements for the minimum spacing of driveways, median openings, signalized intersections, and uninterrupted ingress/egress lengths. There are also guidelines for minimum spacing between public roads and private gates, maximum number of residential lots allowed per one driveway, and minimum distance between full-movement driveways and intersections that are signalized or likely to be signalized.
- THE CITY OF MILTON ordinances include requirements for the minimum spacing of driveways, median openings, signalized intersections, and uninterrupted ingress/egress lengths. There are also guidelines for minimum spacing between public roads and private gates, maximum number of residential lots allowed per one driveway, and minimum distance between full-movement driveways and intersections that are signalized or likely to be signalized.
- THE CITY OF ROSWELL ordinances include requirements only for minimum driveway spacing; however, these distances are much smaller (or less stringent) in comparison to the GDOT requirements and requirements of other municipalities. Guidelines for internal vehicular circulation and inter-parcel access are provided, but not with quantifiable criteria.

- THE CITY OF MOUNTAIN PARK has no ordinances regarding access management. Only local roadways exist in Mountain Park with no regional thoroughfares. Therefore, an access management policy is most likely unnecessary for Mountain Park.
- THE CITY OF SANDY SPRINGS ordinances include requirements for the minimum spacing of driveways, median openings, signalized intersections, and uninterrupted ingress/egress lengths. There are also guidelines for minimum spacing between public roads and private gates, maximum number of residential lots allowed per one driveway, and minimum distance between full-movement driveways and intersections that are signalized or likely to be signalized. Guidelines for inter-parcel access are provided, but not with quantifiable criteria.

8.4.4 Recommendations

North Fulton can improve regionally significant corridors by sharing a unified approach on access management. As described above, many of the North Fulton cities have existing city ordinances for access management, yet these vary widely across jurisdictions. It is important for the five cities with arterial roads have a shared set of regulations and guidelines for corridors that are the main arteries for North Fulton.

Recommendation: Identify priority corridors on which to focus and uniformly protect

The five Cities should determine which roadway corridors are in need of this unified set of regulations and guidelines. The three priority corridors that have already been identified are:

- SR 9 (Roswell Road/Atlanta Street/Alpharetta Highway/Main Street)
- SR 92 (Woodstock Road/Crossville Road) and SR 140 (Holcomb Bridge Road)
- SR 140 (Arnold Mill Road/Houze Road), Rucker Road, SR 120 (Old Milton Parkway), State Bridge Road

The five cities may identify additional corridors as needing access management regulations and guidelines. The ARC's *Strategic Regional Thoroughfare Plan* should be referenced as North Fulton establishes the included roadways. The Strategic Regional Thoroughfare Plan is a study that is being prepared by ARC in partnership with GDOT. Existing thoroughfares in the Metro Atlanta region will be identified and used as a foundation for a regional thoroughfare system.

Recommendation: Complete detailed corridor studies for each identified corridor

Separate corridor studies should be prepared for each of the "priority corridors" that are identified as needing better access management policies. The purpose of the corridor study is to "zoom in," focus on one specific roadway, and develop steps to achieve good access management. The overlay ordinances are intended to universally set good access management policies; the corridor studies are intended to determine specific steps that can be taken for each corridor to achieve the policies in the overlay ordinances.

Recommendation: Adopt a uniform policy across all jurisdictions

A model access management overlay ordinance has been developed and is included in Appendix D. This "North Fulton Access Management Overlay Ordinance" includes minimum standards for suburban style development. The preferred minimum spacing criteria for driveways, median openings, and signals is proposed to reflect the current GDOT minimum criteria. This is included in the overlay ordinance because the five cities can more directly coordinate shared driveway and inter-parcel access agreements between adjacent landowners. GDOT looks at one property at a time and only considers access along the State Highway system. Local municipalities are more involved in zoning processes and have a better opportunity to organize cross-parcel easements and enhance interconnectivity.

It is important to acknowledge that not all of these criteria may be appropriate for North Fulton. This model ordinance is intended to be a starting point for the five cities. For instance, this model ordinance states that for a single-lane drive-through full-service car wash, there should be minimum vehicle storage to accommodate three vehicles. Based on their collective experiences, the Cities of North Fulton may determine that the appropriate storage length differs from the suggestion in the model ordinance.

Charrettes should be conducted to determine the policies and overlay ordinances that the six cities in North Fulton are going to adopt. A charrette is a "meeting of the minds" in which problems are identified and solutions are developed. These meetings can add, remove, and modify the text found in the model access management overlay ordinance.

8.5 ATMS Studies

Introduction

Traffic congestion is one of the most pressing concerns of the residents of North Fulton. The active management of traffic and dissemination of traffic information is essential to the motoring public. Advanced Traffic Management Systems (ATMS) allow government agencies to better manage the traffic along the roadway and to disseminate traffic information to drivers for their use. ATMS components include:

- Traffic signal controllers
- Closed circuit television (CCTV) cameras
- Dynamic message signs
- Communication equipment
- Control center monitoring equipment and software

Several municipalities in North Fulton, including Alpharetta, Roswell, and Sandy Springs already have mature ATMS programs in place, while others have projects under way, such as the City of Johns Creek, and still others have systems that are monitored and managed by GDOT. While the municipalities do currently work together, there isn't a formal overarching system in place that ties

the individual systems together and optimizes the management of traffic across all of North Fulton. With numerous major routes that cross multiple municipalities – such as SR 9, 120, and 140 – there is a significant need and potential benefit of having a cohesive ATMS network.

Discussion Items / Background

Traffic Signals: For signals to operate together in an efficient manner, it is essential that the signals all be operating on the same hardware and software platform. To use the analogy of an office computer network, the system will operate more efficiently if all of the computers are of the same type (PC or Apple) and running the same software (Microsoft or Linux). The majority of the traffic signal controllers within North Fulton recently have been upgraded to the most recent GDOT standards for hardware and software. Taking the next step and ensuring that all of the signals are running the same hardware and software will allow municipalities to better coordinate the traffic signals among them.

Figure 8-24: Signal Cabinet and Controller

Figure 8-25: Traffic Operations Camera

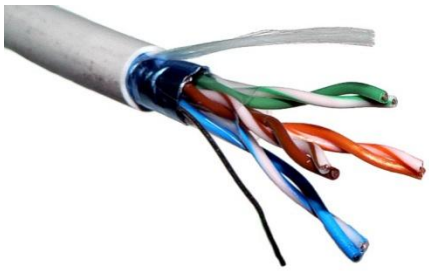
Closed Circuit Television Cameras (CCTV): CCTV cameras allow municipalities to observe traffic on the roadways. Images from the CCTV cameras are brought back to a traffic control center where operators look for congestion and incidents and can manage the traffic system to address any issue that is observed. These images can also be made available to the public through the municipalities' websites or local television affiliates. The cities of Alpharetta, Roswell, and Sandy Springs all have existing CCTV cameras along several major routes that they use to assist in managing traffic. The City of Johns Creek currently has a project to connect to some existing CCTV cameras that are currently not operational. Coverage of these CCTV cameras is limited to major routes. Expansion of the system will allow these municipalities and others to be able to better manage and provide travel information to their public.

Figure 8-26: Dynamic Message Sign

Dynamic Message Signs (DMSs): DMSs allow operators to provide information directly to drivers while they travel the route. Information can be given as to upcoming congestion, incidents, expected travel times, etc. Typically DMSs are deployed on interstate systems, yet in recent years DMSs are being used for arterial management with great success. No cities within North Fulton currently have arterial DMSs in the field. Deploying several DMSs along key routes will allow system operators to provide

travel information, detour opportunities, etc. to allow for better management of the traffic network.

Figure 8-27: Twisted-Pair Copper Wire



Communications: Essential to managing traffic is having a communication backbone that allows operators to manage the traffic management devices that are in the field. Communication to traffic management devices can be either hard-wired or wireless. The majority of ATMS communication is hard-wired, with wireless used to reach outlying or difficult to reach areas. Hard-wired communication is typically either twisted-pair copper wiring, fiber-optic cable, or a combination thereof. Older systems typically used twisted-pair copper; however, as technology has improved and there is a need to provide greater bandwidth for devices such as CCTV cameras, fiber-optic communication has become the most prevalent communication media. Alpharetta, Roswell, Sandy Springs, and Johns Creek all use some form of communication to talk to their traffic management devices along most of their major routes. However, in many locations communication is either not present or needs to be connected to achieve greater coverage and allow for cross jurisdictional communication.

Figure 8-28: Traffic Control Center

Control Center Monitoring Equipment and Software: Traffic control centers (TCCs) are the heart of an ATMS system. All data and video from field devices are brought back through the communication network to the TCC for operators to better manage traffic. Information from the TCC is sent out to the traffic management devices, web, and media services to provide active traffic management and better travel information. Alpharetta, Roswell, and Sandy Springs all have operational TCCs, and the City of Johns Creek has a current project to create a TCC. As traffic doesn't stay within a municipality, but travels across municipalities, it is important to manage traffic between the various municipalities' TCCs. Therefore, center-to-center communication is essential to managing regional traffic patterns. Currently center-to-center communication does not exist between the municipalities in North Fulton. To accomplish this, an evaluation of hardware, software, and communication equipment would need to be performed to determine how center-to-center communication could be achieved. The municipalities would also have to determine what information they would share among centers.

Strategy

The first step of upgrading the existing ATMS network should be a compilation of a comprehensive and coordinated inventory of all of the existing traffic management devices within North Fulton.

This inventory would then set the stage to determine future needs of the system. Based on the level of investment sought by each of the Cities, preliminary goals for future expansion could include:

- Expand the reach (communication) of the existing signal systems
- Coordinate signals and sync clocks across jurisdictional boundaries
- Expand CCTV coverage
- Evaluate the need and potential locations for DMS deployments
- Provide center-to-center communication
- Establish protocols for sharing information and managing traffic across municipalities
- Identify other potential ATMS strategies (such as transit priority, reversible lanes, etc.) that may be applicable within North Fulton
- Develop a strategy that is flexible and expandable that allows for future growth as development continues to occur
- Develop a system that minimizes recurring costs

Recommendation: Perform a concentrated ATMS study guided by a Coordinating Committee made up of representatives from the various municipalities.

9.0 OTHER REGIONAL PROJECTS CONSIDERED

In response to the wide range of public involvement and input from the Project Management Team, the Stakeholder Committee, policy makers, and transportation professionals involved in the development of this plan, many more projects were considered during evaluation and prioritization than made it into the final list of recommendations. Most of the projects that did not make the final list were deemed to be beneficial projects worthy of implementation, but given the finite amount of resources available, were removed from the recommendations. Projects that were left out of the recommendations in this CTP are not necessarily unable to be implemented or not recommended. This simply means that they have not been prioritized in this regional CTP. They could be reevaluated when this plan is updated or advanced back onto the list in response to shifts in political support and other factors.

Many of the projects removed from the recommendations were determined to be too localized to justify inclusion in a regional CTP. While these projects might actually provide great benefits to the municipality, and therefore the region, given the lack of funding available, they would be more appropriately pursued by individual governments. A list of these projects is shown in Table 9-1 below.

Table 9-1: Local Projects Not Included in the North Fulton CTP

Name	Description
Chattahoochee River Multiuse Trails	Extend the River Walk trail along the Chattahoochee River from Eves Road to McGinnis Ferry Road, where development does not preclude.
New Connection - Northeast/Sun Valley Connector	Construct a new roadway connecting Sun Valley Road west to Houze Raod and east to Old Ellis Road to Sanctuary Parkway at Rock Mill Road. Project also connects Warsaw Road and Mansell Place.
New Connections - Commerce Parkway and Mansell Road Extensions	Construct new roadways extending Commerce Parkway from Old Roswell Road to Holcomb Bridge Road (SR 140) and extending Mansell Road from E. Crossville Road (SR 92) to SR 9.
New Connection - Sandy Springs Circle Extension	Construct a new roadway connecting Sandy Springs Circle under I-285 to connect to SR 9 at Glenridge Drive, including associated street grid enhancements.
New Connection - Northwinds Parkway	Construct a new roadway extending Northwinds Parkway from Kimball Bridge Road to Old Milton Parkway.
Capacity Improvements to Mansell Road	Widen to 6 lanes from Old Roswell Road to Old Alabama Road Connector.
Capacity Improvements to Old Alabama Road	Widen to 4 lanes from Buice Road to Medlock Bridge Road.
Capacity Improvements to Glenridge Drive	Widen to 4 lanes from Roswell Road to Glenridge Connector.

Other projects that were not included in the final plan were removed for a wide variety of reasons. These projects were initially considered because they were identified as needs during the Needs Assessment Phase (by the travel demand model, the public, city staff, or other sources), but were later removed due to the perceived adverse tradeoffs associated with them. These projects and their associated reason for removal are shown in Table 9-2 below:

Table 9-2: Other Projects Not Included in the North Fulton CTP

Name	Description	Reason for Removal
Rogers Bridge Bike/Ped Trail Connection	Rehabilitate existing steel truss bridge over Chattahoochee River at Rogers Bridge Road to accommodate bike/ped travel.	City Council removal
Bus Rapid Transit along SR 9	Create a BRT route beginning at the Lindbergh MARTA station, continuing along Piedmont Road to Roswell Road, and along SR 9 through Sandy Springs, Roswell, and Alpharetta, along Windward Parkway to the Windward park-n-ride lot.	Potentially long term
Bus Rapid Transit along Crossville Road (SR 92)/Holcomb Bridge Road (SR 140)	Create a BRT route beginning at the Doraville MARTA station, continuing along Buford Highway, Holcomb Bridge Road, Crossville/Woodstock Road, to the park-n-ride lot in Woodstock.	Queuing considerations
Perimeter Center Circulator	Create a circulator along SR 9, Mount Vernon Highway, Peachtree Dunwoody Road, and Hammond Drive, connecting to the Dunwoody and Sandy Springs MARTA stations.	Consultant Team removal
Capacity Improvements to Rucker Road	Enhance facility to become a divided four-lane cross-section with a median and turn lanes from Hardscrabble Road to Wills Road.	Staff/ Consultant Team removal
Capacity Improvements to Holcomb Bridge Road (SR 140)	Widen to 6 lanes from Gwinnett County to Nesbit Ferry Road (include 6 lane bridge).	City Council removal
Capacity Improvements to Holcomb Bridge Road (SR 140)	Widen to 6 lanes from Nesbit Ferry Road to Old Alabama Road.	City Council removal
New Interchange - McGinnis Ferry Road at GA 400	Construct a new interchange including a new full-movement interchange and widening of McGinnis Ferry Road/Morris Road to 4 lanes from Webb Road to Union Hill Road.	Primarily economic development and currently has own momentum

Capacity Improvements to Riverside Drive	Widen to 4 lanes from Johnson Ferry to I-285.	Staff removal
Capacity Improvements to Barfield Road	Widen to 4 lanes from Hammond Drive to Mount Vernon Highway.	Staff removal
Capacity Improvements to Hardscrabble Road	Widen to 4 lanes from SR 92 to Crabapple Road.	Staff removal
Capacity Improvements to GA 400	Widen to 12 lanes from I-285 to Holcomb Bridge Road, widen to 10 lanes from Holcomb Bridge Road to Windward Parkway, widen to 6 lanes from McFarland to SR 141.	Consultant Team removal
Capacity Improvements to Abernathy Road	Widen to 6 lanes from Roswell Road to GA 400.	City Council removal
New 4 Lane Chattahoochee River Crossing (Northridge Rd to Riverside Dr)	Construct a new river crossing extending Northridge Road to connect to Riverside Road and then Eves Road, ending at Holcomb Bridge Road. Includes widening Northridge Road, Riverside Road, and Eves Road to 4 lanes.	City Council removal
Capacity Improvements to Houze Road	Enhance facility to become a divided four-lane cross-section with a median and turn lanes from Rucker Road to Mansell Road	Staff / Consultant Team removal
New Connection at Grimes Bridge Road	Extend Grimes Bridge Road to create a new connection across GA 400 to Old Alabama Road.	City Council removal

10.0 FIVE-YEAR ACTION PLAN

The Action Plan outlines the appropriate steps for local and State leaders to implement the recommendations of this plan and identifies key agencies that should be involved with the task. It is not expected that every item listed would be completed over the next several years; however, the process should be initiated to best take advantage of the momentum gained with the development of this plan and the collective work of the local champions that were involved in the process.

Funding is, of course, a critical component of the implementation of the plan. Without money to implement the recommendations (whether local, state, or federal), the plan is merely a wish list. Given funding considerations at the federal level and probable redirection of money to asset management at the regional level, non-local funding dollars for new capital may be even scarcer than in the past. Therefore, it is, all the more critical that cities be prepared to implement projects when funding does become available. According the *Breaking Ground 2009*, a status report published by ARC of TIP projects, approximately 65 percent of the phases (over $1 billion) were delayed to 2010 for various reasons. Some of this delay can be attributed to cities that did not have local matches set aside, did not have public support established for the projects, etc. These types of obstacles result in projects being delayed or not implemented at all.

For the Cities of North Fulton to be prepared for project implementation, the following principles are recommended:

- Show commitment to projects
    - May include upfront concept design / feasibility / Preliminary Engineering using local dollars (if federal funding is going to be pursued for Right-of-Way and Construction phases, the Cities should coordinate with GDOT to ensure compliance with federal protocol).
    - Complete a public process when feasible to establish support for the project. Public opposition has the ability to delay or derail a project completely.
- Complete current projects in the TIP
    - Focus on completion of the current projects in the TIP
    - If priorities change, request that projects be removed from the TIP instead of letting them remain for many years
- Ensure that the local match has been set aside for upcoming projects.
- Focus on a few priorities instead of spreading support across a large number of projects.

Keeping these principles in mind, the Action Plan was developed to focus on key priorities, many of which (or similar projects) are currently in the TIP or RTP. Sponsors and jurisdictional champions were outlined for each of the Action Plan recommendations. Coordination among jurisdictions within North Fulton as well as to adjacent counties and cities should also be incorporated as projects move forward.

It is important to note that while these improvements are shown separated by mode, that all modes be considered together to truly implement a multimodal plan. Projects are listed separately here for convenience, since many travel modes draw upon their own unique funding sources.

Table 10-1: North Fulton TRIP – Five-Year Action Plan

Proj #	Tier	Project Name	Action Item (5-year)	Currently in TIP or RTP	Sponsor	Jurisdiction Champion	Coordinate with
General Recommendations							
-	-	Approval of North Fulton TRIP	All North Fulton Cities to adopt the North Fulton TRIP	-	-	All North Fulton Cities	-
-	-	Continuation of the Memorandum of Agreement (MOA) / Creation of Coordinating Committee	Cities should develop a new MoA to continue the organizational structure developed to complete the North Fulton TRIP outlining participation, regular meetings, approval processes, etc.	-	-	All North Fulton Cities	-
-	-	Project inclusion in the TIP and RTP	Work with ARC to include the maximum number of North Fulton projects in the RTP and TIP	-	-	All North Fulton Cities	
Bike / Pedestrian Recommendations							
-	-	Adopt Pedestrian and Bicycle LOS Guides (accomplished with the approval of the North Fulton TRIP)	Adopt the Pedestrian and Bicycle LOS Guides provided in this study for use in prioritizing bike/pedestrian improvements. Bike/pedestrian improvements inside activity centers should be considered highest priorities.	-	-	All North Fulton Cities	-
BP101	1	Big Creek Greenway Connection to Forsyth County	Begin conceptual design for extension of the Big Creek Greenway to Forsyth and to the Chattahoochee River Walk, while determining feasible connections to Johns Creek and Milton.	No	Alpharetta	Alpharetta	Forsyth County, Johns Creek, Milton
BP102	1	Big Creek Greenway Connection to Chattahoochee River Walk		No	Roswell	Roswell	Alpharetta
BP105	1	Johns Creek Connection to Big Creek Greenway		No	Johns Creek	Johns Creek	Alpharetta
BP106	1	Milton Connection to Big Creek Greenway		No	Milton	Milton	Alpharetta

Table Continued on Following Page

Table Continued from Previous Page

BP101	1	Big Creek Greenway Connection to Forysth County	Begin implementation of the critical Big Creek Greenway extensions to both Forsyth County and to the Chattahoochee River Walk.	No	Alpharetta	Alpharetta	Forsyth County, Johns Creek, Milton
BP102	1	Big Creek Greenway Connection to Chattahoochee River Walk		No	Roswell	Roswell	Alpharetta
BP103	1	Morgan Falls/Power Easement Multiuse Trail	Begin coordination with Cobb County and the City of Dunwoody, developing conceptual designs for potential alignments.	No	Sandy Springs	Sandy Springs	Cobb County, Dunwoody
-	-	Establish annual bike / pedestrian budget within the city's capital planning expenditures	Establish annual bike/pedestrian allocation in the transportation budget for any municipality where this does not currently exist.	-	-	All North Fulton Cities	-
-	-	Restripe roadways to create bike lanes or wide shoulders	Restripe approximately 12 miles of roadway that have excess width for bike lanes or wide shoulders (as noted in this report).	-	-	All North Fulton Cities	-
-	-	Implement easy-opportunity bike/pedestrian improvements	As funding allows, construct bike/pedestrian improvements where minimal grading is required (as noted in this report).	-	-	All North Fulton Cities	-
-	-	Include bike/pedestrian amenities on all roadway projects	Ensure bicycle and pedestrian amenities are included on all major roadway improvements, to the degree that they are feasible.	-	-	All North Fulton Cities	-
Transit Recommendations							
-	MC[4]	Revision of local MARTA routes between activity centers	Work with MARTA to discuss changes to the existing local bus routes in North Fulton to better service key activity centers (fiscally constrained).	-	-	All North Fulton Cities	-

Table Continued on Following Page

[4] MC: Multi-County projects (not included in Tiers 1, 2, or 3)

Table Continued from Previous Page

-	MC	Focus on land use mix and densities around proposed transit stations.	Begin discussions among North Fulton Cities and transit providers (MARTA, GRTA) regarding future transit locations and potential transit-oriented development, particularly along GA 400 and the regionally significant corridors.	-	-	All North Fulton Cities	MARTA, GRTA
Vehicular Recommendations							
VH101	1	Capacity Improvements to Abbotts Bridge Road (SR 120)	Conduct formal traffic study and conceptual design to establish operational improvements, right-of-way implications, and to assess public opinion.	RTP (first phase)	GDOT	Johns Creek	Gwinnett County
VH111	1	Capacity Improvements to Kimball Bridge Road		RTP (first phase)	GDOT	Johns Creek	-
VH103	1	Capacity Improvements to Arnold Mill Road (SR 140)	Conduct formal traffic study and conceptual design to establish operational improvements, right-of-way implications, and to assess public opinion. Projects can be phased for right-of-way acquisition and construction, but the four projects should be studied in unison because of their interaction with each other.	RTP (first phase)	GDOT	Milton	Roswell, Alpharetta, Cherokee County
VH104	1	Capacity Improvements to Rucker Road		No	Alpharetta	Alpharetta	Milton, Roswell, Cherokee County
VH107	1	Capacity Improvements to Hardscrabble Road		No	Roswell	Roswell	Milton, Alpharetta, Cherokee County
VH110	1	Capacity Improvements to Houze Road		RTP (first phase)	GDOT	Roswell	Milton, Alpharetta, Cherokee County
VH105	1	Capacity Improvements to Atlanta Street (SR 9)	Complete design, pursue Right-of-Way and Construction phases.	TIP (partial)	Roswell	Roswell	-
VH108	1	Capacity Improvements to McGinnis Ferry Road	Work with GDOT and Forsyth County to advance Preliminary Engineering and Right-of-Way phases.	TIP / RTP (first phase)	GDOT	Alpharetta, Johns Creek	Forsyth County
VH109	1	Capacity Improvements to Hammond Drive	Advance Preliminary Engineering and potentially right-of-way acquisition.	No	Sandy Springs	Sandy Springs	-

