Destination2040

Gwinnett's Comprehensive Transportation Plan

NEEDS ASSESSMENT REPORT

SEPTEMBER 2017

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INTRODUCTION



INTRODUCTION

This Needs Assessment report is the second part of Destination2040, which is an update of Gwinnett County's Comprehensive Transportation Plan (CTP). The Existing Conditions report that precedes this document examined the County's current state of transportation infrastructure, providing a baseline understanding of the existing transportation network as well population, employment, land use, and development considerations.

With this information gathered, the planning team has now turned its sights to learning about the County's current and future transportation needs. Because a transportation system connects people with the places they need or want to be, a critical part of developing the future plan is understanding if there are gaps in getting people to their desired destinations, and if so, identifying those gaps. This process is known as a Needs Assessment and includes identifying both existing needs as well as future needs, which can be determined by understanding future development areas, population projections, and other indicators that help forecast needs that have not yet fully surfaced. In addition to data and models, a Needs Assessment relies on system user-provided input, which reveals how the transportation does or does not meet the needs of a community; this information is critical for developing a comprehensive picture of the transportation landscape. This report covers the Destination2040 Needs Assessment process and its findings.

HOW THIS DOCUMENT IS STRUCTURED

Destination2040's Needs Assessment is intended to take both a high-level and a detailed look at the existing transportation systems, future demographic and population projections, future land use plans, emerging technologies, and other forecasts and need indicators to help us understand what we need for a successful transportation system in the future.

The first three chapters of this report provide introductory information about the plan as well as explain how the planning team identified Gwinnett County's future transportation needs using a robust visioning/goal-setting and priority-determining process as well as a catalog of technical tools and methodologies.

After explaining *how* the planning team assessed the County's needs, the next three chapters provide a modal-specific analysis of the County's current and future transportation needs. The modes considered are Roadway (including Freight), Transit, and Bike and Pedestrian, respectively. Each of these chapters is set-up with a technical examination of Gwinnett's needs specific to that mode, which is followed by a sampling of the public input related to that mode, and concludes with a summary of the County's needs based on the planning team's collective analyses of that mode.

This report ends with the ***Planning Process*** chapter, which details the next steps that the planning team will take on the journey to Destination2040. As we learned in the Existing Conditions report, quests for greatness are not all about the destination, and this planning process is no exception. How we get there is critical to the plan's success, so the journey is key to making sure Gwinnett plans for its transportation future in a meaningful and forward-thinking way. So, we'd like to ask you to...



VISION AND GOALS

DEFINING PROJECT VISION AND GOALS

To drive the development of Destination2040, the planning team worked with its stakeholder groups and advisory committee to draft a vision statement for the plan as well as a set of CTP goals. The draft vision and goals were refined and validated by an extensive public involvement effort, which included six public meetings, which had more than 300 participants across all six meetings. The vision and goals helped established a list of project priorities, which were ranked through a highly successful online survey that engaged more than 5,000 respondents. The rest of this chapter provides the finalized vision, goals, and priorities for Destination2040.

THE VISION FOR DESTINATION2040

The Gwinnett County Comprehensive Transportation Plan will provide a framework to improve quality of life for everyone in the County by facilitating the mobility of people and goods safely and efficiently across all modes of transportation. This framework will be established through the following short- and long-term goals.

DESTINATION2040'S GOALS

IMPROVE CONNECTIVITY

- Improve overall connectivity within Gwinnett County by tying activity centers to each other and by enhancing cross-county movements
- Improve connectivity between Gwinnett County and the rest of the region
- Improve connectivity and reliability regardless of mode or purpose

LEVERAGE THE COUNTY'S TRANSPORTATION SYSTEM TO IMPROVE ECONOMIC VITALITY AND QUALITY OF LIFE

- Connect people to jobs and educational opportunities through coordinated transportation and land use investment decisions
- Use transportation investments to encourage development/redevelopment in strategic locations throughout the County
- Facilitate the efficient movement of goods
- Preserve community livability and attractiveness; respect and value existing community open spaces and prioritize transportation projects that positively impact the human and natural environment

IMPROVE SAFETY AND MOBILITY FOR ALL PEOPLE ACROSS ALL MODES OF TRAVEL

- Prioritize projects and programs that improve safety, acknowledging all users in project design
- Continue to evaluate innovative design as well as improved technologies and products for use in the County's transportation network
- Consider mobility needs of all population groups when investing in the transportation system

PROACTIVELY EMBRACE FUTURE TRANSPORTATION OPPORTUNITIES

- Anticipate and plan for technological advances in transportation
- Educate the community about transportation options, funding, and processes
- Work with local, regional, state, and federal partners to plan future improvements
- Integrate long range comprehensive transportation plan with other County planning efforts
- Build additional capacity into transportation corridors, when feasible, to anticipate future needs

CONTINUE TO SERVE AS RESPONSIBLE STEWARDS OF TRANSPORTATION RESOURCES

- Invest in rehabilitation and maintenance of existing transportation infrastructure
- Prioritize projects that maximize the benefit of taxpayer dollars and alternate funding sources

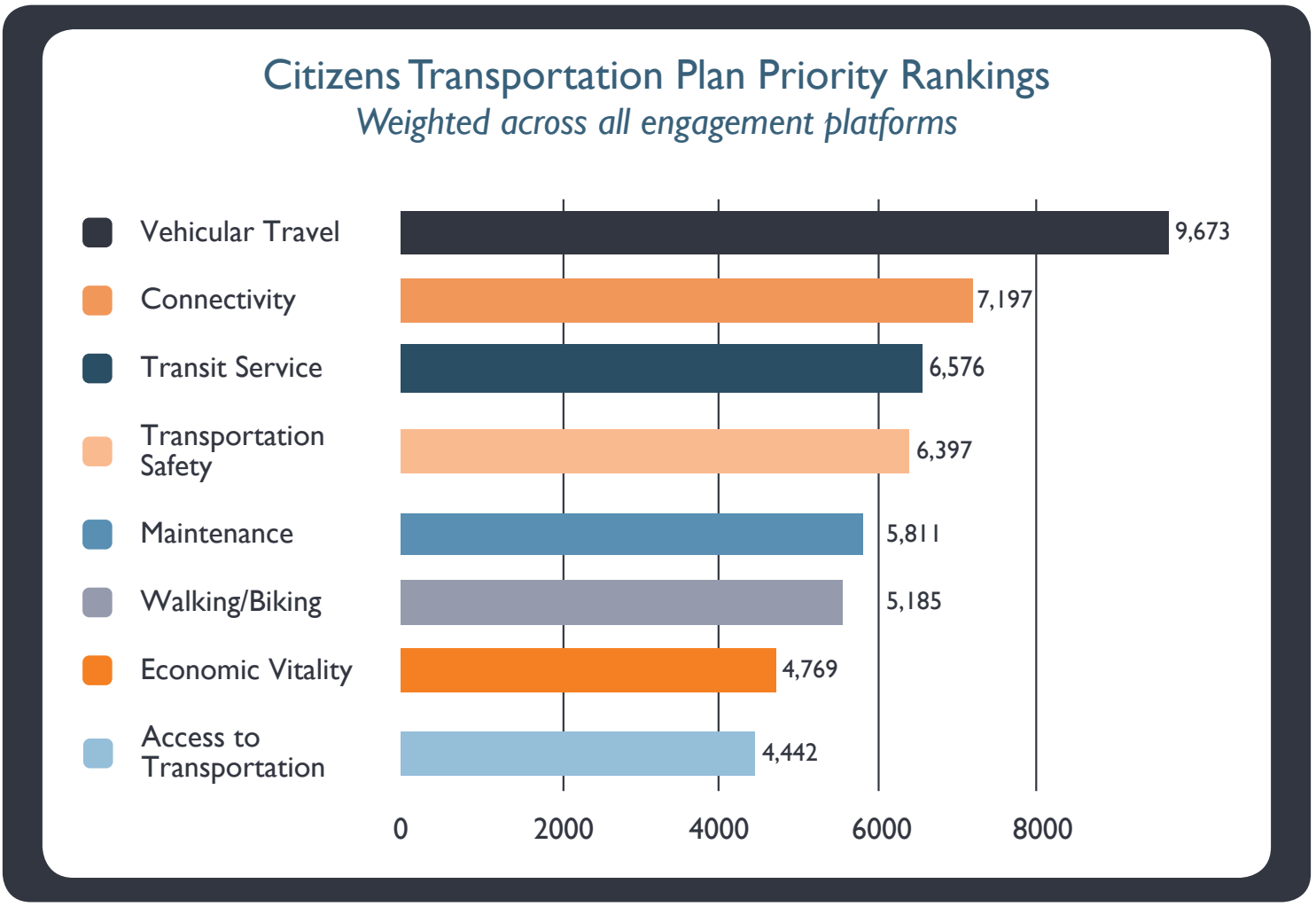
CTP PRIORITIES

To complement the vision and goal setting process—and to guide subsequent parts of the planning process, including project development and prioritization—the planning team also gathered input on a list of eight essential transportation planning priorities: Access to Transportation, Connectivity, Economic Vitality, Maintenance/Roadway Repair, Transit Services, Transportation Safety, Vehicular Travel, and Walking/Biking. Understanding the community's priorities is vital to planning for its future because there are always trade-offs when developing solutions that respond to the area's transportation needs as well as limitations, such as money and time. By identifying what the community values or desires the most, the planning team is able to support the County with identifying the best path forward for future transportation projects.

It should be noted, though, that ranking priorities does not mean that the lower or lowest ranking priorities are no longer a factor or consideration when developing projects and prioritizing solutions—all of the priorities established for Destination2040 are necessary ingredients to a well-thought-out and balanced transportation plan. This ranking system merely helps define a theoretical "weight" of importance for some priorities and provides a framework for assessing how to respond to the County's identified transportation needs.

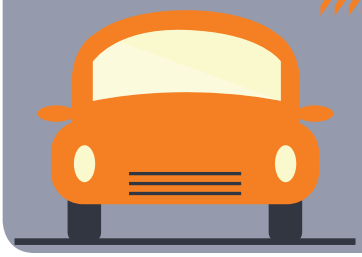
Residents and stakeholders in the County formed an important voice for the existing and anticipated future challenges with the transportation system. The public had many avenues to engage in the development of transportation needs and priorities, including traditional public meetings; stakeholder interviews; a MetroQuest online survey and interactive project website; and outreach at senior centers, community events, and parks throughout Gwinnett County. Particular attention was paid to special populations and the individualized needs they may have. For example, the planning team held focus group meetings with members of the Gwinnett Youth Commission to understand what the next generation of Gwinnettians wants from their transportation system. Also, outreach materials and other plan collateral was available in multiple languages, including Spanish, Korean, and Vietnamese, to reach out the diverse communities that make up the County. Translators were also available at focus group meetings to faciliatate getting face-to-face input from these participants.

Nearly 5,000 votes from the public helped identify priorities based on the list on the following page. Based on the responses, Vehicular Travel was the most important transportation priority, followed by Connectivity and Transit Service, as noted in the graph below. The interest in all eight of the priorities emphasizes the need for a truly comprehensive and multimodal plan for Gwinnett County.



RANKED CTP PRIORITIES

1. VEHICULAR TRAVEL



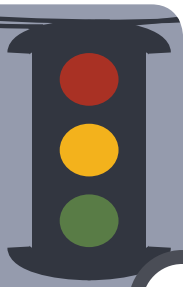
2. CONNECTIVITY



3. TRANSIT SERVICES



4. TRANSPORTATION SAFETY



5. MAINTENANCE/ ROADWAY REPAIR



6. WALKING/ BIKING



7. ECONOMIC VITALITY



8. ACCESS TO TRANSPORTATION



ASSESSING OUR NEEDS



ASSESSING OUR NEEDS

Understanding the transportation needs of a county requires gathering and processing data and information from a variety of sources and input mechanisms. Because transportation is about more than just infrastructure, it is important to know who the community is, where individuals are traveling and why, what modes they traditionally use, and what modes they would use more if the conditions were right (more infrastructure, lower cost, or the system more efficient). Therefore, assessing our transportation needs is a balance between the vast array of quantitative tools and data available to practitioners and the qualitative information acquired from meeting the community to understand firsthand what their needs are. This chapter provides more details on the different tools and methodologies that were used to develop the catalog of needs for Destination2040 to address.

QUALITATIVE TOOLS

The previous chapter provided some information on the stakeholder and public outreach efforts conducted for Destination2040. These efforts formed the basis of our qualitative input, which used a combination of media and tools to capture the thoughts of a broad cross-section of the County, including:

- Six public meetings held around the County to give residents and employees multiple dates and locations to attend
- Twenty-five stakeholder meetings conducted, including meetings with 15 cities, the Gwinnett County's community improvement districts (CIDs), and various focus groups concentrated on medical, education, youth, freight, and alternative modes needs
- Twenty-five community events, including a multiculutral festival as well as numerous

park and senior center days, to reach people where they are in case they are not able to attend a traditional public meeting

- More than 5,000 people's participation in our online survey, which was developed to give people an interactive, efficient way to provide feedback

In addition to meeting with representatives of the County, the Destination2040 team also met with cities and counties adjacent to and surrounding Gwinnett to ensure that the plan is well-coordinated across its borders. Feedback gathered through all of these qualitative outreach efforts is included at the ends of each of the modal chapters as a complement to the quantitative data provided.

QUANTITATIVE TOOLS

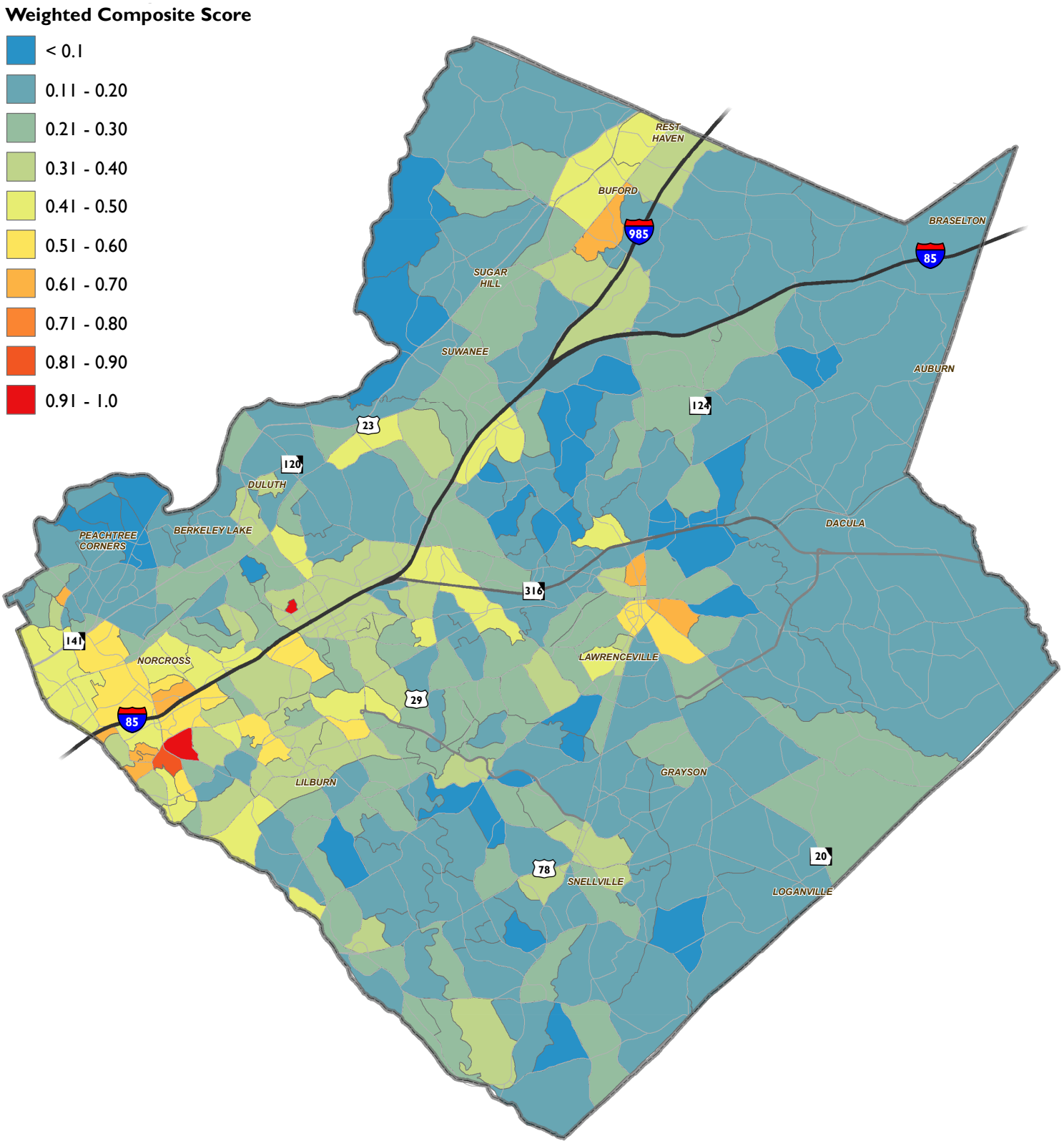
A mixture of data sources and tools were used throughout the Needs Assessment analysis. Data sources such as existing transportation and demographic data were used in combination with land use and economic information, and supplemented by travel demand modeling to develop the basis for existing and future needs. Many of these data sources are spatial in nature and can be mapped through Geographic Information Systems (GIS) so analysis can be done both by attribute and by location.

Demographic, Land Use, and Economic Data

Understanding the community is a critical element of understanding transportation needs. This includes knowledge of the people who live in the County, the places where people work, and how those people and places may change in the future. The planning team used an assortment of sources and information to quantitatively understand Gwinnett's transportation needs:

- Certain demographic characteristics collected by the **US Census** and **American Community Survey** have been identified to correlate with transportation-related needs such as riding transit, bicycling, and walking. In Gwinnett County, a combination of households in poverty, persons aged 65 years and older, households with limited English proficiency, and no vehicle households were considered to assess relative concentrations of populations that may be sensitive to these transportation needs. Each category comtributes a component of a weighted composite score scaled from 0 to 1 points – poverty (up to 0.5 points), age 65 and over (0.2), limited English proficiency households (0.2), and no vehicle households (0.1). Moving forward with the CTP, the identification of areas with higher composite scores will be used to help prioritize projects, particularly in areas where there are higher concentrations of people who may benefit from specific transportation improvements. The Weighted Composite Score map on the next page shows a composite score of the weighted density of vulnerable populations at the Census block group level in Gwinnett County.
- **Longitudinal Employer-Household Dynamics (LEHD)** employment data provides valuable insights into where Gwinnett residents work and where Gwinnett employees live. The Origin/Destination pairs are useful for understanding travel patterns and where specific types of modal improvements can be made.
- **Existing land uses** are related to locations of population and employment. Additionally, looking at future land use types and locations provides insight into where development or redevelopment may occur throughout the County so the planning team can assess the potential transportation impacts associated with that growth.
- **Economic indicators** identified in earlier phases of this transportation plan have been compiled geographically and include previously assessed Gwinnett County real estate inventory/trends and economic development assets/

Density of Underserved Populations



characteristics. Those characteristics have formed the basis of an **Economic Development Asset Index** that will help rank potential transportation projects in Gwinnett County based on how likely they are to support existing and future jobs and economic development efforts. The zonal-based index is based on four criteria:

- **Employment Density** – The quantity and density of employment within each zone
- **Commercial Real Estate Density** – The quantity and density of commercial real estate within each zone
- **Underutilized Commercial Real Estate Assets** – The current vacancy rate of commercial real estate in the zones, which helps to prioritize the efficient use and reuse of existing infrastructure (transportation, real estate, and utilities) over new development
- **Economic Development Incentives** – The percentage of the zone that is in a designated Tax Allocation District (TAD) and/or Opportunity Zone, which quantifies the financial benefits of existing incentive programs, but more importantly captures the political and organizational capital and consensus required to obtain these designations, demonstrating that those areas are vetted County economic development priorities

Existing Transportation Data

Observed transportation data sources provide a real-time snapshot of existing conditions:

- **Traffic count information** is valuable for understanding current volumes on the roadways, historic fluctuations in traffic along individual roadways, and the percent of the overall traffic that is made up of truck freight
- **INRIX** and other passive data sources assist with understanding congestion levels along corridors and at intersections throughout the day, which is a helpful complement to travel demand models to ensure that the models adequately representing existing conditions
- **Crash data** analysis is a specialized field and a safety program considers many factors in addition to the numbers of crashes occurring in a particular location; crash data helps to identify where some safety concerns may exist, which is valuable to compare to the volume on the roadways to determine where a higher than average number of crashes occurs relative to the volume on the road; this data is useful in understanding not only vehicular-only crashes but also interactions between vehicles and bicycles/pedestrians
- **Maintenance information**, such as bridge sufficiency ratings and pavement quality (through the County's PAVER rating system), is valuable for assessing where the most immediate rehabilitation or reconstruction needs exist to ensure a state of good repair
- **Transit location data** provides useful information about on-time performance of buses throughout the County, while ridership data is useful for understanding the most and least utilized routes in the system

Travel Demand Model

The Atlanta Regional Commission (ARC) maintains a 20-county travel demand model that is used to test the relationship between land use and transportation in metro Atlanta. Population and employment characteristics are represented through a series of zones for the existing year and future years, with a transportation network of regional roadways and transit systems overlaid on top to understand the relationship between all of these considerations. The model, calibrated to current year data, serves as a tool for testing future growth patterns and potential transportation solutions to provide better connectivity and to relieve traffic congestion. The results of the travel demand model also feed into the region's air quality model. The 2015 and 2040 travel demand models were modified to provide more granular detail within Gwinnett County for this planning effort.

ROADWAYS

ROADWAYS

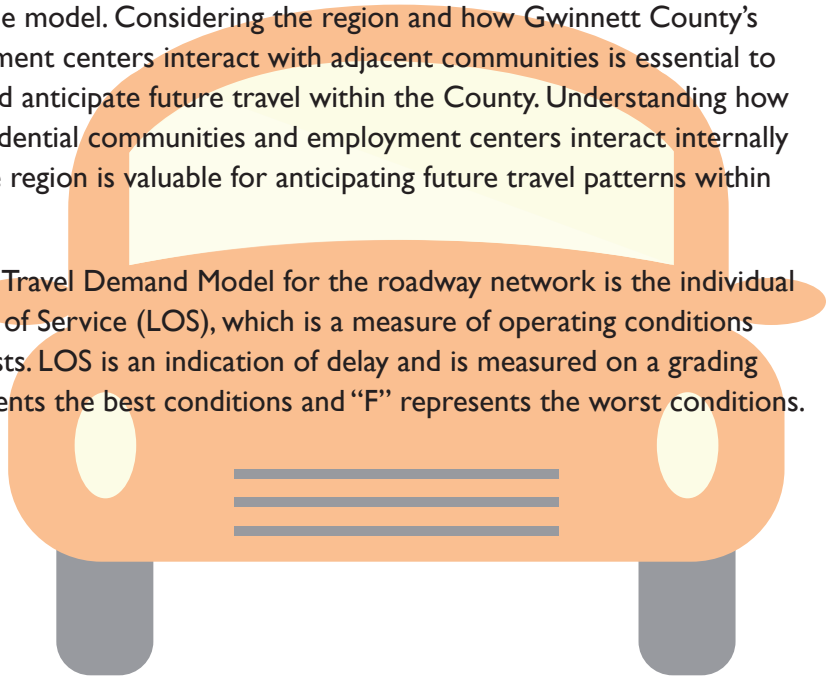
As noted in the Existing Conditions report, Gwinnett County is a growing community, both in population and in the development of employment centers within and outside of the County. This growth draws new trips, which directly correlates to increasing traffic and congestion. This plan assesses approximately 1,060 miles of the overall system and focuses on interstates, other freeways, arterials, and collector roadways, which accounts for approximately a quarter of the entire Gwinnett County roadway network.

Many tools are available to identify existing roadway system needs and to anticipate areas that may experience challenges in the future. This section of the report documents analyses conducted using traffic estimates and projections from the regional Travel Demand Model and existing traffic reporting systems, such as INRIX, crash rates, and pavement conditions. Additionally, feedback provided to the County through this plan's public involvement process was incorporated into the analysis. Following the roadway analysis, potential projects will be developed to address both existing and future vehicular needs.

TRAVEL DEMAND MODELING

To consider future needs for roadway improvements, the planning team used the Travel Demand Model (TDM) maintained by the Atlanta Regional Commission (ARC) to project future traffic volumes. The Travel Demand Model incorporates the major roadways throughout the region, including the interstates, other freeways and expressways, arterials and collectors. The Travel Demand Model incorporates projections for population and employment growth, which drive the travel and trips on the roadway and transit networks included in the model. Considering the region and how Gwinnett County's population and employment centers interact with adjacent communities is essential to properly understand and anticipate future travel within the County. Understanding how Gwinnett County's residential communities and employment centers interact internally and with the rest of the region is valuable for anticipating future travel patterns within the County.

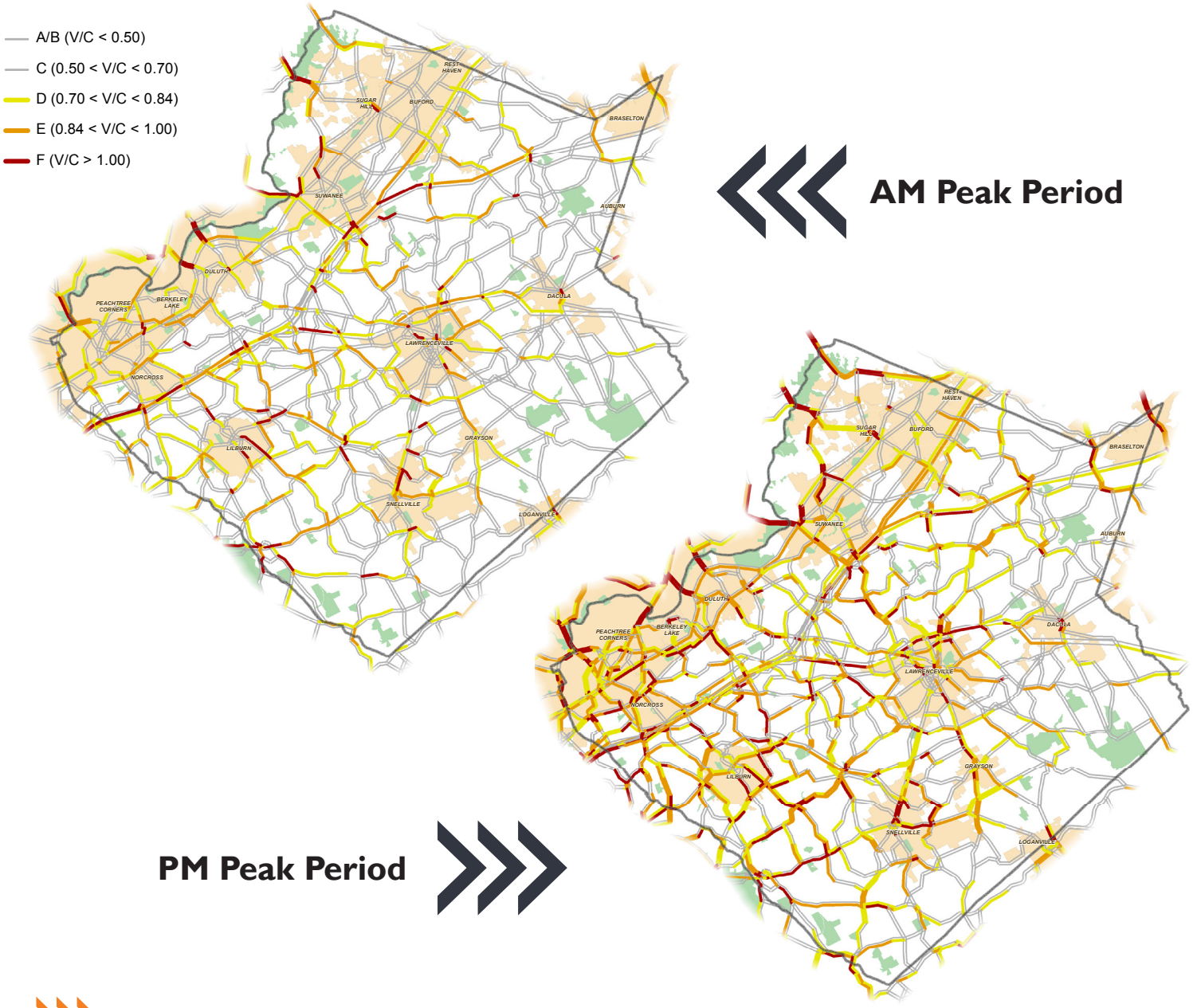
The main output of the Travel Demand Model for the roadway network is the individual roadway segment Level of Service (LOS), which is a measure of operating conditions experienced by motorists. LOS is an indication of delay and is measured on a grading scale where "A" represents the best conditions and "F" represents the worst conditions.