Table Continued on Following Page

Table Continued from Previous Page

VH204 / VH205	2	Improvements to the Holcomb Bridge Road Corridor, including but not limited to interchange redesign, construction of the Big Creek connection, etc.	Conduct Holcomb Bridge Road Corridor / GA 400 interchange study to assess recommended improvements to the system along Holcomb Bridge Road between Warsaw Road and Holcomb Woods Parkway.	TIP	Roswell	Roswell	-
Access Management Recommendations							
-	-	Corridor Studies of 3 regionally significant corridors:	Conduct corridor studies of the three regionally significant corridors to determine specific recommendations such as medians, frontage or backage roads, interparcel connectivity, driveway consolidation, etc.	-	-	-	-
		• Arnold Mill (SR 140) / Rucker Road / Old Milton Parkway (SR 120) / State Bridge Road		No	GDOT	Milton, Roswell, Alpharetta, Johns Creek	Cherokee County, Gwinnett County
		• Holcomb Bridge Road (SR 140) / Crossville Road (SR 92)		No	GDOT	Roswell	Johns Creek, Gwinnett County, Cobb County
		• SR 9		No	GDOT	Sandy Springs, Roswell, Alpharetta, Milton	City of Atlanta, Forsyth County
-	-	Develop Overlay Ordinances for 3 regionally significant corridors:	In conjunction with studying the three primary corridors, the Cities should jointly develop overlay ordinance language to be used consistently along the corridors.	-	-	-	-
		• Arnold Mill (SR 140) / Rucker Road / Old Milton Parkway (SR 120) / State Bridge Road		No	Milton, Roswell, Alpharetta, Johns Creek	Milton, Roswell, Alpharetta, Johns Creek	Cherokee County, Gwinnett County
		• Holcomb Bridge Road (SR 140) / Crossville Road (SR 92)		No	Roswell	Roswell	Johns Creek, Gwinnett County, Cobb County
		• SR 9		No	Sandy Springs, Roswell, Milton. Alpharetta	Sandy Springs, Roswell, Milton, Alpharetta	City of Atlanta, Forsyth County

Table Continued on Following Page

Table Continued from Previous Page

ATMS Recommendations							
-	-	ATMS study for all North Fulton	Perform a concentrated ATMS study to understand existing conditions of the current systems and to develop a plan to develop and to guide future coordination.	No (only corridor studies)	All North Fulton Cities	All North Fulton Cities	Adjacent Counties
Transportation Demand Management Recommendations							
-	-	Determine level of investment desired for TDM Strategies	Successful implementation of TDM strategies will require on-going dedicated staffing and resources. The Coordination Committee should determine what level of investment the Cities would like to jointly make for TDM implementation.	No	All North Fulton Cities	All North Fulton Cities	All North Fulton Cities
-	-	Select which TDM strategies are appropriate for implementation	Once a level of investment and resources has been established, the Coordinating Committee should implement strategies provided in this report such as: • Working with employers to implement teleworking and flex working programs, increase transit ridership, carpooling, walking, and cycling incentives and availability • Working with schools to improve school bus ridership, develop schoolpool programs, and improve efficiency of pick-up and drop-off operations	No	All North Fulton Cities	All North Fulton Cities	North Fulton CID, Perimeter CID, Fulton County Schools, Local Private Schools, Local Employers, Clean Air Campaign, RideSmart
-	-	Develop TDM Specific 5 year action plan	A detailed five year action plan should be developed based on availability of resources and programs selected for implementation. This program should assign responsibilities and set measurable goals.	No	All North Fulton Cities	All North Fulton Cities	North Fulton CID, Perimeter CID, Fulton County Schools, Local Private Schools, Local Employers, Clean Air Campaign, RideSmart

Table Continued on Following Page

Table Continued from Previous Page

-	-	Perform baseline TDM Survey to Measure Program Performance	Based on programs selected for implementation, existing conditions should be documented using employer and school surveys. This will provide necessary information to evaluate program performance and determine which investments have been successful and which programs should be adjusted or eliminated.	No	All North Fulton Cities	All North Fulton Cities	North Fulton CID, Perimeter CID, Fulton County Schools, Local Private Schools, Local Employers, Clean Air Campaign, RideSmart

11.0 PROJECT IMPLEMENTATION MONITORING

In 2008, five cities within North Fulton signed a Memorandum of Agreement (MOA) to formalize their interest in developing a regionally significant, cross-jurisdictional transportation plan. The MOA served as a legally binding agreement, documenting the roles and responsibilities of each of the five Cities, ARC, Mountain Park, and the Community Improvement Districts (CIDs). Because no other formal umbrella organization exists to coordinate these Cities, the MOA was an effective tool for organized communication and cooperation.

Following the adoption of the North Fulton TRIP by each of the six Cities within North Fulton, it is recommended that a new MOA be developed for the implementation of the plan. ARC is amenable to staying involved and helping to foster communication between the Cities moving forward. The recommended MOA, to be developed by the Cities in conjunction with ARC, should address the following provisions and protocols:

Committee Structure

- Assign staff from each of the Cities and ARC to serve on a Coordination Committee (most likely the current members of the Project Management Team)
- Determine meeting frequencies and types (for example, conference calls once a month with in-person meetings occurring quarterly)
- Determine whether or not an administrative city needs to be selected as was established in the original MOA and what purpose they would potentially serve

Goals of the Coordination Committee

- Determine protocol for allowing modifications to the adopted CTP by one or more of the Cities
- Determine how formal decisions will be made by the Mayors and City Councils relative to cross-jurisdictional transportation projects and policies
- Determine key priorities for advancing projects (using the Action Plan as a guide)
- Determine teaming between Cities and coordination with other Cities, Counties, CIDs, etc.
- Set implementation milestones for recommended projects from the CTP that are included in the TIP and RTP
- Determine funding priorities and new funding opportunities that the Cities can consider jointly
- Coordinate land use decisions along corridors / boundaries and work together to develop access management overlay districts
- Coordinate implementation of TDM strategies
- Coordinate key studies: access management, ATMS, project corridor studies, etc.
- Initiate transit conversations with MARTA, GRTA, or other relevant operators
- Coordinate discussions on combined transportation demand management strategies
- Conduct before / after studies of key corridors to assess the results of implemented projects

APPENDIX A

Model Documentation

MODEL DOCUMENTATION

Documentation of Model Edits

The Atlanta Regional Commission's travel demand model was used to establish existing transportation conditions and to forecast future transportation needs in and around North Fulton. This appendix documents the use of the ARC model and any significant modifications that were made to it to either correct deficiencies or to provide more detail within the North Fulton subarea.

Model Background

ARC's travel demand model forecasts travel within the 20-county non-attainment area using a traditional four-step modeling process, which includes trip generation, trip distribution, mode choice, and route assignment. The twenty counties in the non-attainment area include the following: Fulton, DeKalb, Gwinnett, Cobb, Clayton, Cherokee, Douglas, Fayette, Henry, Rockdale, Forsyth, Paulding, Coweta, Bartow, Carroll, Spalding, Newton, Walton, Barrow, and Hall. The model was recently updated and includes the 2010 model as the base year with supplemental model years including 2020 and 2030. A total of 2027 internal Traffic Analysis Zones (TAZ's) and 91 external zones exist within the model for a total of 2118 zones. These zones contain information regarding households, population, and employment that exist within their respective boundaries.

Because the model is used to forecast travel throughout the entire region, it requires refinement when being used to understand transportation conditions within a subarea. Four major areas of review and refinement were conducted: review of network structure and attributes (facility type, number of lanes, and speed limits); review of TAZ structure; enhancement of the model roadway network; and review of model count coverage and accuracy. All edits made to the base model are detailed below.

Model Revisions

Review of Network Structure and Attributes

The structure of the roadway network was primarily correct within North Fulton; however, a few of the roadways on the southeast side of the City of Milton required corrections. A significant portion of Mayfield Road was missing from the model or incorrectly located along the Bethany Road alignment. Providence Road also terminated at Mid Broadwell Road as opposed to Mayfield Road. Additionally, a segment of Mayfield Road connected incorrectly with Cogburn Road. In order to ensure accurate roadway connections, the model was overlaid on a current GIS road file and updated accordingly. Centroid connectors were edited to enter the network at appropriate locations following the network updates.

Three additional roadway segments were altered slightly to adjust the overall length of the roadway or its connection to other roadways. These three roadways include Birmingham Highway, Buice Road, and Heards Ferry Road.

In addition to reviewing the structure of the network, the attributes of the roadways within North Fulton were also compared with the existing roadway attributes including facility types, numbers of lanes, and speed limits. A few significant discrepancies were noted and altered including the following: Westside Parkway was changed from two lanes to four lanes between Sanctuary Parkway and Haynes Bridge Road and State Bridge Road was changed from two lanes to four lanes between Kimball Bridge Road and Medlock Bridge Road. Laneage along small segments of other roadways were changed including along Hammond Drive, Old Alabama Road, Old Alabama Connector, and Dunwoody Place.

Review of TAZ Structure

North Fulton is contained almost entirely within 170 TAZ's. In review of the TAZ structure, most of the 170 TAZ's had logical boundaries for the subarea study in North Fulton, but three TAZ's were determined to be large: TAZ 232, 235, and 281. TAZ 232, located between Hardscrabble Road, Crossville Road, and Crabapple Road was split along Chafin Road to create TAZ 1572. TAZ 235, located between Hembree Road, Crabapple Road, Crossville Road, and SR 9 was split along Houze Road to create TAZ 1630. Finally, TAZ 281, located between Birmingham Highway, Redd Road, Bethany Road, and Providence Road was split along Freemanville Road to create TAZ 1570. Land uses (residential and employment densities) were distributed between the TAZ's according to land area.

Enhancement of Model Roadway Network

Because the regional model focuses on a full twenty counties, it is impossible for the model to include all of the roadways across the metro region that are important to a small subarea. For this transportation plan, therefore, it was important to review the roadways within and around North Fulton to determine which additional roadways are the most important to those traveling within and through it. The following roadways were added to the ARC's existing travel demand model: Freemanville Road (Birmingham Road to Mayfield Road), Etris Road (Cox Road to Crabapple Road), King Road (Cox Road to Crossville Road), Hembree Road (Crabapple Road to SR 9), Douglas Road (Jones Bridge Road to McGinnis Ferry Road), Parsons Road (Abbotts Bridge Road on either end), Spalding Drive (Roberts Drive to Winters Chapel Road), and Long Island Drive (Mount Vernon Highway to Mount Paran Road).

Review of Model Count Coverage and Accuracy

Following the previously mentioned edits, the 2010 E+C model was run to begin to calibrate the model to existing traffic counts collected from the GDOT STARS program. AADT's were not available on all roadways, so only roadways where traffic volumes were available could be used to calibrate the model. The AADT's on record are from 2008, while the model results assume a

population and employment from 2010. The differences in dates can account for small differences in volume along some of the roadways and were considered to be acceptable. The roadways in the model compared to the existing AADT's as follows (those listed are high or low relative to existing counts):

- Portions of Arnold Mill Road, Mid Broadwell Road, Cox Road, S. Atlanta Street / Roswell Road, Marietta Highway, Medlock Bridge Road, Johnson Ferry Road, and GA 400 were high relative to the AADT's.

- N. Main Street / Cumming Highway, Rucker Road, Mansell Road, and Peachtree Dunwoody Road were low relative to the AADT's.

Because the facility type directly determines the speed and capacity of a roadway segment in the model, the facility types of the roads in and around North Fulton were reviewed to check for appropriateness. The recommended roadway functional classification map was used as a guide for determining the appropriate facility type for each of the roadways; however, the AADTs from the GDOT count stations also guided whether or not a facility type should be adjusted. If the model over-projects volumes on a roadway, the facility type could be changed to reduce the available capacity. The following classification changes were made:

- The facility types of portions of Mid Broadwell Road, Holcomb Bridge Road, Marietta Highway, and Johnson Ferry Road were downgraded to more accurately represent their current function.

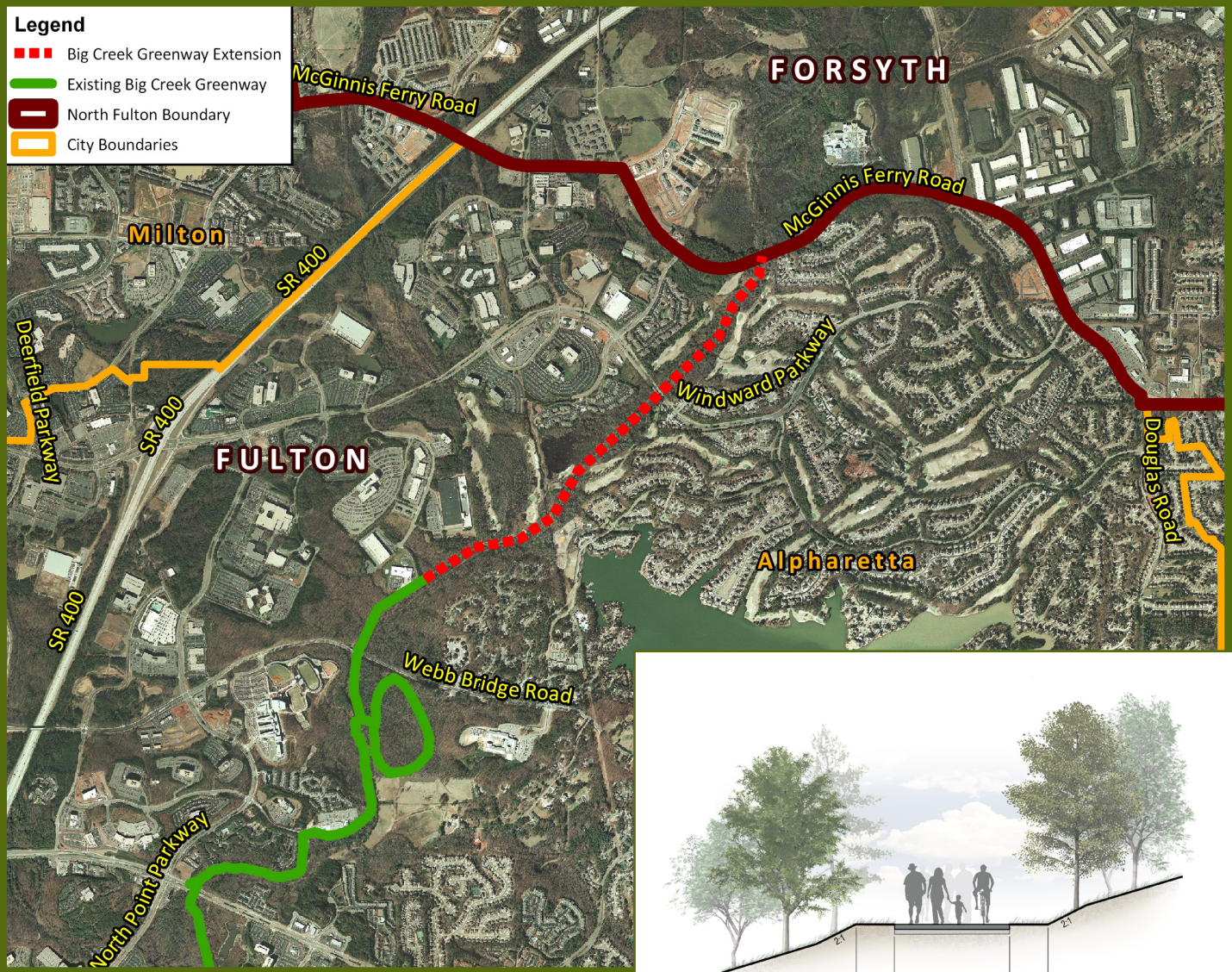
- The facility types of portions of N. Main Street / Cumming Highway, Hembree Road, Mansell Road, were upgraded to more accurately represent their current function.

The model was once again rerun following the edits to the roadway facility types. The projected model volumes were compared with the AADT's again to determine if the facility type edits improved the precision of the model. The majority of roadways did have volumes closer to their AADT's; however, some were still higher/lower than deemed acceptable despite these edits. Revisions to the network attributes were made a number of times, models were rerun, and output was compared to the existing AADTs. The final network developed as a part of the 2010 E+C calibration was then used as the base network for all 2030 E+C runs and scenario testing.

APPENDIX B

Tier 1 Project Fact Sheets

Big Creek Greenway Connection to Forysth County



Project Type:
Off-Road Multi-Use Trail

Project Description:
Connect Big Creek Greenway at Marconi Drive (currently under construction) to Forsyth County's trail system with off-road multi-use trail

Estimated Cost:
$10,000,000

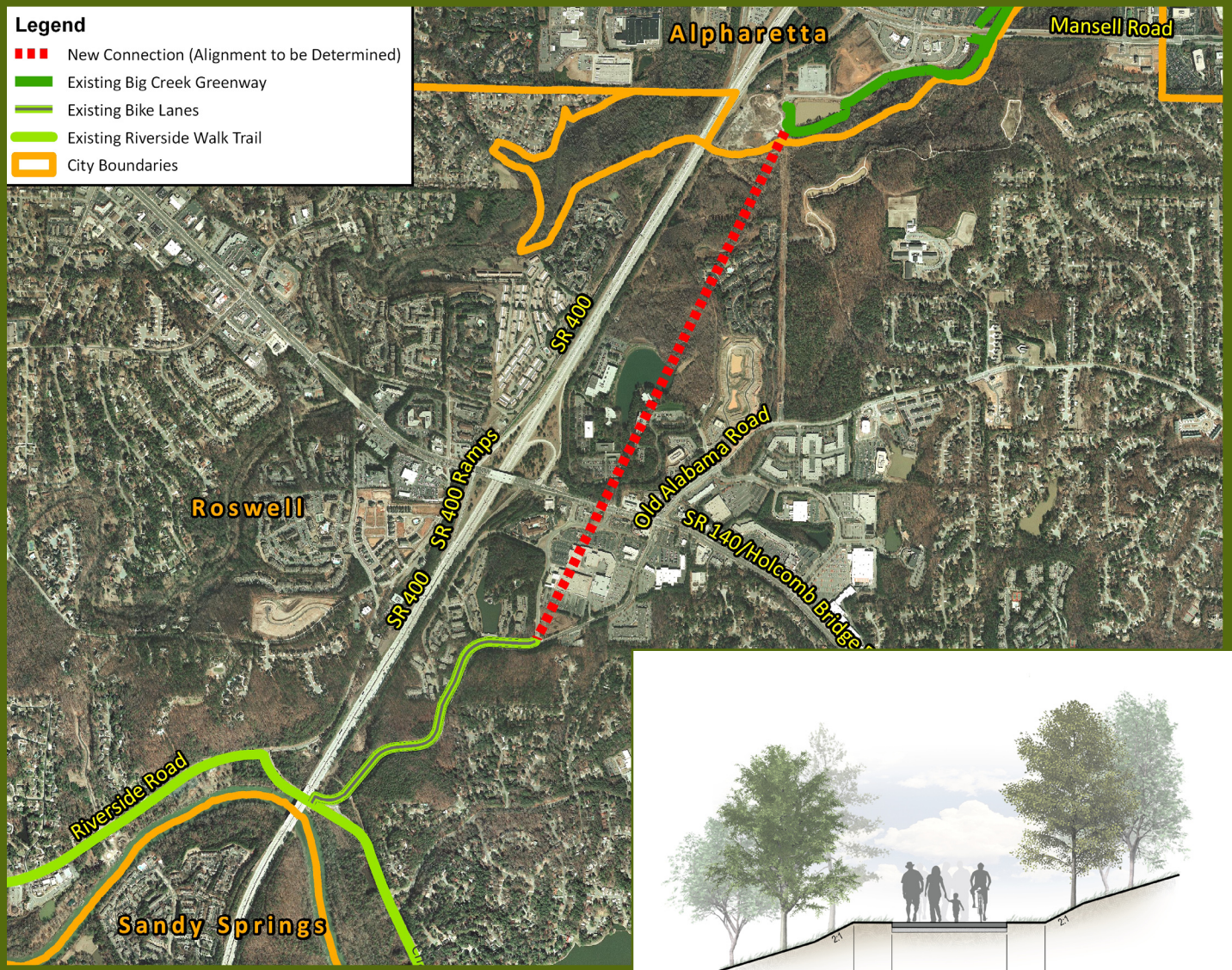
Notes:
- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Big Creek Greenway Connection to Chattahoochee River Walk



Project Type
On or Off-Road Multi-Use Trail

Project Description:
Connect Big Creek Greenway to Roswell's Chattahoochee River Walk along Riverside Drive via existing bike lanes along Old Alabama Road south of Holcomb Bridge Road. Grade separation at Holcomb Bridge Road preferred. Alignment not yet determined. May consist of on or off-road facilities.

Estimated Cost:
$4,000,000

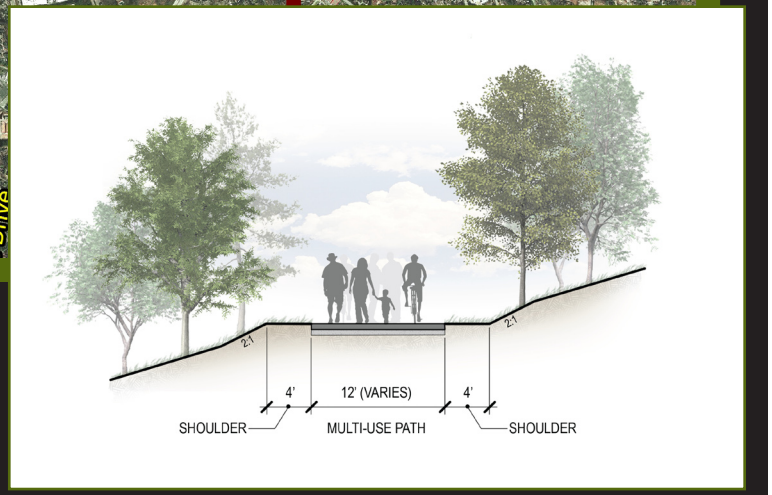
Notes:
- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Morgan Falls/Power Easement Multi-Use Trail



Project Type
On or Off-Road Multi-Use Trail

Project Description:
Construct a multi-use trail within power line easement from Lower Roswell Road in Cobb County, crossing the Chattahoochee River with a new bridge, through Morgan Falls Park, east to Colquitt Road, north to Pitts Road - Project to link to other on-road bike facilities, including to trails within the City of Dunwoody

Estimated Cost:
$16,000,000

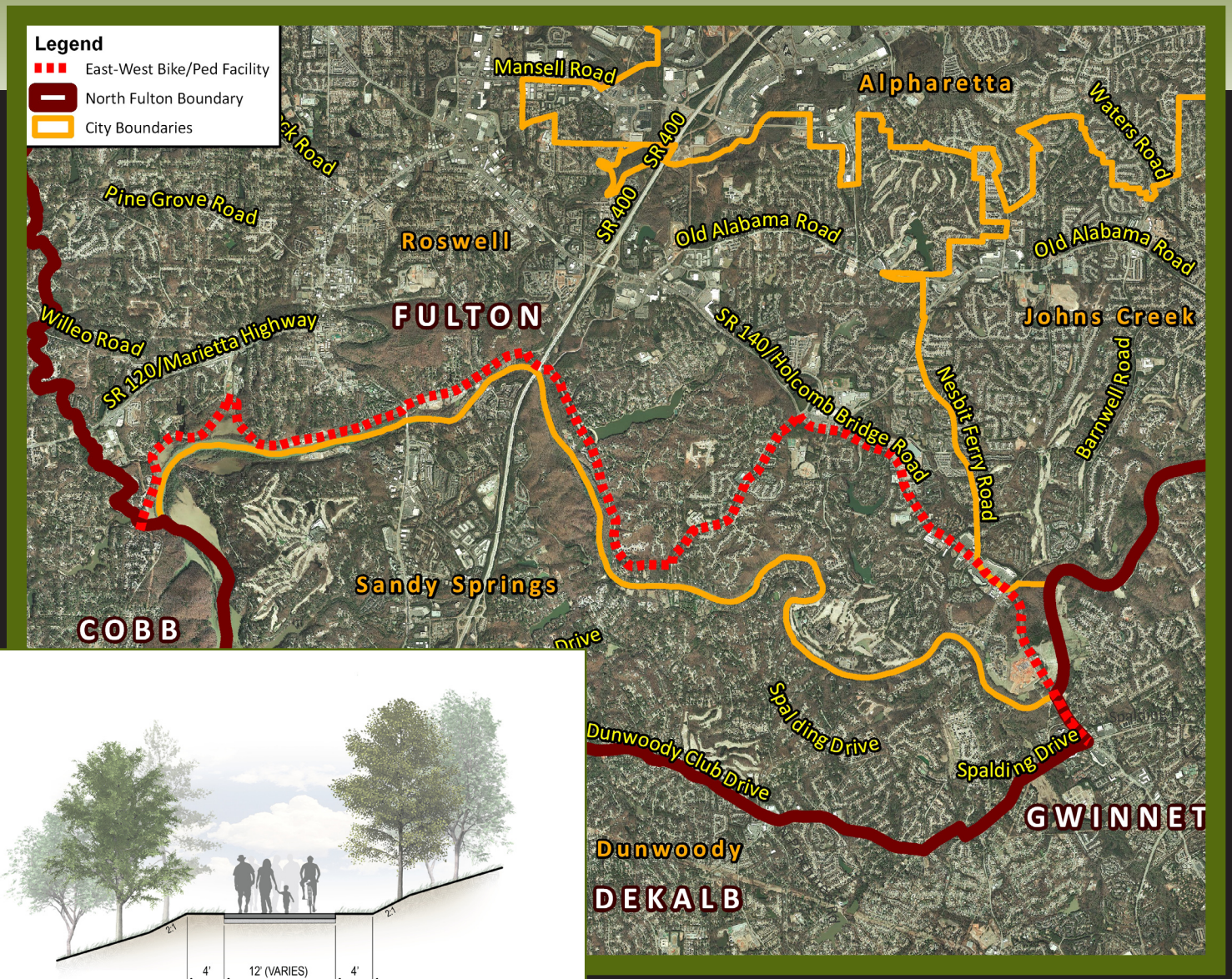
Notes:
- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

East-West Bicycle and Pedestrian Facility



Project Type
On or Off-Road Multi-Use Trail

Project Description:
Enhance bike/ped facilities along Riverside Road. Add an on-road multi-use trail (side path) along Eves Road and Holcomb Bridge Road creating a complete east-west bike/ped route through North Fulton

Estimated Cost:
$6,000,000

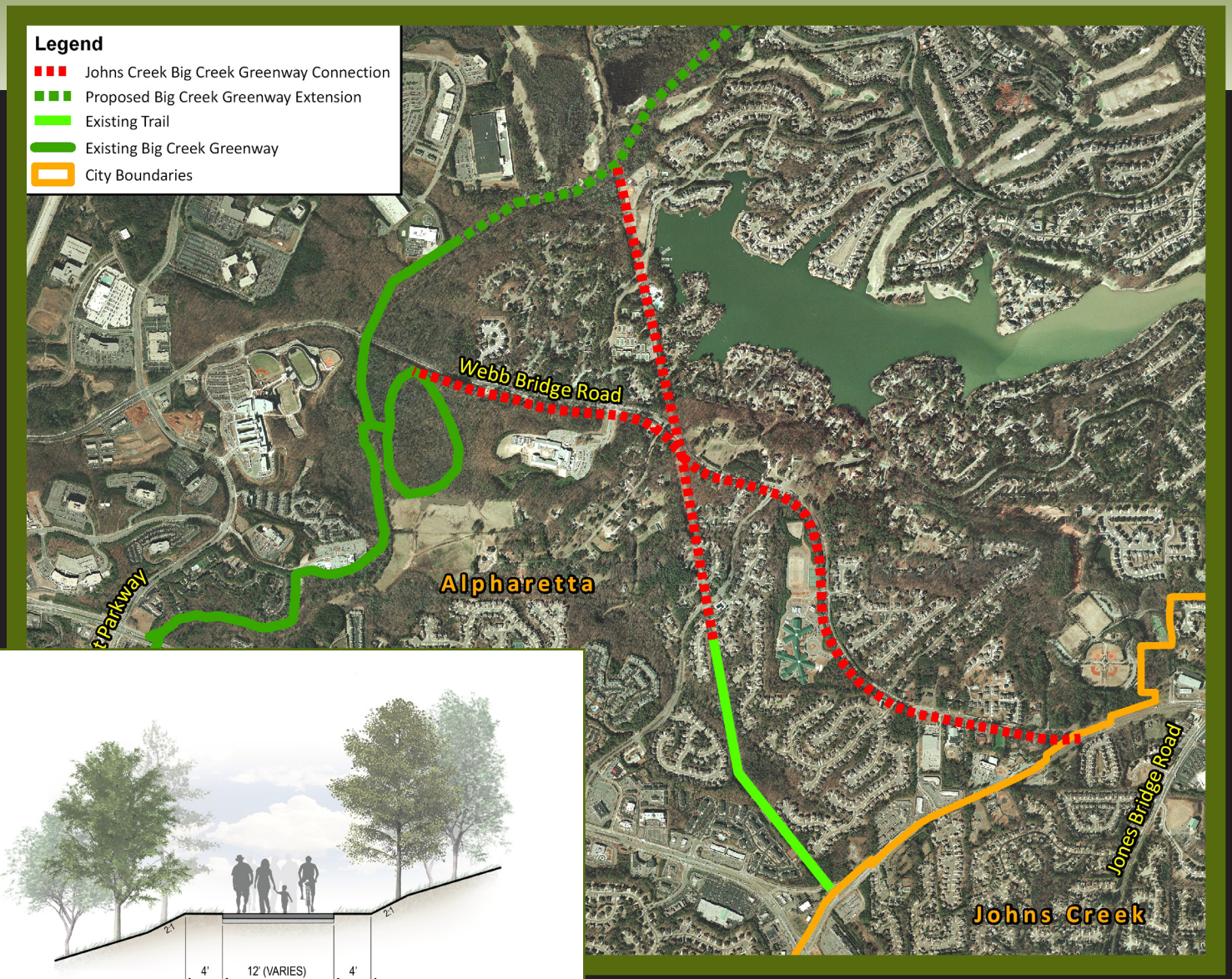
Notes:
- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Johns Creek Connection to Big Creek Greenway



Project Type
On or Off-Road Multi-Use Trail

Project Description:
Connect Johns Creek to the Big Creek Greenway with an on-road side path along Webb Bridge Road and with an off-road multi-use trail along an existing power line easement

Estimated Cost:
$6,000,000

Notes:
- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Milton Connection to Big Creek Greenway

Johns Creek Connection to Big Creek Greenway

On or Off-Road Multi-Use Trail

Project Description:

Connect Milton to the Big Creek Greenway along Webb Road, Morris Road, McGinnis Ferry Road and through Union Hill Park. Construct as off-road multi-use trail where possible

Estimated Cost:

$10,000,000

Notes:

- Route alignment may change depending on constraining factors
- Trail width may vary between 10 and 14 feet

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Abbotts Bridge Road (SR 120)

Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes and add median from Parsons Road (east of Medlock Bridge Road) to Peachtree Industrial Boulevard (including bicycle and pedestrian improvements)

Estimated Cost:
$27,000,000

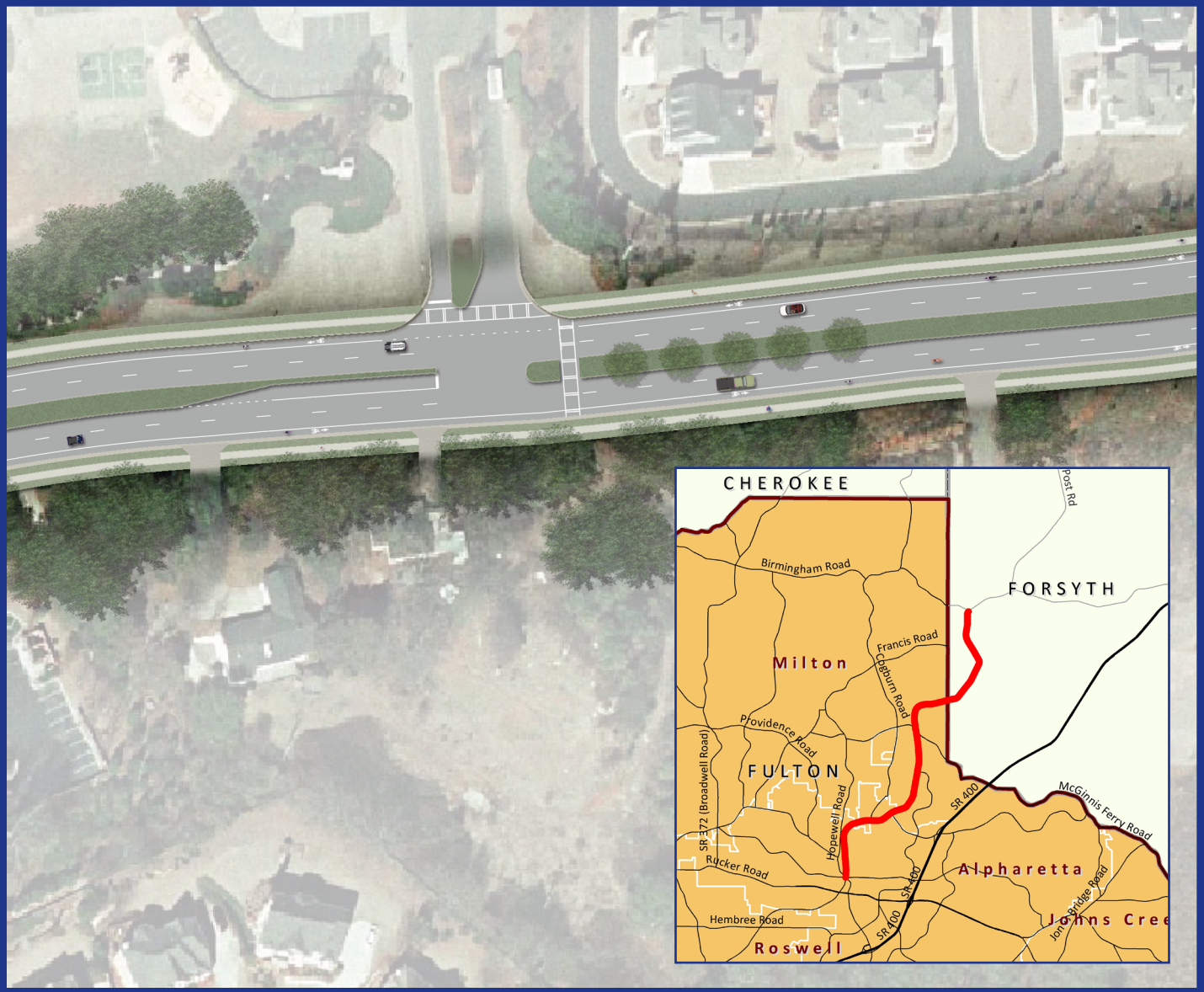
Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Main Street/Cumming Highway (SR 9)



Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes and add median from Hamby Road in Forsyth County to Academy Street (includes bicycle and pedestrian improvements)

Estimated Cost:
$112,000,000

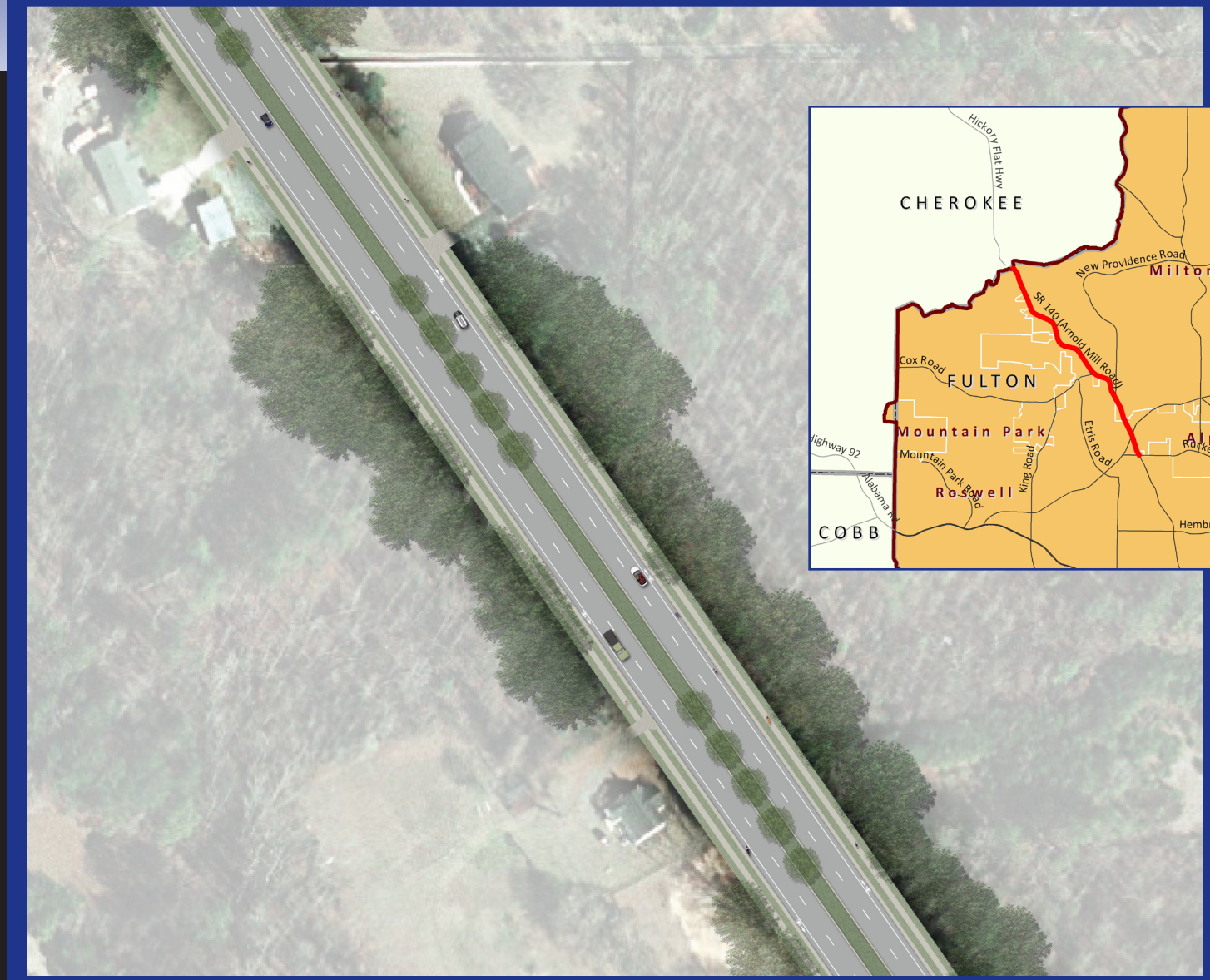
Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Arnold Mill Road (SR 140)



Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes and add median from Cherokee County to Rucker Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$42,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Houze Road (SR 140) and Rucker Road

Project Type:
Operational/Access Improvements

Project Description:
Enhance Rucker Road to become a divided two-lane cross-section with a grass swale median and turn lanes from Hardscrabble Road to Wills Road. Enhance Houze Road (SR 140) to become a divided two-lane cross-section with a grass swale median and turn lanes from Rucker Road to Mansell Road. These improvements should be implemented prior to the widening of Arnold Mill (SR 140). Includes bicycle and pedestrian improvements.

Estimated Cost:
$36,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Atlanta Street (SR 9)

Project Type:
Roadway Widening

Project Description:
Remove reversible lanes from Marietta Highway to Riverside Road/Azalea Drive and widen to 4 lanes; Includes 2 roundabouts (at Jones Drive and King Street/Chattahoochee Street); Does not include new bridge at Vickery Creek or grade separation of intersection with Riverside Road/Azalea Drive)

Estimated Cost:
$12,000,000

Notes:
- 5' sidewalk and buffer may vary
- Bike facilities provided will vary based on right-of-way constraints
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Windward Parkway

Project Type:
Roadway Widening

Project Description:
Widen to 6 lanes from Deerfield Parkway to Union Hill Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$36,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Hardscrabble Road

Project Type:
Operational/Access Improvements

Project Description:
Enhance facility to become a divided two-lane cross-section with a grass swale median and turn lanes from SR 92 to Crabapple Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$15,000,000

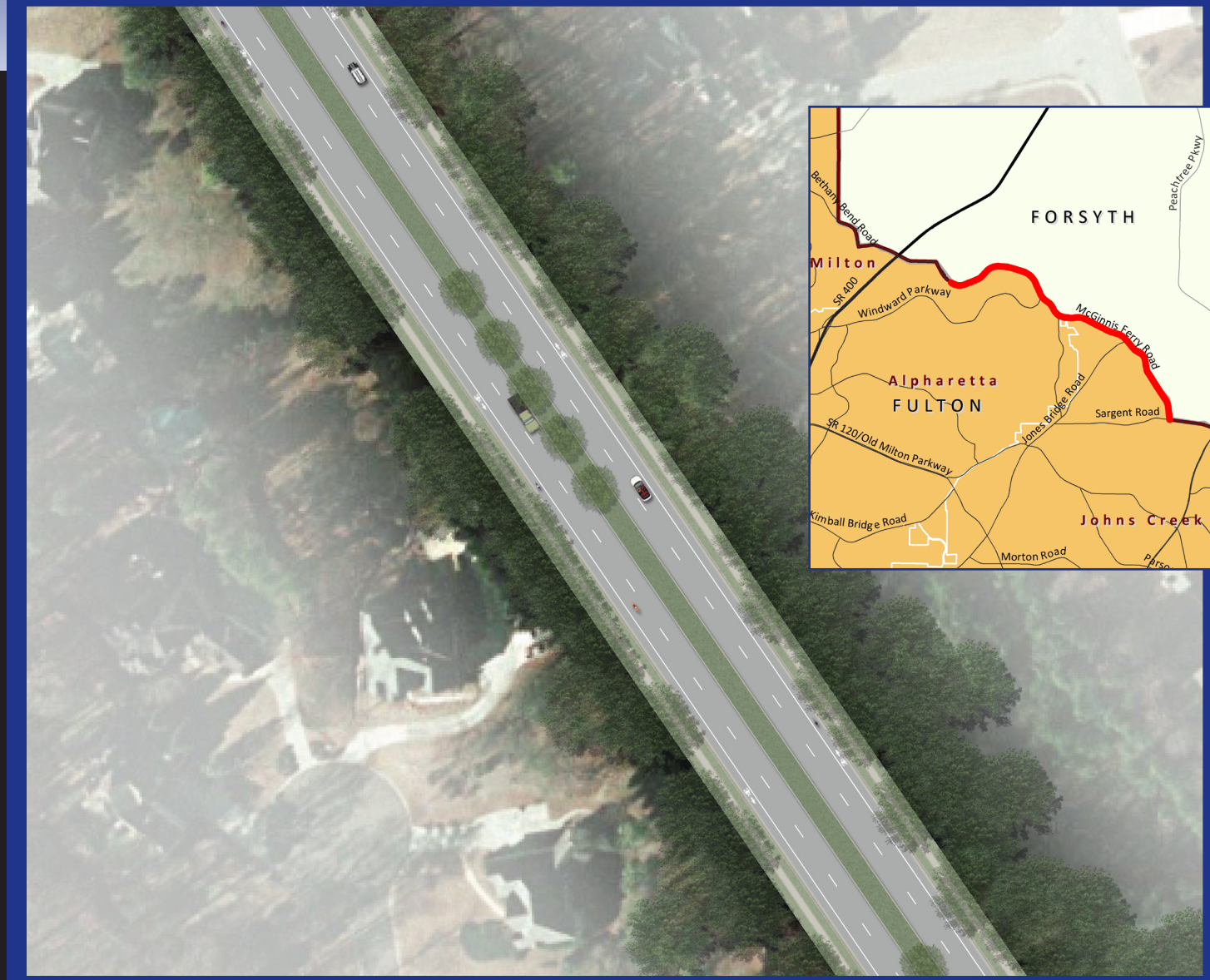
Notes:
- 5' sidewalk and 5' buffer may vary
- Potential 10' sidepath on one side
- 5' bike lanes may be excluded in lieu of sidepath

North Fulton
TRANSPORTATION RESOURCE IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

McGinnis Ferry Road



Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes and add median from Union Hill Road to Sargent Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$52,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Hammond Drive

Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes from Roswell Road (SR 9) to Glenridge Drive and widen to 6 lanes from GA 400 to the DeKalb County border. Install bicycle lanes and sidewalks on both sides where widening occurs. Infill gaps in existing sidewalk from Mount Vernon Highway to Roswell Road (SR 9) and Glenridge Drive to GA 400 to create a continuous sidewalk network.

Estimated Cost:
$29,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Kimball Bridge Road (SR 120)

Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes and add median from Old Milton Parkway (SR 120) to Jones Bridge Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$21,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

Jones Bridge Road

Project Type:
Roadway Widening

Project Description:
Widen to 4 lanes from Taylor Road to Douglas Road (includes bicycle and pedestrian improvements)

Estimated Cost:
$28,000,000

Notes:
- 5' sidewalk and buffer may vary
- 5' bike lanes may be replaced with multi-use sidepath
- Median width may vary

North Fulton
TRANSPORTATION RESOURCE
IMPLEMENTATION PROGRAM

- Alpharetta
- Johns Creek
- Milton
- Mountain Park
- Roswell
- Sandy Springs
- Atlanta Regional Commission

- Kimley-Horn and Associates, Inc.