LOS relates to the volume to capacity ratio (V/C). When the volume on a roadway equals capacity, or is equal to a V/C of 1.0, the roadway is carrying as much traffic volume as the number of lanes and speed allows, and relates to LOS F. Alternatively, when a roadway has many fewer vehicles than the potential capacity, and the V/C ratio approaches 0.0, the roadway LOS would be operating at LOS A and have free-flowing conditions with little delay. LOS D is generally considered acceptable and identifies that the roadway is busy, yet traffic is still flowing at a reasonable speed.

It is important to note that the Travel Demand Model focuses primarily on volume on the roadway relative to capacity. It does not account for substantial delays resulting from poor intersection operations or reflect the effects of crashes or other non-recurring delay. The maps on the next page show the LOS for 2015 AM and PM peak periods. It should be noted that as these maps reflect conditions in 2015, they do not incorporate the benefits of major capacity projects that have since been implemented such as the widening of Peachtree Industrial Boulevard in the Suwanee area and SR 20 in the Sugar Hill area.

2015 Level of Service



AM Peak Period

PM Peak Period

Below are similar maps showing projected LOS levels in 2040 based on ARC projections for growth in population and employment, but with only roadway improvements that are already financially committed to construction. As shown in the maps, without additional improvements, traffic congestion is anticipated to get notably worse throughout the County, especially along the major corridors and in the southern portions of the County. A separate technical memorandum provided in the Appendix reveals that the congestion shown in these LOS reflects in significantly increased travel times by the year 2040. Notwithstanding disruptors or other unforeseen eventualities, which may cause significant changes to travel behavior, without implementing improvements, travelers on major corridors such as Peachtree Industrial Boulevard, I-85, Jimmy Carter Boulevard, US 78, and US 29 can expect travel times to increase by at least 70 percent between now and the year 2040.

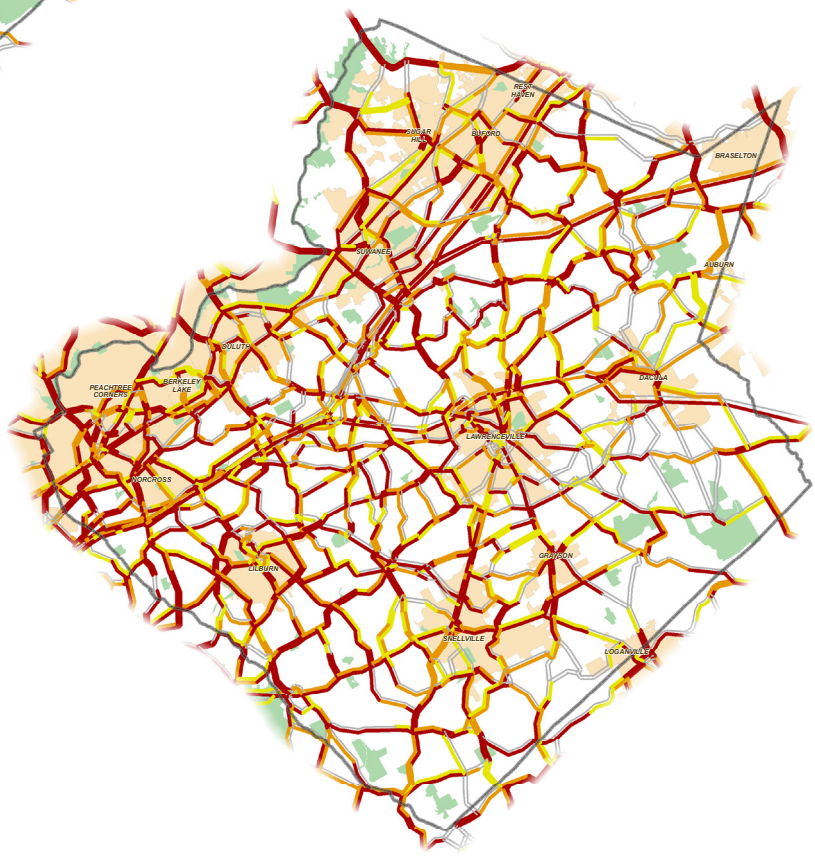
2040 Projected Level of Service



2040 AM LOS
- A/B (V/C < 0.50)
- C (0.50 < V/C < 0.70)
- D (0.70 < V/C < 0.84)
- E (0.84 < V/C < 1.00)
- F (V/C > 1.00)

AM Peak Period

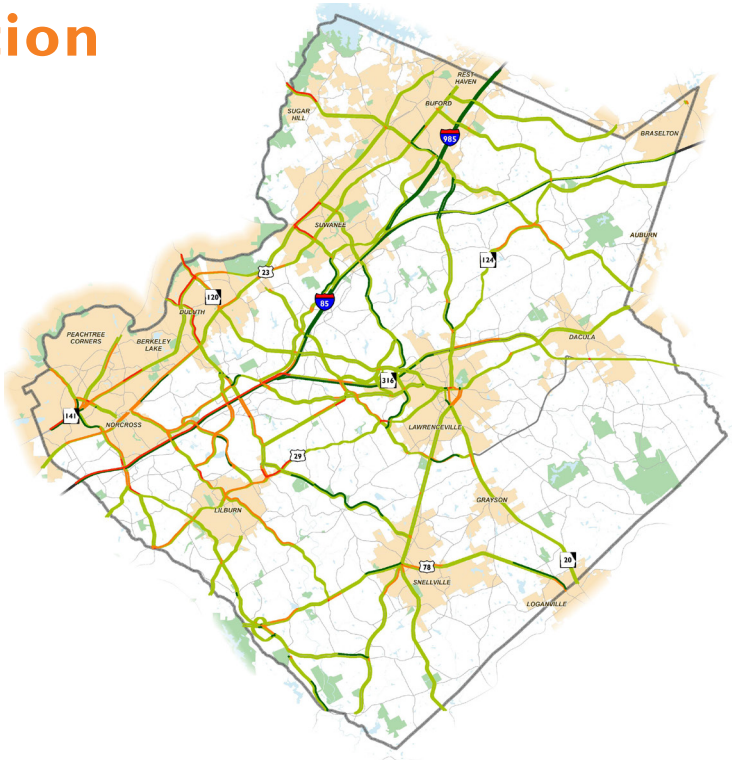
PM Peak Period



This data was combined with INRIX, a global software and data service provider that aggregates real-time data points from thousands of sources ranging from individual cell phones and GPS-equipped automobiles, to entire hosts of fleet vehicles. INRIX data was used to measure congestion, which is defined as the measured speed as a percentage of the free flow speed (85th-Percentile Speed). The graphics below represent the measured AM and PM congestion in Gwinnett County using measured speed from every weekday in the month of October 2015. In these graphics, severe congestion is defined as any roadway segment on which, over the hour, the average vehicle speed is less than half of the normal free-flow speed. This data is an important "real-time" or observed complement to the model.

Corridor-Level Congestion

- Measured Speed <50% of FFS
- Measured Speed 50% - 75% of FFS
- Measured Speed 75% - 100% of FFS
- Measured Speed Exceeds FFS



AM Peak Period



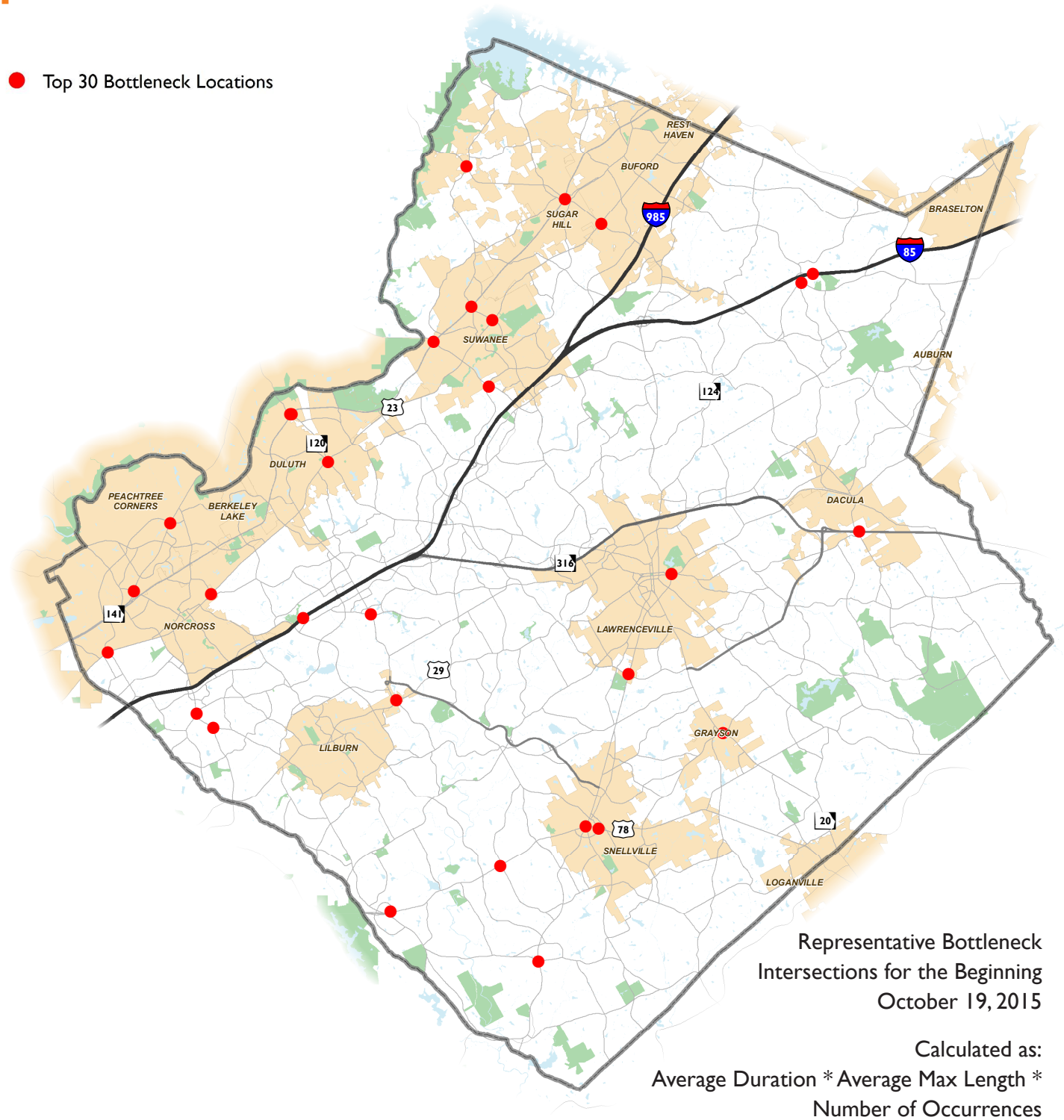
PM Peak Period

Representative Congestion for a Typical October 2015 Weekday

October 2015 Bottlenecks

INRIX was also used to determine a Bottleneck Impact Factor, which is the product of the duration of congestion, the maximum length of queue, and the number of occurrences. The graphic below represents the Top 30 most severely congested intersection approaches in Gwinnett County using data from a typical week in the month of October 2015.

Top 30 Bottlenecks



Representative Bottleneck Intersections for the Beginning October 19, 2015

Calculated as:
Average Duration * Average Max Length * Number of Occurrences

Top 30 Bottlenecks

Top 30 Bottleneck Movements in Gwinnett County (Alphabetically)
I-85 northbound at Hamilton Mill Road
I-85 northbound at SR 378/Beaver Ruin Road
McGinnis Ferry Road southeastbound at Satellite Boulevard
Peachtree Industrial Boulevard northeastbound at SR 120/Duluth Highway
Peachtree Industrial Boulevard northeastbound at Suwanee Dam Road
Peachtree Industrial Boulevard southwestbound at McGinnis Ferry Road
Pleasant Hill Road southeastbound at Club Drive
SR 120/Abbots Bridge Road southeastbound at Peachtree Industrial Boulevard
SR 120/Duluth Highway southeastbound at US 23/SR 13/Buford Highway
SR 124/Braselton Higway eastbound at Hamilton Mill Road
SR 124/Centerville Highway southbound at Annistown Road
SR 124/Scenic Highway northbound at Sugarloaf Parkway
SR 124/Scenic Highway northbound at US 29/SR 8/Crogan Street
SR 124/Scenic Highway southbound at US 78/SR 10/Main Street
SR 140/Jimmy Carter Boulevard southbound at South Norcross Tucker Road
SR 140/Jimmy Carter Boulevard southeastbound at Rockbridge Road
SR 141/Peachtree Parkway southbound at Holcomb Bridge Road
SR 141/Peachtree Parkway southbound at Peachtree Corners Circle
SR 20/Buford Drive at US 23/SR 13/Buford Highway
SR 20/Buford Drive eastbound at Peachtree Industrial Boulevard
SR 20/Cumming Highway southeastbound at Suwanee Dam Road
SR 20/Grayson Highway southeastbound at SR 84/Grayson Parkway
SR 317/Lawrenceville-Suwanee Road northwestbound at US 23/SR 13/Buford Highway
US 23/SR 13/Buford Highway northeastbound at Langford Road
US 23/SR 13/Buford Highway southwestbound at Jones Mill Road/Button Gwinnett Drive
US 29/Lawrenceville Highway eastbound at Pleasant Hill Road/Lester Road
US 29/SR 316/University Parkway eastbound at Harbins Road
US 78/SR 10/Main Street eastbound at Henry Clower Boulevard (east)
US 78/Stone Mountain Highway eastbound at McDaniels Bridge Road
US 78/Stone Mountain Highway westbound at Park Place Boulevard

Areas of Need

A cumulative review of the INRIX data reveals several areas of transportation needs: Freeway Commute, Employment Centers, Population, and Corridor Demands.

FREEWAY COMMUTE



- I-985/I-85 southbound (AM) and northbound (PM)
  - PM congestion impacts interchanges, increases vehicle delay and queues, and traffic entering/exiting the freeway
  - I-85 becomes a physical barrier and can increase travel times for Cross-County routes including: Beaver Ruin Road, Indian Trail Road, Pleasant Hill Road, Steve Reynolds Boulevard, Old Norcross Road, McGinnis Ferry Road, SR 317/Lawrenceville Suwanee Road, Buford Drive and Thompson Mill Road
- SR 316 westbound (AM) and eastbound (PM)
- US 78 corridor (AM and PM)
  - Roadway capacity constraints, especially at Snellville and Evermore CID
  - Primary arterial to metro Atlanta from eastern and southeastern Gwinnett County
  - Other roads impacted: Rockbridge Road, Annistown Road, Killian Hill Road, and Five Forks Trickum Road
- SR 124 (AM and PM)
  - Primary route between Lawrenceville and Snellville
  - Causes include: signal spacing, commercial nodes, and high traffic volumes intersecting

EMPLOYMENT CENTERS



- Peachtree Corners, Norcross, and the industrial districts along I-85
- Impacted roadways: SR 141/Peachtree Industrial Boulevard, SR 141/Peachtree Parkway, SR 13/Buford Highway, Holcomb Bridge Road, and Jimmy Carter Boulevard. Other roads impacted: Rockbridge Road, Annistown Road, Killian Hill Road, and Five Forks Trickum Road

POPULATION GROWTH



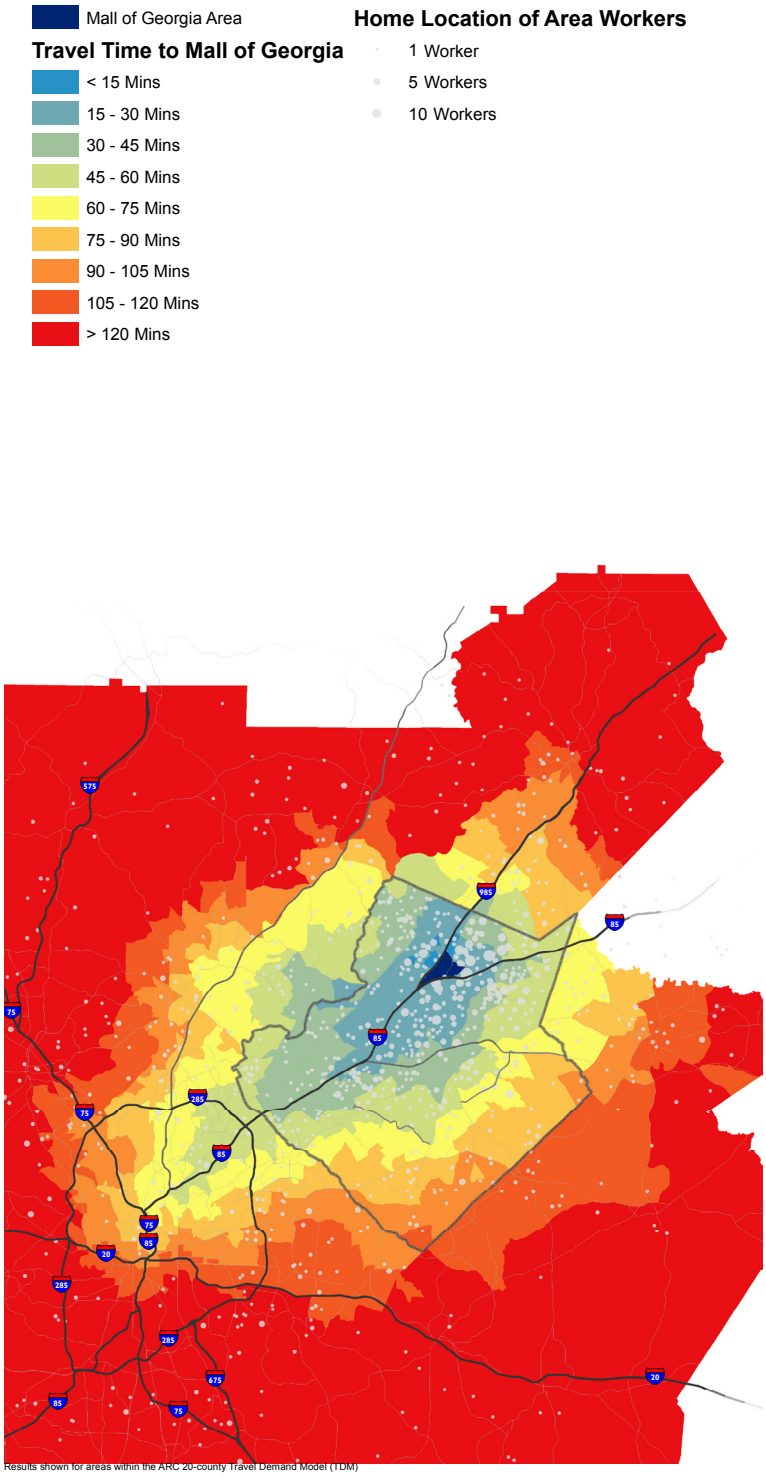
- Population growth in the eastern and southeastern parts of the County will contribute to degrading LOS on routes such as SR 124, US 78, and Ronald Reagan Parkway due to a limited arterial system.

CORRIDOR DEMANDS

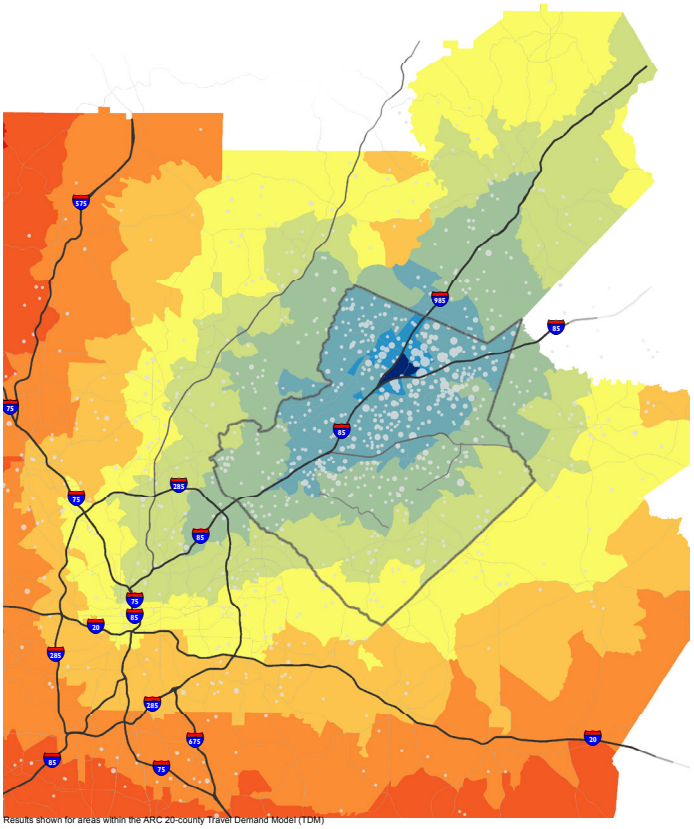


- Increased demand projected for: north-south corridors such as Buford Highway, Peachtree Industrial Boulevard, and Peachtree Parkway

The Travel Demand Model was analyzed to understand travel times to and from major activity centers within the County and regional employment destinations with their relationship to Gwinnett County. A sample of activity center travel sheds are included for both 2015 and 2040 to show the change resulting from growth in population and employment, assuming no substantial transportation investments. As these maps underscore, without additional improvements, travel times will increase significantly through the year 2040.

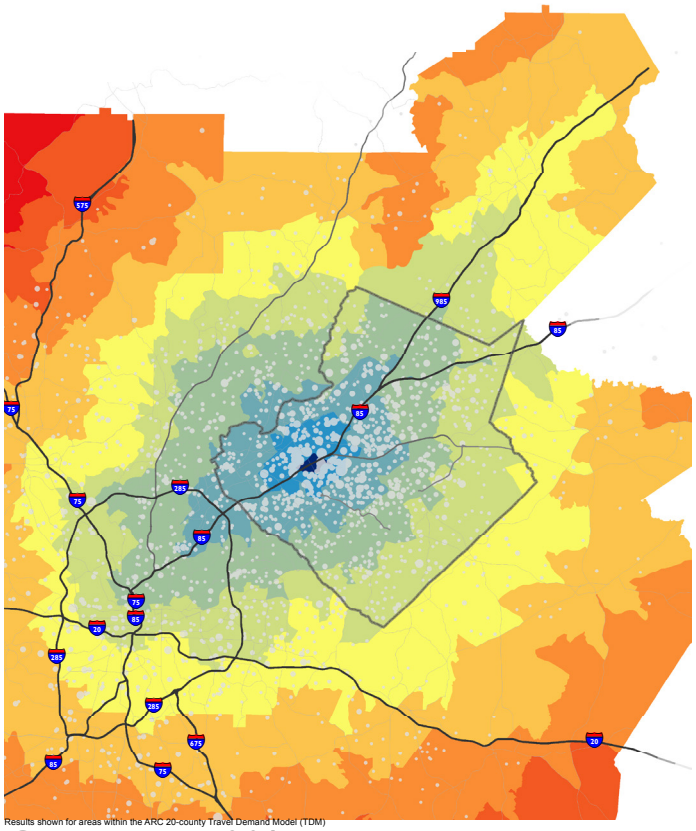


Mall of Georgia 2040 projected travel times

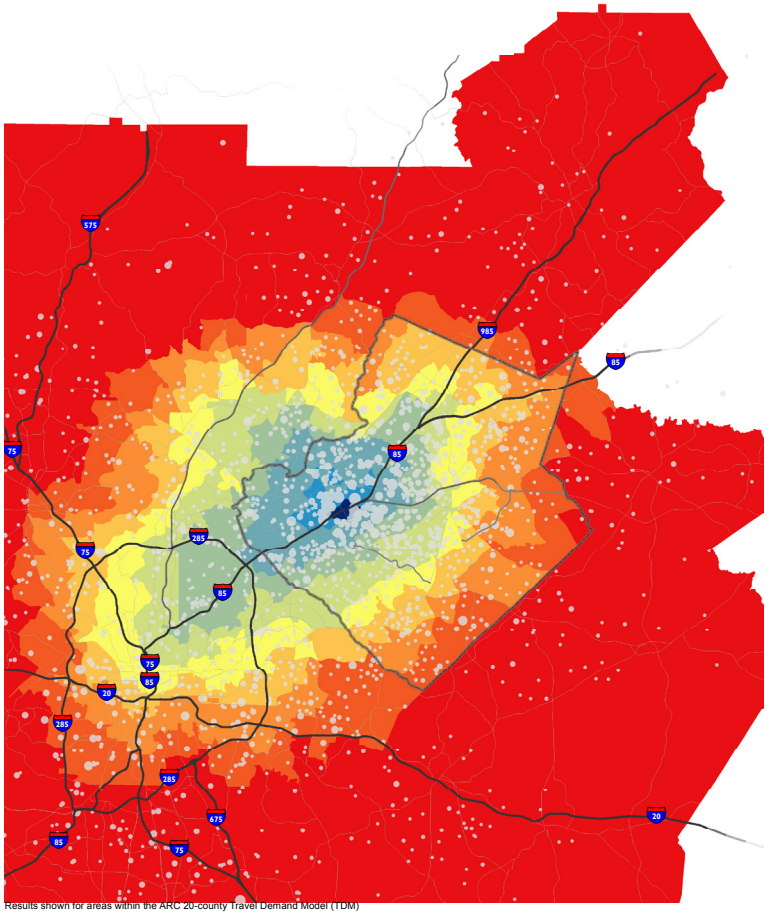


Mall of Georgia 2015 travel times

As these maps also underscore, without additional improvements, travel times will increase significantly through the year 2040.