APPENDIX C

Pedestrian and Bicycle Level-of-Service Data Tables

North Fulton County Bicycle and Pedestrian Facility Recommnedations

2.0		2	2	2	2	5	5	5	5	5			
					Len-	Bicycle			Pedestrian				
Segment ID	City	Road Name	From	To	gth	LOS			LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike	Shoulder Width	Ped
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)	Rec	(ft)	Rec
1.0	Alph	Academy St	N Main St	Plymouth Ln	0.93	**4.04**	**D**	**D**	**3.26**	**C**	DCSN	N/A	LOS MET
5.0	Alph	Broadwell Rd	Rucker Road	Crabapple	0.81	**3.85**	**D**	**D**	**3.25**	**C**	DCSN	N/A	LOS MET
7.0	Alph	Canton St	Milton Ave	Mayfield St	0.45	**3.82**	**D**	**D**	**2.95**	**C**	DCSN	N/A	Add SW 2 Sides, Sig Grade
7.1	Alph	Canton St	Mayfield St	Pebble Trail	0.36	**3.82**	**D**	**D**	**2.68**	**C**	DCSN	N/A	LOS MET
8.0	Alph	Cogburn Rd	N Main St	Hopewell Plantation Dr	0.46	**3.56**	**D**	**D**	**3.32**	**C**	DCSN	N/A	LOS MET
9.1	Alph	Crabapple Rd	Arnold Mill Road	Green Road	0.53	**3.95**	**D**	**D**	**4.44**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
9.2	Alph	Crabapple Rd	Green Road	Birmingham Hwy	0.71	**4.17**	**D**	**D**	**4.58**	**E**	DCSN	N/A	DCSN
11.0	Alph	Douglas Rd	Jones Bridge Road	McGinnis Ferry Road	1.46	**3.76**	**D**	**D**	**3.18**	**C**	DCSN	N/A	LOS MET
14.0	Alph	Georgia Highway 9	Cogburn Rd	Windward Pkwy W	0.44	**5.23**	**E**	**E**	**3.71**	**D**	DCSN	N/A	Ex. SW (2 sides)
15.0	Alph	Haynes Bridge Rd	City Limits	Mansell	0.86	**4.32**	**D**	**D**	**3.58**	**D**	DCSN	N/A	DCSN
15.1	Alph	Haynes Bridge Rd	Mansell	North Point Pkwy	0.52	**4.44**	**D**	**D**	**3.34**	**C**	DCSN	N/A	Ex. SW (2 sides)
15.2	Alph	Haynes Bridge Rd	N. Point Pkwy	Devore Rd	1.36	**4.48**	**D**	**D**	**3.32**	**C**	Add Paved Shoulder, LOS threshold unmet	6.0	Ex. SW (2 sides)
15.25	Alph	Haynes Bridge Rd	Devore Rd	Old Milton Pkwy	0.3	**4.48**	**D**	**D**	**3.32**	**C**	Add Paved shoulder	3.7	LOS MET
15.3	Alph	Haynes Bridge Rd	Old Milton Pkwy	Academy	0.37	**4.12**	**D**	**D**	**3.21**	**C**	DCSN	N/A	Ex. SW (2 sides)
16.0	Alph	Hopewell Rd	Pebble Trail	Vaughn Drive	0.39	**4.14**	**D**	**D**	**4.13**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
19.0	Alph	Kimball Bridge Rd	Northpoint Pkwy	Westside Pkwy	1.04	**3.91**	**D**	**D**	**4.11**	**D**	DCSN	N/A	DCSN
20.0	Alph	Kimball Bridge Rd	North Point	Waters	1.17	**4.24**	**D**	**D**	**4.17**	**D**	DCSN	N/A	DCSN
20.1	Alph	Kimball Bridge Rd	Waters	State Bridge	1.82	**3.65**	**D**	**D**	**2.64**	**C**	DCSN	N/A	LOS MET
21.0	Alph	Kimball Bridge Rd	State Bridge	Webb Bridge Way	0.23	**4.07**	**D**	**D**	**4.19**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
21.1	Alph	Kimball Bridge Rd	Webb Bridge way	Bridgeway Christian Academey	0.47	**4.71**	**E**	**E**	**4.87**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
21.2	Alph	Kimball Bridge Rd	Bridgeway Christian Academey	Jones Bridge	0.3	**2.77**	**C**	**C**	**4.75**	**E**	Los Met	N/A	Add SW 2 Sides, Min Grade
24.0	Alph	Mansell Rd	Old Alabama Conn	Haynes Bridge	0.49	**4.36**	**D**	**D**	**3.16**	**C**	DCSN	N/A	LOS MET
25.0	Alph	Mansell Rd	Old Roswell	N. Point Pkwy	1.11	**4.94**	**E**	**E**	**3.79**	**D**	DCSN	N/A	Ex. SW (2 sides)
25.1	Alph	Mansell Rd	N. Point Pkwy	Old Alabama Conn	0.84	**4.48**	**D**	**D**	**3.25**	**C**	DCSN	N/A	LOS MET
26.0	Alph	Center Bridge Rd	Westside Pkwy	Fanfare Way	0.14	**3.51**	**D**	**D**	**2.57**	**C**	Add Paved shoulder	4.6	Ex. SW (2 sides)
28.0	Alph	Mayfield Rd	Bethany	Providence	1.32	**3.78**	**D**	**D**	**4.14**	**D**	DCSN	N/A	DCSN
28.1	Alph	Mayfield Rd	Providence	Canton	0.72	**4.19**	**D**	**D**	**2.87**	**C**	DCSN	N/A	LOS MET
29.0	Alph	Mayfield Rd	Birmingham Hwy	Bethany	0.94	**4.38**	**D**	**D**	**4.70**	**E**	DCSN	N/A	DCSN
31.0	Alph	Mcginnis Ferry Rd	Bethany Bend	400	0.57	**4.65**	**E**	**E**	**4.26**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
31.1	Alph	Mcginnis Ferry Rd	400	Union Hill	0.53	**4.31**	**D**	**D**	**4.82**	**E**	DCSN	N/A	DCSN
31.2	Alph	Mcginnis Ferry Rd	Union Hill	Windward Pkwy	0.33	**5.76**	**F**	**F**	**4.84**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
31.25	Alph	Mcginnis Ferry Rd	Windward Pkwy	McFarland	0.78	**5.76**	**F**	**F**	**4.84**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
31.3	Alph	Mcginnis Ferry Rd	McFarland	Douglas	1.14	**5.78**	**F**	**F**	**4.96**	**E**	DCSN	N/A	DCSN
32.0	Alph	Mid Broadwell Rd	Crabapple	Wills	2.1	**3.47**	**C**	**C**	**3.44**	**C**	Los Met	N/A	LOS MET
33.0	Alph	Milton Ave	Canton St	Hwy 9	0.03	**4.41**	**D**	**D**	***2.55***	***C***	Add Paved shoulder	6.0	Ex. SW (2 sides)
34.0	Alph	Milton Ave	Wills	Lee Dr	0.25	**4.35**	**D**	**D**	**4.50**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID	City	Road Name	From	To	Len-gth	Bicycle LOS			Pedestrian LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike Rec	Shoulder Wldth (ft)	Ped Rec
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)			
34.1	Alph	Milton Ave	Lee Dr	Canton St	0.57	**4.35**	**D**	**D**	**4.50**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
35.0	Alph	Morrison Pkwy	Hembree	Haynes Bridge [Westside Pkwy]	0.63	**4.38**	**D**	**D**	**4.47**	**D**	Add Paved shoulder	5.8	Add SW 2 Sides, Min Grade
36.0	Alph	N Main St	Milton/Academy	Mayfield	0.39	**5.03**	**E**	**E**	**3.99**	**D**	DCSN	N/A	Ex. SW (2 sides)
36.1	Alph	N Main St	Mayfield Rd	Winthrope Park Dr	0.56	**4.90**	**E**	**E**	**4.87**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
36.2	Alph	N Main St	Winthrope Park Dr	Winthrope Chase Dr	0.21	**4.61**	**E**	**E**	**4.62**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
39.0	Alph	North Point Pkwy	Mansell Rd	Haynes Bridge	1.43	**1.93**	**B**	**B**	**2.26**	**B**	Los Met	N/A	LOS MET
39.1	Alph	North Point Pkwy	Haynes Bridge	Kimbal Bridge	0.84	**3.69**	**D**	**D**	**4.01**	**D**	Add Paved shoulder	4.3	Add SW 2 Sides, Min Grade
39.2	Alph	North Point Pkwy	Kimbal Bridge	Old Milton Pkwy	1.29	**3.11**	**C**	**C**	**2.87**	**C**	Los Met	N/A	LOS MET
39.3	Alph	North Point Pkwy	Old Milton Pkwy	Webb Bridge way	0.83	**4.05**	**D**	**D**	**3.01**	**C**	DCSN	N/A	LOS MET
39.4	Alph	North Point Pkwy	Webb Bridge way	Windward Parkwy	0.9	**3.88**	**D**	**D**	**3.48**	**C**	DCSN	N/A	Add SW 2 Sides, Sig Grade
40.0	Alph	Old Alabama Conn	City Limit	Mansell Rd	0.48	**5.12**	**E**	**E**	**3.65**	**D**	Add Paved shoulder	5.3	Add SW 1 Side, Min Grade
41.0	Alph	Old Milton Pkwy	Wills Road	Marietta St	0.49	**4.23**	**D**	**D**	**2.72**	**C**	Add Paved shoulder	3.0	LOS MET
41.05	Alph	Old Milton Pkwy	Marietta St	Hwy 9	0.33	**4.23**	**D**	**D**	**2.72**	**C**	Add Paved shoulder	5.6	Ex. SW (2 sides)
41.1	Alph	Old Milton Pkwy	Hwy 9	Norcross St	0.67	**4.35**	**D**	**D**	**3.21**	**C**	DCSN	N/A	Ex. SW (2 sides)
41.15	Alph	Old Milton Pkwy	Norcross St	Westside Pkwy	0.18	**4.35**	**D**	**D**	**3.21**	**C**	DCSN	N/A	LOS MET
41.2	Alph	Old Milton Pkwy	North Point	Westside Pkwy	1.22	**2.23**	**B**	**B**	**2.56**	**C**	Los Met	N/A	LOS MET
41.3	Alph	Old Milton Pkwy	Kimbal Bridge	North Point	1.96	**4.93**	**E**	**E**	**4.35**	**D**	Add Paved shoulder	4.9	Add SW 1 Side, Min Grade
42.0	Alph	Old Roswell Rd	Warsaw[city limit]	Mansell	0.41	**2.63**	**C**	**C**	**3.03**	**C**	Los Met	N/A	LOS MET
42.1	Alph	Old Roswell Rd	Mansell	Old Roswell [Westside Pkwy]	0.25	**4.39**	**D**	**D**	**3.22**	**C**	DCSN	N/A	Ex. SW (2 sides)
43.0	Alph	Providence Rd	Mayfield Road	City Line	0.9	**3.28**	**C**	**C**	**3.82**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
44.0	Alph	Rock Mill Rd	Old Roswell	Sanctuary Pkwy [Westside Pkwy]	0.66	**4.32**	**D**	**D**	**3.08**	**C**	DCSN	N/A	Ex. SW (2 sides)
45.0	Alph	Rucker Rd	Roswell City Limits	Broadwell	0.45	**4.22**	**D**	**D**	**4.10**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
45.1	Alph	Rucker Rd	Broadwell	Wills Road	1.85	**4.41**	**D**	**D**	**4.53**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
46.0	Alph	S Main St	Old Milton Pkwy	Academy St	0.34	**4.86**	**E**	**E**	**3.32**	**C**	Add Paved Shoulder LOS threshold unmet	6.0	Ex. SW (2 sides)
47.0	Alph	S Main St	Haney Dr	Northfall Ln	0.46	**4.89**	**E**	**E**	**4.07**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
47.1	Alph	S Main St	Northfall Ln	Old Milton Pkwy	0.72	**4.97**	**E**	**E**	**4.85**	**E**	Add Paved shoulder	4.9	Add SW 2 Sides, Min Grade
49.0	Alph	State Bridge Way	Old Milton Pkwy	Kimbal Bridge	0.26	**4.31**	**D**	**D**	**4.73**	**E**	DCSN	N/A	DCSN
51.0	Alph	Waters Rd	Jones Bridge Rd	Kimball Bridge Rd	1.35	**3.84**	**D**	**D**	**4.12**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
52.0	Alph	Webb Bridge Rd	Plymouth Lane	Westside Pkwy	0.4	**4.35**	**D**	**D**	**4.17**	**D**	Restripe Bike Lane	4.0	Add SW 2 Sides, Sig Grade
52.1	Alph	Webb Bridge Rd	Westside Pkwy	Morris Rd	0.67	**3.90**	**D**	**D**	**4.20**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
52.2	Alph	Webb Bridge Rd	North Point Dr	Webb Bridge Way	2.46	**4.02**	**D**	**D**	**3.00**	**C**	DCSN	N/A	LOS MET
53.0	Alph	Webb Bridge Way	Kimbal Bridge	Webb Bridge Way	0.29	**3.67**	**D**	**D**	**2.76**	**C**	DCSN	N/A	LOS MET
54.0	Alph	Webb Rd	Cogburn Rd	Cogburn Rd	0.05	**2.81**	**C**	**C**	**3.39**	**C**	Los Met	N/A	LOS MET
55.0	Alph	Westside Pkwy	Sanctuary Pkwy	Hembree	1.16	**4.70**	**E**	**E**	**4.64**	**E**	Add Paved Shoulder LOS threshold unmet	6.0	Add SW 2 Sides, Min Grade
55.1	Alph	Westside Pkwy	Haynes Bridge	Old Milton Pkwy	0.74	**3.09**	**C**	**C**	**2.14**	**B**	Los Met	N/A	LOS MET
55.2	Alph	Westside Pkwy	Old Milton Pkwy	Webb Bridge	0.92		**UC**	**UC**	**0.00**	**UC**	Los Met	N/A	LOS MET
55.3	Alph	Westside Pkwy	Webb Bridge	South of Cumming Street	0.73	**2.81**	**C**	**C**	**2.49**	**B**	Los Met	N/A	LOS MET

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID	City	Road Name	From	To	Len-gth	Bicycle LOS			Pedestrian LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike Rec	Shoulder Wldth (ft)	Ped Rec
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)			
55.4	Alph	Westside Pkwy	South of Cumming Street	Windward	0.34	**3.48**	**C**	**C**	**2.55**	**C**	Add Paved shoulder	4.2	Add SW 1 Side, Min Grade
57.0	Alph	Windward Pkwy	North Point Pkwy	Market Pl	1.33	**4.49**	**D**	**D**	**3.15**	**C**	Add Paved Shoulder LOS threshold unmet	6.0	Add SW 1 Side, Min Grade
57.05	Alph	Windward Pkwy	Market Pl	Compass Pointe Chase	0.77	**4.49**	**D**	**D**	**3.29**	**C**	Add Paved shoulder	3.7	LOS MET
57.1	Alph	Windward Pkwy	Compass Pointe Chase	McGinnis Ferry Road	1.18	**4.67**	**E**	**E**	**3.37**	**C**	DCSN	N/A	LOS MET
58.0	Alph	Windward Pkwy W	Hwy 9	Sh. Center DW[West of 400]	0.63	**4.04**	**D**	**D**	**3.05**	**C**	DCSN	N/A	LOS MET
58.1	Alph	Windward Pkwy W	Sh. Center DW west of 400	N. Point Pkwy	0.84	**2.96**	**C**	**C**	**3.24**	**C**	Existing Facility	N/A	Ex. SW (2 sides)
59.0	JC	Abbotts Bridge Rd	City Limit	Boles	0.32	**4.65**	**E**	**E**	**5.44**	**E**	DCSN	N/A	DCSN
59.1	JC	Abbotts Bridge Rd	Boles	Parsons Rd	0.28	**4.67**	**E**	**E**	**5.07**	**E**	DCSN	N/A	DCSN
59.2	JC	Abbotts Bridge Rd	Parsons Rd	Medlock Bridge Rd	0.86	**4.51**	**E**	**E**	**4.72**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
59.3	JC	Abbotts Bridge Rd	Medlock Bridge	Parsons Rd	1.52	**4.25**	**D**	**D**	**3.90**	**D**	DCSN	N/A	DCSN
59.4	JC	Abbotts Bridge Rd	Parsons Rd	Jones Bridge Rd	0.96	**4.28**	**D**	**D**	**4.13**	**D**	DCSN	N/A	DCSN
60.0	JC	Barnwell Rd	Holcomb Bridge Rd	JonesBridge (bkms Barnwell)	2.51	**4.07**	**D**	**D**	**4.40**	**D**	DCSN	N/A	DCSN
61.0	JC	Bell Rd	1 SR 141	Boles	1.44	**3.60**	**D**	**D**	**3.80**	**D**	DCSN	N/A	DCSN
61.1	JC	Bell Rd	2 Boles	McGinnis Ferry	2.14	**4.54**	**E**	**E**	**4.13**	**D**	DCSN	N/A	DCSN
62.0	JC	Boles Rd	Bell	Parsons	0.93	**4.33**	**D**	**D**	**4.62**	**E**	DCSN	N/A	DCSN
63.0	JC	Buice Rd	Jones Bridge Rd	Old Alabama	2.85	**3.58**	**D**	**D**	**4.10**	**D**	DCSN	N/A	DCSN
65.0	JC	Haynes Bridge Rd	Old Alabama	City Limit	0.96	**4.31**	**D**	**D**	**3.82**	**D**	DCSN	N/A	DCSN
67.0	JC	Johns Creek Pkwy	McGinnis Ferry	Medlock Bridge Rd	1.18	**3.86**	**D**	**D**	**2.56**	**C**	Add Paved shoulder	3.0	LOS MET
68.0	JC	Jones Bridge Rd	Barnwell Rd	Old Alabama	0.67	**4.11**	**D**	**D**	**2.35**	**B**	Restripe Bike Lane	4.0	LOS MET
69.0	JC	Jones Bridge Rd	Old Alabama	Waters	0.46	**4.14**	**D**	**D**	**3.29**	**C**	DCSN	N/A	LOS MET
69.1	JC	Jones Bridge Rd	Waters	Buice	0.95	**4.18**	**D**	**D**	**3.99**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
69.2	JC	Jones Bridge Rd	Buice	State Bridge	0.95	**4.28**	**D**	**D**	**3.76**	**D**	DCSN	N/A	DCSN
69.3	JC	Jones Bridge Rd	State Bridge	Taylor	0.46	**4.73**	**E**	**E**	**3.79**	**D**	DCSN	N/A	DCSN
69.4	JC	Jones Bridge Rd	Taylor	Weather Vane Dr	0.67	**4.81**	**E**	**E**	**5.35**	**E**	Add Paved shoulder	4.3	Add SW 2 Sides, Min Grade
69.5	JC	Jones Bridge Rd	Weather Vane	Douglas	0.85	**2.90**	**C**	**C**	**3.44**	**C**	Los Met	N/A	LOS MET
69.6	JC	Jones Bridge Rd	Douglas	McGinnis Ferry	1.43	**3.83**	**D**	**D**	**4.43**	**D**	DCSN	N/A	DCSN
72.0	JC	Mcginnis Ferry Rd	Douglas Road	Jones Bridge	1.03	**5.85**	**F**	**F**	**5.12**	**E**	Restripe Bike Lane	6.0	DCSN
72.1	JC	Mcginnis Ferry Rd	Jones Bridge Rd	Sargent	1.42	**4.63**	**E**	**E**	**5.05**	**E**	DCSN	N/A	DCSN
72.2	JC	Mcginnis Ferry Rd	Sargent	Johns Creek Pkwy	0.97		**UC**	**UC**	**0.00**	**UC**	Los Met	N/A	LOS MET
72.25	JC	Mcginnis Ferry Rd	Johns Creek Pkwy	Bell Rd	2.1		**UC**	**UC**	**0.00**	**UC**	Los Met	N/A	LOS MET
72.3	JC	Mcginnis Ferry Rd	Bell Rd	City Limit	2.47	**4.86**	**E**	**E**	**5.18**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
73.0	JC	Medlock Bridge Rd	Chattahochee River Park	Old Alabama Rd	1.17	**1.59**	**B**	**B**	**5.79**	**F**	Los Met	N/A	Add SW 2 Sides, Sig Grade
73.1	JC	Medlock Bridge Rd	Old Alabama Rd	State Bridge Rd	0.47	**1.62**	**B**	**B**	**3.91**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
73.2	JC	Medlock Bridge Rd	State Bridge Rd	Finley Rd	3.25	**1.90**	**B**	**B**	**6.22**	**F**	Los Met	N/A	DCSN
73.3	JC	Medlock Bridge Rd	Finley Rd	McGinnis Ferry	0.49	**1.90**	**B**	**B**	**5.99**	**F**	Los Met	N/A	DCSN
74.0	JC	Morton Rd	Jones Bridge Rd	State Bridge Rd	0.46	**3.45**	**C**	**C**	**3.74**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
74.1	JC	Morton Rd	State Bridge Rd	State Bridge Rd	1.98	**3.13**	**C**	**C**	**3.16**	**C**	Los Met	N/A	LOS MET

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID	City	Road Name	From	To	Len-gth	Bicycle LOS			Pedestrian LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike	Shoulder WIdth	Ped
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)	Rec	(ft)	Rec
75.0	JC	Nesbit Ferry Rd	Holcomb Bridge Rd	Old Alabama Rd	2.41	**4.49**	**D**	**D**	**4.41**	**D**	DCSN	N/A	DCSN
76.0	JC	Old Alabama Rd	Medlock Bridge Rd	Coleherne Court	2.34	**4.26**	**D**	**D**	**4.62**	**E**	Add Paved shoulder	3.2	Add SW 2 Sides, Min Grade
76.1	JC	Old Alabama Rd	Coleherne Court	Hayden Walk Dr	0.26	**4.15**	**D**	**D**	**4.43**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
76.2	JC	Old Alabama Rd	Hayden Walk Dr	Jones Bridge Rd	1.26	**4.64**	**E**	**E**	**4.91**	**E**	DCSN	N/A	DCSN
77.0	JC	Old Alabama Rd	Nesbit Ferry Rd	Jones Bridge Rd	1.4	**4.72**	**E**	**E**	**3.46**	**C**	DCSN	N/A	LOS MET
78.0	JC	Parsons Rd	E Medlock Bridge Rd	Abbotts Bridge Rd	1.58	**3.82**	**D**	**D**	**2.92**	**C**	DCSN	N/A	LOS MET
78.1	JC	Parsons Rd	W Medlock Bridge Rd	Abbotts Bridge Rd	0.71	**3.84**	**D**	**D**	**3.86**	**D**	DCSN	N/A	DCSN
79.0	JC	Sargent Rd	Jones Bridge Rd	McGinnis Ferry	1.61	**4.10**	**D**	**D**	**4.26**	**D**	DCSN	N/A	DCSN
80.0	JC	State Bridge Rd	Kimball Bridge Rd	Indian Village Dr	0.33	**4.34**	**D**	**D**	**3.20**	**C**	DCSN	N/A	LOS MET
80.1	JC	State Bridge Rd	Indian Village Dr	Medlock Bridge Rd	3.26	**4.23**	**D**	**D**	**3.38**	**C**	DCSN	N/A	LOS MET
80.2	JC	State Bridge Rd	Medlock Bridge Rd	City Limit	0.95	**4.44**	**D**	**D**	**3.85**	**D**	DCSN	N/A	DCSN
84.0	Milt	Arnold Mill Rd	City Limit(s)	New Providence	0.37	**4.13**	**D**	**D**	**4.60**	**E**	Restripe Bike Lane	5.1	Add SW 2 Sides, Sig Grade
84.1	Milt	Arnold Mill Rd	New Providence	City Limit (N)	2.64	**5.17**	**E**	**E**	**5.10**	**E**	DCSN	N/A	DCSN
85.0	Milt	Batesville Rd	Birmingham Highway	City Limit	1.32	**4.38**	**D**	**D**	**4.53**	**E**	DCSN	N/A	DCSN
87.0	Milt	Bethany Bnd	Highway 9	Morris / McGinnis Ferry	1.41	**3.93**	**D**	**D**	**3.14**	**C**	DCSN	N/A	LOS MET
88.0	Milt	Bethany Rd	Haygood	Hopewell	0.7	**4.50**	**D**	**D**	**3.98**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
88.1	Milt	Bethany Rd	Hopewell	Highway 9	1.53	**5.61**	**F**	**F**	**3.78**	**D**	DCSN	N/A	DCSN
89.0	Milt	Bethany Rd	Mayfield	Haygood Rd	2.02	**4.83**	**E**	**E**	**4.15**	**D**	DCSN	N/A	DCSN
90.0	Milt	Birmingham Hwy	1 Mayfield	New Providence	2.18	**4.24**	**D**	**D**	**4.20**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
90.1	Milt	Birmingham Hwy	2 Hickory Flat Rd	New Providence	3.72	**3.94**	**D**	**D**	**4.23**	**D**	DCSN	N/A	DCSN
90.2	Milt	Birmingham Hwy	3 Hickory Flat Rd	City Limit	1.67	**4.02**	**D**	**D**	**4.17**	**D**	DCSN	N/A	DCSN
91.0	Milt	Birmingham Rd	Hickory Flat Rd	Freemanville	0.76	**4.45**	**D**	**D**	**4.80**	**E**	DCSN	N/A	DCSN
91.2	Milt	Birmingham Rd	Freemanville	Cogburn	1.99	**4.39**	**D**	**D**	**4.71**	**E**	DCSN	N/A	DCSN
93.0	Milt	Cogburn Rd	Hopewell Plantation Dr	Webb Rd	0.12	**3.22**	**C**	**C**	**3.54**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
93.1	Milt	Cogburn Rd	Webb Rd	Bethany	1.43	**4.13**	**D**	**D**	**3.91**	**D**	DCSN	N/A	DCSN
93.2	Milt	Cogburn Rd	Bethany	Francis	1.35	**4.17**	**D**	**D**	**4.60**	**E**	DCSN	N/A	DCSN
94.0	Milt	Cox Rd	Arnold Mill Road	King	0.69	**3.98**	**D**	**D**	**3.06**	**C**	DCSN	N/A	LOS MET
97.0	Milt	Deerfield Pkwy	Windward Parkwy	Webb	0.97	**3.42**	**C**	**C**	**3.87**	**D**	DCSN	N/A	DCSN
97.1	Milt	Deerfield Pkwy	Webb	Highway 9	0.76	**2.23**	**B**	**B**	**2.58**	**C**	Los Met	N/A	LOS MET
98.0	Milt	Francis Rd	Cogburn	City Line	1.57	**3.79**	**D**	**D**	**3.32**	**C**	DCSN	N/A	LOS MET
99.0	Milt	Freemanville Rd	Mayfield Road	Providence	1.78	**3.07**	**C**	**C**	**3.51**	**D**	Los Met	N/A	DCSN
99.1	Milt	Freemanville Rd	Providence(N)	Birmingham	3.51	**3.70**	**D**	**D**	**3.88**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
100.0	Milt	Georgia Highway 9	Windward	Deerfield Parkway	1.09	**5.10**	**E**	**E**	**3.53**	**D**	Restripe Bike Lane	5.3	DCSN
100.1	Milt	Georgia Highway 9	Deerfield Parkway	Bethany Bend	0.83	**5.01**	**E**	**E**	**4.26**	**D**	Restripe Bike Lane	5.3	Add SW 2 Sides, Sig Grade
100.2	Milt	Georgia Highway 9	Bethany Bend	County Line	1.12	**4.62**	**E**	**E**	**4.08**	**D**	Restripe Bike Lane	4.4	DCSN
101.0	Milt	Hamby Rd	Horrewell	County Line	1.26	**4.27**	**D**	**D**	**4.55**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
102.0	Milt	Haygood Rd	Bethany	Redd	0.5	**4.66**	**E**	**E**	**3.96**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID ID	City	Road Name	From	To	Len-gth (mi)	Bicycle LOS Score (1..7)	Bicycle LOS Grade (A..F)	Bicycle LOS Grade (A..F)	Pedestrian LOS Value (1..7)	Pedestrian LOS Grade (A..F)	Bike Rec	Recommended Shoulder Wldth (ft)	Ped Rec
103.0	Milt	Hickory Flat Rd	Birmingham Highway	City Limit	1.32	**4.61**	**E**	**E**	**4.58**	**E**	DCSN	N/A	DCSN
105.0	Milt	Hopewell Rd	Redd	City Limit	2.24	**4.40**	**D**	**D**	**4.54**	**E**	DCSN	N/A	DCSN
105.1	Milt	Hopewell Rd	Francis	Redd	1.44	**4.27**	**D**	**D**	**4.56**	**E**	DCSN	N/A	DCSN
105.2	Milt	Hopewell Rd	Francis	County Line	4.04	**4.17**	**D**	**D**	**4.63**	**E**	DCSN	N/A	DCSN
106.0	Milt	Hopewell Rd	Vaughn Drive	Southfield Ln	0.22	**4.34**	**D**	**D**	**4.13**	**D**	DCSN	N/A	DCSN
112.0	Milt	N Main St	Winthrope Chase Dr	Cogburn Rd	0.37	**4.84**	**E**	**E**	**4.56**	**E**	Restripe Bike Lane	5.1	Add SW 2 Sides, Min Grade
113.0	Milt	New Bull Pen Rd (W)	City Limit	Birmingham Highway	0.79	**4.27**	**D**	**D**	**4.24**	**D**	DCSN	N/A	DCSN
114.0	Milt	New Providence Rd	Birmingham Highway	Arnold Mill Raod	3.64	**4.48**	**D**	**D**	**3.93**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
115.0	Milt	Providence Rd	Burmingham	Freemanville	0.7	**4.45**	**D**	**D**	**3.87**	**D**	DCSN	N/A	DCSN
115.1	Milt	Providence Rd	Freemanville	Bethany (W)	1	**3.97**	**D**	**D**	**3.42**	**C**	DCSN	N/A	LOS MET
115.2	Milt	Providence Rd	Bethany	Citt Limit (N)	1.26	**3.50**	**C**	**C**	**3.85**	**D**	Los Met	N/A	DCSN
116.0	Milt	Red Rd	Haygood	Hopewell	0.13	**4.02**	**D**	**D**	**4.33**	**D**	DCSN	N/A	DCSN
119.0	Milt	Alpharetta Hwy	E Crossville Rd	Hembree Rd	2.07	**4.82**	**E**	**E**	**3.65**	**D**	DCSN	N/A	Ex. SW (2 sides)
120.0	Ros	Alpharetta St	Canton Street	Holcomb Bridge	1.44	**4.78**	**E**	**E**	**3.77**	**D**	DCSN	N/A	DCSN
121.0	Ros	Arnold Mill Rd	Crabapple Road	Milton City Limit	0.24	**4.80**	**E**	**E**	**3.15**	**C**	DCSN	N/A	LOS MET
123.0	Ros	Canton St	Elizabeth Lane	Woodstock Road	0.22	**3.50**	**C**	**C**	**2.42**	**B**	Los Met	N/A	LOS MET
124.0	Ros	Canton St	Woodstock Road	Pine Grove	0.55	**3.05**	**C**	**C**	**2.57**	**C**	DCSN	N/A	Ex. SW (2 sides)
125.0	Ros	Coleman Rd	Willeo Rd	Willeo Rd	0.22	**3.85**	**D**	**D**	**4.24**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
127.0	Ros	Cox Rd	King Road	City Limit	2.54	**3.77**	**D**	**D**	**3.45**	**C**	DCSN	N/A	LOS MET
128.0	Ros	Crabapple Rd	Canton Street	Elizabeth Lane	0.11	**3.72**	**D**	**D**	**2.82**	**C**	DCSN	N/A	LOS MET
128.1	Ros	Crabapple Rd	Elizabeth Lane	Crossville Road	0.83	**3.82**	**D**	**D**	**2.91**	**C**	DCSN	N/A	LOS MET
128.2	Ros	Crabapple Rd	Hembree Road	Crossville Road	0.91	**4.65**	**E**	**E**	**3.61**	**D**	Add Paved shoulder	3.9	Ex. SW (2 sides)
128.3	Ros	Crabapple Rd	Hembree Road	Etris Road	0.81	**4.18**	**D**	**D**	**3.09**	**C**	DCSN	N/A	LOS MET
128.5	Ros	Crabapple Rd	Arnold Mill	Rucker Road	0.32	**4.35**	**D**	**D**	**3.82**	**D**	DCSN	N/A	DCSN
129.0	Ros	E Crossville Rd	Crabapple Road	Mill Pond Rd	0.91	**4.26**	**D**	**D**	**3.49**	**C**	DCSN	N/A	LOS MET
129.1	Ros	E Crossville Rd	Mill Pond Rd	Alpharetta Street	0.39	**4.26**	**D**	**D**	**3.49**	**C**	DCSN	N/A	Ex. SW (2 sides)
130.0	Ros	Etris Rd	Hardscrabble	Crabapple	0.23	**3.36**	**C**	**C**	**2.65**	**C**	Los Met	N/A	LOS MET
131.0	Ros	Etris Rd	Hardscrabble	Cox	1.52	**3.87**	**D**	**D**	**3.91**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
132.0	Ros	Georgia Highway 9	Hembree Rd	Upper Hembree Rd	0.54	**4.88**	**E**	**E**	**3.79**	**D**	Add Paved shoulder	4.8	Add SW 2 Sides, Min Grade
133.0	Ros	Hardscrabble Rd	Woodstock Road	King Road	0.79	**4.56**	**E**	**E**	**4.73**	**E**	DCSN	N/A	DCSN
133.1	Ros	Hardscrabble Rd	King Road	Etris Road	1.27	**4.23**	**D**	**D**	**3.96**	**D**	DCSN	N/A	DCSN
133.2	Ros	Hardscrabble Rd	Etris Road	Crabapple	0.39	**4.81**	**E**	**E**	**4.42**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
135.0	Ros	Hembree Rd	Crabapple Road	Houze Road	0.84	**3.90**	**D**	**D**	**4.35**	**D**	DCSN	N/A	DCSN
135.1	Ros	Hembree Rd	Houze Road	Elkins Road	0.68	**4.19**	**D**	**D**	**3.98**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
135.2	Ros	Hembree Rd	Elkins Road	Alpharetta Hwy[Hwy 9]	0.58	**4.03**	**D**	**D**	**4.51**	**E**	DCSN	N/A	DCSN
135.3	Ros	Hembree Rd	Alpharetta Hwy[Hwy 9]	Old Roswell	0.92	**4.21**	**D**	**D**	**3.13**	**C**	Add Paved shoulder	3.0	LOS MET
136.0	Ros	Holcomb Bridge Rd	Alpharetta Hwy[Hwy 9]	Old Roswell Rd	0.3	**4.21**	**D**	**D**	**3.69**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID	City	Road Name	From	To	Len-gth	Bicycle LOS			Pedestrian LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike	Shoulder WIdth	Ped
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)	Rec	(ft)	Rec
136.05	Ros	Holcomb Bridge Rd	Old Roswell Rd	Hwy 400	1.25	**4.21**	**D**	**D**	**4.06**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
136.1	Ros	Holcomb Bridge Rd	Hwy 400	Old Alabama	0.4	**5.11**	**E**	**E**	**5.16**	**E**	DCSN	N/A	Ex. SW (2 sides)
136.2	Ros	Holcomb Bridge Rd	Old Alabama	Calibre Creek Pkwy	0.96	**4.74**	**E**	**E**	**4.45**	**D**	DCSN	N/A	DCSN
136.3	Ros	Holcomb Bridge Rd	Calibre Creek Pkwy	Fouts Road	0.91	**4.87**	**E**	**E**	**4.43**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
136.4	Ros	Holcomb Bridge Rd	Fouts Road	Nesbit Ferry	1.6	**4.74**	**E**	**E**	**4.96**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
136.5	Ros	Holcomb Bridge Rd	Nesbit Ferry	Chattahoochee River County Line	1.27	**4.68**	**E**	**E**	**5.25**	**E**	Restripe Shoulder LOS threshold unmet	4.7	Add SW 2 Sides, Min Grade
137.0	Ros	Houze Rd	Mansell	White Hall Way	0.68	**4.10**	**D**	**D**	**4.44**	**D**	DCSN	N/A	DCSN
137.1	Ros	Houze Rd	White Hall Way	Rucker	1.87	**4.04**	**D**	**D**	**4.39**	**D**	DCSN	N/A	DCSN
137.2	Ros	Houze Rd	Rucker	Crabapple	0.32	**4.87**	**E**	**E**	**4.34**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
138.0	Ros	King Rd	Woodstock Road	Hardscrabble	0.4	**3.66**	**D**	**D**	**2.74**	**C**	DCSN	N/A	LOS MET
138.1	Ros	King Rd	Hardscrabble	King Circle	0.86	**3.11**	**C**	**C**	**3.71**	**D**	Los Met	N/A	Add SW 1 Side, Min Grade
138.2	Ros	King Rd	King Circle	Cox Road	0.94	**3.71**	**D**	**D**	**3.97**	**D**	DCSN	N/A	DCSN
139.0	Ros	Magnolia St	Atlanta Street	Coleman Road	0.36	**4.42**	**D**	**D**	**4.04**	**D**	DCSN	N/A	DCSN
140.0	Ros	Mansell Rd	Houze Road	Old Roswell	1.13	**4.69**	**E**	**E**	**3.94**	**D**	DCSN	N/A	DCSN
141.0	Ros	Marietta Hwy	N Atlanta St	Spring Dr	0.28	**4.32**	**D**	**D**	**4.57**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
141.1	Ros	Marietta Hwy	Spring Dr	City Limit	1.73	**4.32**	**D**	**D**	**4.31**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
144.0	Ros	Mountain Park Rd	Woodstock Road	Wildwood Spring	0.89	**3.92**	**D**	**D**	**3.57**	**D**	DCSN	N/A	DCSN
144.1	Ros	Mountain Park Rd	Wildwood Spring	City Limit	0.55	**3.49**	**C**	**C**	**3.18**	**C**	Los Met	N/A	LOS MET
145.0	Ros	N Atlanta St	Marietta Hwy	Magnolia St	0.63	**4.71**	**E**	**E**	**3.27**	**C**	DCSN	N/A	DCSN
146.0	Ros	Norcross St	Alpharetta Hwy	Canton St	0.06	**2.27**	**B**	**B**	**2.54**	**C**	Los Met	N/A	LOS MET
147.0	Ros	Norcross St	Alpharetta Street[Hwy 9]	Grimes Bridge Road	0.92	**3.75**	**D**	**D**	**3.69**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
148.0	Ros	Old Alabama Conn	Old Alabama	City Limit	0.59	**5.12**	**E**	**E**	**4.34**	**D**	Add Paved shoulder	5.3	Add SW 2 Sides, Min Grade
149.0	Ros	Old Alabama Rd	Riverside Road	Market Blvd	0.72	**2.05**	**B**	**B**	**2.31**	**B**	Los Met	N/A	LOS MET
149.1	Ros	Old Alabama Rd	Market Blvd	Holcombe Bridge Road	0.45	**3.23**	**C**	**C**	**2.38**	**B**	Los Met	N/A	LOS MET
149.2	Ros	Old Alabama Rd	Holcombe Bridge Road	Old Alabama Conn	1.77	**4.31**	**D**	**D**	**3.44**	**C**	DCSN	N/A	LOS MET
149.3	Ros	Old Alabama Rd	Old Alabama Conn	Nesbit Ferry	0.83	**3.94**	**D**	**D**	**3.56**	**D**	DCSN	N/A	DCSN
151.0	Ros	Old Roswell Rd	Commerce Pkwy	Warsaw Road	0.27	**3.64**	**D**	**D**	**2.42**	**B**	Add Paved shoulder	3.0	LOS MET
151.1	Ros	Old Roswell Rd	Holcomb Bridge Road	Commerce Pkwy	0.44	**4.34**	**D**	**D**	**3.08**	**C**	Add Paved shoulder	3.2	LOS MET
152.0	Ros	Pine Grove Rd	County Line	High Tower	1.08	**4.24**	**D**	**D**	**4.32**	**D**	DCSN	N/A	DCSN
152.1	Ros	Pine Grove Rd	High Tower	Lake Charles	0.43	**3.71**	**D**	**D**	**2.96**	**C**	DCSN	N/A	LOS MET
152.3	Ros	Pine Grove Rd	Coleman Road	Lake Charles	0.74	**4.29**	**D**	**D**	**4.10**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
153.0	Ros	Riverside Rd	S. Atlanta	Riverside/Dogwood	1.05	**3.89**	**D**	**D**	**3.23**	**C**	DCSN	N/A	LOS MET
153.1	Ros	Riverside Rd	Riverside/Dogwood	Old Alabama	0.23	**2.76**	**C**	**C**	**4.02**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
156.0	Ros	Rucker Rd	Alpharetta City Limit	Hardscrabble Road	0.7	**3.88**	**D**	**D**	**3.29**	**C**	DCSN	N/A	LOS MET
157.0	Ros	S Atlanta St	Riverside Rd	Marietta Hwy	1.15	**4.12**	**D**	**D**	**4.12**	**D**	DCSN	N/A	DCSN
158.0	Ros	S Main St	Upper Hembree Rd	Haney Dr	0.15	**4.87**	**E**	**E**	**4.54**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
159.0	Ros	W Crossville Rd	King	Crabapple Road	1.52	**4.23**	**D**	**D**	**3.74**	**D**	DCSN	N/A	Ex. SW (2 sides)