Gwinnett Place 2015 travel times



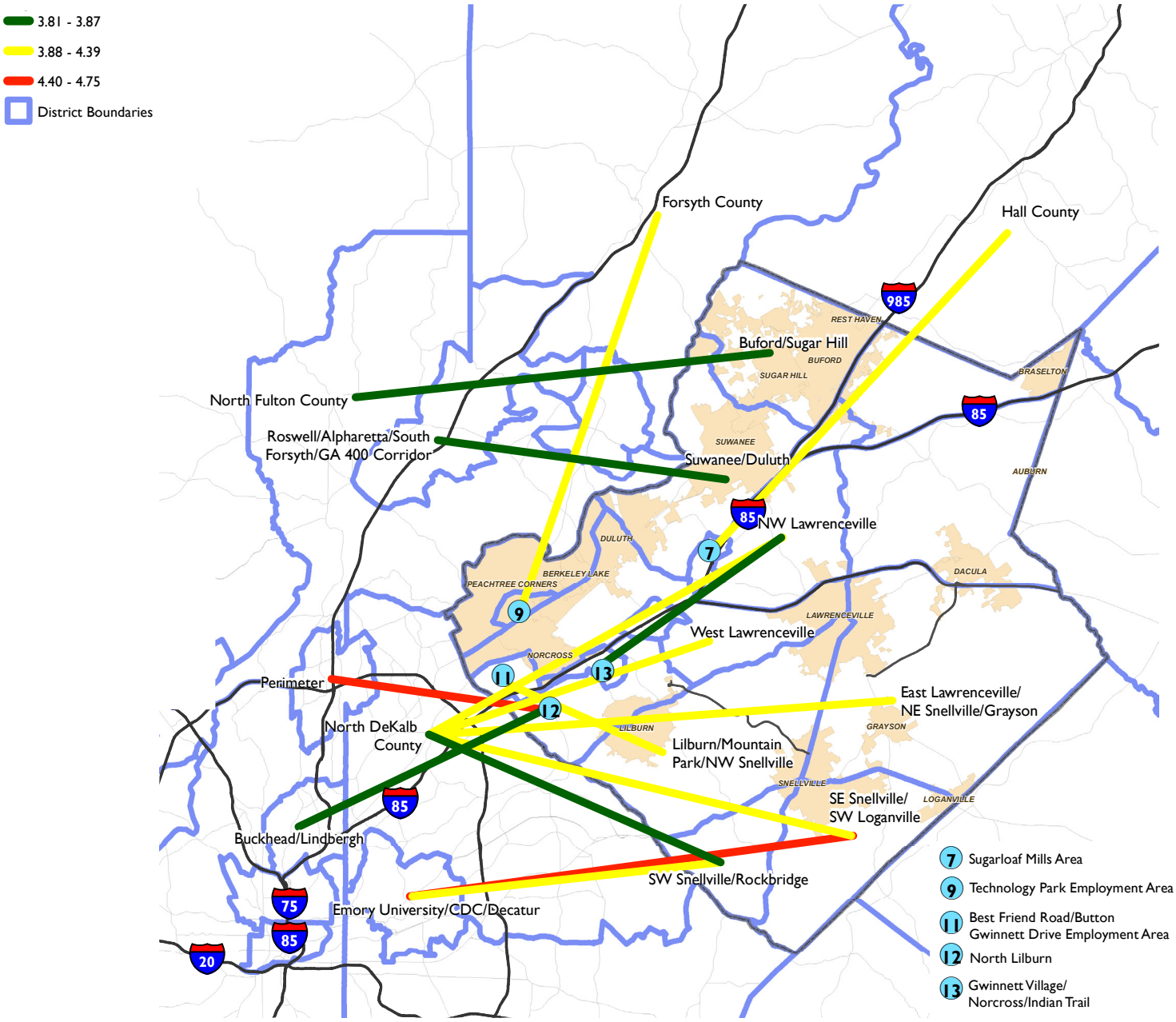
Gwinnett Place 2040 projected travel times

Trips between Gwinnett County and Region

A direct analysis of travel patterns allows us to focus on those that experience dramatic changes in a measurement known as a Travel Time Index (TTI) which is a ratio of the amount of time it will take to make a trip versus if that trip was made in completely free-flow conditions. A TTI of 2 means the trip takes twice as long compared to how long it should take if traveling the speed limit, without congestion.

Focusing on major Origin/Destination pairs between Gwinnett County and other parts of the region shows large TTIs to the major regional employment centers (Perimeter, Emory) and adjacent communities (particularly crossing the Chattahoochee River) from Gwinnett County.

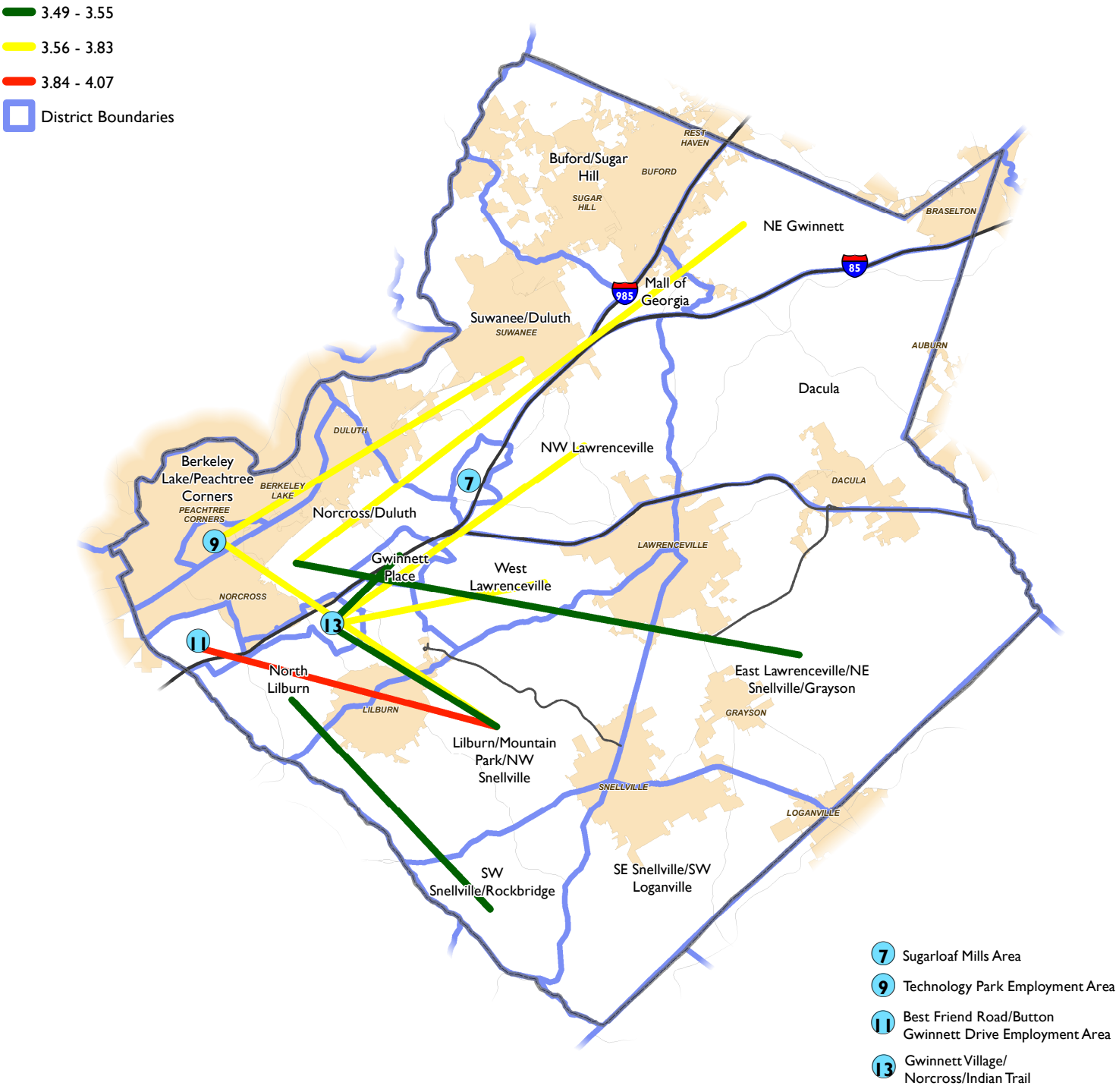
Top 15 Subarea TTIs from Gwinnett to Metro Atlanta (2040)



Trips within Gwinnett County

Focusing on major Origin/Destination pairs within Gwinnett County, likewise shows the impact to the major employment centers within Gwinnett County along the I-85 corridor.

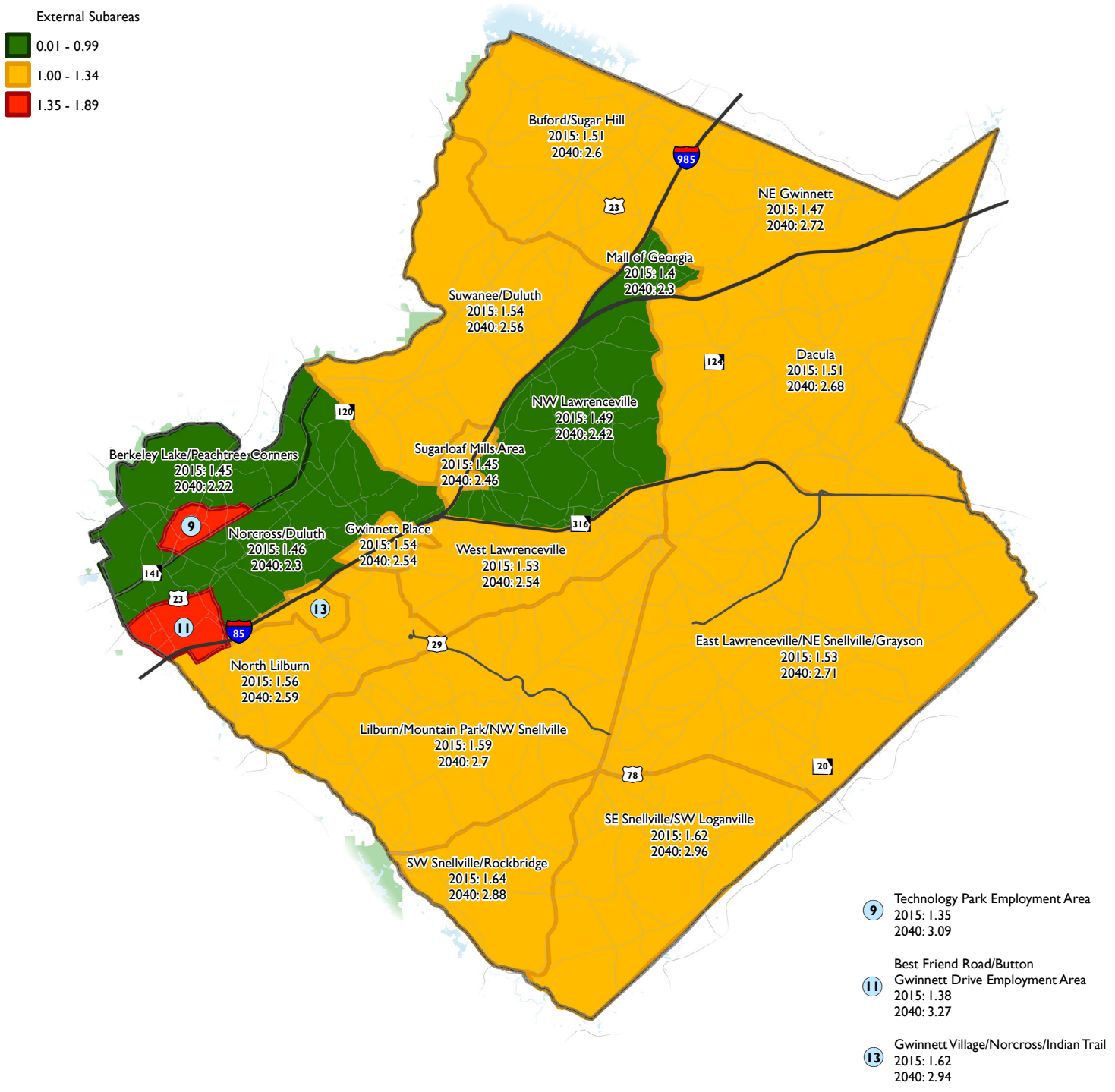
Top 15 Subarea TTIs within Gwinnett (2040)



Trips to and from Subareas

A broader focus considers the TTI of all trips to and from subareas within Gwinnett County. When compared with conditions in the year 2015, many of the TTI show doubling effects, with employment centers in the southern and western portion of the County hit particularly hard and underscoring the need for major regional facilities to connect activity centers.

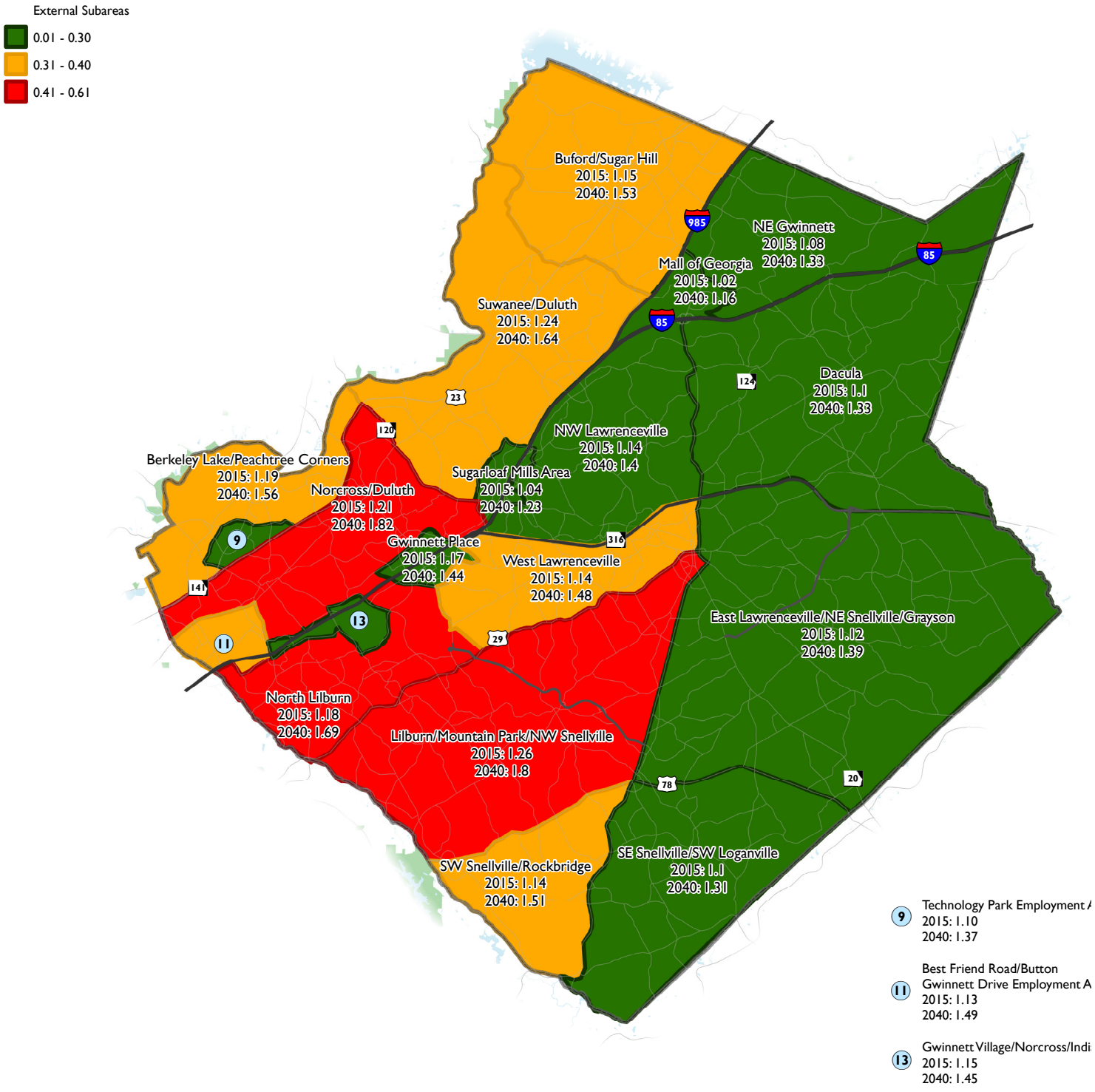
Changes in Overall TTI (2015-2040)



Trips within Subareas

When focusing on trips within each individual subarea, the TTIs likewise show significant increases from 2015 to 2040, indicating that localized trips will also be affected by growth in the County and region.

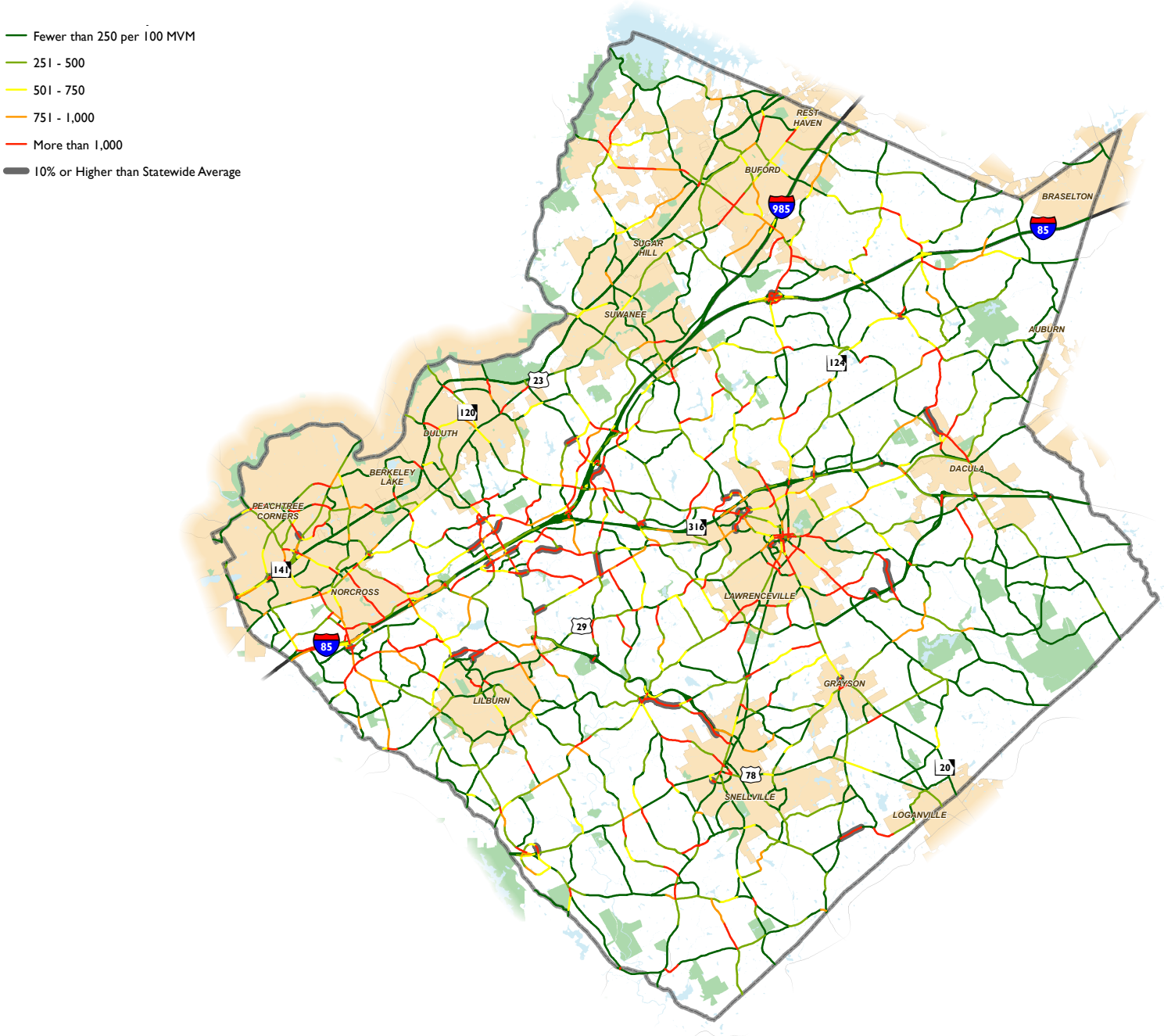
Changes in TTI within Gwinnett (2015-2040)



CRASH RATES

While the heat map presented in the Existing Conditions Report provided a baseline understanding of the locations with the highest number of crashes, the map below considers crashes as they relate to traffic volumes. The rate of collisions per 100 million vehicle miles traveled is a common calculation to observe the relative crash exposure among roadways with differing traffic volumes. Crash rates may help determine locations with higher or lower exposure to collisions and may indicate an opportunity to review and implement change for factors unrelated to traffic volume that may affect crash rates. Traffic volumes were estimated from 2015 Travel Demand Model outputs. Crashes considered three years of data from 2012-2014 from the GDOT GEARS crash database.

2012-2014 Crash Rate per 100 MVM



GDOT publishes Statewide Mileage, Travel and Accident Data on an annual basis. The number of roadway miles, vehicle miles traveled, and accidents are reported as subtotals relating to urban and rural roadway functional classifications. Gwinnett crash rates were compared with GDOT crash rates to identify roadways with higher than statewide average collision rates. Roadways with crash rates 10% higher than statewide averages for a given roadway classification are highlighted in the map. All roads within Gwinnett are classified as "Urban" by GDOT, and the state designated functional classification for Gwinnett roads was considered for comparison.

2014 Statewide Mileage, Travel, and Accident Data (GDOT)

Roadway System (Urban)	Accidents per 100 MVM
Interstate	191
Other Freeways and Expressways	174
Other Principal Arterials	516
Minor Arterials	604
Major Collectors	422
Local	290

PAVEMENT CONDITIONS

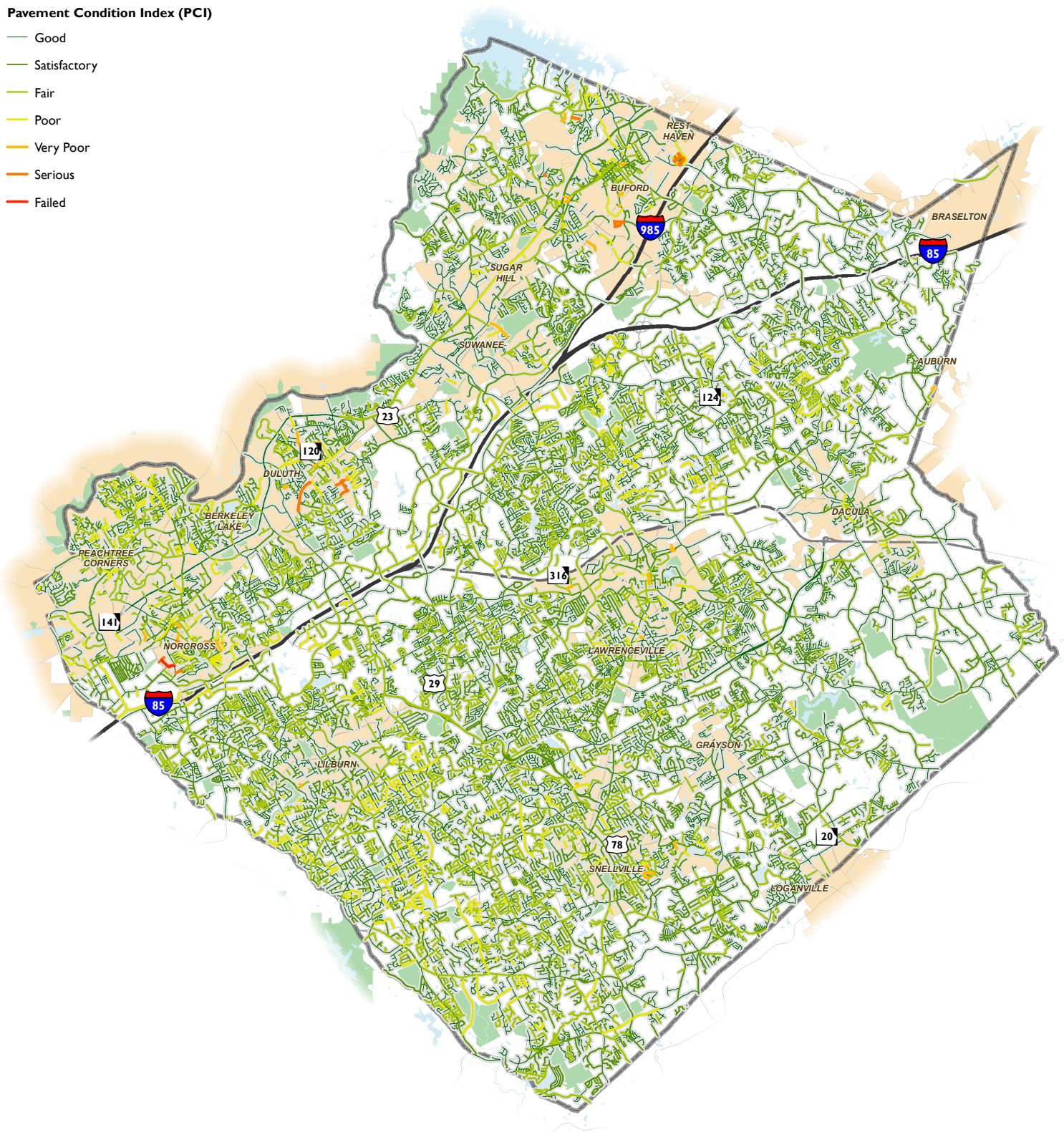
Gwinnett County Operations and Maintenance Division conducts regular pavement condition inventories throughout the County with scheduled maintenance activities to rehabilitate and replace pavement on County-maintained roadways. Gwinnett has a good track record of keeping up with maintenance, which was apparent during the public participation process. Throughout the public meetings and from information collected via the online MetroQuest survey, it was notable that maintenance was rarely mentioned as a concern, and was consistently ranked by the public as a lower priority for future investment in the transportation system when compared with other themes such as vehicular travel, connectivity, transit service, and transportation safety.

Pavement Conditions

Pavement Condition Index		Miles	Percent of Total
Good	85.1 - 100	1,510.5	46.4%
Satisfactory	70.1 - 85	967.2	29.7%
Fair	55.1 - 70	679.0	20.8%
Poor	40.1 - 55	90.9	2.8%
Very Poor	25.1 - 40	7.4	0.2%
Serious	10.1 - 25	2.4	0.1%
Failed	0 - 10	0.4	0.0%
Total		**3,257.8**	

Shown in the map on the following page is pavement condition for County-inventoried roadways based on data collected as of February 2015. For the inventoried roads, overall pavement condition is "Good," with nearly half of the roadways rated 85 or above, and more than 75% of roadways rated 70 or above. The table below details the miles of roadway based on Pavement Condition Index (PCI). It is a goal of the Gwinnett County Department of Transportation for all county maintained roadways to be rated 65 or better by the year 2023.

2015 Pavement Conditions



FREIGHT

TRANSPORT OF GOODS

Freight movement plays a key role in the economies of Gwinnett County and the Atlanta Region. Metro Atlanta is currently a key freight and logistics hub in the southeast and is nationally ranked 6th in ground freight movement and 5th for logistics and supply chain employment . During 2012, approximately 151 million tons of freight had an origin or destination in the Atlanta Region. By mode, 83 percent of the tonnage was carried by truck and 14 percent was carried by rail. Total freight is forecasted to increase 76 percent (266 million tons) from 2013 to 2040.

Metro Atlanta and the Transport of Goods



Metro Atlanta is ranked **6th** in ground freight movement and **5th** for logistics and supply chain employment in the nation.



Approximately **151 million tons** of freight had an origin or destination in the Atlanta region in 2012.



By mode, trucks carried, **83%** of the tonnage, while **14%** was carried by rail.

As noted in the Existing Conditions Report, Gwinnett County is an important center for freight and industrial production that is served by CSX and Norfolk Southern rail lines, 141 miles of regionally significant truck routes and 597 miles of designated truck routes. With the increase in capacity of the Panama Canal and the planned improvements to the Port of Savannah, freight will likely continue to play a growing role in the economies of Gwinnett County and the Atlanta Region.

Gwinnett County currently experiences substantial inbound and outbound freight flows. The tonnage and value of the annual Gwinnett County freight flows by truck and rail are as follows:

- **Inbound truck freight:** 3.9 million tons, with a value of $19.3 million
- **Outbound truck freight:** 3.3 million tons valued at $19.8 million
- **Inbound rail freight:** 1 million tons, with a value of $2.3 million
- **Outbound rail freight:** 334 thousand tons valued at $1.7 million

Gwinnett County Freight Movements



Two regional freight intensive clusters in Gwinnett County were identified as part of the *ARC Freight Mobility Plan Update*: I-85/PIB/Jimmy Carter Boulevard, which extends into DeKalb County, and Gwinnett/Satellite Boulevard/SR 316. These clusters generate disproportionately large numbers of truck trips. The following statistics provide an indication of the scale of these areas:

- **Warehousing:**
  - I-85 and Peachtree Industrial Boulevard: 7.7 million square feet of leased area, 3rd in the region
  - Gwinnett/Satellite Boulevard/SR 316: 3.9 million square feet, 6th in the region
- **Manufacturing:**
  - I-85 and Peachtree Industrial Boulevard: 3.7 million square feet of leased area, 3rd in the region
  - Gwinnett/Satellite Boulevard/SR 316 3.3: million square feet, 4th in the region

Gwinnett County Freight Clusters

WAREHOUSING



I-85 and Peachtree Industrial Boulevard

7.7 thousand SF
3rd in the region

Gwinnett/Satellite Boulevard/ SR 316

3.7 thousand SF
6th in the region

MANUFACTURING



I-85 and Peachtree Industrial Boulevard

3.7 thousand SF
3rd in the region

Gwinnett/Satellite Boulevard/ SR 316

3.3 thousand SF
4th in the region

Per the *ARC Freight Mobility Plan Update*, the I-85 long haul corridor between Atlanta and South Carolina has the second highest freight volumes in the Atlanta Region. Within Gwinnett County, I-85 between SR 140 (Jimmy Carter Boulevard) and Indian Trail Road has the fifth highest average annual daily truck traffic in the Atlanta Region, while I-85 south of the I-985 split is the ninth ranked location. The I-85 corridor in Gwinnett County serves the local warehousing and manufacturing areas noted above, as well as long-haul, through shipments and goods originating in or destined for other parts of the Atlanta Region.