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID ID	City	Road Name	From	To	Len-gth (mi)	Bicycle LOS Score (1..7)	Bicycle LOS Grade (A..F)	Bicycle LOS Grade (A..F)	Pedestrian LOS Value (1..7)	Pedestrian LOS Grade (A..F)	Bike Rec	Recommended Shoulder Wldth (ft)	Ped Rec
160.0	Ros	Warsaw Rd	Grimes Bridge Road	Holcomb Bridge Road	0.58	**3.54**	**D**	**D**	**4.05**	**D**	DCSN	N/A	DCSN
161.0	Ros	Willeo Rd	City Limit	Coleman Rd	0.77	**4.28**	**D**	**D**	**4.16**	**D**	DCSN	N/A	DCSN
161.1	Ros	Willeo Rd	Coleman Rd	Marietta Hwy	0.68	**2.60**	**C**	**C**	**3.85**	**D**	Los Met	N/A	Add SW 1 Side, Min Grade
162.0	Ros	Woodstock Rd	Alpharetta Street	Canton	0.32	**3.99**	**D**	**D**	**3.28**	**C**	DCSN	N/A	DCSN
162.1	Ros	Woodstock Rd	Canton	Roswell Area Park	0.51	**3.65**	**D**	**D**	**2.71**	**C**	DCSN	N/A	LOS MET
162.2	Ros	Woodstock Rd	Roswell Area Park	Elizabeth Cove	0.43	**3.42**	**C**	**C**	**2.48**	**B**	Los Met	N/A	LOS MET
162.3	Ros	Woodstock Rd	Elizabeth Cove	Woodstock Drive/ Crossville	1.45	**3.76**	**D**	**D**	**2.66**	**C**	DCSN	N/A	LOS MET
163.0	Ros	Woodstock Rd	Cobb County Line	King	2.15	**4.54**	**E**	**E**	**3.76**	**D**	DCSN	N/A	Ex. SW (2 sides)
164.0	SSp	Abernathy Rd NE	Hwy 400	Mt. Vernon	0.22	**4.91**	**E**	**E**	**4.83**	**E**	DCSN	N/A	DCSN
164.1	SSp	Abernathy Rd NE	P. Tree Dunwoody	Mt. Vernon	0.12	**4.87**	**E**	**E**	**4.08**	**D**	DCSN	N/A	Ex. SW (2 sides)
164.2	SSp	Perimeter Center W Rd	Mt. Vernon	Ashford Dunwoody (County Line)	0.33	**4.78**	**E**	**E**	**5.07**	**E**	DCSN	N/A	DCSN
165.0	SSp	Abernathy Rd NE	Brandon Mill Road/Johnson Ferry	Roswell	0.75	**4.24**	**D**	**D**	**4.42**	**D**	DCSN	N/A	DCSN
165.1	SSp	Abernathy Rd NE	Roswell	Hwy 400	1.26	**4.95**	**E**	**E**	**3.89**	**D**	DCSN	N/A	DCSN
167.0	SSp	Barfield Rd NE	Hammond	Mt. Vernon	0.71	**2.36**	**B**	**B**	**2.54**	**C**	Los Met	N/A	LOS MET
167.1	SSp	Barfield Rd NE	Mt. Vernon	Abernathy	0.34	**3.35**	**C**	**C**	**2.39**	**B**	Add Paved shoulder	3.0	LOS MET
168.0	SSp	Brandon Mill Rd NW	Riverside	N. Mill Road	0.82	**1.54**	**B**	**B**	**3.02**	**C**	Los Met	N/A	LOS MET
168.1	SSp	Brandon Mill Rd NW	N. Mill Road	Abennathy	0.67	**1.53**	**B**	**B**	**2.97**	**C**	Los Met	N/A	LOS MET
170.0	SSp	Colquitt Rd	Pitts Rd	Northridge Road	0.79	**3.64**	**D**	**D**	**4.01**	**D**	DCSN	N/A	DCSN
171.0	SSp	Dalrymple Rd NE	Dalrymple Ends	Princeton Way	0.9	**3.73**	**D**	**D**	**4.18**	**D**	DCSN	N/A	DCSN
171.1	SSp	Dalrymple Rd NE	Princeton Way	Roswell	0.56	**3.47**	**C**	**C**	**2.87**	**C**	Los Met	N/A	LOS MET
171.2	SSp	Dalrymple Rd NE	Roswell Road	Spalding	0.35	**3.72**	**D**	**D**	**3.53**	**D**	Add Paved shoulder	3.0	Add SW 1 Side, Min Grade
174.0	SSp	Dunwoody Club Dr	Spalding	Ball Mill Road	1.59	**4.50**	**D**	**D**	**3.95**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
174.1	SSp	Dunwoody Club Dr	Ball Mill Road	Jett Ferry	0.73	**4.04**	**D**	**D**	**3.66**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
174.2	SSp	Dunwoody Club Dr	Jett Ferry	Mt. Vernon	0.16	**3.95**	**D**	**D**	**3.05**	**C**	DCSN	N/A	LOS MET
174.3	SSp	Dunwoody Club Dr	Mt. Vernon	Mt. Vernon	0.21	**3.82**	**D**	**D**	**2.95**	**C**	DCSN	N/A	LOS MET
174.4	SSp	Dunwoody Club Dr	Happy Hallow	Mt. Vernon	1.03	**4.10**	**D**	**D**	**4.17**	**D**	DCSN	N/A	DCSN
175.0	SSp	Dunwoody Pl------Northridge	Northridge	Roberts Drive	0.57	**3.68**	**D**	**D**	**4.26**	**D**	Restripe Bike Lane	4.0	Add SW 2 Sides, Sig Grade
175.1	SSp	Dunwoody Pl------Northridge	Roberts Drive	Roswell	0.72	**4.08**	**D**	**D**	**2.93**	**C**	DCSN	N/A	LOS MET
176.0	SSp	Garmon Rd NW	Northside Dr	City Limit	0.08	**1.31**	**A**	**A**	**2.60**	**C**	Los Met	N/A	LOS MET
177.0	SSp	Dunwoody Pl------Northridge	Abernathy	UPS Headquarters	0.82	**1.98**	**B**	**B**	**2.59**	**C**	Los Met	N/A	Add SW 2 Sides, Sig Grade
177.1	SSp	Glenlake Pkwy NE	UPS Headquarters	Glen Bridge Drive	0.17	**1.89**	**B**	**B**	**3.63**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
178.0	SSp	Glenridge Conn	I 285	Peach Tree Dunwoody	0.92	**4.49**	**D**	**D**	**4.39**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
181.0	SSp	Glenridge Dr	Hammond	I 285	0.71	**3.68**	**D**	**D**	**2.68**	**C**	DCSN	N/A	DCSN
182.0	SSp	Glenridge Dr NE	Hammond	Johnsons Ferry	0.32	**3.63**	**D**	**D**	**4.03**	**D**	Restripe Bike Lane	5.1	Add SW 2 Sides, Sig Grade
182.1	SSp	Glenridge Dr NE	Johnsons Ferry	Mt. Vernon	0.33	**3.32**	**C**	**C**	**2.47**	**B**	DCSN	N/A	LOS MET
182.2	SSp	Glenridge Dr NE	Mt. Vernon	Abernathy	0.67	**3.04**	**C**	**C**	**3.34**	**C**	DCSN	N/A	Add SW 2 Sides, Sig Grade
182.3	SSp	Glenridge Dr NE	Abernathy	Glen Lake Pkwy	0.42	**3.09**	**C**	**C**	**3.72**	**D**	Restripe Shoulder	3.6	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID	City	Road Name	From	To	Len-gth	Bicycle LOS			Pedestrian LOS			Recommended	
ID					(mi)	Score	Grade	Grade	Value	Grade	Bike Rec	Shoulder Wldth (ft)	Ped Rec
						(1..7)	(A..F)	(A..F)	(1..7)	(A..F)			
182.4	SSp	Glenridge Dr NE	Glen Lake Pkwy	Spalding	0.63	**3.25**	**C**	**C**	**2.29**	**B**	Los Met	N/A	LOS MET
183.0	SSp	Glenridge Dr NE	Roswell Road	Johnsons Ferry	1.02	**4.01**	**D**	**D**	**3.08**	**C**	DCSN	N/A	Add SW 2 Sides, Sig Grade
186.0	SSp	Hammond Dr NW	Mt. Vernon	Sandy Spring Circle	0.41	**2.49**	**B**	**B**	**3.34**	**C**	Los Met	N/A	Add SW 2 Sides, Sig Grade
186.1	SSp	Hammond Dr NW	Snady Spring Circle	Roswell Road	0.31	**3.79**	**D**	**D**	**3.31**	**C**	DCSN	N/A	DCSN
186.2	SSp	Hammond Dr NW	Roswell	Boylston Dr	0.14	**3.97**	**D**	**D**	**4.62**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
186.3	SSp	Hammond Dr NW	Boylston Dr	Lorell Ter	0.5	**4.11**	**D**	**D**	**4.62**	**E**	DCSN	N/A	DCSN
186.4	SSp	Hammond Dr NW	Lorell Ter	Greenbrier Dr	0.13	**2.87**	**C**	**C**	**4.25**	**D**	Existing Facility	N/A	DCSN
186.5	SSp	Hammond Dr NW	Greenbrier Dr	GA 400	0.46	**4.09**	**D**	**D**	**3.14**	**C**	DCSN	N/A	LOS MET
186.6	SSp	Hammond Dr NW	GA 400	County Line	0.59	**4.09**	**D**	**D**	**2.96**	**C**	DCSN	N/A	Ex. SW (2 sides)
187.0	SSp	Heards Ferry Rd NW	Northside Drive	Heards Road	0.75	**3.28**	**C**	**C**	**3.19**	**C**	Los Met	N/A	LOS MET
187.1	SSp	Heards Ferry Rd NW	Heards Road	Mt. Vernon	1.58	**3.33**	**C**	**C**	**3.86**	**D**	Los Met	N/A	DCSN
188.0	SSp	High Point Rd NE	Windsor Pkwy	Northland	0.99	**2.25**	**B**	**B**	**2.25**	**B**	Los Met	N/A	LOS MET
188.1	SSp	High Point Rd NE	Northland	Glenridge	0.62	**3.60**	**D**	**D**	**2.65**	**C**	DCSN	N/A	DCSN
189.0	SSp	Holcomb Bridge Rd	Chattahoochee River	Spalding Drive	0.45	**5.06**	**E**	**E**	**4.17**	**D**	DCSN	N/A	DCSN
191.0	SSp	Interstate North Pkwy NW	City limit	Northside Drive	0.76	**2.77**	**C**	**C**	**3.75**	**D**	Los Met	N/A	Add SW 2 Sides, Min Grade
192.0	SSp	Jett Rd NW	Mt. Paran Rd.	City Limit	0.21	**2.72**	**C**	**C**	**3.28**	**C**	Los Met	N/A	LOS MET
193.0	SSp	Johnson Ferry Rd NE	City Limit	Peachtree Dunwoody	0.47	**3.91**	**D**	**D**	**2.92**	**C**	DCSN	N/A	DCSN
194.0	SSp	Johnson Ferry Rd NE	Glenridge Drive	Peachtree Dunwoody	0.64	**4.05**	**D**	**D**	**3.32**	**C**	DCSN	N/A	DCSN
195.0	SSp	Johnson Ferry Rd NE	River Valley Rd	Sandy Springs Cir	0.52	**3.31**	**C**	**C**	**3.09**	**C**	Restripe Shoulder LOS threshold unmet	4.3	Add SW 2 Sides, Sig Grade
195.1	SSp	Johnson Ferry Rd NE	Sandy Springs Cir	Roswell Rd	0.14	**3.69**	**D**	**D**	**4.06**	**D**	DCSN	N/A	DCSN
195.2	SSp	Johnson Ferry Rd NE	Roswell Rd	Mt. Vernon Hwy	0.23	**3.97**	**D**	**D**	**4.00**	**D**	Restripe Bike Lane	5.0	Add SW 2 Sides, Sig Grade
195.3	SSp	Johnson Ferry Rd NE	Mt. Vernon Hwy	Glenridge Dr	0.81	**3.95**	**D**	**D**	**4.60**	**E**	DCSN	N/A	Add SW 2 Sides, Sig Grade
196.0	SSp	Johnson Ferry Rd NW	City Limit	River Valley Rd	1.01		**UC**	**UC**		**UC**	Los Met	N/A	LOS MET
197.0	SSp	Lake Forrest Dr NE	Mt. Vernon	Hammond	0.21	**0.80**	**A**	**A**	**2.78**	**C**	Los Met	N/A	Add SW 2 Sides, Sig Grade
197.1	SSp	Lake Forrest Dr NE	Hammond	Mt. Paran	1.72	**3.49**	**C**	**C**	**3.77**	**D**	DCSN	N/A	DCSN
197.2	SSp	Lake Forrest Dr NE	Mt. Paran	W. Wieuca [City Limit]	1.07	**3.05**	**C**	**C**	**3.59**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
198.0	SSp	Lake Hearn Dr NE	P. Tree/Dunwoody	County Line	0.28	**3.92**	**D**	**D**	**2.98**	**C**	Add Paved shoulder	4.6	Add SW 1 Side, Min Grade
199.0	SSp	Long Island Dr NE	Roswell Rd	Lake Forest Dr	0.36	**3.52**	**D**	**D**	**2.74**	**C**	DCSN	N/A	DCSN
199.1	SSp	Long Island Dr NE	Lake Forest Dr	Mt. Paran Rd	0.34	**3.52**	**D**	**D**	**2.87**	**C**	DCSN	N/A	LOS MET
200.0	SSp	Long Island Dr NW	Mt. Paran	Mt. Vernon	2.13	**2.57**	**C**	**C**	**3.41**	**C**	Los Met	N/A	LOS MET
201.0	SSp	Mt Paran Rd NE	Northside Dr	Jett Rd	0.29	**3.89**	**D**	**D**	**4.39**	**D**	DCSN	N/A	DCSN
201.1	SSp	Mt Paran Rd NE	Jett Rd	Long Island Dr	1.3	**3.88**	**D**	**D**	**3.84**	**D**	DCSN	N/A	DCSN
202.0	SSp	Mt Paran Rd NW	Long Island Tr	Lake Forest Dr	0.43	**3.71**	**D**	**D**	**2.95**	**C**	DCSN	N/A	LOS MET
202.1	SSp	Mt Paran Rd NW	Lake Forest Dr	Roswell Rd	0.46	**3.71**	**D**	**D**	**3.49**	**C**	DCSN	N/A	DCSN
203.0	SSp	Mt Vernon Hwy NE	Lake Forest	Sandy Springs Circle	0.26	**3.41**	**C**	**C**	**4.04**	**D**	Restripe Shoulder LOS threshold unmet	4.2	Add SW 2 Sides, Sig Grade
203.1	SSp	Mt Vernon Hwy NE	Sandy Springs Circle	Roswell Road	0.21	**3.29**	**C**	**C**	**3.85**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
203.2	SSp	Mt Vernon Hwy NE	Roswell Road	Johnsons Ferry	0.18	**2.52**	**C**	**C**	**2.69**	**C**	Restripe Bike Lane	4.0	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID ID	City	Road Name	From	To	Len-gth (mi)	Bicycle LOS Score (1..7)	Bicycle LOS Grade (A..F)	Bicycle LOS Grade (A..F)	Pedestrian LOS Value (1..7)	Pedestrian LOS Grade (A..F)	Bike Rec	Recommended Shoulder WIdth (ft)	Ped Rec
203.3	SSp	Mt Vernon Hwy NE	Johnson's Ferry Rd	Crestline Pkwy	1.22	**3.45**	**C**	**C**	**3.17**	**C**	Restripe Shoulder LOS threshold unmet	4.6	Add SW 2 Sides, Sig Grade
203.4	SSp	Mt Vernon Hwy NE	Crestline Pkwy	Mt. Vernon Cir	0.58	**3.44**	**C**	**C**	**3.59**	**D**	DCSN	N/A	DCSN
203.5	SSp	Mt Vernon Hwy NE	Mt. Vernon Cir	City Limit	0.17	**3.23**	**C**	**C**	**3.59**	**D**	Restripe Bike Lane	4.2	DCSN
204.0	SSp	Mt Vernon Hwy NW	Northside Drive	Dupree/ Powers Ferry	0.71	**3.46**	**C**	**C**	**3.07**	**C**	Los Met	N/A	LOS MET
204.1	SSp	Mt Vernon Hwy NW	Dupree/Powers Ferry	Powers Ferry/ Mt. Vernon Pkwy	0.53	**4.08**	**D**	**D**	**3.14**	**C**	DCSN	N/A	LOS MET
204.2	SSp	Mt Vernon Hwy NW	Powers Ferry/ Mt Vernon Pkwy	Hammond Dr	1.33	**3.49**	**C**	**C**	**2.70**	**C**	Los Met	N/A	LOS MET
204.3	SSp	Mt Vernon Hwy NW	Hammond Dr	Lake Forest	0.34	**3.49**	**C**	**C**	**2.70**	**C**	DCSN	N/A	DCSN
205.0	SSp	Mt Vernon Rd	Dunwoody Club	Spalding Drive	0.66	**3.61**	**D**	**D**	**3.99**	**D**	DCSN	N/A	DCSN
207.0	SSp	New Northside Dr	I 285	Northside Drive	0.29	**3.35**	**C**	**C**	**3.85**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
207.1	SSp	New Northside Dr	Northside Drive	I 285	0.31	**2.81**	**C**	**C**	**3.48**	**C**	Los Met	N/A	LOS MET
209.0	SSp	Northland Dr NE	Windsor Pkwy	High Point Rd	1.01	**3.15**	**C**	**C**	**3.14**	**C**	Los Met	N/A	LOS MET
209.1	SSp	Northland Dr NE	High Point Rd	Glenridge Drive	0.43	**3.15**	**C**	**C**	**2.56**	**C**	DCSN	N/A	DCSN
210.0	SSp	Northridge Rd	Roswell	Roberts Drive	0.56	**4.31**	**D**	**D**	**4.04**	**D**	DCSN	N/A	DCSN
211.0	SSp	Northside Dr NW	Mt. Paran Rd	Garmon Rd	0.79	**2.59**	**C**	**C**	**3.57**	**D**	Los Met	N/A	DCSN
211.1	SSp	Northside Dr NW	Garmon Rd	Indian Trail NW	0.89	**2.24**	**B**	**B**	**3.66**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
211.2	SSp	Northside Dr NW	Indian Trail NW	S Mount Vernon Hwy	0.54	**0.72**	**A**	**A**	**2.66**	**C**	Los Met	N/A	LOS MET
211.3	SSp	Northside Dr NW	S Mount Vernon Hwy	New Northside Dr NW	0.47	**2.40**	**B**	**B**	**4.09**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
212.0	SSp	Northside Dr NW	New Northside Dr NW	Powers Ferry Rd NW	0.1	**1.66**	**B**	**B**	**3.99**	**D**	Los Met	N/A	Add SW 1 Side, Min Grade
212.1	SSp	Northside Dr NW	Powers Ferry Rd NW	Interstate N Pkwy	0.28	**2.64**	**C**	**C**	**3.74**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
212.2	SSp	Northside Dr NW	Interstate N Pkwy	Riveredge Pkwy	0.14	**0.93**	**A**	**A**	**3.45**	**C**	Los Met	N/A	LOS MET
212.3	SSp	Northside Dr NW	Riveredge Pkwy	Wintherthur Dr	0.47	**0.00**	**A**	**A**	**2.56**	**C**	Los Met	N/A	LOS MET
213.0	SSp	Peachtree Dunwoody Rd NE	Windsor Pkwy	City Limit	0.45	**3.14**	**C**	**C**	**2.41**	**B**	Los Met	N/A	LOS MET
213.1	SSp	Peachtree Dunwoody Rd NE	Glenridge Conn	Windsor Pkwy	1.38	**0.72**	**A**	**A**	**2.76**	**C**	Los Met	N/A	LOS MET
213.2	SSp	Peachtree Dunwoody Rd NE	I 285	Glenridge Conn	0.79	**4.16**	**D**	**D**	**3.09**	**C**	DCSN	N/A	Ex. SW (2 sides)
213.3	SSp	Peachtree Dunwoody Rd NE	Hammond	I 285	0.36	**4.51**	**E**	**E**	**4.35**	**D**	DCSN	N/A	DCSN
213.4	SSp	Peachtree Dunwoody Rd NE	Mt Vernon	Hammond	0.91	**3.96**	**D**	**D**	**2.93**	**C**	DCSN	N/A	DCSN
213.5	SSp	Peachtree Dunwoody Rd NE	Abernathy	Mt Vernon	0.13	**3.75**	**D**	**D**	**2.59**	**C**	Add Paved shoulder	4.4	Ex. SW (2 sides)
213.6	SSp	Peachtree Dunwoody Rd NE	N. Park Place	Abernathy	0.13	**3.72**	**D**	**D**	**2.94**	**C**	DCSN	N/A	Ex. SW (2 sides)
213.7	SSp	Peachtree Dunwoody Rd NE	Glen Meadow Ct	N. Park Place	0.42	**4.11**	**D**	**D**	**2.99**	**C**	DCSN	N/A	LOS MET
213.8	SSp	Peachtree Dunwoody Rd NE	Spalding	Glen Meadow CT	1.2	**3.59**	**D**	**D**	**2.61**	**C**	DCSN	N/A	LOS MET
215.0	SSp	Pitts Rd	Roswell	Spalding Road	0.71	**3.90**	**D**	**D**	**3.08**	**C**	DCSN	N/A	LOS MET
216.0	SSp	Powers Ferry Rd NW	City Limit	Mt. Paran	0.8	**3.54**	**D**	**D**	**3.80**	**D**	DCSN	N/A	DCSN
216.1	SSp	Powers Ferry Rd NW	Mt. Paran	Mt. Vernon	1.71	**4.12**	**D**	**D**	**4.18**	**D**	DCSN	N/A	DCSN
216.2	SSp	Powers Ferry Rd NW	Mt. Vernon	Heards	0.4	**3.47**	**C**	**C**	**3.34**	**C**	Los Met	N/A	LOS MET
216.3	SSp	Powers Ferry Rd NW	Heards	Driveway 5780	0.33	**2.62**	**C**	**C**	**3.63**	**D**	Los Met	N/A	DCSN
216.4	SSp	Powers Ferry Rd NW	Driveway 5780	New Northside	0.89	**2.71**	**C**	**C**	**3.05**	**C**	Los Met	N/A	LOS MET
216.5	SSp	Powers Ferry Rd NW	New Northside	City Limit	0.82	**4.14**	**D**	**D**	**4.01**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade

North Fulton County Bicycle and Pedestrian Facility Recommnedations

Segment ID ID	City	Road Name	From	To	Len-gth (mi)	Bicycle LOS Score (1..7)	Bicycle LOS Grade (A..F)	Bicycle LOS Grade (A..F)	Pedestrian LOS Value (1..7)	Pedestrian LOS Grade (A..F)	Bike Rec	Recommended Shoulder Wldth (ft)	Ped Rec
218.0	SSp	River Valley Rd NW	Riverside Dr	Johnson Ferry Rd	1.29	**2.81**	**C**	**C**	**3.52**	**D**	Los Met	N/A	DCSN
219.0	SSp	Riverside Dr NW	Darlrymple	Bridge (out)	3.29	**3.76**	**D**	**D**	**4.31**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
220.0	SSp	Riverside Dr NW	Mt. Vernon Hwy	Coldstream Ct	0.7	**3.85**	**D**	**D**	**4.47**	**D**	DCSN	N/A	DCSN
221.0	SSp	Roberts Dr	Roswell	Rec.	1.47	**3.12**	**C**	**C**	**3.67**	**D**	Los Met	N/A	Add SW 2 Sides, Sig Grade
221.1	SSp	Roberts Dr	Rec. Ave	Dunwoody Pl	0.74	**3.18**	**C**	**C**	**3.72**	**D**	Los Met	N/A	DCSN
222.0	SSp	Roberts Dr	City Limit	GA Hwy 400	0.9	**4.02**	**D**	**D**	**4.12**	**D**	DCSN	N/A	DCSN
223.0	SSp	Roswell Rd NE	City Limits (N)	Mt. Paran Raod	1.37	**4.17**	**D**	**D**	**3.04**	**C**	DCSN	N/A	Ex. SW (2 sides)
223.1	SSp	Roswell Rd NE	Mt. Paran Raod	I 285	1.05	**4.65**	**E**	**E**	**4.40**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
223.2	SSp	Roswell Rd NE	I 285	Abernathy	1.73	**4.96**	**E**	**E**	**3.62**	**D**	DCSN	N/A	Ex. SW (2 sides)
223.3	SSp	Roswell Rd NE	Abernathy	Dalrymple	1.52	**4.58**	**E**	**E**	**3.47**	**C**	DCSN	N/A	LOS MET
223.4	SSp	Roswell Rd NE	Dalrymple	Northridge	2.13	**4.91**	**E**	**E**	**4.50**	**D**	DCSN	N/A	DCSN
223.5	SSp	Roswell Rd NE	Northridge	City Limits (N)	1.59	**4.32**	**D**	**D**	**3.88**	**D**	DCSN	N/A	DCSN
226.0	SSp	Sandy Springs Cir NE	Roswell Rd	Johnson's Ferry Rd	0.53	**3.86**	**D**	**D**	**4.09**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
226.1	SSp	Sandy Springs Cir NE	Johnson's Ferry Rd	Hammond Dr	0.22	**3.67**	**D**	**D**	**2.84**	**C**	DCSN	N/A	DCSN
227.0	SSp	Spalding Dr	Mt Vernon Road	Winters Chapel	1.27	**3.66**	**D**	**D**	**4.18**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
228.0	SSp	Spalding Dr	River Exchange	Holcomb Bridge	0.35	**3.85**	**D**	**D**	**3.76**	**D**	Add Paved shoulder	3.0	Add SW 2 Sides, Min Grade
228.1	SSp	Spalding Dr	Wunters Chapel	River Exchange Drive	0.28	**3.73**	**D**	**D**	**4.24**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
229.0	SSp	Spalding Dr	Darlrymple	Chardlee Dunwoody (City Limit)	0.76	**3.91**	**D**	**D**	**3.12**	**C**	DCSN	N/A	LOS MET
229.1	SSp	Spalding Dr	Chardlee Dunwoody (City Limit)	Dunwoody Club/Roberts	0.55	**3.93**	**D**	**D**	**4.31**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
229.2	SSp	Spalding Dr	Dunwoody Club Drive	Jett Ferry	3.47	**3.15**	**C**	**C**	**3.84**	**D**	Los Met	N/A	DCSN
229.3	SSp	Spalding Dr	Jett Ferry	Mt Vernon	0.75	**3.42**	**C**	**C**	**3.91**	**D**	Los Met	N/A	DCSN
230.0	SSp	Spalding Dr NE	Darlrymple	Roswell Road	1.02	**2.98**	**C**	**C**	**2.45**	**B**	Los Met	N/A	LOS MET
232.0	SSp	Trowbridge Rd	Roswell	Darlrymple	0.56	**3.45**	**C**	**C**	**2.68**	**C**	Los Met	N/A	LOS MET
233.0	SSp	Windsor Pkwy NE	Roswell Road	Hwy 400	0.98	**2.99**	**C**	**C**	**3.63**	**D**	Restripe Shoulder	3.3	DCSN
233.1	SSp	Windsor Pkwy NE	Hwy 400	Peactree/Dunwoody	0.63	**3.46**	**C**	**C**	**3.28**	**C**	Los Met	N/A	LOS MET
233.2	SSp	Windsor Pkwy NE	Peactree/Dunwoody	City Limit	0.43	**3.87**	**D**	**D**	**3.55**	**D**	DCSN	N/A	DCSN
234.0	SSp	Winters Chapel Rd	City Limit	Spalding	0.6	**4.00**	**D**	**D**	**4.24**	**D**	DCSN	N/A	Add SW 2 Sides, Sig Grade
301.0	SSp	Hembree Road	Old Roswell	Westside Parkway	0.59	**4.04**	**D**	**D**	**4.54**	**E**	DCSN	N/A	DCSN

APPENDIX D

Additional Access Management Information

ADDITIONAL ACCESS MANAGEMENT INFORMATION

1.1 Summary of Existing Access Managements Policies and Ordinances

The following is a summary of existing access management ordinances and policies that currently apply within North Fulton.

1.1.1 Georgia Department of Transportation

The Georgia Department of Transportation (GDOT) provides access management policies in the document *Regulations for Driveway and Encroachment Control*, dated October 10, 2009. The purpose of this document is to "clearly define the process of constructing a legal driveway or other work within the State Highway rights-of-way." The following categories are included with criteria depending on characteristics of the roadway:

- Minimum Driveway Spacing (without right-turn lane)
- Minimum Driveway Spacing (with right-turn lane)
- Placement of Interior Drives
- Spacing of Offset Driveways
- Spacing of Median Crossovers
- Spacing of Signalized Intersections

The following are the criteria provided in *Regulations for Driveway and Encroachment Control.* These guidelines adopted by GDOT provide starting points for developing uniform guidelines specific to North Fulton.

GDOT MINIMUM DRIVEWAY SPACING		
Posted Speed, MPH	**Minimum Driveway Spacing Without Right-Turn Lane (Feet)**	**Minimum Driveway Spacing With Right-Turn Lane (Feet)**
25	125	125
30	125	219
35	150	244
40	185	294
45	230	369
50	275	419
55	350	444
60	450	494
65	550	550

GDOT PLACEMENT OF INTERIOR DRIVES	
Lot Depth	**Required Distance**
≥ 1,000'	200' minimum
< 1,000'	Not less than 1/5 lot depth
< 500'	100' minimum

GDOT SPACING OF OFFSET DRIVEWAYS
Driveways should align with other driveways located on the opposite site of the roadway
If offset driveways cannot be avoided, use the same criteria for Minimum Driveway Spacing

GDOT SPACING OF MEDIAN CROSSOVERS		
Roadway Type	**Crossover Spacing (in Feet)**	
	Preferred	**Minimum**
Rural	2,640	1,320
Urban	2,000	1,000

GDOT SPACING OF SIGNALIZED INTERSECTIONS	
Roadway Type	**Minimum Signal Spacing (in Feet)**
Rural	1,320
Urban	1,000

1.1.2 City of Alpharetta

THE CITY OF ALPHARETTA has no ordinances regarding access management. City staff has indicated that the current policy is a minimum spacing of 300 feet between driveways. It is desired that any roadway with three or more lanes be constructed with a median.

1.1.3 City of Johns Creek

THE CITY OF JOHNS CREEK currently requires a minimum spacing between driveways that varies depending on the posted speed limit (Chapter 113, Article XI). Also, the maximum number of allowable driveways serving a single project is one driveway for each full 200 feet of property frontage.

Posted Speed (mph)	Driveway Spacing (Minimum Feet)
25	200
30	250
35	300
40	300
45	300
50	300
55	350

There are also requirements for the minimum spacing for median crossovers along a divided roadway. The ordinance indicates that no median opening shall be spaced at a distance less than 660 feet away from any other median opening.

There are also requirements for the minimum spacing of signalized intersections. The ordinance indicates that no signalized intersection shall be spaced at a distance less than 1,000 feet away from any other signalized intersection.

A maximum number of 200 residential dwelling units may be allowed to be constructed with only one street outlet to an existing public street. Certain exceptions are permitted. Gates must be set back a minimum distance of 20 feet from the right-of-way; additional setback may be required to provide for adequate stacking distance, turnaround, and emergency vehicle access as required by the City.

Minimum distances for uninterrupted ingress/egress are also provided. This distance is measured perpendicular from the street right-of-way to the nearest edge of any interior service drive or parking space.

Maximum peak hour volume	Uninterrupted ingress/egress (Feet)
Up to 50 vehicles	25
50 to 200 vehicles	50
201 vehicles and up	100

If the closest intersection is or is likely to be signalized, traffic movements to and from any driveway within 250 feet of an intersection with a collector or an arterial shall be limited to right turns only.

1.1.4 City of Milton

THE CITY OF MILTON currently requires a minimum spacing between driveways that varies depending on the posted speed limit (Chapter 48, Article V, Division 2).

Posted Speed (mph)	Driveway Spacing (Minimum Feet)
25	200
30	250
35	300
40	300
45	300
50	300
55	350

There are also requirements for the minimum spacing for median crossovers along a divided roadway.

Condition	Crossover Spacing (in Feet)	
	Desirable	Minimum
Rural	2,640	1,320
Urban	1,320	660

There are also requirements for the minimum spacing of signalized intersections.

Condition	Signal Spacing (in Feet)	
	Desirable	Minimum
Rural	2,640	1,320
Urban	1,320	1,000

1.1.5 City of Mountain Park

THE CITY OF MOUNTAIN PARK has no ordinances regarding access management. Given the nature of the streets within the City, access management standards do not appear to be warranted.

1.1.6 City of Roswell

THE CITY OF ROSWELL currently requires a minimum spacing of 40' between driveways, and minimum spacing of 30' from any intersection (Chapter 17.2).