Planning for increasing goods movement through the regional freight system is critical to enhancing economic vitality and improving quality of life in Gwinnett County and the region. Addressing safety and capacity needs is important to keep the freight network functioning at a high level of service. This section assesses highway and freight rail crossings for all traffic and heavy trucks, identifies key truck corridors, and analyzes the proposed future land use plan with the existing network of truck routes.

LAND USE AND FREIGHT

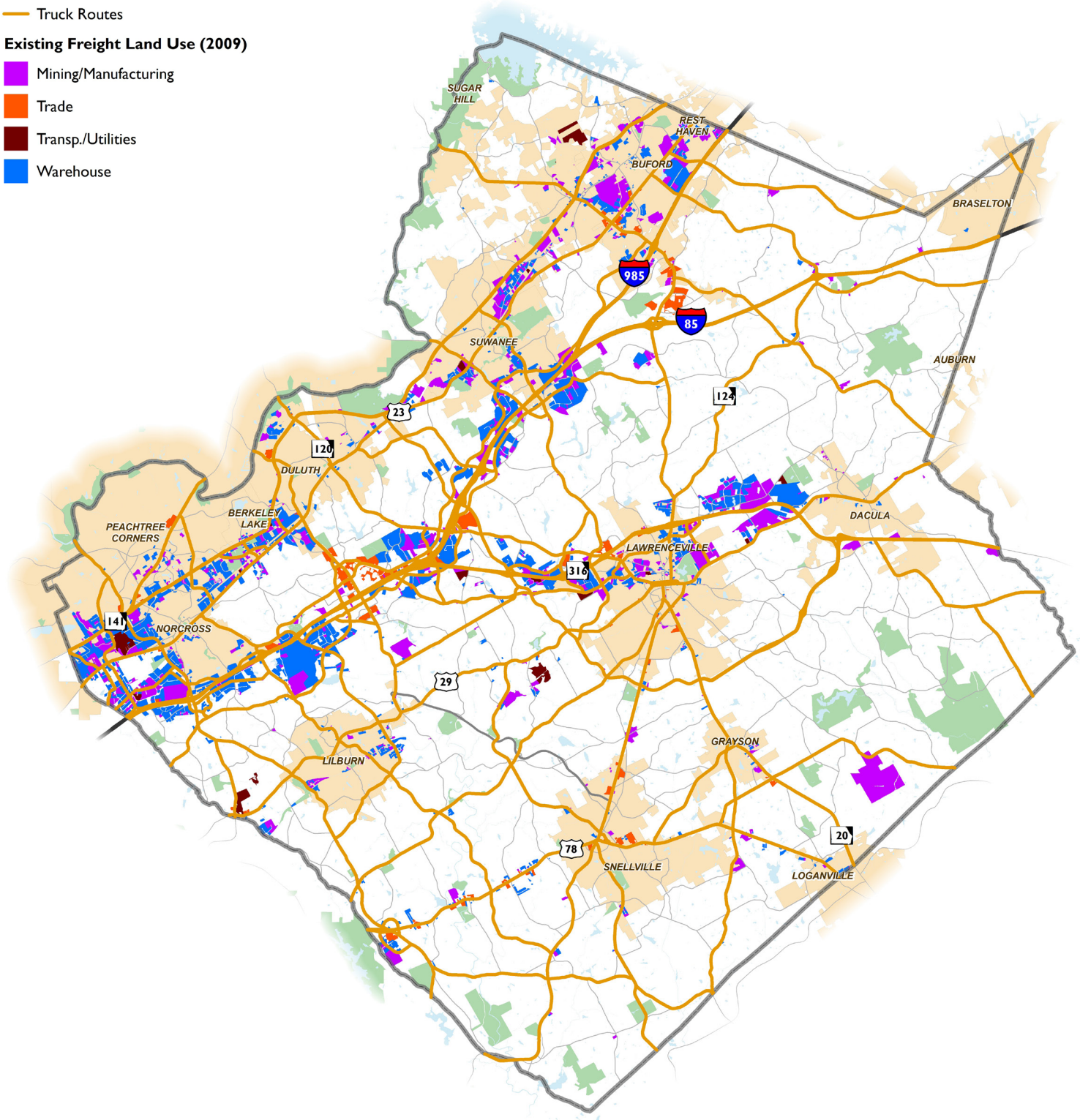
To assess the current freight network and identify future needs, existing land uses and future character areas from Gwinnett County's Comprehensive Plan were mapped and the authorized truck routes were overlaid. Freight related land uses were classified as mining and manufacturing, trade, transportation and utilities, and warehousing. The following nodes and corridors in Gwinnett County have a high concentration of existing freight land uses:

- Jimmy Carter Boulevard in Norcross
- Indian Trail Road at Beaver Ruin Road
- SR 316 (University Parkway) at Cedars Road
- US 23 (Buford Highway) and South Lee Street
- Peachtree Industrial Boulevard
- US 23 (Buford Highway)
- I-85
- SR 316 (University Parkway)

Authorized truck routes form a network that is essential to moving freight to and from destinations within Gwinnett County as well as accommodating pass-through trips. Because heavy trucks are restricted to the authorized truck routes, freight dependent land-uses, such as manufacturing and warehousing, have located along these routes and will likely continue to do so in the future.

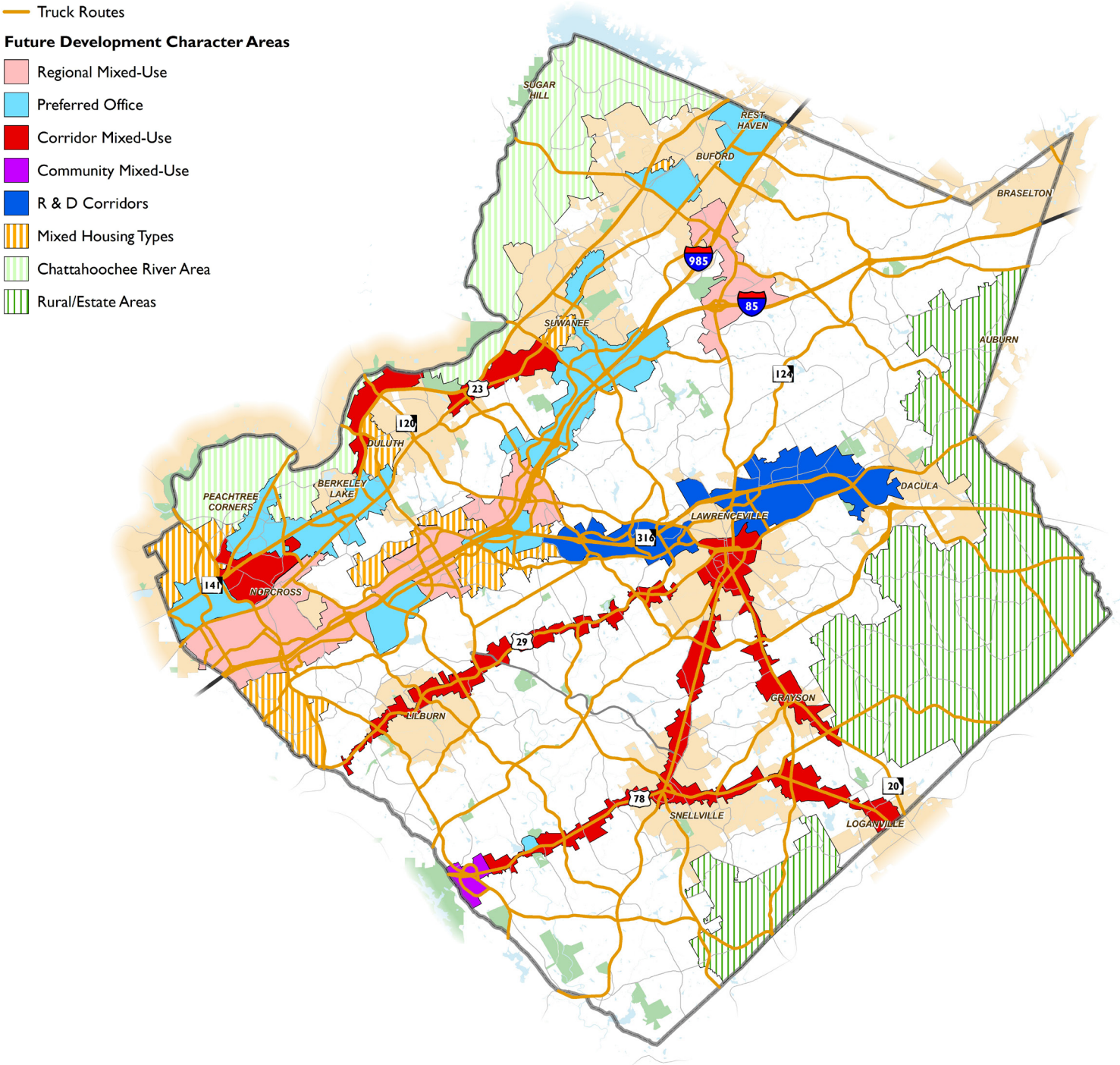
Existing freight land uses are currently well served by the Gwinnett County truck route network. The following map shows existing freight land use in Gwinnett County overlaid with the truck routes.

Existing Freight Routes and Land Uses



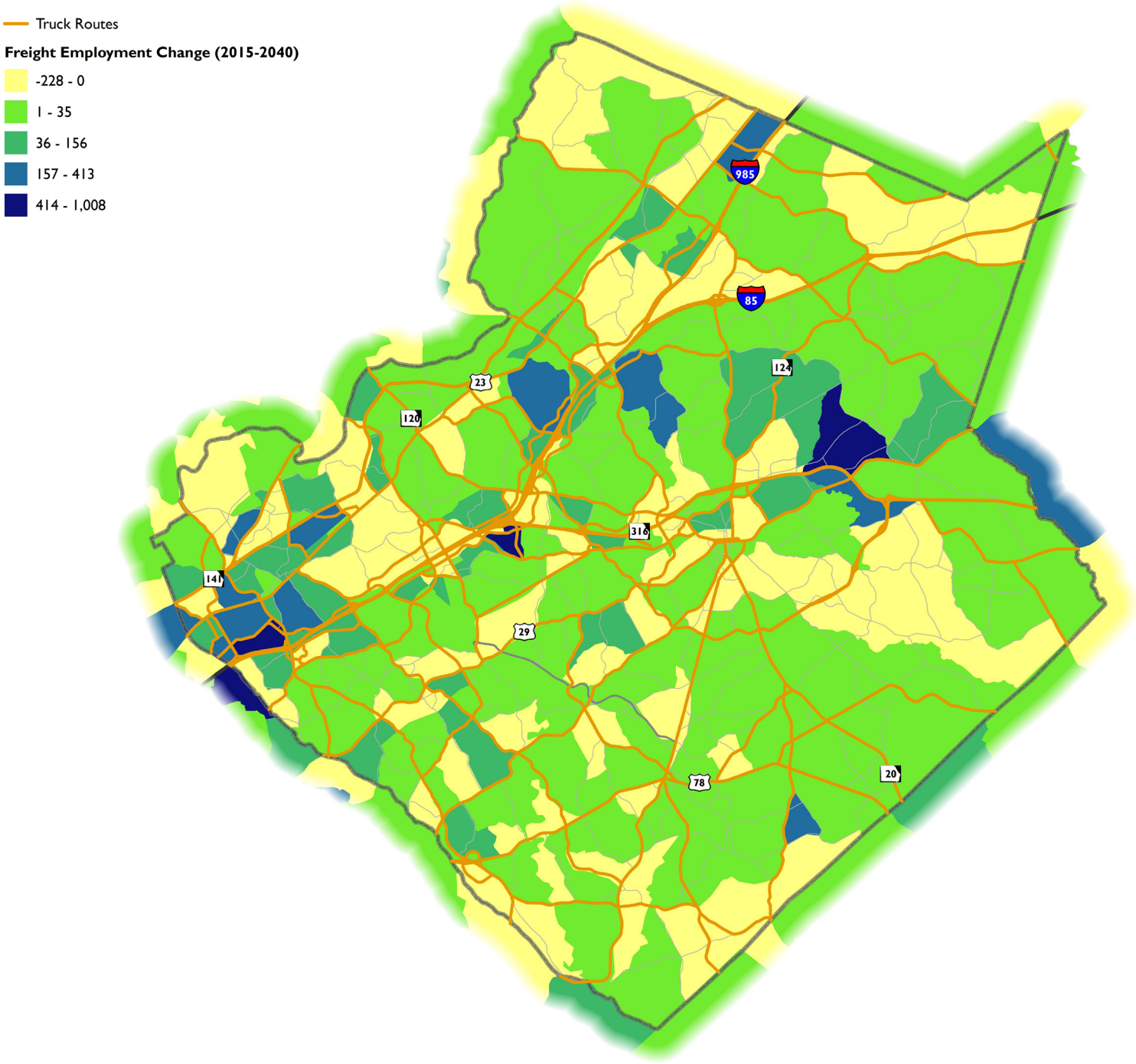
The Gwinnett County Comprehensive Plan identifies future development character areas. The Regional and Corridor Mixed-Use and R & D Corridors are likely to be the character areas where freight related land uses locate. These character areas generally follow established highway corridors including Peachtree Industrial Boulevard, US 23 (Buford Highway), I-85, SR 316 (University Parkway), and US 78 (Stone Mountain Highway). The following map shows the Gwinnett County future development character areas and current truck routes. All the future development character areas where freight related land uses are likely to locate are served by at least one existing truck route.

Future Freight Land Uses



To gain a further understanding of forecasted changes in freight employment, the map below shows the forecasted difference in freight employment between 2015 and 2040. Several areas of the County are predicted to lose employment in freight related industries, while the areas around Norcross, just south of Suwanee along I-85, near SR 316 (University Parkway) just west of Dacula, and adjacent to I-985 near the Hall County Line are anticipated to gain freight employment. All the areas projected to gain freight employment are currently well-served by the existing network of truck routes.

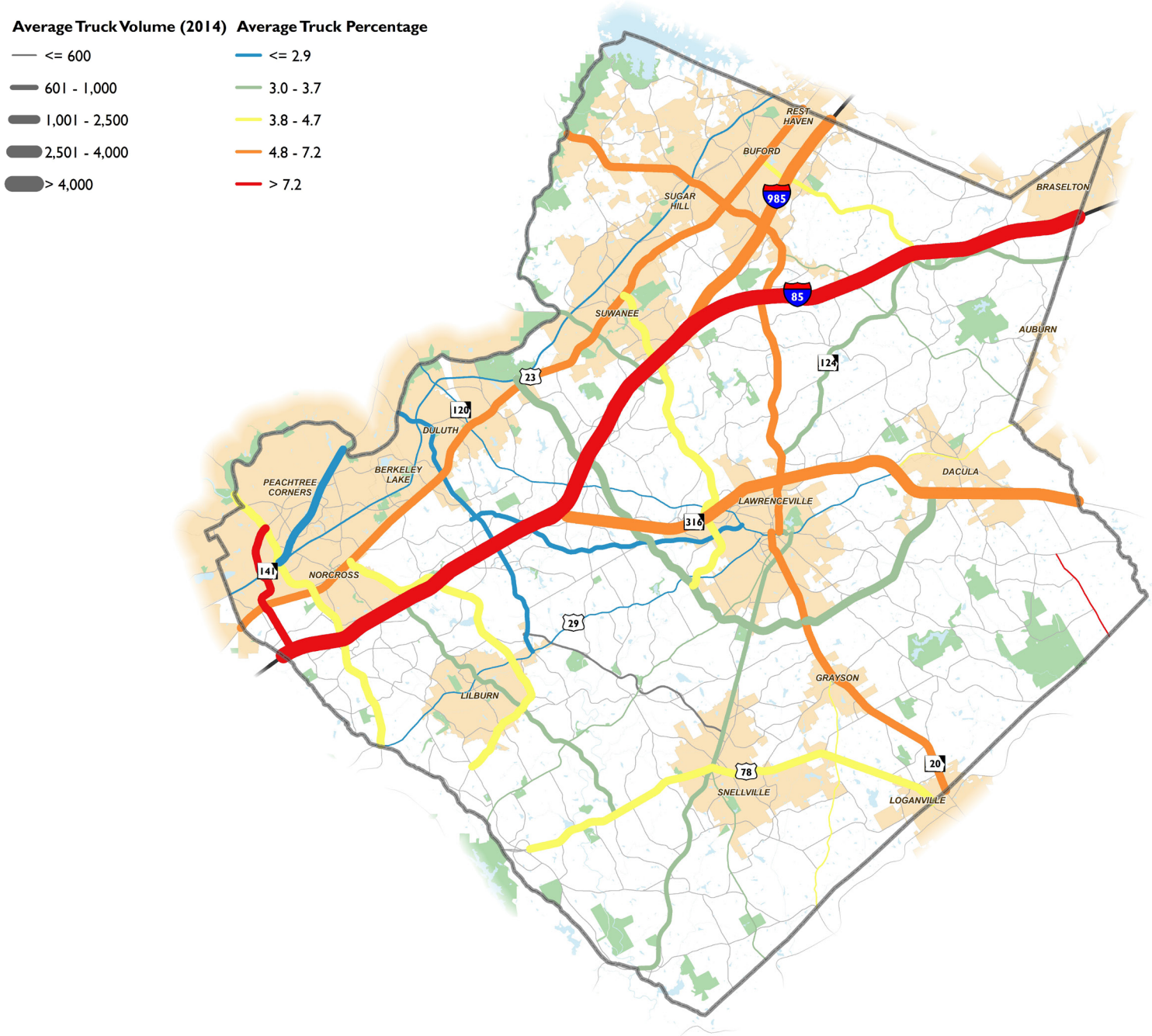
Freight and Employment Change



KEY FREIGHT CORRIDORS

A two-step process was used to identify the corridors and locations in Gwinnett County that are important to freight movement. To provide a high-level view of freight volumes and the percentage of trucks in the overall traffic mix in Gwinnett County, existing GDOT truck volume count data was averaged for each corridor and is presented on the following page. The thickness of the lines indicates the average volume of heavy trucks, while the color of the lines shows the percentage of traffic that is made up of heavy trucks. It should be noted that trucks weighing more than 36,000lbs GVW are prohibited from using Ronald Reagan Parkway.

Key Freight Corridors in Gwinnett



The table at right presents the top 10 high truck volume corridors. These high truck volume corridors are generally consistent with the location of existing and future freight related land uses and employment, except for US 78 and SR 20.

Top 10 High Truck Volume Corridors in the County

Rank	Corridor Name	Annual Average Daily Truck Volume
1	I-85	22,194
2	I-985	3,944
3	SR 316	2,962
4	US 78	2,296
5	Jimmy Carter Boulevard	2,010
6	Peachtree Parkway	1,447
7	SR 20	1,358
8	Sugarloaf Parkway	1,344
9	Buford Highway	1,340
10	Lawrenceville Suwanee Road	1,263

The table at right shows the Gwinnett County corridors with the highest percentage of trucks as part of the traffic flow. Like corridors with high truck volumes, the corridors with high truck percentages generally serve areas of Gwinnett County with high numbers of freight-related land uses and employment.

Gwinnett County Corridors with the Highest Percentage of Trucks

Rank	Corridor Name	Percent Trucks
1	Bold Springs Road	16.0
2	I-85	11.8
3	Button Gwinnett Drive/Jones Mill Road/ Peachtree Circle	11.7
4	Buford Highway	7.2
5	I-985	6.5
6	SR 316	5.6
7	SR 20	4.7
8	SR 8	4.5
9	Jimmy Carter Boulevard	4.4
10	Rosebud Road	4.2

SAFETY AND AT-GRADE RAILROAD CROSSINGS

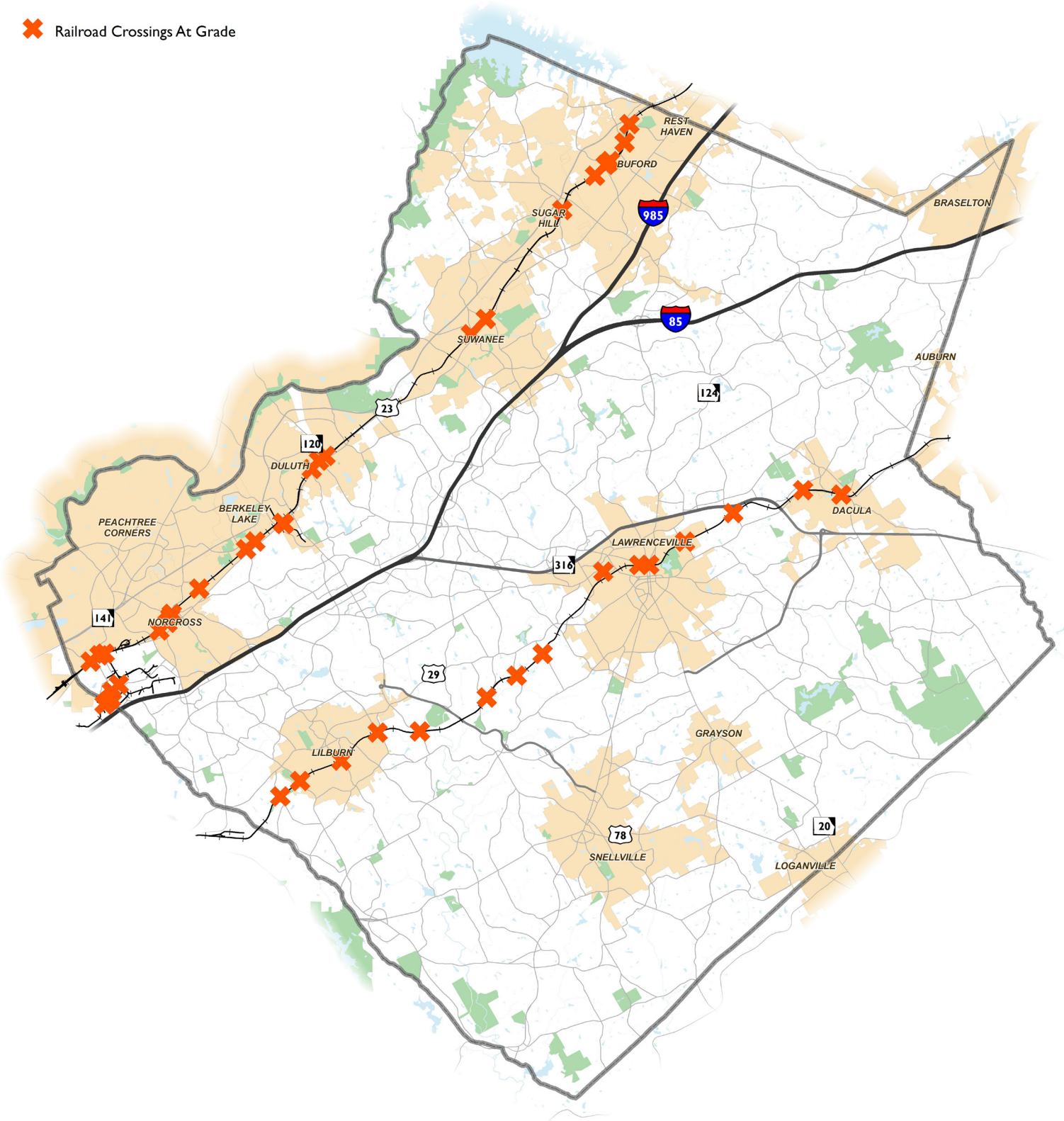
Combined, CSX and Norfolk Southern operate over 220 miles of freight rail lines that traverse Gwinnett County. Both lines are generally parallel to I-85 through the County, with the CSX line south of the interstate and the Norfolk Southern line north of the interstate. The number of trains per day and tonnages on both lines are generally the same, with 15 to 34 trains per day and 25 to 50 million gross vehicle tons of freight annually. In addition to freight rail, Amtrak provides passenger service, but does not stop, along the Norfolk Southern track in Gwinnett County. During fiscal year 2013, approximately 306,700 passengers rode the Crescent, which are trips that did not have to be accommodated on Gwinnett's roadway infrastructure.

There are 38 at-grade crossings with study area network streets: 23 on the Norfolk Southern mainline and 15 on the CSX mainline. Each of the 38 at-grade crossings represents a potential conflict point between trains and vehicles. Additionally, there are several at-grade crossings in downtowns or other areas with high levels of street activity including pedestrians and bicyclists. In Gwinnett County, these areas include:

- Downtown Norcross
- Duluth – Main Street
- Downtown Suwanee
- Buford – West Main Street
- Lilburn – Camp Creek Greenway
- Lawrenceville – North Clayton Street
- Dacula – Broad Street and Second Avenue

The map on the next page shows the location of all existing at-grade crossings in Gwinnett County.

Existing At-Grade Railroad Crossings



Existing At-Grade Railroad Crossings by Operator, South to North, West to East

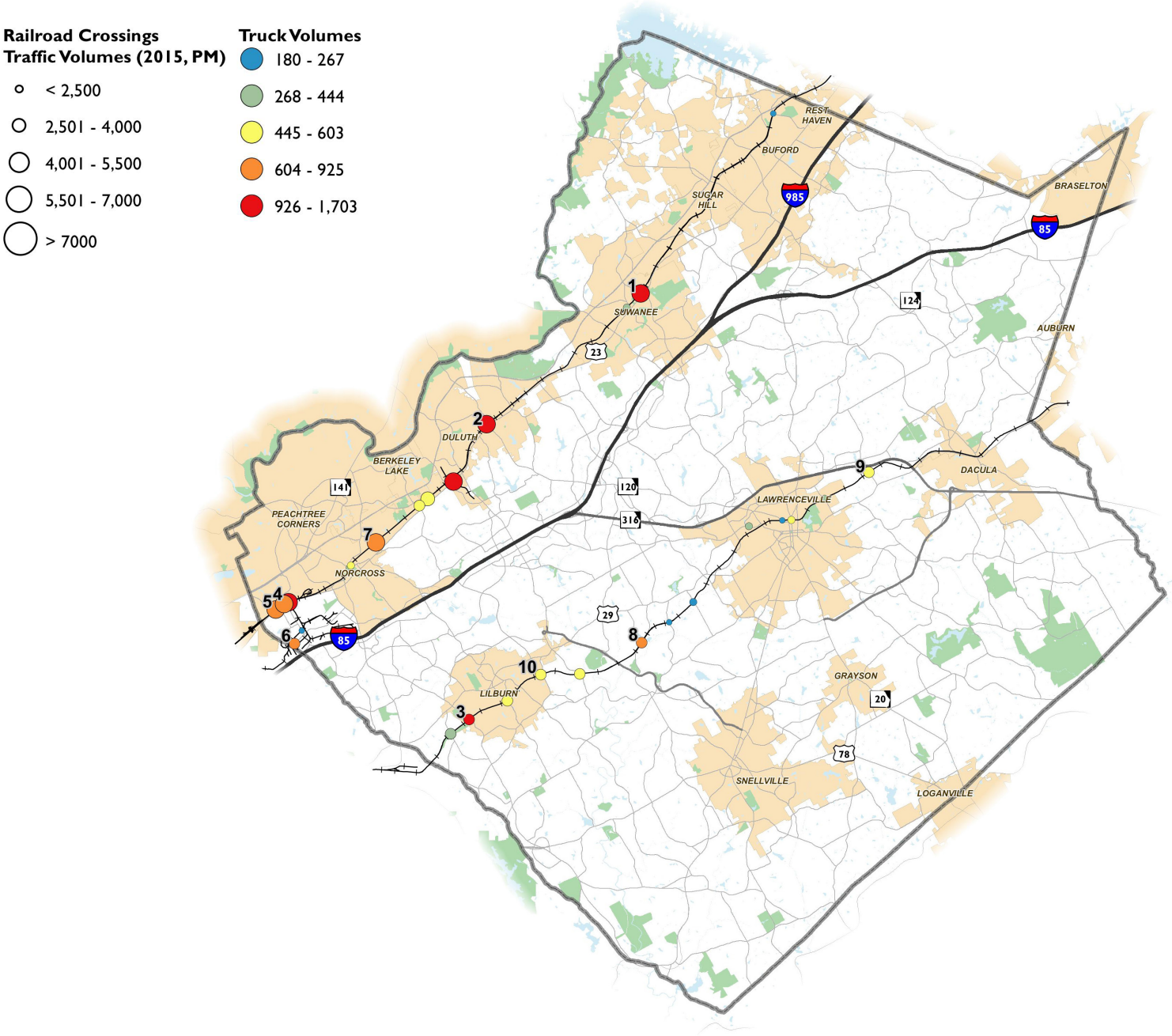
Existing At-Grade Railroad Crossings by Operator, South to North, West to East	
Operator	**Cross Street**
Norfolk Southern	Amwiler Road
Norfolk Southern	Jones Mill Road
Norfolk Southern Spur	Buford Highway
Norfolk Southern	Rowan Street
Norfolk Southern	Autry Street
Norfolk Southern	Holcombe Bridge Road
Norfolk Southern	Jones Street
Norfolk Southern	Langford Road
Norfolk Southern	South Berkeley Lake Road
Norfolk Southern	Old Peachtree Road
Norfolk Southern Spur	Buford Highway
Norfolk Southern Spur	May Road
Norfolk Southern	South Peachtree Street
Norfolk Southern	West Lawrenceville Street/SR 20
Norfolk Southern	Brock Road
Norfolk Southern	Russell Street
Norfolk Southern	Suwanee Dam Road
Norfolk Southern	Lanier Avenue
Norfolk Southern	West Main Street
Norfolk Southern	Little Mill Road/Church Street
Norfolk Southern	Silas King Street
Norfolk Southern	Shadburn Ferry Road
Norfolk Southern	South Waterworks Road
Norfolk Southern Spur	Best Friend Road
Norfolk Southern Spur	Best Friend Road
Norfolk Southern Spur	Best Friend Road
Norfolk Southern Spur	Cook Drive NW
Norfolk Southern Spur	Button Gwinnett Drive

Existing At-Grade Railroad Crossings by Operator, South to North, West to East	
Operator	**Cross Street**
CSX	Harmony Grove Road
CSX	Rockbridge Road
CSX	Main Street
CSX	Arcado Road
CSX	Lester Road
CSX	Oak Road
CSX	Arnold Road
CSX	Patterson Road
CSX	Old Norcross Road
CSX	Maltbie Street
CSX	Clayton Street
CSX	Hosea Road
CSX	Cedars Road
CSX	Circle Drive NE
CSX	Broad Street

HEAVY TRUCKS AND AT-GRADE RAILROAD CROSSINGS

With the rise in lean manufacturing and just-in-time inventory systems, delays on the freight network negatively affect productivity and profits. At-grade crossings can increase heavy truck travel times and reduce the reliability of schedules when drivers are delayed while trains clear the crossing. At-grade crossings with truck volume data were mapped to spatially locate crossings with the highest volumes of heavy trucks, as well as total traffic. The map below shows traffic and truck volumes during the PM peak period. Because truck counts were not available at every at-grade crossing, only crossings with truck counts are shown on the map. The size of the dots represents total PM peak period traffic volume at the crossing, while the color of the dot shows truck volumes.

Truck Volumes and At-Grade Railroad Crossings



The following table shows the top 10 at-grade crossings by PM Peak Truck Volume, based on GDOT truck counts. Seven of the at-grade crossing locations that were in the top 10 for total PM peak period traffic volumes are also in the top 10 for truck volumes.

Top 10 At-Grade Crossings by Truck Volume (per GDOT)

Rank	Location	Total PM Peak Truck Volume (2014)	Truck Percentage (2014)
1	Suwanee Dam Road at Norfolk Southern	1,703	19.8%
2	Duluth Highway at Norfolk Southern	1,059	12.4%
3	Rockbridge Road at CSX	1,019	23.0%
4	Jones Mill Road at Norfolk Southern	925	10.7%
5	Amwiler Road at Norfolk Southern	746	10.5%
6	Best Friend Road at Norfolk Southern	709	14.3%
7	Langford Road at Norfolk Southern	705	8.4%
8	Oak Road at CSX	690	13.1%
9	Cedars Road at CSX	603	12.9%
10	Arcado Road at CSX	569	13.4%

Truck volume counts were not available for facilities at the following crossing locations:

- Little Mill Road at Norfolk Southern
- Shadburn Ferry Road at Norfolk Southern

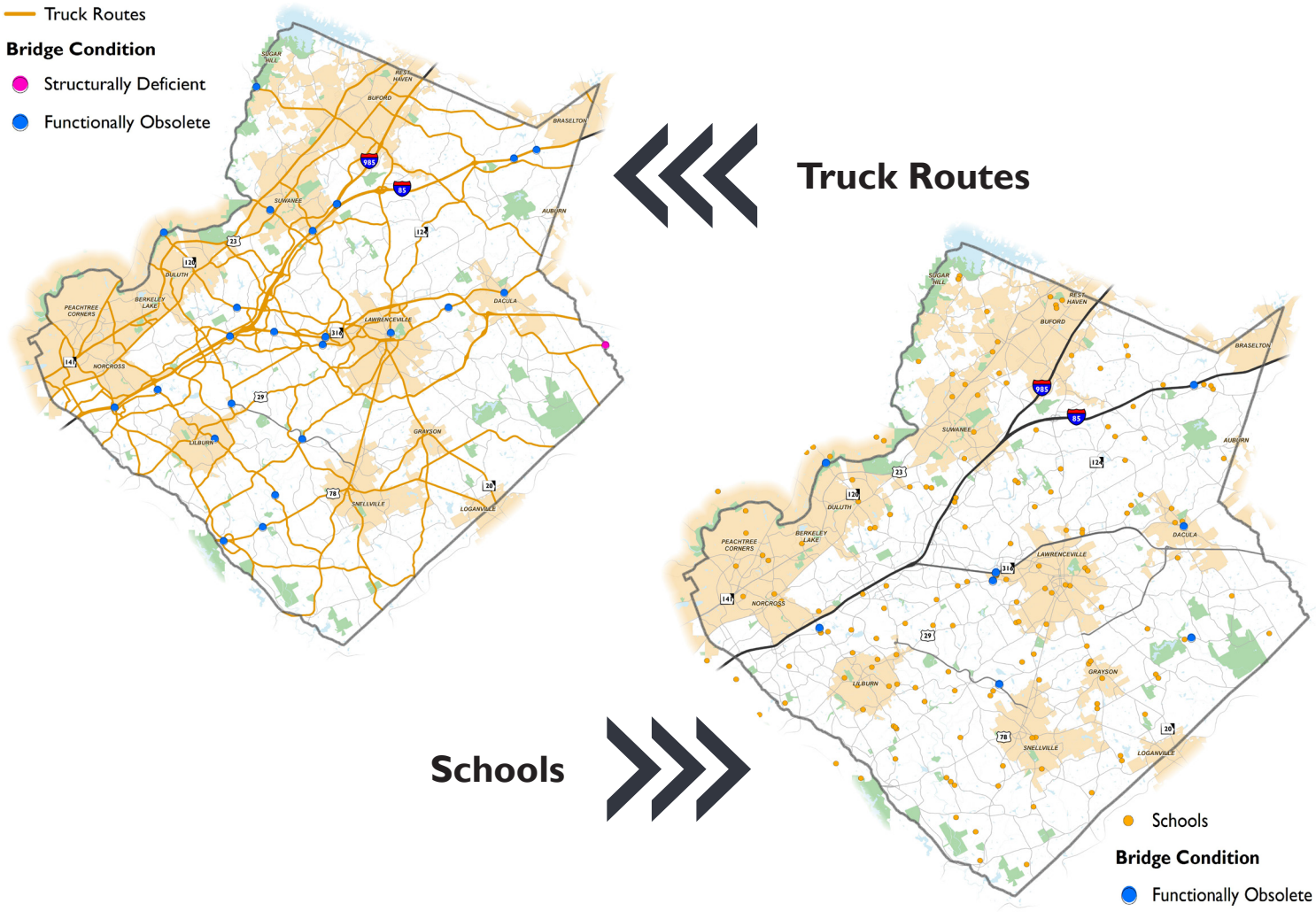
BRIDGES ON KEY ROADWAY CORRIDORS

An inventory of bridges on the Gwinnett County study network was obtained from GDOT. Structurally deficient and functionally obsolete bridges on truck routes, within ½ mile of schools, or in a regulatory floodway were then identified and mapped. Structurally deficient bridges are not in imminent danger of collapse, but may have posted weight limits or be closed to traffic. Functionally obsolete bridges were built to standards that are no longer in use today and may not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand.

There is a need to rehabilitate or replace functionally obsolete or structurally deficient bridges on truck routes, near schools, or in regulatory floodways:

- On truck routes, one bridge is structurally deficient and 27 bridges are functionally obsolete
- Within ½ mile of schools, 9 bridges are functionally obsolete – none of these bridges currently have weight restrictions
- Six functionally obsolete bridges are in regulatory floodways
- Only four of the functionally obsolete bridges are not located on a truck route, within ½ mile of a school, or in a regulatory floodway

Bridge Conditions along Truck Routes and near Schools

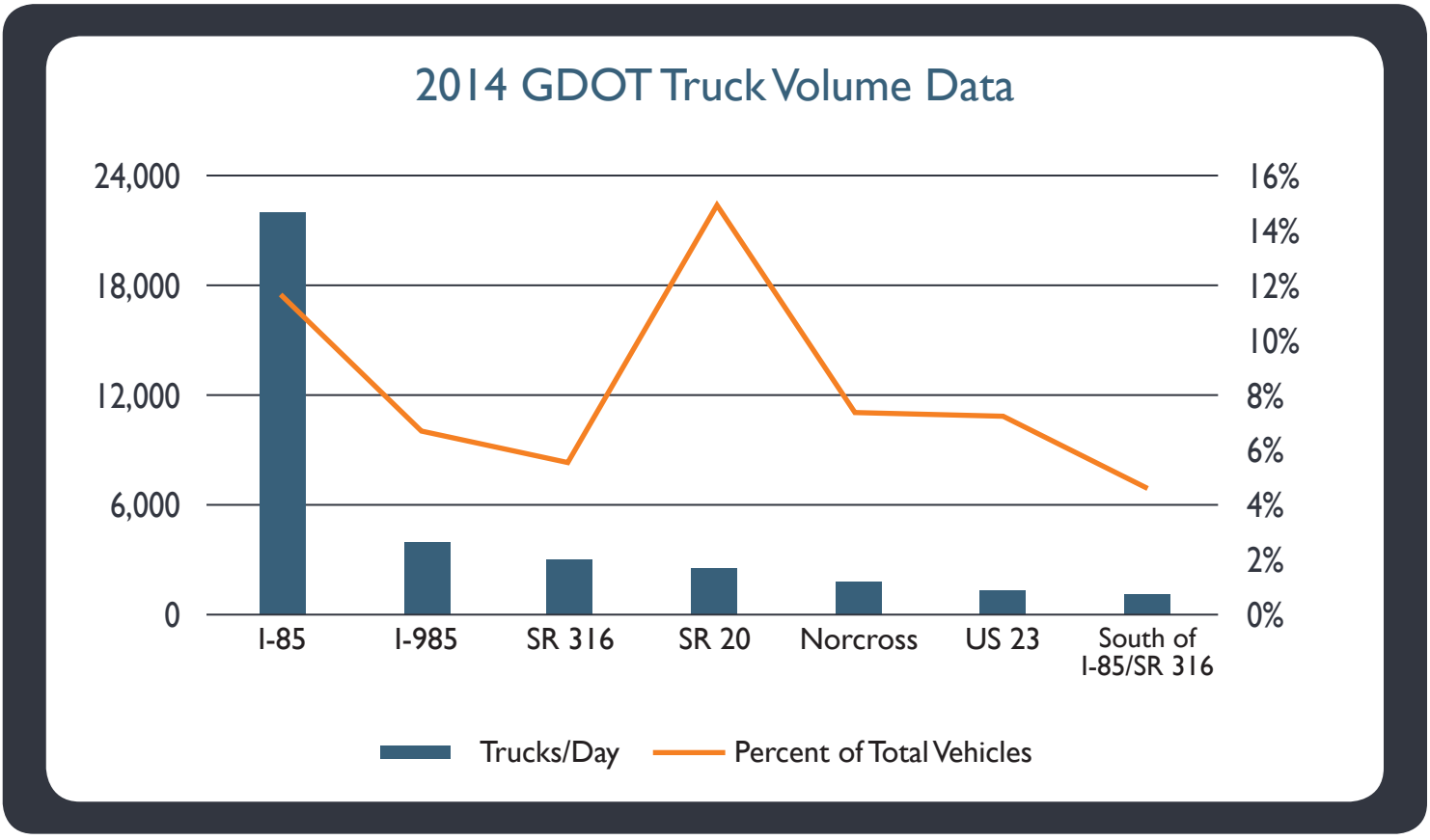


SUMMARY OF FREIGHT NEEDS

The following summary is based on the analysis presented in this section and will form the basis for recommended transportation improvements.

There is a need to strengthen and enhance the current freight system to support existing land use patterns and future land use plans in Gwinnett County.

- Currently, 82 percent of all freight related land uses such as mining and manufacturing, wholesale and retail trade, transportation and utilities, and warehousing are within one mile of key facilities that include I-85, I-985, SR 316, and Peachtree Industrial Boulevard.
- Based on the adopted Future Development Character Areas Map, those corridors will continue to play a key role along with US 29 from DeKalb County to Lawrenceville, US 78, SR 124 from Lawrenceville to Snellville and SR 20 from Lawrenceville to Grayson.
- Freight related employment is projected to increase 10 percent countywide between 2015 and 2040.
  - In 2015, 74 percent of freight related jobs, or 74,100 employees, are in traffic analysis zones (TAZs) that are within a mile of I-85, I-985, SR 316, or Peachtree Industrial Boulevard.
  - By 2040, 82,400, or 75 percent of freight related employees are forecasted to be in TAZs within one mile of those corridors.
- There is a need to invest in current key freight corridors to support anticipated growth in freight movements and encourage continued economic development.



The following general findings used the ARC travel demand model existing plus committed (E+C) run to forecast future truck volumes in 2040 and are a relative comparison between corridors:

- I-85 and I-985 have the highest volumes and percentages.
- Peachtree Industrial Boulevard has moderate to high volumes and moderate to high percentages.
- Lawrenceville-Suwanee Road has high percentages and moderate volumes from Lawrenceville to Suwanee.
- In the southern half of the County, volumes and percentages are low except for SR 124 south of Snellville, which has moderate percentages and SR 20 in Loganville, which has a high percentage.

There is a need to improve safety at existing at-grade railroad crossings on the freight network to reduce injuries, fatalities, and property damage.

- There are 38 at-grade rail crossings in Gwinnett County and all present potential conflict points between trains and vehicles.
  - Seven occur in downtown areas with higher levels of pedestrian and bicycle activity.

ROADWAY PUBLIC INVOLVEMENT FEEDBACK

Six public meetings were held through March and April 2016. More than 300 people attended these meetings, providing valuable feedback, discussion, and insight. Below is a summary of the key themes pertaining to roadway needs discussed at the public meetings as well as a sample of some of the responses to and feedback from the MetroQuest survey.

Traffic congestion was the most frequent topic of discussion at the public meetings, with perception of poor signal timing due to high volumes on all approaches of intersections and short turn signal phases commonly mentioned as contributors to congestion. Additionally, there was concern with back-ups and queuing behind school buses and at school drop-off locations.

Congestion:

- Most frequent topic of discussion
- Specific corridors, corridor segments, intersections, and specific locations
  - SR 124, I-85, and US 78
- Contributors:
  - Poor signal timing and short turn signal phases
  - Schools (bus volume, driver behavior, location)

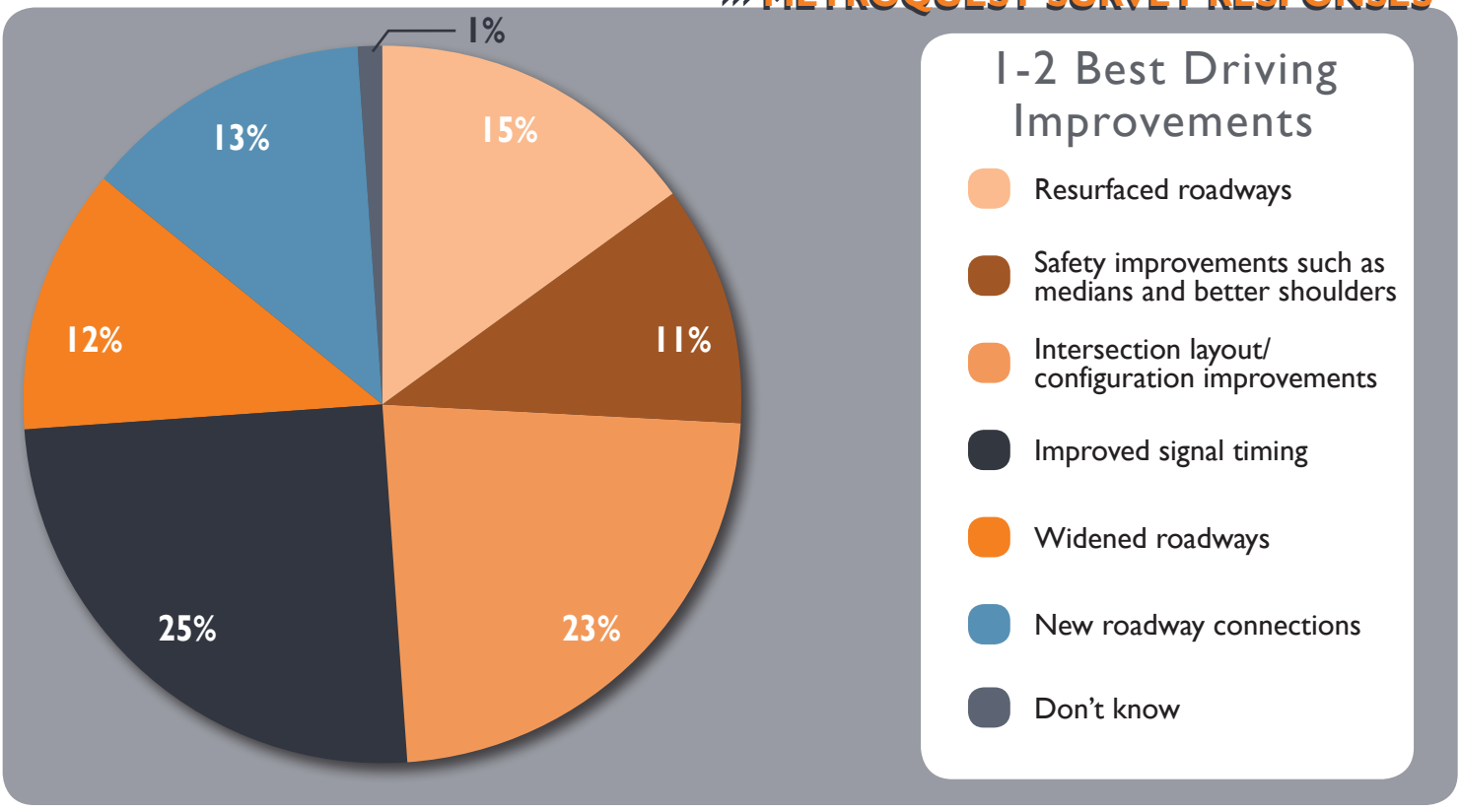
Other concerns:

- Safety:
  - Dangerous intersections
  - Locations with high crash rates
  - Topography/geometry/sight distance
- Access management
- Bridge and rail crossings
- Inadequate/lack of signage

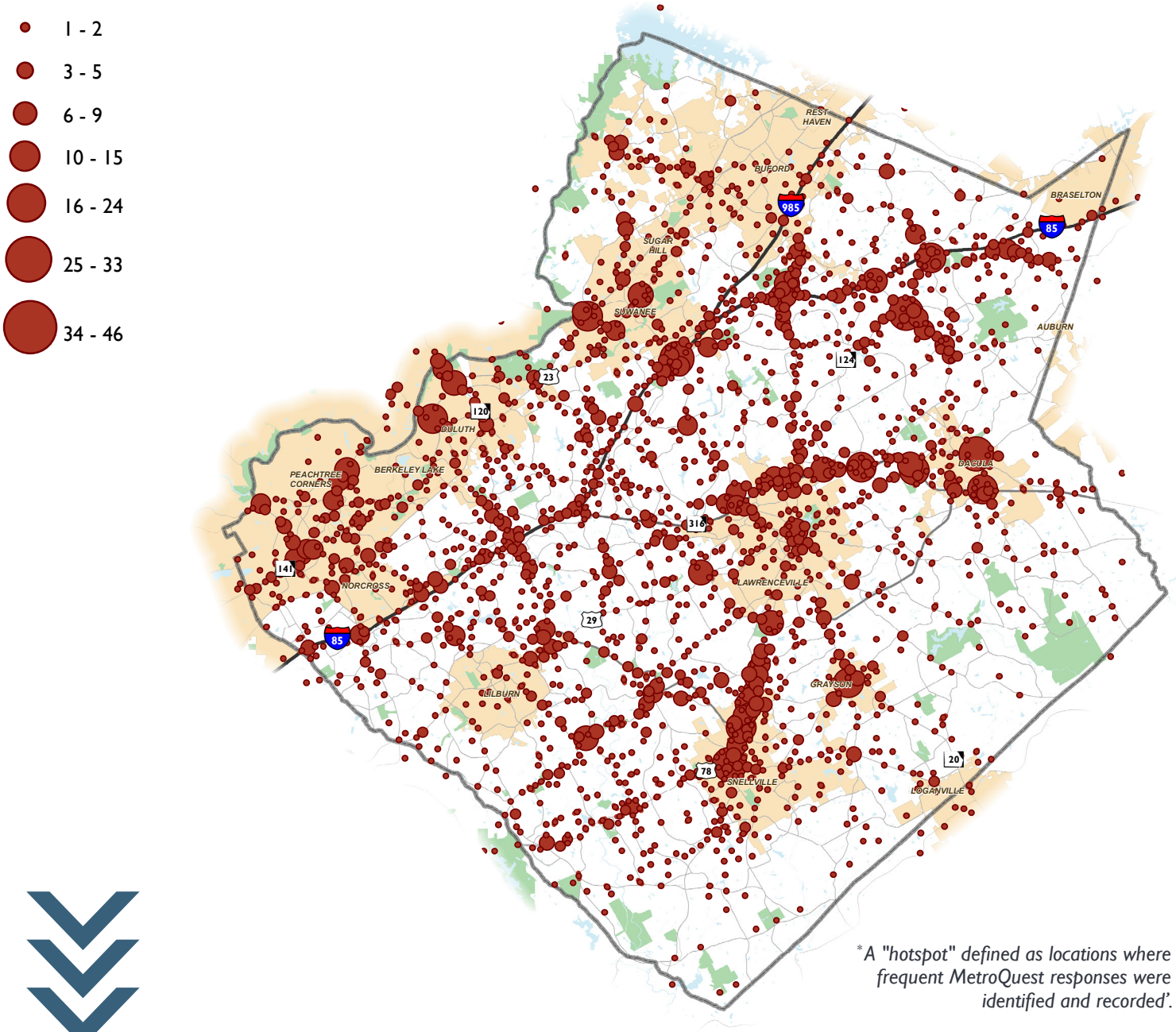
Potential improvements

- Alternate routes
- New connections/extensions/ interchanges/grade separation
- Capacity: road widening
- New turn lanes/increased turn lane storage
- Signals and phasing

METROQUEST SURVEY RESPONSES



MetroQuest Survey Roadway Hotspots*



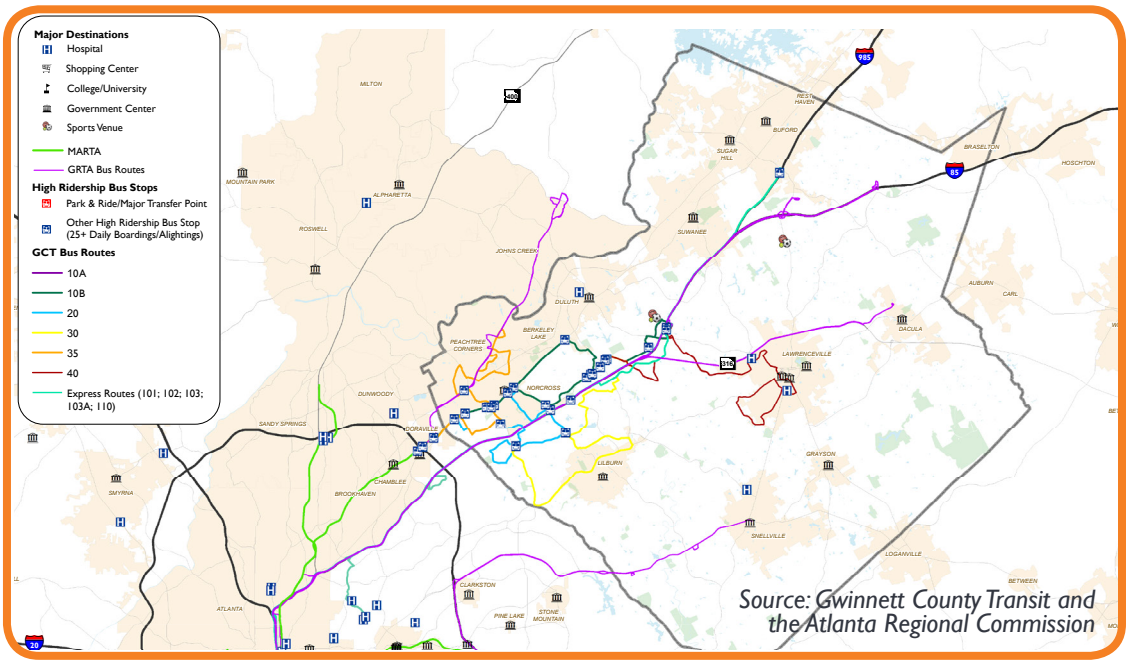
*A "hotspot" defined as locations where frequent MetroQuest responses were identified and recorded'.

SUMMARY OF ROADWAY NEEDS

The analysis of presented in this section highlights many important areas of need throughout the County. With the vast roadway network, the needs identified can be categorized not only as short-term or long-term needs, but also by the type of associated resolutions. Ranging from intersection improvements to address geometry and safety to creating new roadway connections, the County can make great improvements at all levels of investment and need.

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TRANSIT



TRANSIT

GWINNETT COUNTY TRANSIT

Gwinnett County Transit (GCT) provides express, local, and paratransit services for the people of Gwinnett County. It operates six local bus routes and five express routes into DeKalb and Fulton Counties. Communities served by GCT include Doraville, Norcross, Lawrenceville, Lilburn, Peachtree Corners, and Duluth. GCT recently added a route to Emory University, Route 110, which is included in the maps of our report but is not included in the planning team's data analysis because it was not yet in existence when the analysis was performed. In addition, Georgia Regional Transportation Authority (GRTA) operates five express routes with stops in Gwinnett County. Major destinations served by transit include Sugarloaf Mills, the Gwinnett Place Mall, MARTA Doraville Station, the Gwinnett Justice & Administration Center, Gwinnett Civic Center & Arena, several park-and-rides along I-85, and downtown Atlanta. The GCT and GRTA routes are included in the above map.