There are also requirements provided for internal vehicular circulation. There are no quantifiable guidelines, but three criteria are listed to provide interior vehicular circulation: "Visually orienting the driver with a regular, logical system of interior driveways and roadways; identifying entrance drives with small entry signs; and preventing vehicles from driving across or through designated parking areas by placing raised landscaped dividers or walkways between parking aisles."

There are also requirements for inter-parcel access "in cases of new development or major building renovation and repaving projects." Inter-parcel access shall be provided between adjacent properties in these situations for "office, commercial, mixed-use, and multi-story zoning districts." It is preferred that the connection of parking areas occur in the front portion of the site, unless this is not possible.

1.1.7 City of Sandy Springs

THE CITY OF SANDY SPRINGS currently requires a minimum spacing between driveways that varies depending on the posted speed limit. Also, the maximum number of driveways serving a single project is one driveway for each full 200 feet of property frontage (Chapter 103, Article XI).

Posted Speed (mph)	Driveway Spacing (Minimum Feet)
25	200
30	250
35	300
40	300
45	300
50	300
55	350

There are also requirements for the minimum spacing for median crossovers along a divided roadway.

Condition	Minimum Crossover Spacing (in Feet)
Rural	1,320
Urban	660

There are also requirements for the minimum spacing of signalized intersections.

Condition	Minimum Signal Spacing (in Feet)
Rural	1,320
Urban	1,000

A maximum number of 200 residential dwelling units may be allowed to be constructed with only one street outlet to an existing public street. Certain exceptions are permitted.

There are guidelines provided for the setback distances of driveways with gated access. The minimum distance from the gate to edge of pavement varies and depends on the number of inbound peak hour trips. Quantifiable values are provided for the required distance.

Minimum distances for uninterrupted ingress/egress are also provided. This distance is measured perpendicular from the street right-of-way to the nearest edge of any interior service drive or parking space.

Maximum peak hour volume	Uninterrupted ingress/egress (Feet)
Up to 50 vehicles	25
50 to 200 vehicles	50
201 vehicles and up	100

If the closest intersection is or is likely to be signalized, traffic movements to and from any driveway within 250 feet of an intersection with (measured from the point of tangency) a collector or an arterial shall be limited to right turns only.

There is also an ordinance stating "every development shall be designed to facilitate access to adjoining properties which are developed or anticipated to be developed in a manner substantially similar to the subject property." It is required for a parcel with office, retail sales, or service uses to grant an access easement to adjoining properties that are zoned or used for office, retail sales, or service uses. This provides a means to "facilitate movement of customers and their vehicles from establishment to establishment (lot to lot) without generating additional turning movements on a public street."

1.2 Toolkit

1.2.1 Introduction

After access problems have been created, they can be difficult to solve. Reconstructing an arterial roadway is costly and disruptive to the public and to abutting homes and businesses. Shallow property depth, multiple owners, and right-of-way limitations – all common to older corridors – generally preclude effective redesign of access and on-site circulation. In some cases, a new arterial or bypass must be built to replace the obsolete roadway, and the process of addressing access begins again in a new location. Access management programs can help stop this cycle, thereby protecting both the public and private investment in major roadway corridors from becoming out-of-date.

To be effective, access management must be well-planned and supported through appropriate regulations. Communities can encourage access management by creating regulations in support of good land development, or through the development of comprehensive, subarea, corridor, or access management plans. By establishing sound policies to encourage good planning and discourage ineffective development, communities are able to create a framework for quality access that can be supported in a legal setting. (Sweger 2004)

The overall goal of access management is to reduce traffic conflicts by:

- Limiting the number of conflict points that a vehicle may experience along its travel route
- Separating conflict points as much as possible if they cannot be completely eliminated
- Removing slower turning vehicles that require access to adjacent sites from the through-traffic lanes as efficiently as possible

These three basic goals of eliminating or separating conflicts can be achieved in many ways. Good land use planning, sensible regulation, and reasonable site planning guidelines can all help reduce congestion and conflict. Techniques to achieve these goals are discussed below.

1.2.2 Common Access Management Treatments

With an understanding of current corridor conditions, a "tool box" of suitable access management solutions was created to address the unique characteristics through North Fulton. Generally, these solutions provide greater consistency to travel along the corridor by consolidating median openings and/or removing left turns at major intersections in favor of u-turns facilitated upstream or downstream from the intersection.

Median U-Turns and Directional Crossovers

Median-divided roadways can offer many different benefits to motorists. Studies have shown that median divided roads can improve traffic flow, reduce congestion, and lower crash rates for certain conditions. Median u-turn treatments, as well as directional crossovers, are often used to control turning movements along roadways with medians. Typically, crossovers allow for indirect left turns at major intersections and u-turns between full median openings. They reduce delay for through-traffic and remove directional left turns and u-turns from the intersection. However, crossovers should be used only where sufficient space is available for u-turn maneuvers within the median and be designed sufficiently to accommodate the turning radius of the intended design vehicle. To successfully accomplish a u-turn at a particular location, wide medians, median bulb-outs, or flare-outs can be implemented.

This median u-turn treatment also greatly reduces the number of conflict points for vehicles at an intersection, and is attributed with significantly decreasing the frequency of crashes when compared with intersections that allow for left turns and u-turns. Disadvantages of implementing median u-turn treatments include increased delay, travel distance, and stops for left-turning vehicles, as well as driver confusion immediately after implementation of this access management treatment. Installing median u-turns at multiple locations along a corridor could help alleviate this driver confusion by creating driver expectancy. Replacing the numerous openings and intersections along the corridor would help standardize corridors from their sometimes "unpredictable nature."

Traffic Signal Coordination

Coordination of traffic signals in the more urbanized areas of the corridor could improve both travel times and safety. Coordination typically involves synchronizing traffic signals on a corridor to minimize through-traffic delay.

On-Site Traffic Circulation

One technique to reduce the number of vehicle conflicts is to promote on-site traffic circulation and shared-use driveways through local government ordinances related to development application approval. Pushing back the "throat" of a driveway helps to avoid traffic spillback onto the highway. Shared-use driveways or joint access improve both the safety and efficiency of the roadway. This is accomplished by concentrating vehicles that are slowing down into particular areas while providing right-turn deceleration lanes to facilitate access to abutting properties.

Shared use driveways also limit the number of access points into developments along the corridor. Developments with multiple lots and land uses are considered to be one property for the purposes of access regulation. Only the minimum number of connections necessary to provide reasonable access should be permitted.

Interchange Retrofitting

For several specific segments, it may be prudent to retrofit an intersection into an interchange. Some areas along the corridor have surrounding environmental issues (e.g. wetlands or permitting issues) or right-of-way limitations that prevent improvements at new locations. At such locations, grade-separated interchanges may be one of the more feasible alternatives to achieving greater mobility as a higher level facility. Although interchanges represent a major construction cost and may require additional right-of-way, in rural locations the land may be available to construct the ramps necessary to provide improved safety and better traffic flow.

Access managed facilities in more urban locations are frequently fronted by adjacent businesses, especially at intersection corners where ramps would be located. As a result, innovative practices are required to balance public transportation needs and private business and development interests. This would be the case if an interchange is installed at State Route 9 and Holcomb Bridge Road where the area surrounding the intersection is surrounded by directly adjacent developments.

1.2.3 Land Use Guidelines

Land Use and Mobility

An access management program is most effective when it is combined with comprehensive planning and land development regulations that control the quality of roadside development.

The state and region must both plan and invest in its transportation system. An access management program is one approach designed to improve the traffic flow and safety of a roadway while protecting investments in mobility. Access management can effectively address how properties access a thoroughfare and mitigate congestion, as well as other operational issues triggered by roadside development. Regulating the land use abutting corridors within the transportation system is primarily the local government's responsibility. A combined approach is needed to protect the state's transportation investment in mobility with land use controls supportive of that objective.

Land use policies and regulations need to be designed to support the access management program by distributing the local traffic more evenly throughout the roadway network while also controlling new development impact on mobility.

Many of the corridors in North Fulton are characterized by multiple and varied development patterns. The shape of the corridor has evolved for many decades. Each section reflects the history of development along the corridor, ranging from rural and agricultural to urban. The types of development in place affect the corridor differently and require different land use approaches to support access management.

Land Use Impacts

Development throughout North Fulton has had an impact on the level of mobility and the overall transportation priority of the major thoroughfare corridors. Although the development patterns are varied, common issues related to development and accessibility are contributing to mobility and safety throughout North Fulton. Common issues that impact corridors most significantly are listed in this section.

A. Separation of Uses

Typically, properties along a highway are developed incrementally. Each property is "isolated or separated" from the adjacent development. This forces all trips between the developments onto the corridor, thereby impacting mobility through increases in traffic volumes. In addition, this development pattern results in multiple access points or driveways that increase turning movements and their associated conflicts. All of these impacts combined contribute to congestion on the roadway.

B. Single Access Points

Many larger developments often provide only a single access point, generally with the major thoroughfare. For large residential and commercial developments with higher trip generation, the added traffic to the thoroughfare compromises mobility and increases congestion levels along the corridor.

This pattern is often exacerbated by the lack of parallel roads or local streets within the network hierarchy. The absence of a local and collector street network close to an arterial increases the number of trips that are forced onto the arterial with no other route options.

C. Greenfield Development

In terms of land use and transportation, the discussion can be best described as the "chicken and egg" debate. Transportation improvements can create or attract opportunities for development, but development can also create the need for transportation improvements. The best approach in either case is for a community to prepare a comprehensive plan for development focusing the majority of development within core areas and establishing stronger requirements for areas outside of the core areas to avoid greater impacts from these new, or "greenfield" developments.

These three issues have a significant effect on mobility, traffic congestion, and safety. Collectively, the issues support the idea that the strategy for North Fulton and its corridors must be comprehensive and that there is no single, ultimate solution. The issues also suggest that the impacts of development in one community will affect the corridor in both directions along the corridor and can be positively addressed through land use regulations. Coordination of all local governments to improve their growth management and land use planning practices, together with transportation planning, will provide the greatest positive impact to the corridor. Policy guidelines aimed at each of the issues discussed are included below.

Policy Guidelines

Access management is a function of the land use regulations as well as the design of the transportation corridor. To address the common issues discussed and to minimize the impacts of development on the roads of North Fulton, appropriate land use regulations should be adopted for major transportation corridors. Regulation prioritization and application may vary depending on the particular challenges in each community. To the extent possible, these regulations should be applied the entire length, but may vary based upon the context of the corridor. Long-range planning considerations should also be a function of the land use controls to preserve right-of-way, minimize future issues associated with land use, and capitalize on opportunities during redevelopment.

The following land use guidelines are intended to support the access management program through land use regulations. The proposed land use strategies help achieve a more effective land use and transportation connection.

A. Minimize Local Trips, Increase Connectivity of Developments

Street connectivity refers to the directness of routes and the density of connections (i.e., intersections) within a transportation system. As connectivity increases, travel distances decrease and route options increase. This allows the transportation system to be used more efficiently by pedestrians, bicyclists, transit, and automobiles. When the local street network is not sufficient, a highway often becomes the preferred travel route.

Unfortunately, this reduces regional mobility for through traffic. This is especially a concern for communities where the transportation system is overwhelmingly oriented toward the major corridors.

The mix of uses, relationship of adjacent properties, and access is a greater determination of the affect on a major corridor than the type of use. Land development regulations that require connections to the local street network and connections to adjacent properties will reduce the number of local trips on the corridor. The reduction of local trips can have significant impacts on congestion and mobility within the corridor.

This strategy also may require the local government to create or maintain a local street network. Maintaining a local street network can be achieved through block length regulations and by placing limits on a closed street system (i.e., culs-de-sac and dead ends). Long-range planning also can be used to identify future street connections.

B. Manage Access and Reduce Congestion Levels Through Development Design

A highly-connected transportation system includes several options for entering or leaving a new development. Whenever possible, these options are located on secondary roads rather than arterials. Street systems without access to other roads should be limited, just as culs-de-sac would be restricted to areas where topography, environment, or existing development make other street connections prohibitive. Stub-outs should be encouraged to accommodate future street extensions and connections with neighboring parcels.

Communities can promote even greater street network efficiency through cross-access agreements, which limit the number of driveways and allow multiple parcels to have roadway access across a single property. Communities also should consider the safety benefits of limiting the access of corner lots at the intersection of arterials and local roads to just allow driveways on the local road.

Communities also should encourage developments to include regulations for minimum driveway spacing guidelines. From a land use perspective, the number, location, and spacing of driveways along the street network significantly impacts vehicular movements and levels of congestion. Minimum spacing and maximum driveways per development should be regulated. By adopting minimum lot frontage requirements along identified transportation corridors, communities will be able to prevent small frontage lots from being established along the corridor — thereby promoting better access management. Along highways, regulations should encourage building a backage road that can be integrated into the local street system when small frontage lots are unavoidable. This is particularly relevant along corridors where communities should advocate for connecting minimum lot frontage requirements to minimum driveway spacing standards.

Other techniques can be utilized to manage the design of access points to reduce impacts on mobility, including adequate site distance policies, minimum turning radii, minimum driveway widths, and maximum driveway slopes.

Connectivity should not be limited to automobiles. Encouraging a network of connected pedestrian and bicycle facilities can offer better local connections, especially when that network provides access to a variety of land uses, roadways, and developments.

C. Manage the Rate and Direction of Growth

New development should be concentrated in areas of the community that are already developed. Types of development can be clustered to limit the impacts on mobility within a particular area of the corridor. In addition, regulating the pace of growth to make sure that a development's impacts do not outpace a corridor's ability to handle the level of traffic will ensure that mobility is maintained along the corridor until improvements can be implemented. The following actions support this strategy:

- Conduct planning studies to guide development to certain areas
- Adopt an adequate public facilities ordinance
- Alter local zoning ordinances
- Develop an access management ordinance
- Approve rules and regulations for the subdivision and site plan review process to include application of access management solutions

One recommended option to manage growth would be for communities to require a traffic impact study, prepared by a professional engineer, to accompany all development applications that could generate more than 100 peak hour trips or 1,000 average daily trips, or any other development deemed necessary by the community's planning director for review. This could facilitate the process of recommending appropriate access management improvements.

1.2.4 Multi-Agency Coordination

One of the key issues for addressing the need for balance between land use and transportation priorities within the community is how various authorities at different levels of government work together. GDOT and the local governments have vested interests and responsibilities where transportation and land use interconnectivity along the corridor is concerned.

Land use is the responsibility of the local governments rather than the state. As a result, GDOT is limited to providing policy information and training to local governments. However, the state can provide funding for construction costs and right-of-way acquisition on specific access management related projects. Projects will be more attractive for receiving this funding if the local jurisdictions have put in place the land use policies needed to make access management successful.

1.2.5 References

Model Land Development and Subdivision Regulations that Support Access Management. Accessed March 2, 2007 from http://www.cutr.usf.edu/research/access_m/pdf/Land_Regs.pdf.

Sweger, Brent. (2004). Kentucky Model Access Management Ordinance. Accessed September 22, 2010 from http://www.kytc.state.ky.us/planning/modal_programs/access_files/KY%20Model%20Local%20AM%20Ordinance.pdf.

Model Access Management Overlay Ordinance

The following is a model for an access management ordinance for an overlay district along a corridor. The ordinance is intended to provide a guide for use on major thoroughfare corridors. The standards included within this ordinance are those published by GDOT. For the cities with existing standards, the model ordinance standards should be compared to the current standards to determine which are most appropriate.

Outline of Ordinance

Section 1: Title

Section 2: Purpose and Intent

Section 3: Findings

Section 4: Jurisdiction

Section 5: Administration

Section 6: Definitions

Section 7: Standards for Access Connections

Section 8: Corner Clearance

Section 9: Joint and Cross Access

Section 10: Median Openings

Section 11: Design Guidelines for Access Connections

Section 12: Connectivity

Section 13: Shared Access

Section 14: Requirements for Out-Parcels and Phase Development Plans

Section 15: Minimum On-Site Vehicle Storage Area

Section 16: Interchange Areas

Section 17: Traffic Impact Study

Section 18: Variance Standards

Section 19: Nonconforming Access

Section 20: Effective Date

Section 1: Title

This ordinance shall be known as the "North Fulton Access Management Overlay Ordinance for **(city)**," referred to herein as "this ordinance."

Section 2: Purpose and Intent

The **(city)** recognizes that short-term improvements will improve regional mobility and economic vitality along the designated roadway corridor and reserve the opportunity to improve designated roadways to freeway conditions in the long-term planning horizon. Regulation of access connections from land abutting key regionally significant roadways will promote public safety, maintain the long-term mobility function of those corridors for the traveling public, and maintain the engineering integrity of those highways. The following roadways are designated as key regionally significant roadways within North Fulton, referred to herein as "designated roadways:"

- **(roadway)**
  - From milepost **(smaller milepost number)** to milepost **(larger milepost number)**
- **(additional roadways)**
  - From milepost **(smaller milepost number)** to milepost **(larger milepost number)**

The intent of this ordinance is to permit reasonably convenient and suitable access to land abutting designated roadways while preserving the regional flow of traffic in terms of safety, capacity, and speed. Appropriate access management along designated roadways will protect a substantial public investment in the existing corridor and reduce the need for expensive remedial measures. These regulations further the orderly and predictable distribution of land uses regulated in the **(city's)** zoning and subdivision ordinances, and serve to protect community character and natural resources within a well-design transportation corridor.

Section 3: Findings

The **(city)** hereby finds and declares that:

(A) Improvements to designated roadways should enhance the mobility function of the strategic highway, and provide opportunities for state and local governments to join together in protecting the long-term vision of the corridor as an integral part of regional mobility.

(B) The **(city)** recognizes that landowners have certain rights of access to designated roadways consistent with their needs. However, access connections are a major contributor to traffic congestion and poor operations along the corridor. Indiscriminate roadside and unregulated access connections result in decreased highway capacity, driver and pedestrian confusion, and increased safety hazards. A significant amount of road interference along designated roadways can be attributed directly to the frequency of vehicles entering or exiting the highway from adjacent development.

(C) The **(city)** is a participant of the North Fulton Transportation Resource Implementation Program along with other local political jurisdictions from North Fulton.

(D) These ordinances have been developed by Kimley-Horn and Associates, Inc. for the North Fulton Transportation Resource Implementation Program, which was endorsed by the **(city)**, as modified, through resolution on **(date of approval)**. It is intended that this ordinance be adopted uniformly by other jurisdictions in North Fulton through which these designated roadway corridors also traverse.

(E) Along designated roadways that are State Highways, GDOT is responsible for regulating the location, design, construction, and maintenance of street and driveway connections to designated roadways pursuant to Georgia Code Sections 32-6-51 and 32-6-133; however, the **(city)** is responsible for regulating land use and development patterns within the corridor. Both the State and the **(city)** have a vested interest in working together to address transportation and land use issues that protect the integrity of the strategic corridor.

(F) The document *Regulations for Driveway and Encroachment Control* published by GDOT establishes minimum criteria for granting access connections to designated roadways that are State Highways. The provisions of this ordinance meet or exceed minimum requirements established in this manual, and should be used by the GDOT for evaluating access connection permits along designated roadways that are State Highways.

(G) Approval of a development application by the **(city)** does not confer any obligation on GDOT to allow the same number, location, or design of any of the access or traffic control measures illustrated on the approved development plan without first securing a permit from the GDOT for the exact same improvements.

Section 4: Jurisdiction

This ordinance establishes an Access Management Overlay Zone for designated roadways within **(city)**, including all properties that directly abut the highway. The requirements of this ordinance apply solely within the Overlay Zone and supplement the requirements of the **(city)** zoning, subdivision, and other regulations that govern the use and development of property within **(city)**. Therefore, all standards and requirements of this ordinance are in addition to the requirements of the **(city)** zoning and subdivision ordinances.

(A) Any parcel of land located within of the Overlay Zone is subject to all requirements of the underlying zoning district.

(B) If there is a conflict between any provision of this ordinance and any provision of the **(city)** zoning, subdivision, or other regulations, the more restrictive provision shall apply.

Section 5: Administration

(A) The **(city)** Engineer or his designee shall administer and enforce the provisions of this ordinance in cooperation with the North Fulton Transportation Resource Implementation Program, and with GDOT if the designated roadway is a State Highway.

(B) Approval of a permit through the **(city)**, as well as separate permit through GDOT if the designated roadway is a State Highway, is required within the North Fulton Access Management Overlay Zone prior to any one of the following events:

(1) The approval of any land subdivision, conditional use permit, interim use permit, site plan, or zoning-related permit for any property located within the North Fulton Access Management Overlay Zone for designated roadways.

(2) The construction of any new public or private access to designated roadways or to a public street that intersects directly with designated roadways.

(3) The reconstruction or relocation of any existing public or private access to designated roadways or to a public street that intersects directly with designated roadways.

(4) A substantial enlargement or improvement occurs at an existing development, defined as an increase in gross floor area (GFA) of a primary or accessory structure by 25% or 500 square feet, whichever is greater, or an increase in parking stalls by 25% or 5 stalls, whichever is greater.

(5) A change in land use(s) occurs at an existing development that may change the amount or distribution of traffic using any existing access to designated roadways.

(C) Application Requirements

(1) An application for a site-specific permit shall be submitted to the **(city)** in accordance with the minimum rules and procedures set forth in the code of ordinances. If the designated roadway is a State Highway, the application shall also be submitted to GDOT in accordance with minimum rules and procedures set forth in the document *Regulations for Driveway and Encroachment Control*.

(2) A request for a new median opening shall be submitted to the **(city)** in accordance with the minimum rules and procedures set forth in the code of ordinances. If the designated roadway is a State Highway, the application shall also be submitted to GDOT in accordance with minimum rules and procedures set forth in the document *Regulations for Driveway and Encroachment Control*. It is the sole responsibility of the property owner to provide the justification necessary for a new median opening.

(3) The **(city)** Engineer, and the District Engineer for GDOT if the designated roadway is a State Highway, will notify and consult with the North Fulton Transportation Resource Implementation Program regarding access locations and/or new median openings requested as part of a development application.

Section 6: Definitions

For the purpose of this ordinance, certain phrases, terms, and words are defined in this section. Where terms are not defined, the definitions used in the **(city)** zoning or subdivision ordinance shall apply. If the designated roadway is a State Highway, the document *Regulations for Driveway and Encroachment Control* published by GDOT shall apply.

Access: Ingress and egress to land fronting on designated roadways.

Auxiliary Lane: The portion of the roadway adjoining the traveled way for speed change, turning, storage for turning, weaving, truck climbing, or for other purposes.

Change of Land Use: Any proposed property use that is different from the current use of the property, or current use that is different than the use identified in a pre-existing driveway permit.

Connectivity: A term used to infer connections between adjoining properties for vehicular and/or pedestrian usage.

Corner Clearance: At an intersection of two streets, the distance measured from the edge of pavement curb line or the intersection of the right-of-way lines to the beginning of outside driveway radius.

Cross Access: A service drive providing vehicular access between two or more continuous properties so that the driver need not enter the public street system to travel between adjacent uses.

Directional Median Opening: A directional median opening provides for left-turns in one direction only. These medians are preferred because they provide for the predominant movement and are much safer for the traveling public. Typically, directional median openings only provide for left turns from the major street to the side street. No left turns or straight across movements are allowed from the side street.

Driveway: An entrance used by vehicular traffic to access property abutting a street. As used in this ordinance, the term includes private residential, non-residential, and mixed-use driveways.

Driveway Angle: The angle between the driveway centerline and the edge of the travel way.

Driveway Throat: The portion of a driveway between the public road and the internal circulation system or area where parking maneuvers occur.

Frontage: The length along the street right-of-way line of a single property tract or roadside development area between the edges of the property lines. Property at a street intersection (i.e., corner lot) has a separate frontage along each street.

Full Median Opening: A full median opening provides for all movements at the intersection or driveway. The use of full median openings is reserved for situations where there is sufficient spacing and other crossover designs cannot adequately meet the operational needs of the location.

Functional Area (Intersection): That area beyond the physical intersection of two streets or a street and a driveway that comprises reaction time and deceleration distance, plus any required vehicle storage length, and is protected through corner clearance standards and driveway connection spacing standards. The following reaction time and deceleration distances should be added to the vehicle storage length to quantify the functional area of the intersection.