As part of the CTP, the planning team is examining the current operations of GCT and identifying additional transit needs and opportunities within the County. The Transit Existing Conditions Assessment included a detailed review of current transit system performance, including a comparison of performance against established service standards. Based on the findings of that assessment as well as further analysis of potential transit markets, a set of transit needs has been identified for Gwinnett County. Transit needs are aligned around the following needs or themes:

- Align service with existing and future transit needs
- Provide faster and more reliable service to key destinations
- Increase transit availability

NEED: ALIGN SERVICE WITH EXISTING AND FUTURE TRANSIT NEEDS

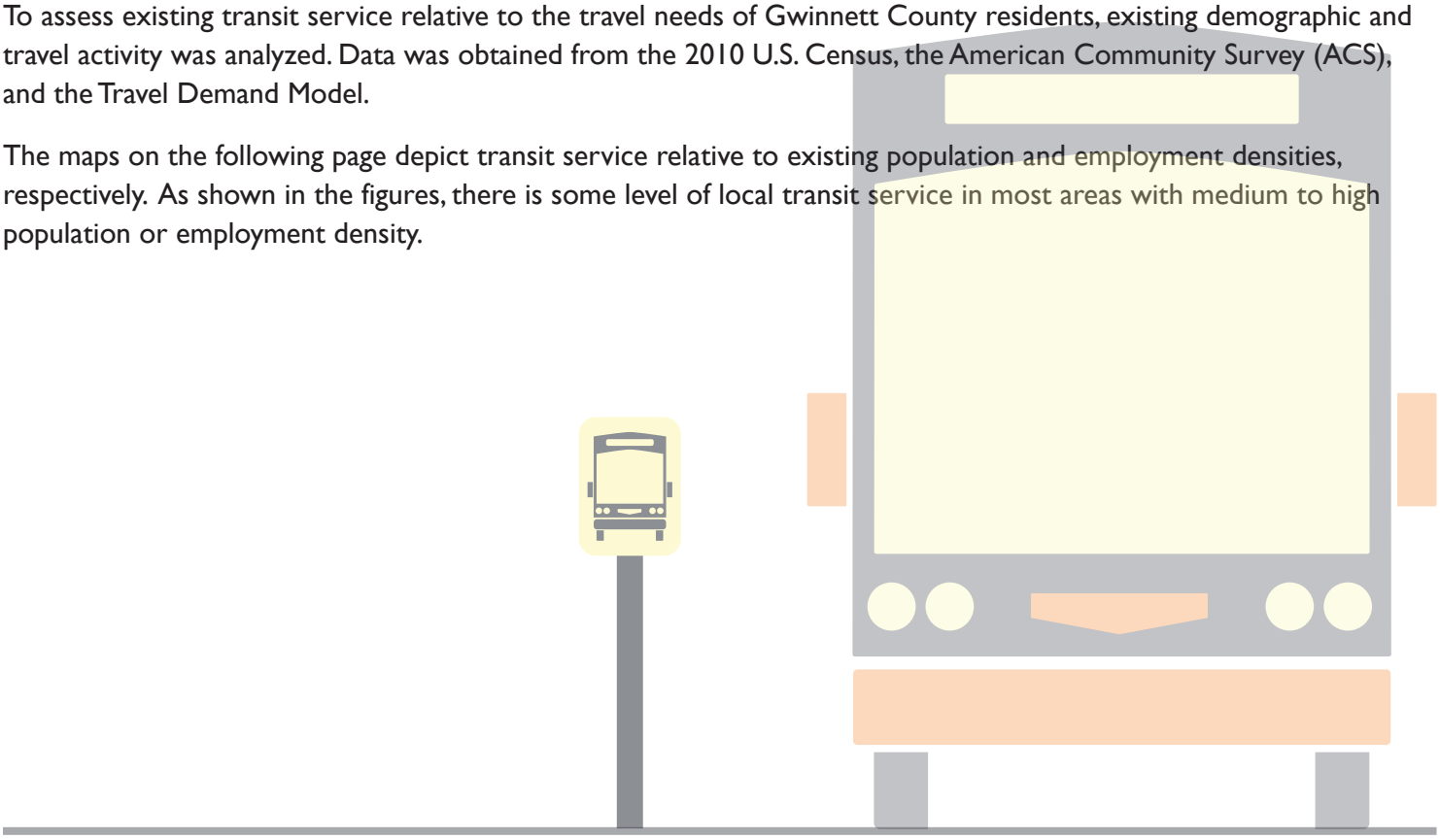
Key Destinations

A map of how existing transit services align with key destinations within and around Gwinnett County (including shopping malls, major employers, public facilities, hospitals, and sports venues) is included on the previous page. There are several major destinations just outside of Gwinnett County that are not currently served by transit from Gwinnett County or would require multiple transfers and significant out-of-direction travel to access via transit. These include Perimeter Mall in Dunwoody and employment hubs near Alpharetta.

Transit Demand

To assess existing transit service relative to the travel needs of Gwinnett County residents, existing demographic and travel activity was analyzed. Data was obtained from the 2010 U.S. Census, the American Community Survey (ACS), and the Travel Demand Model.

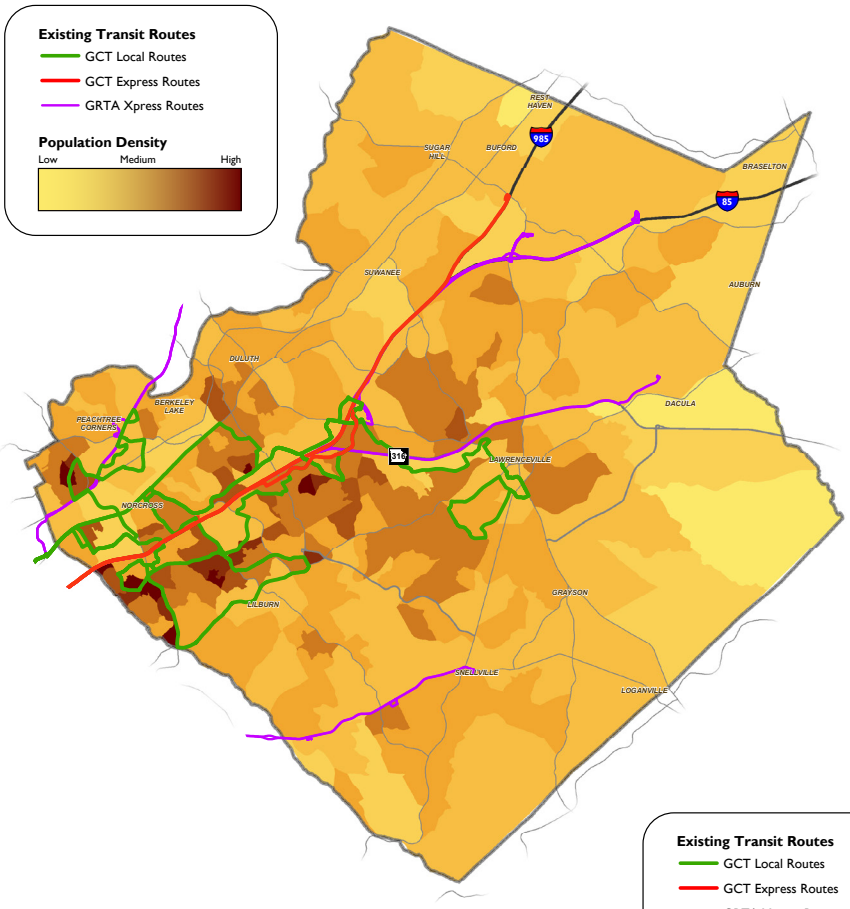
The maps on the following page depict transit service relative to existing population and employment densities, respectively. As shown in the figures, there is some level of local transit service in most areas with medium to high population or employment density.



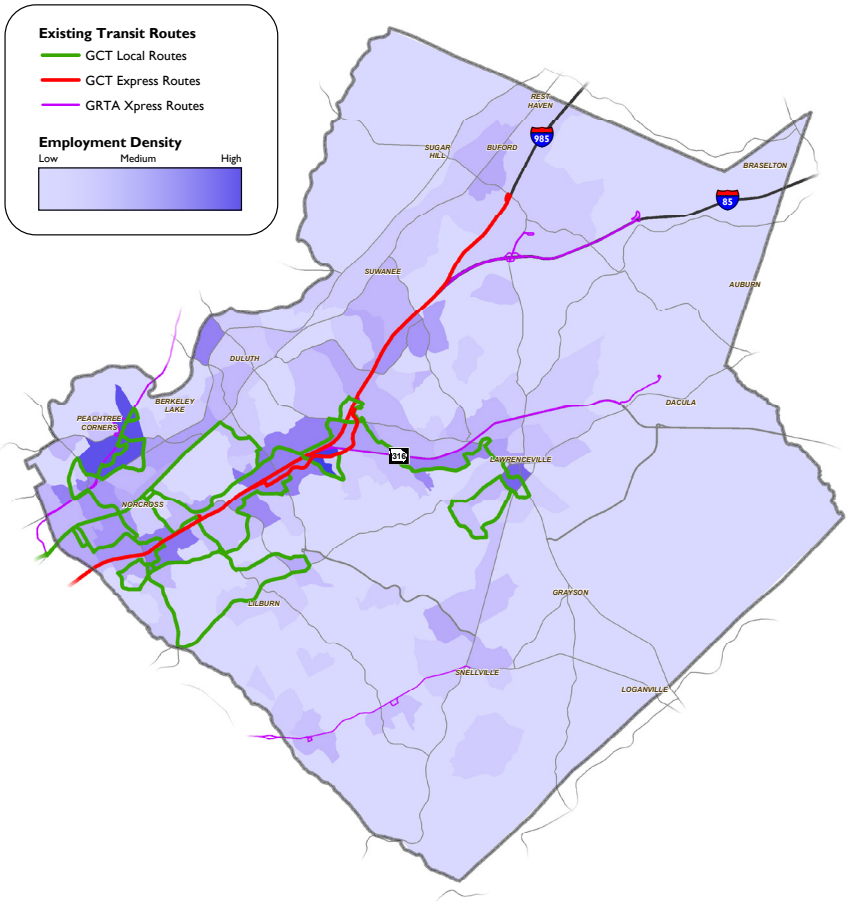
Locations and Communities Served:

Doraville • Norcross • Lawrenceville • Lilburn • Peachtree Corners • Duluth • Sugarloaf Mills • MARTA Doraville Station • Gwinnett Place Mall • Gwinnett Justice & Administration Center • Gwinnett Civic Center & Arena • Park-and-Rides along I-85 • Downtown Atlanta

Transit and Population/Employment Density



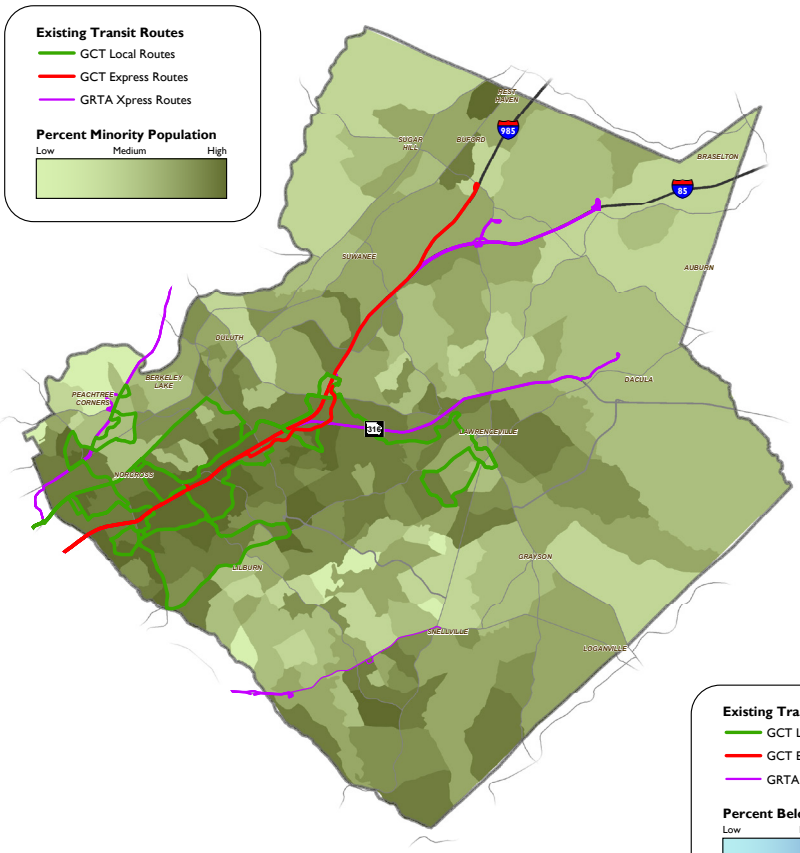
Population Density



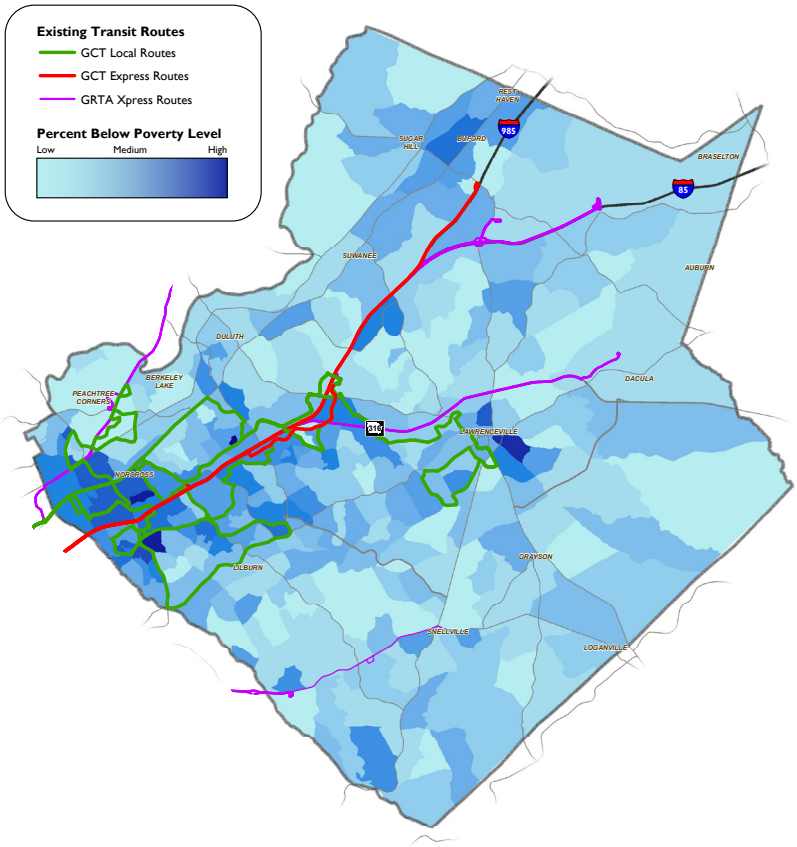
Employment Density

The following maps depict local transit service relative to minority and low-income populations, respectively. Not all minority and low-income areas have transit service, although those areas without transit service are generally lower density below a populaiton density that can sustain fixed route transit service.

Transit and Underserved Populations



Minority Population Density

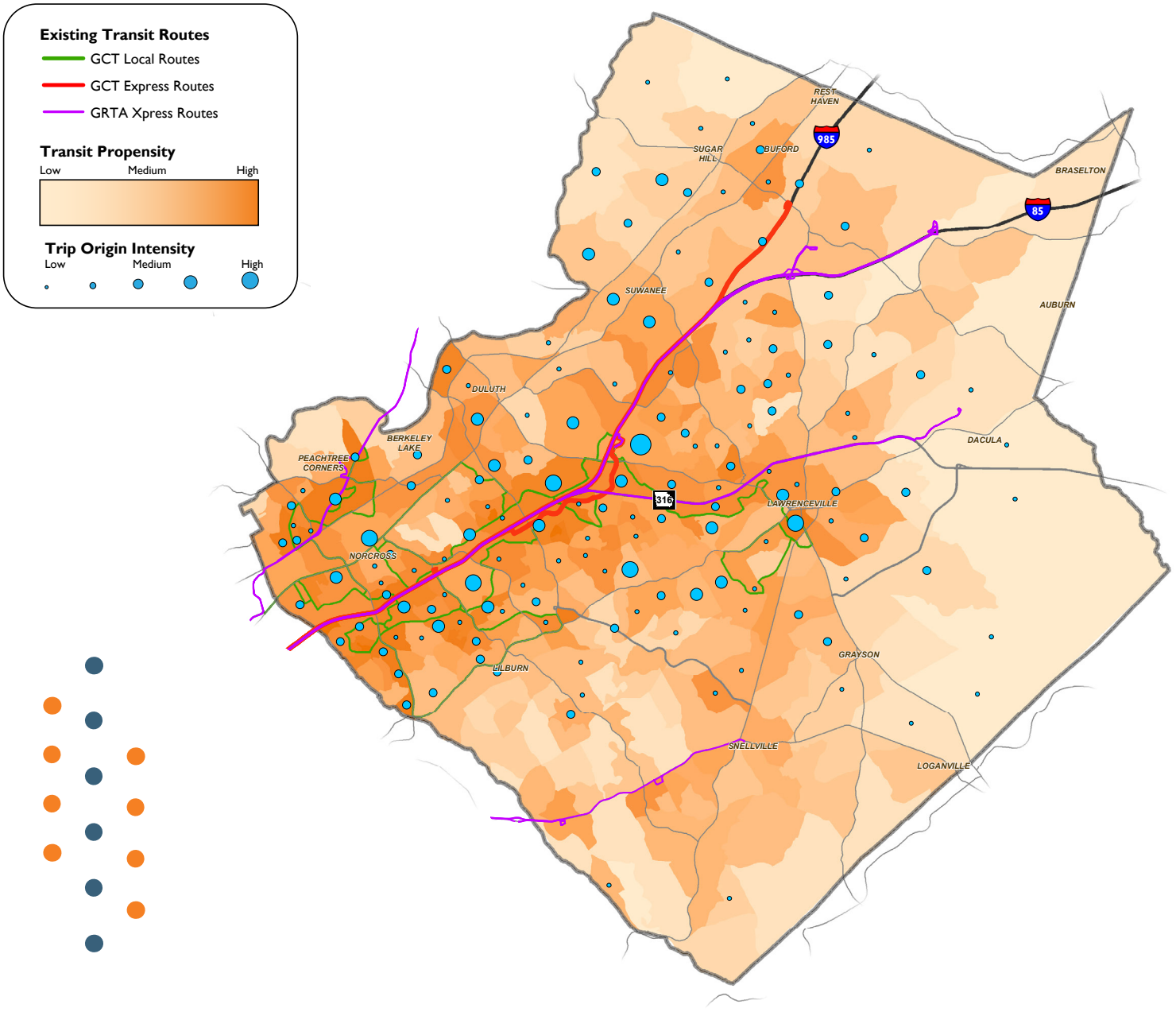


Low Income Households Density

Many factors determine appropriate levels of transit service as well as specific transit modes, such as local bus or express service. These factors include population and employment density, income level, employment level, auto ownership, and immigration status (TCRP Report 28, 1998). The numerous factors and their elasticities can be combined to identify markets that may have strong demand for transit. Performing this analysis allows for identification of markets that may be underserved or may be generating less ridership than would be expected. These markets would then warrant further study to determine how to best capture potential transit demand.

The following map depicts transit propensity compared to trip origin locations for existing transit riders. As shown in the map, most high propensity transit markets do have some level of transit access. Markets that may be underserved by transit or where transit is underutilized include Duluth and the area east of I-85 between SR 316 and 1-985.

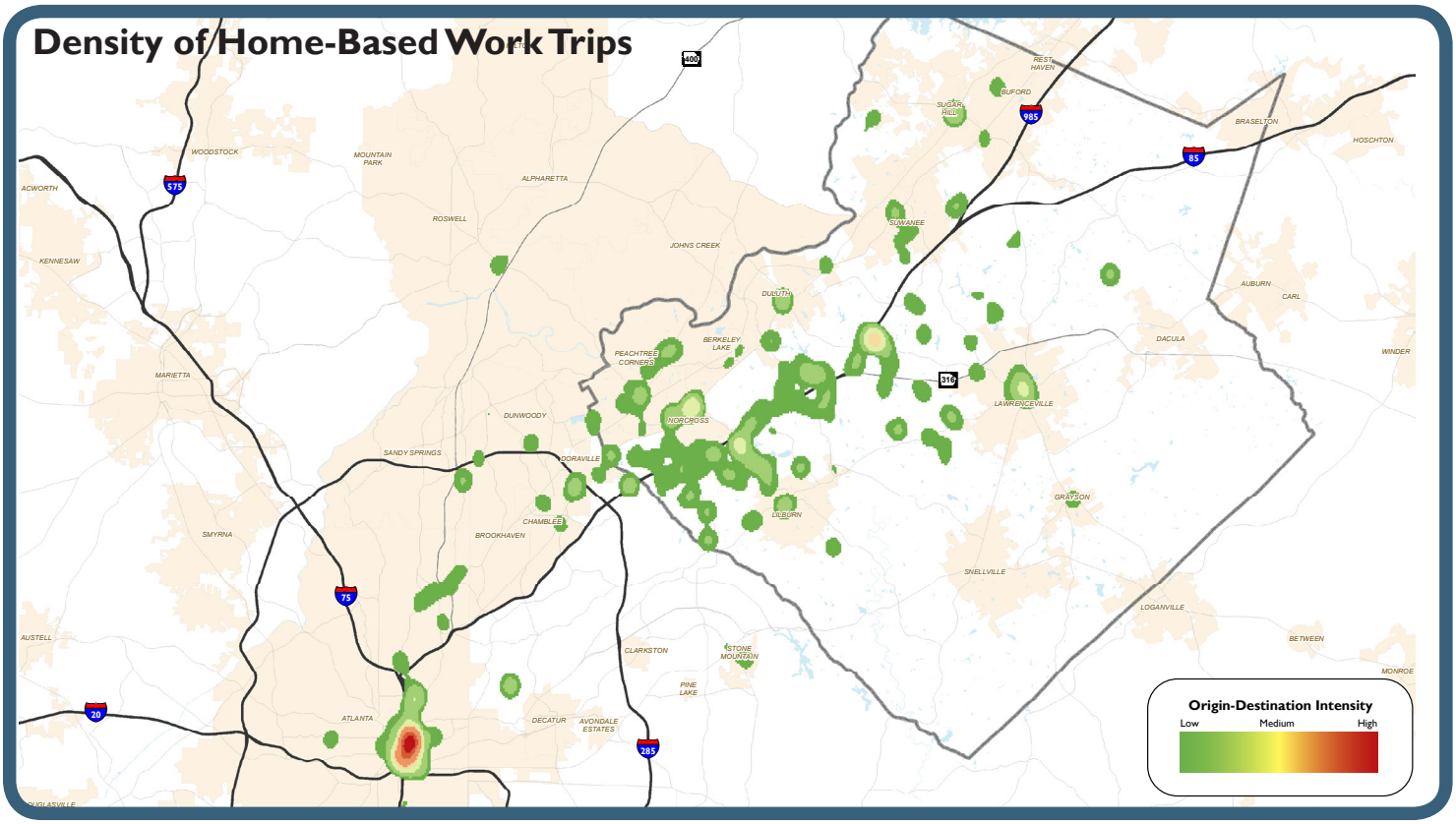
Transit Propensity vs. Survey Trip Origins



Origin-Destination Pairs

The most common type of trip occurs between the home and the workplace. In fact, over 50 percent of all trips on the GCT system (including both local and express service) are between the home and the workplace. Therefore, an analysis of home-based work trips in the Travel Demand Model provides insight into the Origin/Destination characteristics of most trips, and therefore allows for an assessment of how aligned transit services are with travel demand needs. The Travel Demand Model was utilized to identify Origin/Destination patterns for existing and future residents and workers of Gwinnett County as a comparison to O/Ds on the existing GCT system.

Density of Existing Transit Origins/Destinations (O/Ds)

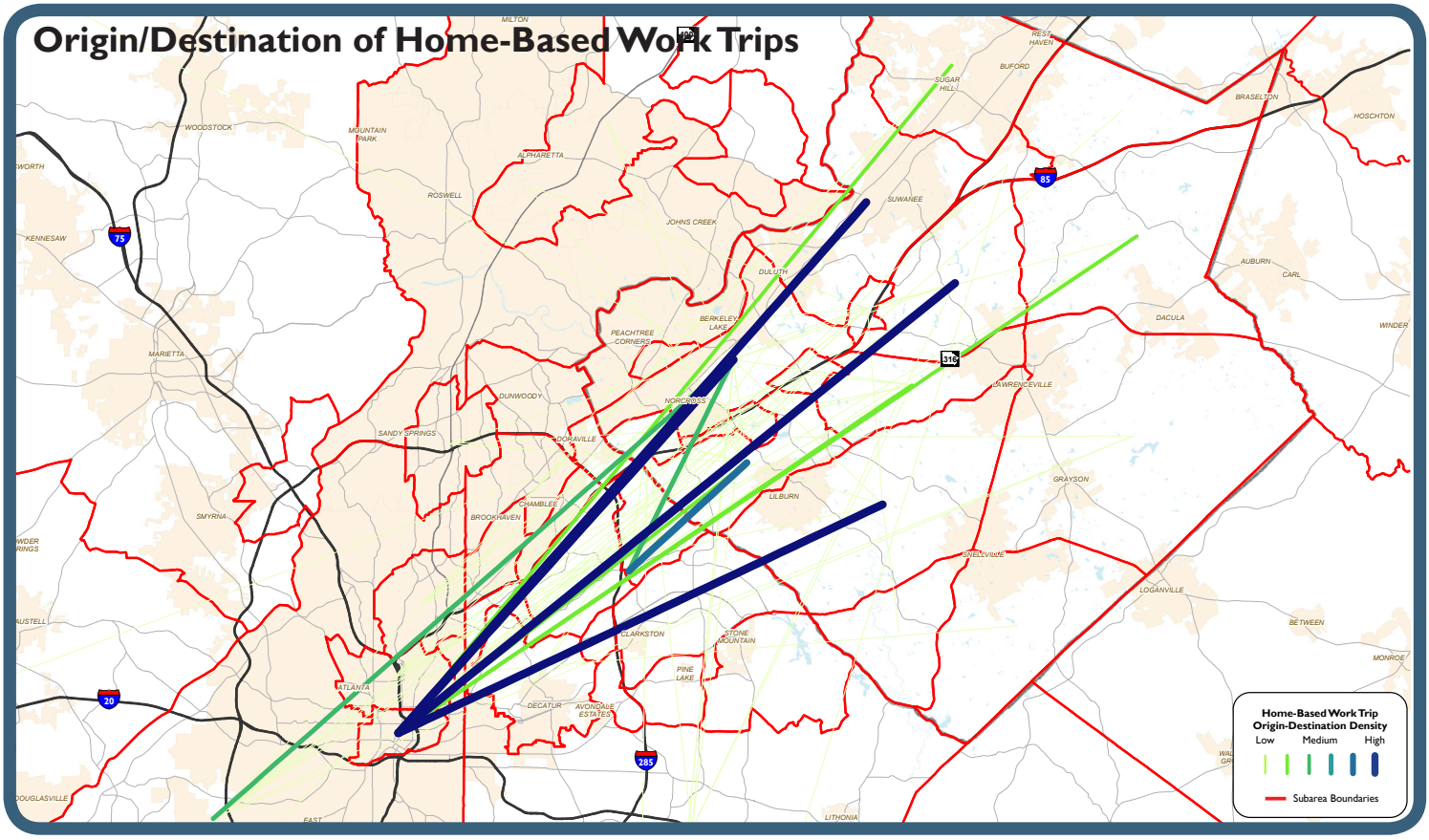


Source: Destination2040 On-Board Survey

As shown in the map of above, the densest destination market for home-based work trips within Gwinnett is Technology Park (Peachtree Corners), followed by Gwinnett Place. Downtown Atlanta is by far the densest destination market outside of the County for home-based work trips. The densest origin market for home-based work trips is North Lilburn, followed by Berkeley Lake/Peachtree Corners and West Lawrenceville.

The heat map on the previous page shows the compilation of home-based work origins and destinations, but to understand how those O/Ds connect to each other, the planning team translated the density of O/D pairs into patterns of the existing system riders. Origin/Destination patterns of existing transit users are shown in the map below. The modeled existing Origin/Destination demand can be compared against current Origin/Destination use of the GCT system to show the potential of the system if transit served these routes.

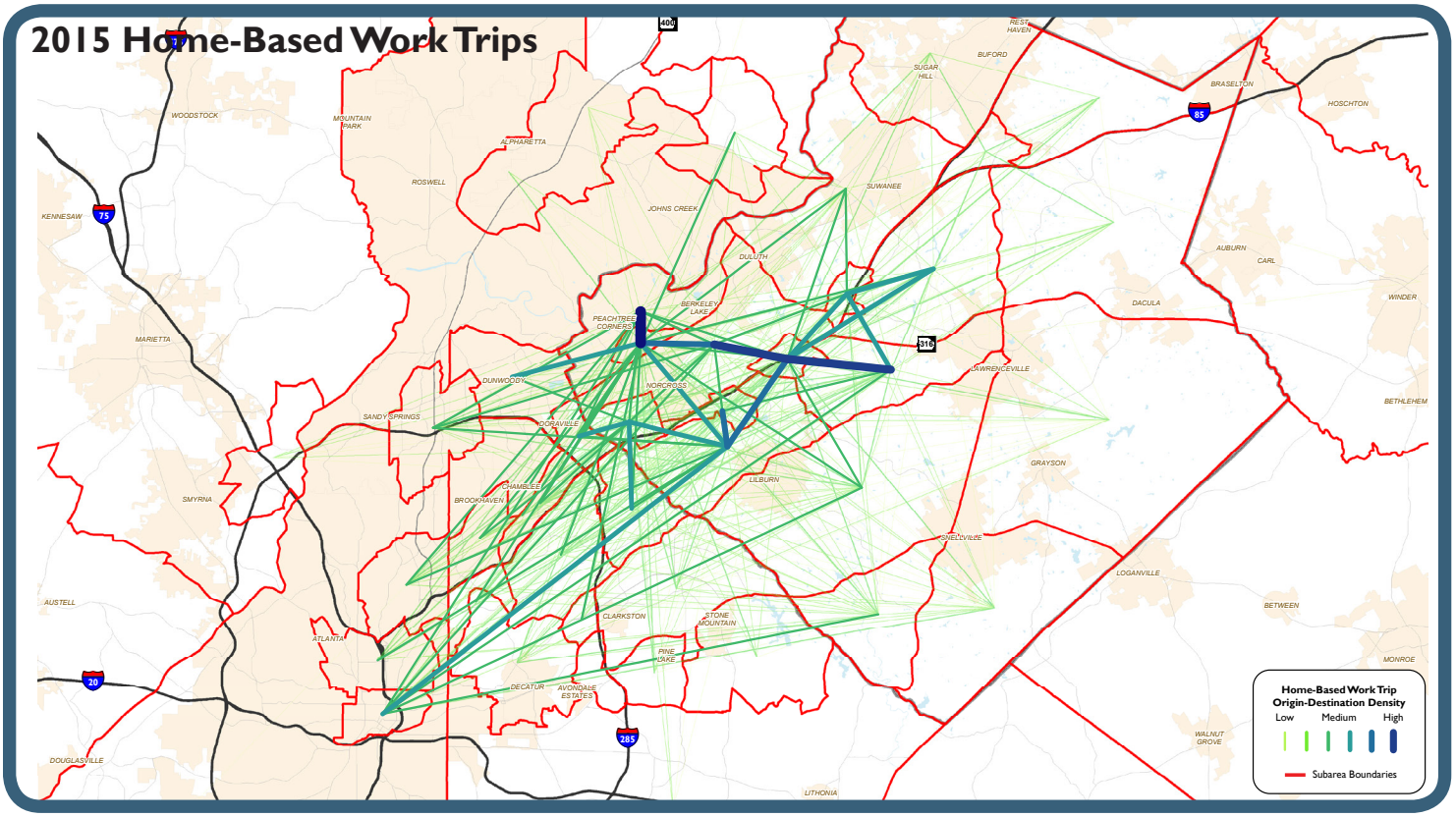
Existing Transit Riders' Home-Based Work Trip O/Ds

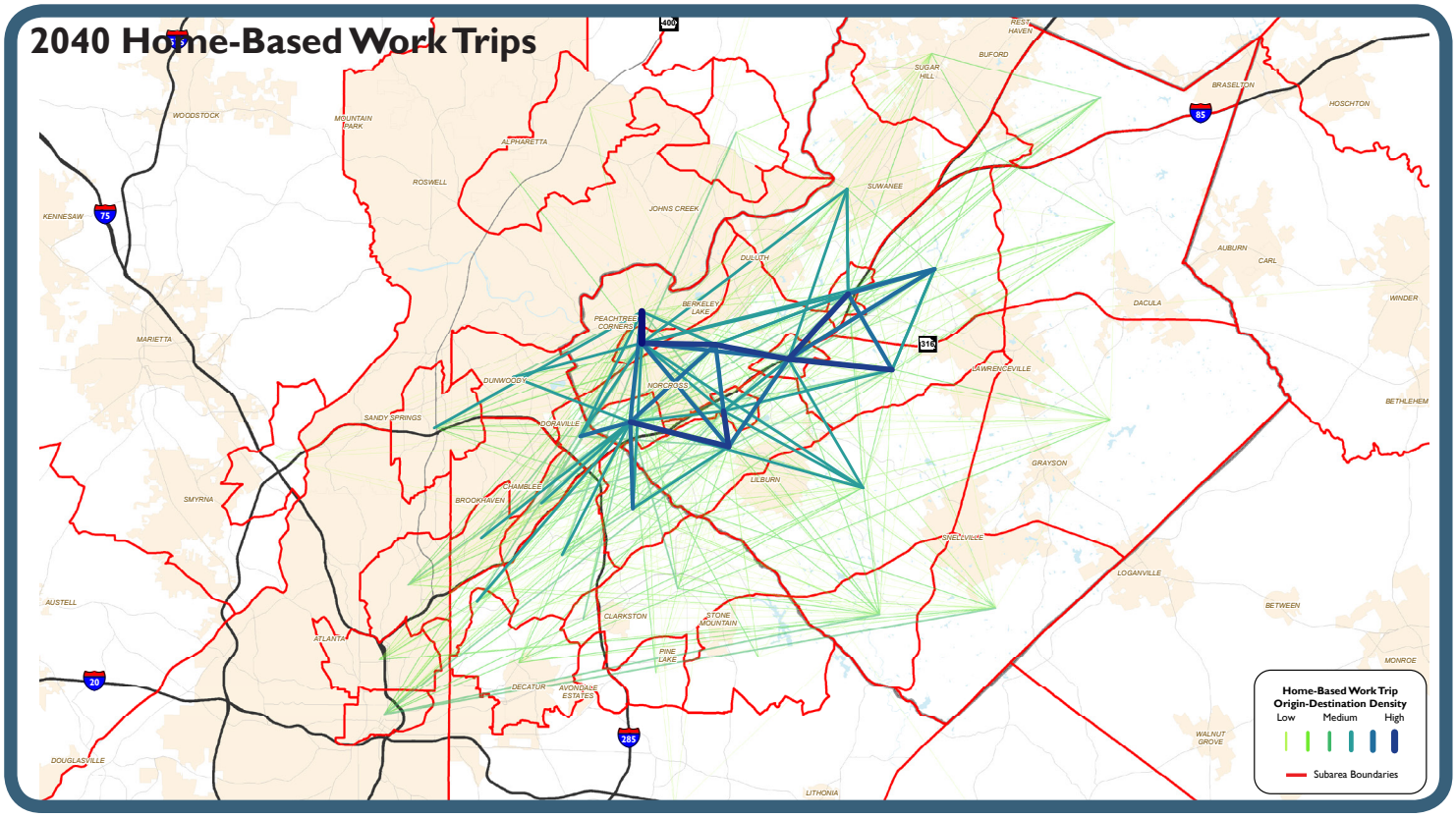


Source: Destination2040 On-Board Survey

On the next page, the map on top depicts Origin/Destinations for trips with at least one end (home or work) within Gwinnett County based on the current year (2015) Travel Demand Model. The map on the bottom depicts Origins/ Destinations for trips with at least one end (home or work) within Gwinnett County based on future (Year 2040) land uses.

Modeled 2015 and 2040 Home-Based Work Trip O/Ds

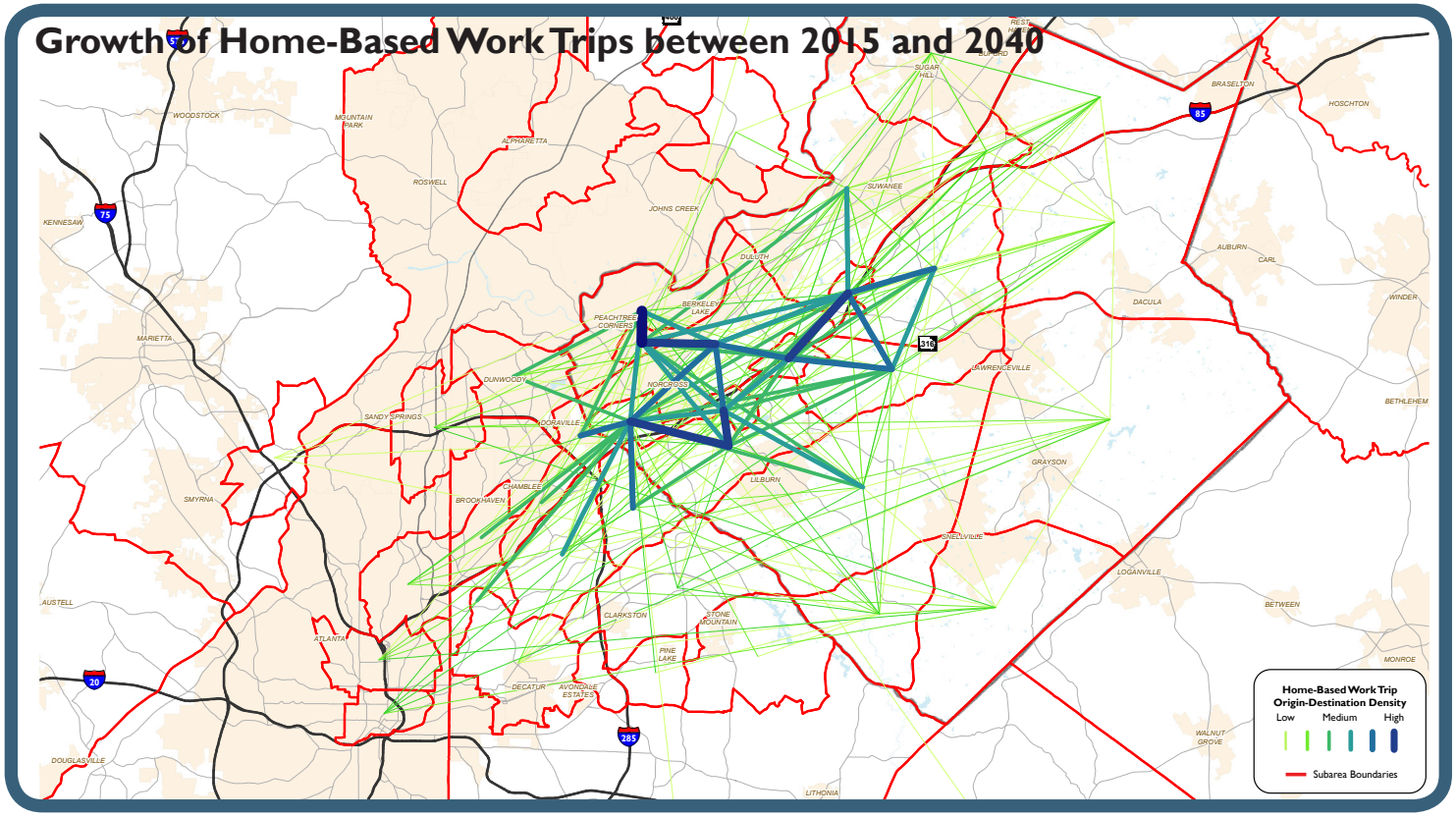




Sources: (Top) 2015 Regional Travel Demand Model and (Bottom) 2040 Regional Travel Demand Model

As shown in the previous two maps, there is not a large change in the forecasted patterns of use of the transit system between 2015 and 2040. The map below highlights where Origin/Destination activity is forecasted to grow the fastest between now and Year 2040.

The biggest growth destination market (in trip density) between 2015 and 2040 is Technology Park, followed by Gwinnett Village/Norcross/Indian Trail. Minimal growth is forecast to areas outside of the County, with Tucker experiencing the greatest amount. The biggest growth origin market for home-based work trips is the Sugarloaf Mills Area, followed by several locations including Gwinnett Place, Norcross/Duluth, and Gwinnett Village/Norcross/Indian Trail. The Origin/Destination pair with the greatest growth in trip density is Berkeley Lake/Peachtree Corners to Technology Park, followed by Norcross/Duluth to Technology Park. The biggest inter-county growth for home-based work trips is forecast for Tucker to Best Friend Road/Button Gwinnett Drive Employment Area, followed by Doraville to that same area. There is a substantially greater growth in home-based inter-county work trips with Gwinnett County as the destination (i.e., work location) than with Gwinnett County as the origin (i.e., home location).



NEED: PROVIDE FASTER AND MORE RELIABLE SERVICE TO KEY DESTINATIONS

Enhancing the desirability and competitiveness of GCT service will serve to increase ridership and may reduce congestion. One of the most effective ways to achieving this is by reducing trip times and enhancing trip time reliability. Reductions in trip times and improved reliability can be achieved by providing more direct service to destinations, increasing operating speeds, reducing the number of transfers required, and reducing transfer wait times.

As identified in the Transit Existing Conditions Assessment, all routes do not meet agency-established on-time performance standards. None of the routes have an on-time percentage greater than 70 percent. It should be noted that two of the express routes arrive late less than 20 percent of the time.

Transit Speed

Improving the speed of transit service will reduce trip time and make transit trips more competitive with auto travel. Travel speed for buses is impacted by congestion, traffic signal density, vehicle queuing, and stop spacing. The table below depicts the current average travel speed for GCT buses during the peak hour.

Average Travel Speed of GCT Bus Service during the Peak Hour

Direction	Average Travel Speed by GCT Route									
	10A	10B	20	30	35	40	101	102	103	103A
Inbound	12.5 mph	14.9	16.7	18.1	15.9	19.9	33.0	23.3	24.1	31.6
Outbound	13.7 mph	15.1	15.6	18.8	15.2	16.9	31.8	27.8	32.9	22.2

At the time this analysis was completed, Route 110 did not yet exist.

Route 10A is by far the system's most productive and efficient route. Yet it also has the slowest average travel speed. Enhancing the speed of Route 10A through optimizing stop placement, providing transit priority through intersections, and/or bypassing congestion would enhance transit service for its riders and may attract new riders to the service.

One factor in the slow travel speeds on local routes is the density and placement of bus stops. Providing stops close to each other leads to more stops for the buses and more delays as the bus attempts to merge into and out of traffic. Placing stops at the far-side of intersections often reduces delays for buses, allowing them to travel through a green light with the flow of traffic before stopping. Optimizing stop density to reduce redundant stops and optimizing stop placement to reduce traffic congestion delays can improve travel speed and reduce overall trip time.

Routes 10A, 10B, 20, and 35 travel on Buford Highway to access the MARTA Doraville Station. Buford Highway near the County border carries over 700 transit passengers during the AM peak hour. This represents approximately 9 percent of the total travel activity on the roadway during that hour. During the PM peak hour, that same segment of the road carries over 600 transit passengers, representing approximately 6 percent of the total travel activity on the roadway. Button Gwinnett Drive has a similarly high transit mode share, of 9 percent in the AM peak hour and 7 percent in the PM peak hour. For these roadways, and others with high transit utilization, providing measures to improve transit reliability and reduce travel time may be an efficient way to maximize the capacity and throughput of the roadway.

As Gwinnett residents and workers make mode choice decisions, one of the key components is the travel time. Analysis was performed comparing transit travel time (from published schedules) with auto travel time (based on Google travel time estimates). Two comparisons were made, one for the most common Origin/Destination pairs of existing transit riders, and the other for the most common Origin/Destination pairs from the Travel Demand Model. These two comparisons are included as the following two tables.

Comparison of Auto and Transit Travel Time (Top 10 Existing Transit O/D Pairs)

Existing Daily Transit Trips	Origin	Destination	Travel Time (HH:MM) [1]	
			Automobile (Peak Hour Traffic) [2]	Transit [3,4]
162	Suwanee/Duluth	Downtown Atlanta	1:04	1:06
141	NW Lawrenceville	Downtown Atlanta	0:59	0:58
132	Norcross/Duluth	Downtown Atlanta	0:51	0:58
131	Lilburn/Mountain Park/NW Snellville	Downtown Atlanta	0:48	1:05
123	West Lawrenceville	Downtown Atlanta	0:57	0:56
114	North DeKalb County	Norcross/Duluth	0:28	0:19
78	Norcross/Duluth	Norcross/Duluth	0:11	0:16
76	Berkeley Lake/Peachtree Corners	North DeKalb County	0:18	1:00
73	Gwinnett Place	North Lilburn	0:16	0:40
72	North Lilburn	North DeKalb County	0:11	0:30
72	Buford/Sugar Hill	Downtown Atlanta	1:15	1:20

NOTES

1) Trips for O/D pairs with destinations in downtown Atlanta were assumed to depart at 7:00 AM; all other trips were assumed to depart at 5:00 PM. Major trip generator and attractor points utilized as origin and destination points to estimate travel time. Transit service may not be available within all portions of the zones indicated.

2) Vehicle travel times were estimated based on Google Maps travel times.

3) Transit travel times were estimated based on existing route schedules. Actual transit travel time may vary. Initial wait time to board the first bus is not included. Wait time to make a transfer, if needed, is included.

4) For transit trips to and from origins or destinations with no transit service, it is assumed that part of the transit trip includes driving to or from a park and ride location.

Comparison of Auto and Transit Travel Time (Top 10 Modeled Home-Based Work O/D Pairs)

Trips per Square Mile [2]	Origin	Destination	Travel Time (HH:MM)[1]	
			Automobile (Peak Hour Traffic) [2]	Transit [3,4]
82	Berkeley Lake/Peachtree Corners	Technology Park Employment Area	0:07	0:17
55	West Lawrenceville	Gwinnett Place	0:11	0:24
42	Norcross/Duluth	Gwinnett Place	0:08	0:27
38	North Lilburn	Gwinnett Place	0:14	0:40
37	North Lilburn	Gwinnett Village/Norcross/Indian Trail	0:07	0:24
37	Norcross/Duluth	Technology Park Employment Area	0:08	0:27
27	North Lilburn	Downtown Atlanta	0:56	1:14
27	North Lilburn	Technology Park Employment Area	0:28	1:13
26	North Lilburn	Best Friend Road/Button Gwinnett Drive Employment Area	0:35	0:34
24	NW Lawrenceville	Gwinnett Place	0:14	0:21

NOTES

1) Trips for O/D pairs with destinations in downtown Atlanta were assumed to depart at 7:00 AM; all other trips were assumed to depart at 5:00 PM.

2) Vehicle travel times were estimated based on Google Maps travel times.

3) Transit travel times were estimated based on existing route schedules. Initial wait time to board the first bus is not included. Wait time to make a transfer, if needed, is included

4) For transit trips to and from origins or destinations with no transit service, it is assumed that part of the transit trip includes driving to or from a park and ride location.

As expected, Origin/Destination pairs that currently have high transit activity have a competitive transit travel time. However, many of the most heavily utilized overall Origin/Destination pairs do not have competitive transit travel times. These Origin/Destination pairs may present opportunities for achieving transit ridership growth with the improvement of existing service or provision of new service.

Transfers

One of the biggest factors in total travel time is associated with having to make a transfer. Transferring between routes often implies out-of-direction travel and is usually associated with wait time for additional routes. In Gwinnett County, the percentage of riders who transfer is quite high for all local routes. Many of these transfers are to the MARTA transit system as transit riders access destinations in the broader Atlanta metropolitan area. The Doraville Station accounts for 22 percent of total GCT system boardings. The Lawrenceville and Lilburn areas generate relatively fewer riders accessing MARTA, likely due to the lack of a direct connection to the Doraville station.

The number of transfers within the GCT system is also high as indicated by the 25 percent of riders transferring twice on their one-way trip, including 13 percent of riders transferring between two or more GCT/GRTA buses. By far the most common transfer pair in the system between two GCT routes is between Route 10A and 40. While a number of these users are ultimately accessing MARTA at Doraville, 42 percent of Route 10A-40 transfers do not include a transfer with MARTA.

Trips with transfers add inconvenience to the rider and increase travel time; reducing the number of transfers required may make transit more desirable and competitive with other modes of transportation. The map on the following page illustrates the origins and destinations of trips with transit transfers on the GCT system (Note: this map does not include trips involving transfers outside of the GCT system, such as to a GRTA or MARTA route). The strongest transfer demand is for trips crossing I-85, which is consistent with the Route 10A – Route 40 transfer activity. Transfer pairs are most prevalent in the Lawrenceville, Norcross, and Indian Trail areas. Trip Origins/Destination pairs with two or more transfers are most prevalent in the Peachtree Corners, Lawrenceville, and Dacula areas.

The transfer map can be compared to the Origin/Destination patterns in the All Transit Trips map on the right-hand page to see which O/D pairs have more required transfers than others. For instance, trips into Downtown Atlanta on the Express system have more one-seat rides than trips on the local bus route system.

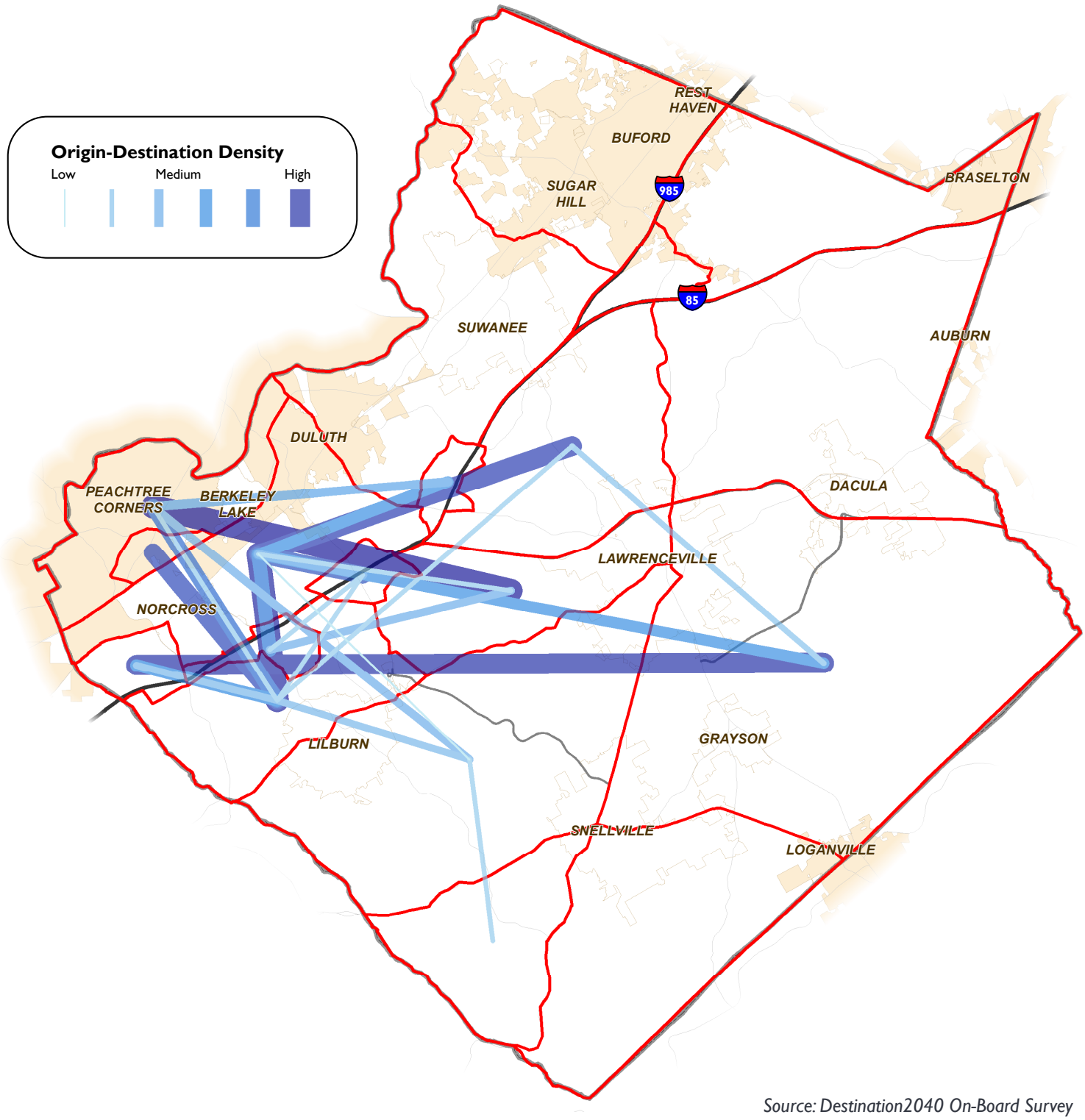
Trips with transfers inconvenience the rider and often increase travel time. Reducing the number of required transfers may make transit more desirable and competitive with other transportation modes.



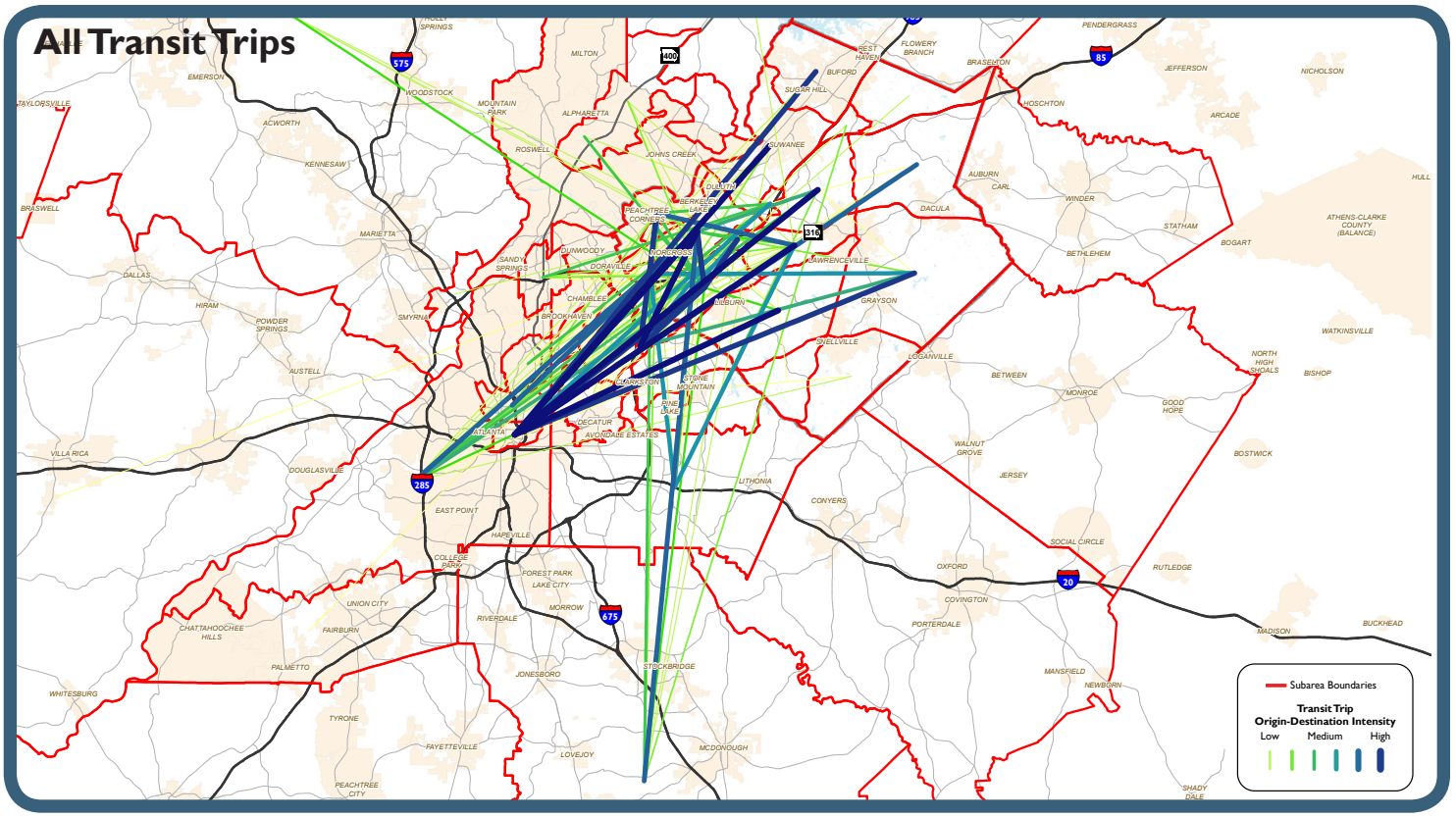
25%

of riders transfer twice on their one-way trip

Transit Trips with Transfers in the GCT System



Source: Destination2040 On-Board Survey



Source: Destination2040 On-Board Survey

Reducing the reliance on transfers or making transfers more seamless (through measures such as coordinated scheduling, improved waiting facilities, or increased frequencies) would benefit a large portion of the existing GCT ridership and may be effective at increasing ridership. Further study will be required to identify the opportunity to reduce transfer activity and/or improve route connectivity.