Reaction Time and Deceleration Distances

Area Type	Reaction Time (sec.)	Posted Speed Limit		
		35 MPH	45 MPH	55 MPH
Rural	2.5	130 feet	165 feet	200 feet
Urban	1.5	75 feet	100 feet	120 feet

Source: NCDOT Policy on Street and Driveway Access to North Carolina Highways

Joint Access (or Shared Access) Driveway: A single driveway serving two or more lots. A joint access driveway may cross a lot line or be on a lot line, and the owners may have an easement for the shared use function of the driveway.

Major Traffic Generator: A land use or development program estimated to generate more than 1,000 gross vehicle trips (entering/exiting combined).

Service Road (aka Frontage / Backage Road): A public or private street, auxiliary to and normally located parallel to a controlled access facility that maintains local street continuity and provides access to parcels adjacent to the controlled access facility.

Sight Distance: This is the area that establishes a clear line of sight for a waiting vehicle to see on-coming traffic and make turning movements into or out of a street or driveway connection safely or for traffic to see entering or waiting vehicles.

Storage Length**:** Additional lane footage added to a turning lane to hold the maximum number of vehicles likely during a peak period so as not to interfere with through travel lanes.

Traffic Impact Study: A report initiated in response to a proposed development that compares the anticipated roadway conditions with and without the development. The report may include an analysis of mitigation measures.

Section 7: Standards for Access Connections

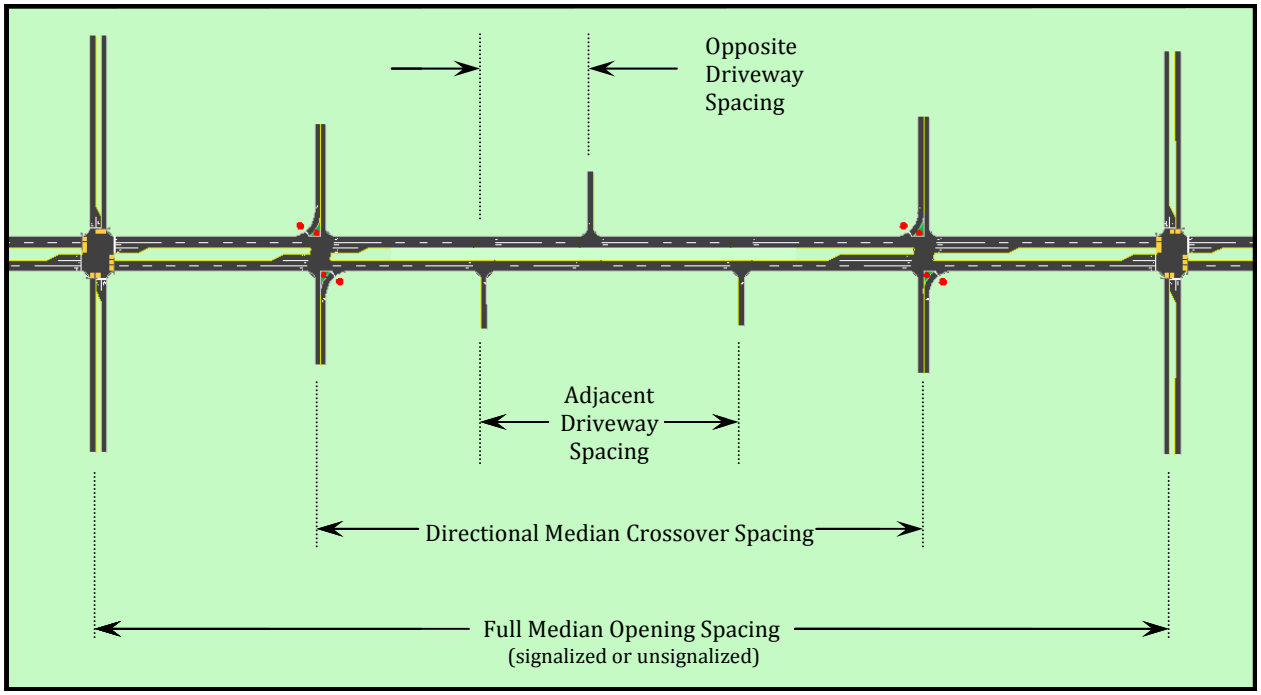
(A) All connections to the designated roadways shall meet or exceed the minimum connection spacing requirements specified in the table below.

Preferred Minimum Spacing – Driveways, Median Openings, and Signals

Posted Speed Limit	Driveway Without Right Turn Lane	Driveway With Right Turn Lane	Median	Signal
25	125 feet	125 feet	1,000 feet	1,000 feet
30	125 feet	219 feet	1,000 feet	1,000 feet
35	150 feet	244 feet	1,000 feet	1,000 feet
40	185 feet	294 feet	1,000 feet	1,000 feet
45	230 feet	369 feet	1,000 feet	1,000 feet
50	275 feet	419 feet	1,000 feet	1,000 feet
55	350 feet	444 feet	1,000 feet	1,000 feet
60	450 feet	494 feet	1,000 feet	1,000 feet
65	550 feet	550 feet	1,000 feet	1,000 feet

(B) Spacing between driveways or medians shall be measured along the right-of-way line between the tangent projection of the inside edges of adjacent driveways, opposite street driveways or median openings, as applicable (See Exhibit A).

Measuring Median Opening, Driveway, and Signal Spacing



(C) The **(city)** Engineer may reduce the connection spacing requirements set forth herein for situations where they prove impractical, but in no case shall the permitted spacing be less than 85% of the applicable standard, except as provided for in this ordinance (see below and Section 18).

(D) For sites with insufficient road frontage to meet minimum spacing requirements, consideration shall first be given to providing access via connection to a side street, utilization of a joint or shared driveway with an adjacent property that meets the recommended spacing requirement, or development of a service road to serve multiple properties.

(E) The **(city)** Engineer, in coordination with GDOT if the designated roadway is a State Highway, may grant access approval for a permanent use not meeting the spacing requirements of this ordinance on an interim basis if an access plan is submitted that demonstrates how spacing requirements will ultimately be met and appropriate assurances will be provided in the form of a recordable and enforceable easement or access agreement insuring future provision of a conforming access.

(F) Deviation from these spacing standards may be permitted at the discretion of the **(city)** Engineer, in cooperation with GDOT if the designated roadway is a State Highway, where the effect would be to enhance the safety and operation of the roadway. Examples might include a pair of one-way driveways in lieu of a two-way driveway, or alignment of median openings with existing access connections. Approval of a deviation from the minimum spacing standards in this ordinance may require the applicant to submit a study prepared by a registered engineer in the State of Georgia that evaluates whether the proposed change would exceed roadway safety or operational benefits of the prescribed standard.

(G) Existing road and driveway connections for any single parcel along designated roadways shall be modified to conform with the minimum connection spacing requirements set forth in this ordinance when safety, capacity, or operational improvements are made within the public right-of-way.

(H) All road and driveway connections to a single parcel must be brought into compliance with the minimum connection spacing requirements set forth in this ordinance when the land use(s) on the single parcel is (are) modified or expanded.

(I) Notwithstanding the foregoing, the **(city)** may prohibit, restrict, or modify the placement of any connection, at any time, to a single property in the interest of public safety and mobility. If the designated roadway is a State Highway, GDOT may also perform these same actions.

Section 8: Corner Clearance

(A) Corner clearance for connections to designated roadways shall meet or exceed the minimum connection spacing requirements set forth in Section 7.

(B) New connections shall not be permitted within the functional area of an interchange, intersection, or existing median opening defined by the minimum connection spacing requirements set forth in Section 7, unless:

(1) No other reasonable access to the property is available, and

(2) The **(city)**, along with GDOT if the designated roadway is a State Highway, determine that the connection does not create a safety or operational problem after review of a site specific study of the proposed connection prepared by a duly registered and licensed engineer in the State of Georgia.

(C) Where no other alternatives exist, the **(city)** may allow construction of an access connection along the property line farthest from an intersection. In such cases, a directional driveway connection (i.e., right-in/right-out or right-out only) may be required. No median breaks will be allowed within the functional area of the intersection.

(D) Near a signalized intersection, the location for a full movement driveway connection may be required to exceed the minimum spacing requirements set forth in Section 7 to avoid interference with the operations of the traffic signal and resulting traffic queues. The radius of a full movement driveway connection shall not encroach on the minimum corner clearance.

(E) The minimum lot size for any new corner lot created through the subdivision process shall be of adequate size to provide for the minimum corner clearance spacing required herein.

Section 9: Joint and Cross Access

(A) Non-Residential and Mixed-Use Projects:

(1) Adjacent land uses classified as major traffic generators shall provide a cross access drive and pedestrian access to allow circulation between sites.

(2) A system of joint use driveways and cross access easements shall be established wherever deemed feasible by the **(city)**, and the building site shall incorporate the following:

(a) A continuous service drive or cross access corridor extending the entire length for property frontage required to provide driveway separation consistent with the minimum spacing requirements set forth in Section 7.

(b) A design speed of 10 miles per hour and sufficient width to accommodate two-way travel aisles designed to accommodate automobiles, service vehicles, and loading vehicles.

(c) Stub-out connections and other design features that make it visually obvious that the abutting properties may be tied-in to provide cross access via a service drive.

(d) A unified access and circulation system plan that includes coordinated or shared-use parking areas wherever feasible. Shared-use parking areas shall count toward reducing the number of required off-street parking spaces for the two adjacent land uses if the peak parking demand periods do not occur at the same time.

(3) Pursuant to this ordinance, a property owner shall:

(a) Record an easement with the deed for the property that allows cross access to and from other properties served by a joint use driveway, cross access, or service drive.

(b) Record an agreement with the deed for the property that remaining access rights along designated roadways will be dedicated to the **(city)**, or GDOT if the designated roadway is a State Highway, and pre-existing driveways along the property's frontage will be closed and eliminated after construction of the joint use driveway.

(c) Record a joint maintenance agreement with the deed for the property defining maintenance responsibilities of the adjacent property owners.

(B) Residential Projects

(1) Residential subdivisions with lots fronting along designated roadways shall be designed with joint access points to the highway. Normally a maximum of two access points along the designated roadways shall be allowed regardless of the number of lots served; however, this maximum may be exceeded at the discretion of the permit reviewer.

(2) The property owner shall enter into a written agreement with the **(city)**, recorded with the deed for the property, that pre-existing connections along the frontage will be closed and eliminated after construction of joint use driveways.

(C) The **(city)** may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make implementation of joint use driveways or development of a shared access circulation system impractical, provided that all of the following requirements are met:

(1) Joint access driveways and cross access easements are provided wherever feasible in accordance with this section.

(2) The site plan incorporates a unified access and circulation system in accordance with this section.

Section 10: Median Openings

(A) No new median openings shall be allowed along portions of designated roadways with a center median unless it is in conformance with the code of ordinances. If the designated roadway is a State Highway, the median openings must be in conformance with the latest edition of the document *Regulations for Driveway and Encroachment Control* published by GDOT. In all circumstances, new median openings shall not encroach on the functional area of an existing median opening or intersection. Approval of any new opening along designated roadways that are State Highways lies ultimately with GDOT. However, the **(city)** has the authority to enforce criteria that is more stringent than the criteria provided by GDOT.

(B) Minimum criteria for evaluating a request for a new median opening may include, but not be limited to, the following:

(1) Median openings shall not be located where intersection sight distance (both vertical and horizontal) can not meet current design criteria required by the code of ordinances or GDOT if the designated roadway is a State Highway.

(2) Median openings shall not be placed in areas where the grade of the crossover will exceed five percent. Special consideration should be given to the vertical profile of any proposed new median opening that has the potential for future signalization.

(3) A median opening shall not be provided where the median width is less than sixteen feet.

(4) Median openings that require a traffic signal, or where one may expect a potential traffic signal in the future, should be avoided.

(C) It is the responsibility of the property owner to provide the justification for a new median opening along designated roadways. If this information is not provided, the median opening request shall not be reviewed by the **(city)** or GDOT if the designated roadway is a State Highway.

Section 11: Design Guidelines for Access Connections

The following factors shall be considered by the **(city)** Engineer, and GDOT if the designated roadway is a State Highway, when assessing the suitability of a proposed access connection location associated with the proposed development application.

(A) Offset Access Connections: On undivided portions of designated roadways, access connections on opposing sides of the highway shall be aligned with one another or offset an adequate distance to minimize overlapping left turns and other maneuvers that may result in safety hazards or operational problems.

(B) Adequate Sight Distance: An access connection shall be located so as to provide adequate intersection sight distance.

(C) Auxiliary Lanes: The **(city)** Engineer may require auxiliary lanes (i.e., left- or right-turn lanes, bypass lane, acceleration lanes) where deemed necessary due to traffic volumes or where a safety or operational problem is expected without such lane. Left- and right-turn lanes shall be constructed in accordance with the code of ordinances. If the designated roadway is a State Highway, the GDOT District Engineer may require left- and right-turn lanes to be constructed in accordance with the document *Regulations for Driveway and Encroachment Control*.

(D) Substandard Frontage: If lot frontage is inadequate to provide the required minimum spacing, consideration shall first be given to providing access via connection to a side street, utilization of a joint or shared driveway with an adjacent property that meets the recommended spacing requirement, or development of a service road to serve multiple properties.

(E) Future Development: To maintain minimum spacing requirements between non-residential access locations when future development occurs, a proposed access connection may be approved subject to the condition that it serves adjacent property via a joint or shared access located on the common property line or a cross access easement.

(F) Easements for Joint Access: When required to provide a joint or shared access, the property owners must record an easement allowing cross access to and from the properties served by the shared driveway or cross access. The easement must include a joint maintenance agreement defining the responsibilities of the property owners.

(G) Restricting Left Turns: Left turning movements to or from a proposed access connection may be restricted at the time of construction or at a future date based upon existing or anticipated roadway operating conditions.

(H) Angle of Approach: Accesses shall be aligned to be straight and perpendicular to the centerline of designated roadways to the maximum extent feasible.

(I) Driveway Throat Length: For any development plan with an internal roadway network, a minimum storage of 100 feet measured from the near edge of the right-of-way line will be required before any crossing or left-turning conflicts area allowed. The minimum driveway stem distance may be increased on a project-by-project basis based on recommendations from an analysis of traffic operations on the internal roadway network.

(J) Auxiliary Features: Signs, entrance medians, and fences shall be placed or constructed outside of the public right-of-way for designated roadways.

(K) Residential Access Design: Residential access must be designed to provide adequate space on the property for vehicles to turn around without the need to back onto designated roadways. Residential access from a single access street ending in a cul-de-sac shall not exceed 25 lots or dwelling units, and the cul-de-sac shall have a minimum bulb radius of 30 feet. All driveway grades

and drainage improvements shall conform to the rules and requirements set forth in the code of ordinances. If the designated roadway is a State Highway, then these improvements shall conform to the rules and requirements set forth in the document *Regulations for Driveway and Encroachment Control*.

(L) Non-Residential and Mixed-Use Access Design: Non-residential and mixed-use access must be designed so that backing, loading, unloading, and other maneuvers are accommodated on-site and not using the designated roadways right-of-way, and the access shall provide adequate stacking distance to prevent entering or exiting vehicles from obstructing the flow of traffic on designated roadways. A driveway median may be required to preserve the length of storage, or to prevent cross access to an out-parcel within the storage area of a driveway. All driveway grades and drainage improvements shall conform to the rules and requirements set forth in the code of ordinances. If the designated roadway is a State Highway, then these improvements shall conform to the rules and requirements set forth in the document *Regulations for Driveway and Encroachment Control*.

(M) Non-Residential and Mixed-Use Access Geometrics: The geometrics of a non-residential or mixed-use access shall provide adequate width, grade, and radii to accommodate all vehicles that will access the site.

(N) Corner Radius: The minimum corner radius of a street or driveway along designated roadways shall be within 20 feet minimum and 50 feet maximum.

(O) Reverse Frontage: Access to double frontage lots along designated roadways shall be regulated to the street with the lower functional classification. When a residential subdivision is proposed along designated roadways, it shall be designed to provide through lots along the highway with access from a frontage road or interior local road. Access rights of these lots from designated roadways shall be dedicated to the **(city)**, or GDOT if the designated roadway is a State Highway, and recorded with the deed for the property. A berm or buffer yard may be required at the rear of through lots to buffer dwelling units from traffic on designated roadways. The berm or buffer yard shall not be located within the public right-of-way.

Section 12: Connectivity

(A) The internal street system for a proposed development shall be designed to coordinate with existing, proposed, and planned streets outside of the development as provided in this section.

(B) Wherever a proposed development abuts unplatted land or a future development phase of the same development, street stubs shall be provided as deemed necessary by the **(city)** to provide access to abutting properties or to logically extend the street system into the surrounding area. All street stubs shall be provided with temporary turn-around or cul-de-sacs unless specifically exempted by the **(city)** Engineer, and the restoration and extension of the street shall be the responsibility of any future developer of the abutting land. Stub-outs should also be posted with signage stating, "Stub out for future access connection to adjacent land required per the **(city)**."

(C) Collector streets shall intersect with collector or arterial streets on- and off-site at safe and convenient locations. The intersections of collector streets shall be subject to review by City staff to ensure safe and functional operations.

(D) Local streets shall connect with surrounding streets to permit the convenient movement of traffic between land uses or facilitate emergency access and evacuation, but such connections shall not be permitted where the effect would be to encourage the use of such streets by substantial and excessive through traffic.

(E) Pedestrian and bicycle connections should be provided between adjacent properties in addition to roadway connections. These pedestrian and bicycle connections should provide for safe pedestrian and bicycle travel along roadways and across parking areas to site buildings and any bicycle storage facilities.

Section 13: Shared Access

Pursuant to this section, a property owner shall:

(A) Record an easement with the deed for the property that allows cross access to and from other properties served by a joint use driveway, cross access, or service drive.

(B) Record an agreement with the deed that remaining access rights along the thoroughfare will be dedicated to the **(city)**, or GDOT if the designated roadway is a State Highway. Additionally, pre-existing driveways along the property's frontage will be closed and eliminated after construction of the joint use driveway.

(C) Record a joint maintenance agreement with the deed for the property defining maintenance responsibilities of property owners.

Section 14: Requirements for Out-Parcels and Phase Development Plans

(A) In the interest of promoting unified access and circulation systems, development sites under the same ownership or consolidated for the purposes of development and comprised of more than one building site shall not be considered separate properties in relation to the access standards set forth in this ordinance. The number of connections permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage along designated roadways. All necessary easements, agreements, and stipulations required in this ordinance shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area are responsible for compliance with the requirements of this ordinance and both shall be cited for any violation.

(B) All out-parcel access shall be served internally to the development site using the shared circulation system of the principle development. Access to out-parcels shall be designed to avoid excessive movement across parking aisles and queuing across surrounding parking and driving aisles.

Section 15: Minimum On-Site Vehicle Storage Area

Adequate storage must be provided within the internal circulation system for properties that include either a drop-off loop or drive-through facility so that vehicles do not queue onto designated roadways. Specific storage areas will be determined by the **(city)** Engineer on a case-by-case basis during the development review process; however, the following minimum storage lengths are required for specific development types along designated roadways. This determination will be in cooperation with GDOT if the designated roadway is a State Highway. Dimensions are measured from the ultimate right-of-way line stipulated by the regional Comprehensive Transportation Plan, State Transportation Improvement Program, or other project plans.

(A) For single-lane drive-in banks, storage to accommodate a minimum queue of six vehicles will be provided. Banks having several drive-in service windows will have storage to accommodate a minimum of four vehicles per service lane.

(B) For single-lane drive-through full-service car washes, storage to accommodate a minimum of twelve vehicles will be provided. Automatic or self-service car washes having a multi-bay design will have minimum vehicle storage to accommodate three vehicles per bay.

(C) For fast-food restaurants with drive-in window service, storage within the site to accommodate a minimum of eight vehicles per service lane from the menu board/ordering station will be provided.

(D) For service stations where the pump islands are parallel to the pavement edge, a minimum setback of 35 feet between the pump islands and the public right-of-way will be provided. For service stations where the pump islands are not parallel to the pavement edge, minimum vehicle storage of 50 feet in length between the pump islands and the public right-of-way will be provided.

(E) For land uses that require an entry transaction or have service attendants, gates or other entry control devices, the vehicle storage will be of adequate length so that entering vehicles do not queue back on the adjacent highway right-of-way. No portion of a parking area, attendant booth, gates, signing or parking activity shall encroach on the public right-of-way.

(F) For schools, adequate storage for parental drop-off and pick-up areas should be provided entirely on the school campus site.

Section 16: Interchange Areas

(A) New interchanges or significant modification of an existing interchange will be subject to special access management requirements that protect the safety and operational efficiency of the limited access facility and the interchange area, pursuant to the preparation and adoption of a small area access management plan by the **(city)**. The plan shall address current and future connections and median openings within ¼-mile of an interchange area (measured from the end of the taper of

the ramp furthest from the interchange) or up to the first intersection with an arterial road, whichever is less.

(B) The distance to the first access location shall meet the minimum connection spacing requirements in Section 7; however, no driveway connection will be allowed less than 400 feet from the end of the taper of the ramp furthest from the interchange.

Section 17: Traffic Impact Study

A traffic impact study (TIS) may be required by the **(city)** Engineer to evaluate one or all access locations proposed in a development application. A TIS will be required when the expected gross trip generation for the development program is 1,000 vehicles or more (entering/exiting combined) during a typical weekday period. If required, the traffic impact study shall be in conformance with minimum rules and procedures set forth in the code of ordinances. If the designated roadway is a State Highway, a traffic impact study may be required by the GDOT District Engineer and shall be in conformance with minimum rules and procedures set forth in the document *Regulations for Driveway and Encroachment Control* maintained by GDOT.

Section 18: Variance Standards

(A) The granting of a variance shall be in harmony with the purpose and intent of this ordinance and shall not be considered until every feasible option for meeting minimum access management standards is explored.

(B) Applicants for a variance from the standards herein must provide proof of unique or special conditions that make strict application of the provisions impractical. This shall include proof that:

(1) Indirect or restricted access can not be obtained; and

(2) No engineering or construction solutions can be applied to mitigate the conditions; and

(3) No alternative access is available from a side street

(C) Under no circumstances shall a variance be granted, unless not granting the variance would deny all reasonable access, endanger public health, welfare or safety, or cause an exceptional and undue hardship on the applicant. No variance shall be granted where such hardship is self-created.

Section 19: Nonconforming Access

(A) Permitted access locations along designated roadways as of **(date of adoption)** that do not conform to the standards herein shall be designated as nonconforming features and shall be brought into compliance with applicable standards only under the following scenarios:

(1) When new access connection permits are requested

(2) A substantial enlargement or improvement on the site occurs, defined as an increase in gross floor area (GFA) of a primary or accessory structure by 25% or 500 square feet,

whichever is greater, or an increase in parking stalls by 25% or 5 stalls, whichever is greater.

(3) A change in land use(s) occurs on the site that may change the amount or distribution of traffic using any existing access to designated roadways

(4) As road improvements are made within the public right-of-way for designated roadways adjacent to the property

(B) Normal maintenance and/or repair of an existing access connection shall not be considered a physical change in the access.

(C) If the principle activity on a property with nonconforming access connections is discontinued for a consecutive period of 365 days or discontinued for any period of time without a present intention of resuming that activity, then that property must thereafter be brought into conformity with all applicable connection spacing and design requirements set forth herein, unless otherwise exempted by the **(city)** or GDOT if the designated roadway is a State Highway. For uses that are vacant or discontinued upon the effective date of this ordinance, the 365-day period begins on the effective date of this ordinance.

(D) The property owner should be made aware that the **(city)** may at any time, when deemed necessary for safety, mobility, and efficiency of the roadway, modify, remove, or relocate any access point, and may redesign the roadway including any medians, auxiliary lanes, and turning movement restrictions.

Section 20: Effective Date

The provisions of this ordinance were adopted and become effective on **(date of adoption)**.