Providing a high-level of amenities at transfer facilities has been proven to reduce the perceived out-of-vehicle transfer wait time, which is a critical factor in the mode choice decision. Given the large number of transfers occurring at the Gwinnett Transit Center and Sugarloaf Mills, providing wayfinding, service information, real-time bus information, amenities such as seating and shelter, and security at those facilities is of significance.

In addition, five local routes and four express routes stop at one or both of those two transit centers or the Indian Trail Park & Ride. Providing efficient means of access and egress for buses into and out of the transit center benefits travel time and transit operating costs. Infrastructure improvements at the transit centers and park-and-rides, such as in-line stations, direct ramps, and dedicated access roadways, would benefit users and reduce operating costs for the agency.

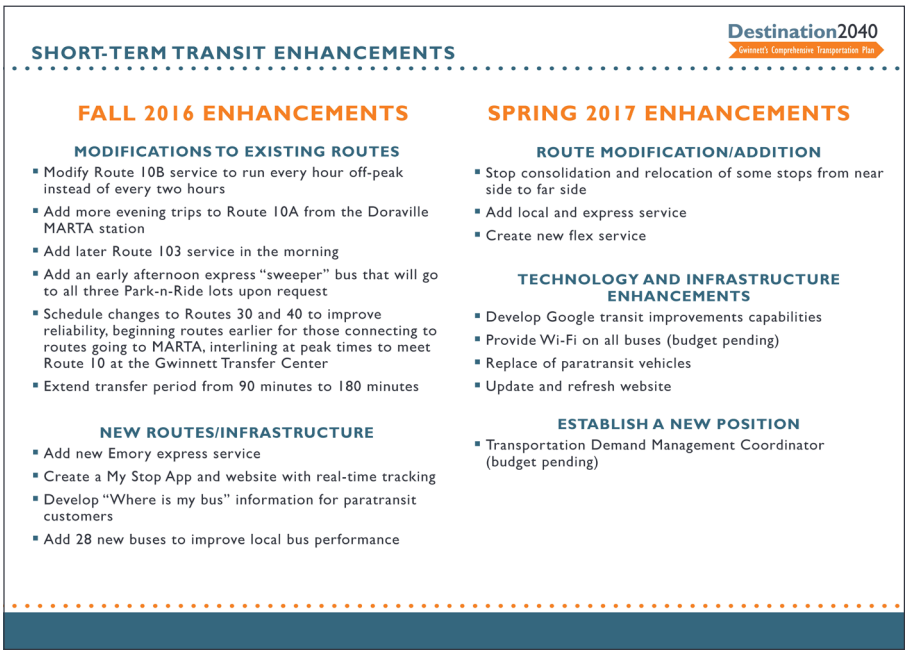
NEED: INCREASE TRANSIT AVAILABILITY

This need is associated with the level of transit service provided in the system. As noted in the Transit Existing Conditions Assessment, Route 10A is by far the most productive and efficient route (Sugarloaf Mills-Gwinnett Place Mall-MARTA Doraville). Loads are highest in early AM (outbound), mid-day (inbound/outbound), and late PM (inbound). Therefore, this route may need increased off-peak service frequency and span of service on Route 10A. Route 10A also performs well on the weekend, with more boardings per trip on the weekend than any other route has on weekdays. Therefore, there is a need to evaluate potential for increased frequency on the 10A on weekends.

Route 10B does not meet the agency's off-peak service frequency standard due to its reduced mid-day schedule. To meet the agency's frequency standards, hourly mid-day service is needed on the 10B.

The earlier and later express route trips perform well. Expanding the hours of express bus trips has the potential to increase express bus ridership by providing its riders more flexibility in their schedules.

Express Route 101 and Route 103 users are concentrated in the Sugar Hill area. These users currently drive to the I-985 park-and-ride. There may be a benefit to extending that express service into Sugar Hill if a suitable pick-up/drop-off and/or park-and-ride location can be identified.



Identified short-term transit enhancements included in the Short-Terms Needs Memo, which is included as an Appendix to this report.

Express Route 103A is a reverse commute route that does not require additional resources; however, with less than five passengers per revenue hour, it is less effective than the other routes. With high employment densities in the Norcross/Peachtree Corners area, there seems to be opportunity for reverse commute service into Gwinnett County from DeKalb and Fulton Counties. Therefore, there is a need for further evaluation of route and service alternatives for reverse commute service. This may include providing service to more job-rich areas such as Norcross, eliminating on-street Route 103A segments on Breckenridge Boulevard, and connecting to other transfer points such as the Gwinnett Transit Center. It should be noted that to expand peak period service, GCT will need to acquire new buses. This acquisition would allow greater flexibility in service provision and optimization as well as increased frequencies on the busiest routes.

One element of transit availability is increasing the customer's awareness and usability of the transit system. Providing widely available route information—through the agency website, Google and other online transit information and trip planning portals, and at bus stops—is an effective way to inform the public of transit services and remove barriers to transit use. In addition, providing real-time transit information—at transfer points, online, and via mobile apps—allows passengers to optimize their trip planning and reduces the actual and/or perceived wait time for the bus. With new buses and modernization of technology infrastructure, GCT can enhance the information available to its users.

TRANSIT PUBLIC INVOLVEMENT FEEDBACK

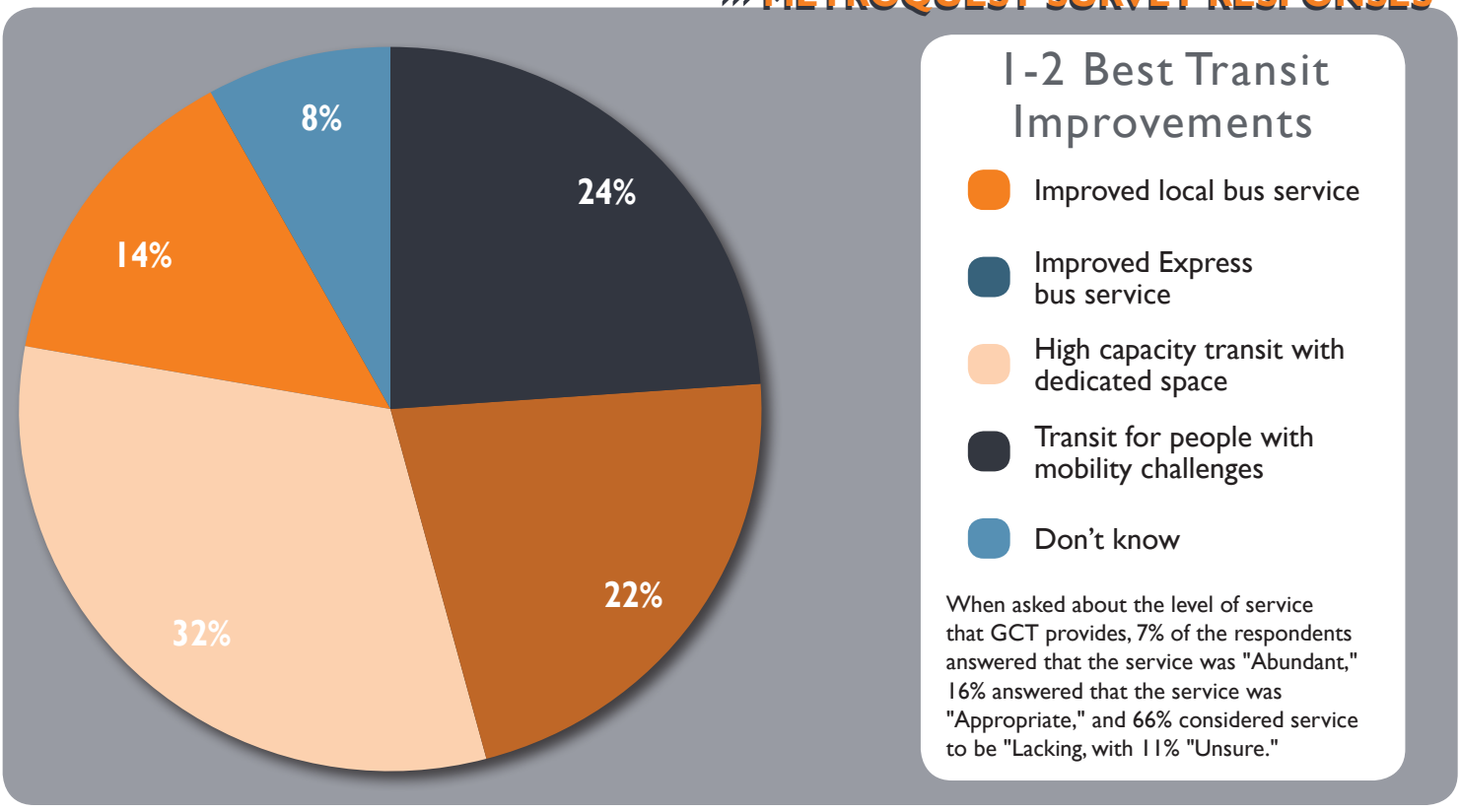
Six public meetings were held through March and April 2016. More than 300 people attended these meetings, providing valuable feedback, discussion, and insight. Below is a summary of the key themes pertaining to GCT needs discussed at the public meetings as well as a sample of some of the responses to and feedback from the MetroQuest survey.

At the public meetings, transit discussions covered a variety of concerns, pertaining both to GCT's current service and potential changes for future service. Many participants mentioned a desire for improved connections, not only between GCT routes or to MARTA routes but also to destinations outside of Gwinnett County, such as Hartsfield-Jackson Atlanta International Airport or the new SunTrust Park. Feedback consistently included the need for increased frequency, decreased wait times, and extended service hours to create a more efficient overall service.

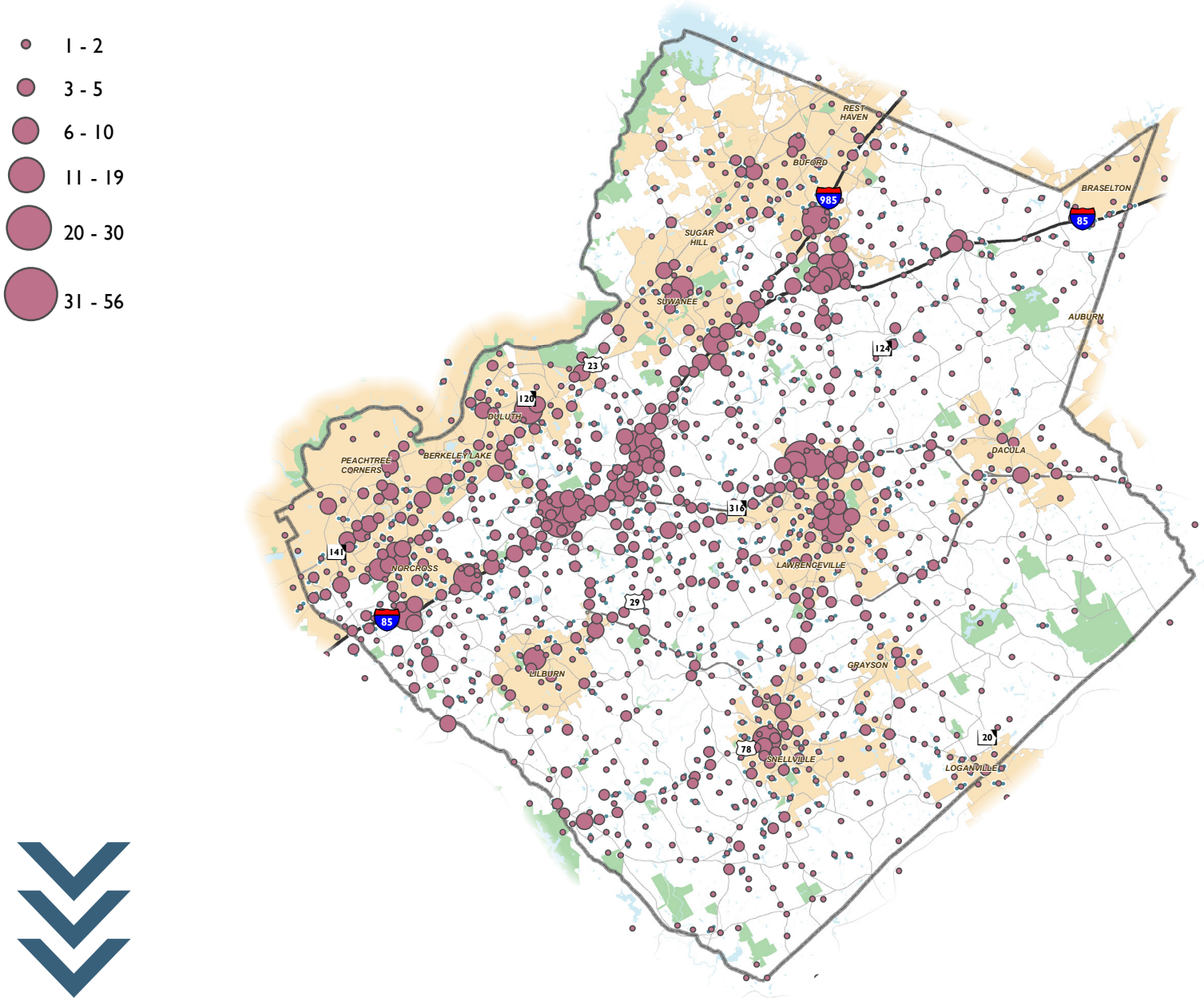
Request and desires:

- Increase frequency/decrease headways for buses and thus wait times for riders
- Extend service hours
- Improve connection and MARTA transfer experience
- Public education and increased visibility to increase ridership on existing system
- New/improved connections to destinations within and outside of the County
  - Mall of Georgia, Infinite Energy Arena, parks, etc.
  - Hartsfield-Jackson Atlanta International Airport, Atlanta, Cobb, etc.
- Localized services for residents, especially seniors, to medical appointments or events
- Improve service efficiency with considerations for other modes
  - Heavy rail, light rail, BRT, circulators/trolleys

METROQUEST SURVEY RESPONSES



MetroQuest Survey Transit Hotspots



SUMMARY OF TRANSIT NEEDS

The analysis of existing transit ridership patterns, travel demand Origin/Destination pairs, and existing transit service performance indicates that there may be opportunities to increase transit ridership and the productivity of the system by optimizing existing service, providing more direct service, and/or expanding service to new areas. Service modification may include new O/D pairs both within the County or service to/from employment and residential areas outside of Gwinnett. Some of the identified needs can be addressed in the short-term by GCT, while others will require additional funding, vehicle procurement, or further study, requiring longer-term solutions.

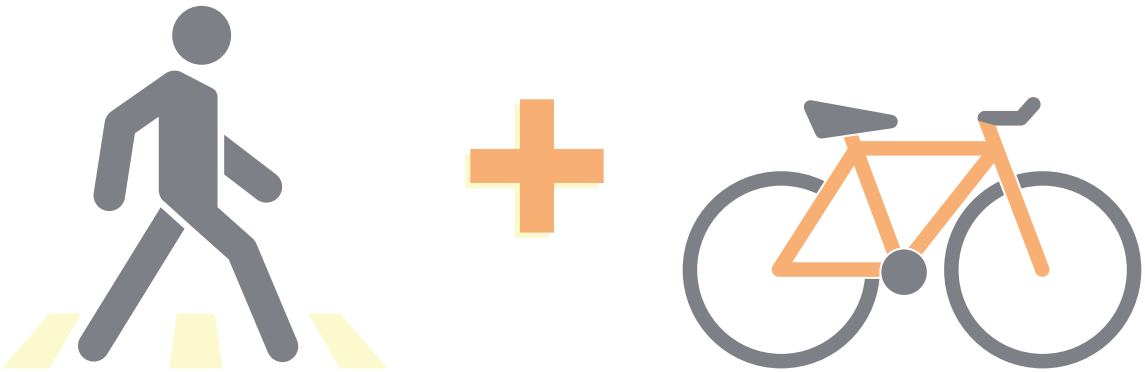
BIKE AND PEDESTRIAN

When planning a bicycle and pedestrian network, trade-offs and priorities must be considered, particularly between making large semi-regional connections that may serve large portions of the community versus connecting existing gaps in the system that may be critical to only small parts of the community. Nonetheless, in these instances, a small investment to connect the existing facilities can return huge benefits by quickly, simply, and inexpensively creating significant network connectivity.

In Gwinnett County, gaps such as these occur in many places due to varying project limits and ages of developments. However, freeways are particularly challenging obstacles for bike and pedestrian facilities. Many interchanges are missing these kinds of infrastructure, or have facilities that aren't up-to-date with current standards. Interchanges, along with all other roadways that cross the freeways, are key points in the bike and pedestrian network. Gwinnett's freeways present a significant obstacle for cyclists and pedestrians, so every opportunity to cross them is key.

To help understand where both regional and localized improvements should be considered, a suitability analysis was prepared to evaluate different areas for bike and pedestrian improvements. This analysis used Gwinnett County's transportation network to analyze four broad categories:

- Attractions: proximity to destinations people want to access
- Demand: proximity to places that likely users live
- Character: general character of the facility
- Future Needs: how areas are anticipated to change in the future.

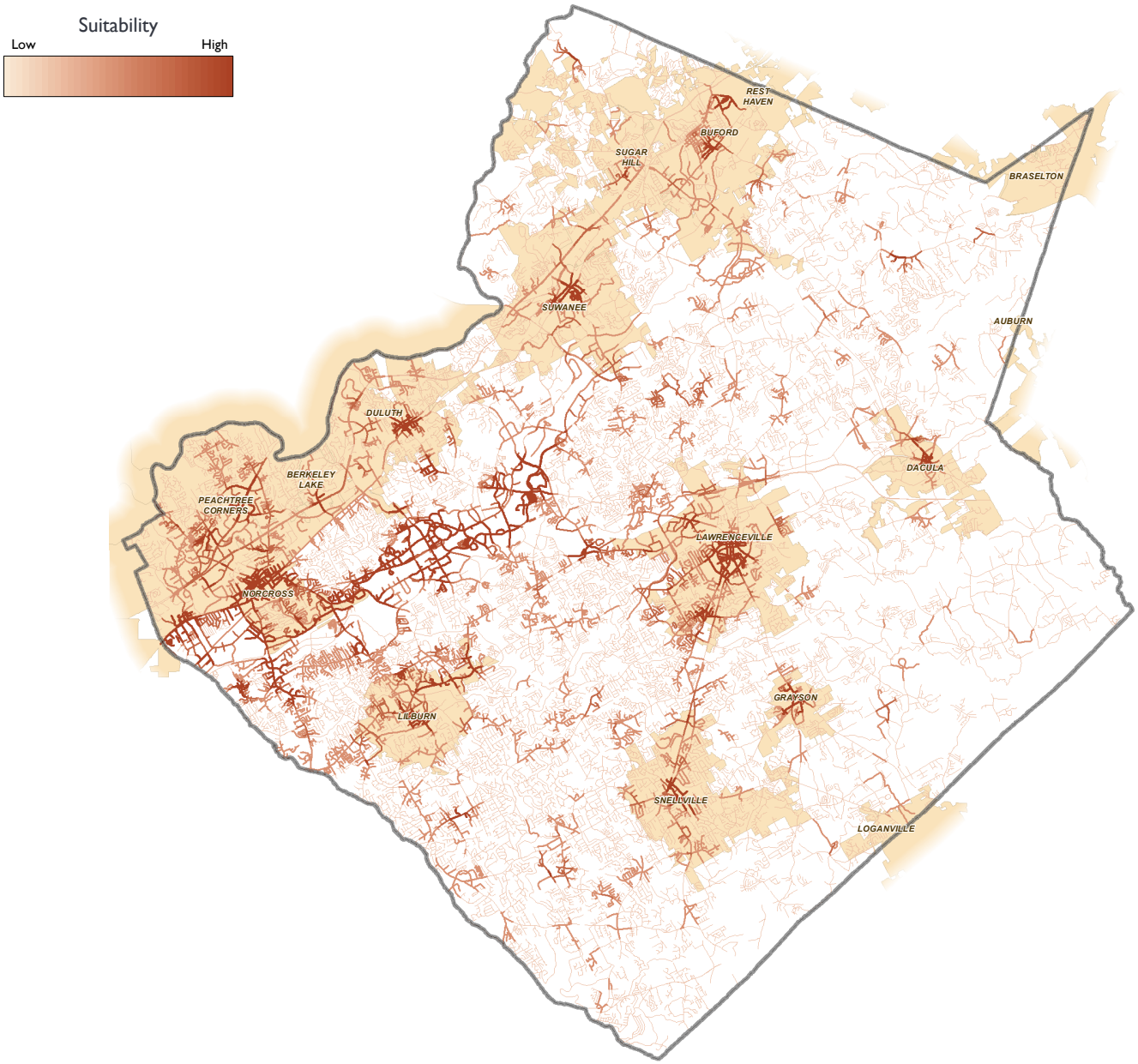


Attractions Analysis

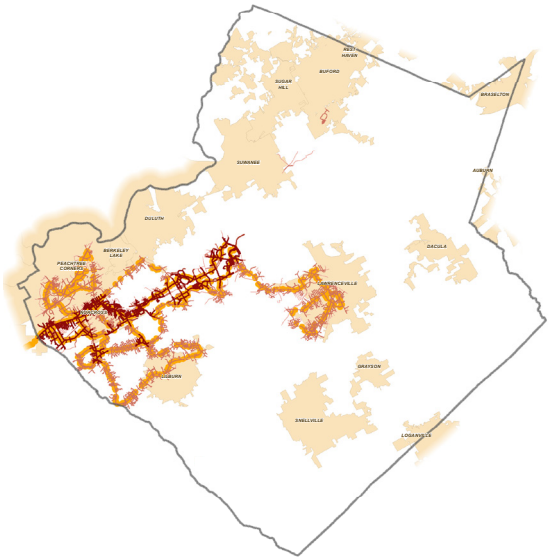
The maps below show which roadway or greenway segments are within walking and biking distance of notable places to which people might want to walk or bike. These distances are calculated based on the actual travel distance along the network to those locations in order to accurately identify which segments provide access to different facilities. This group of factors was considered separately for pedestrians and bicyclists, but the remaining three categories were weighted the same for both:

- Transit
- Civic
- Employment
- Parks
- Retail
- Schools

Roadway/Greenway Segments near Key Attractions

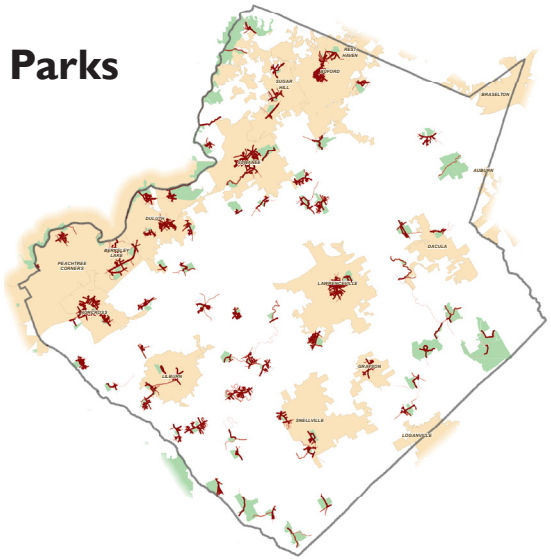


Transit

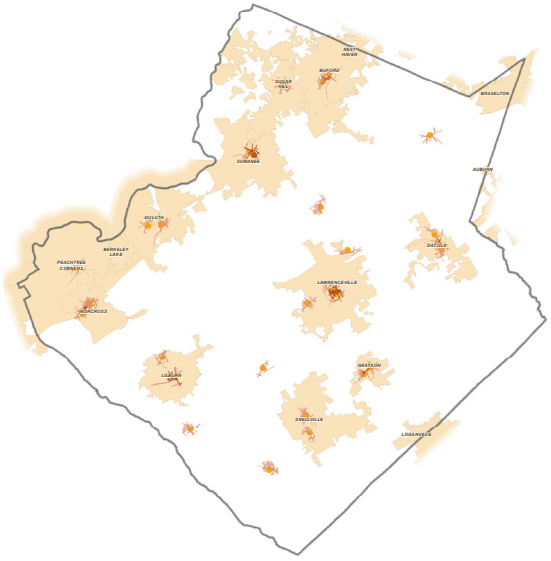


Transit Stops

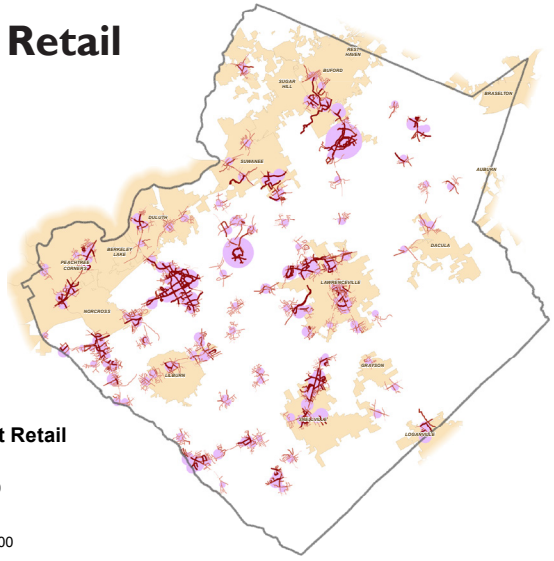
Parks



Civic



Retail



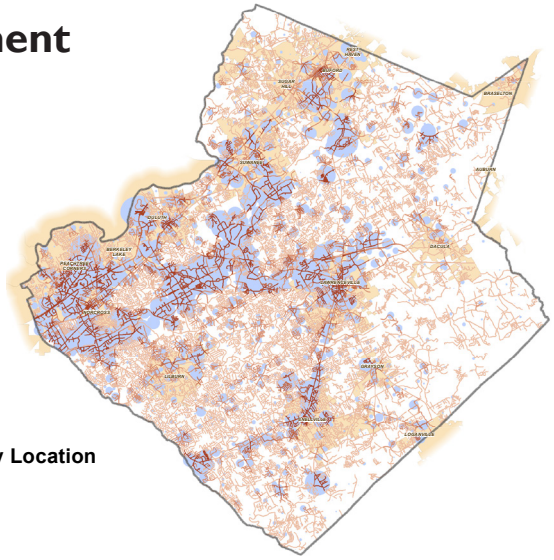
Square Feet Retail

10,000

100,000

1,000,000

Employment



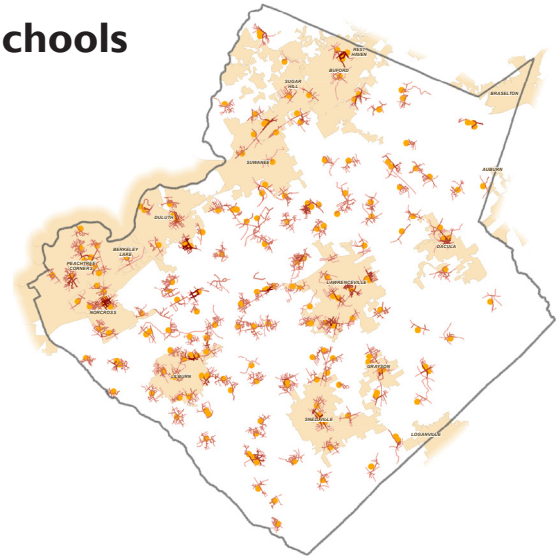
Number of Jobs by Location

1

10

1,000

Schools



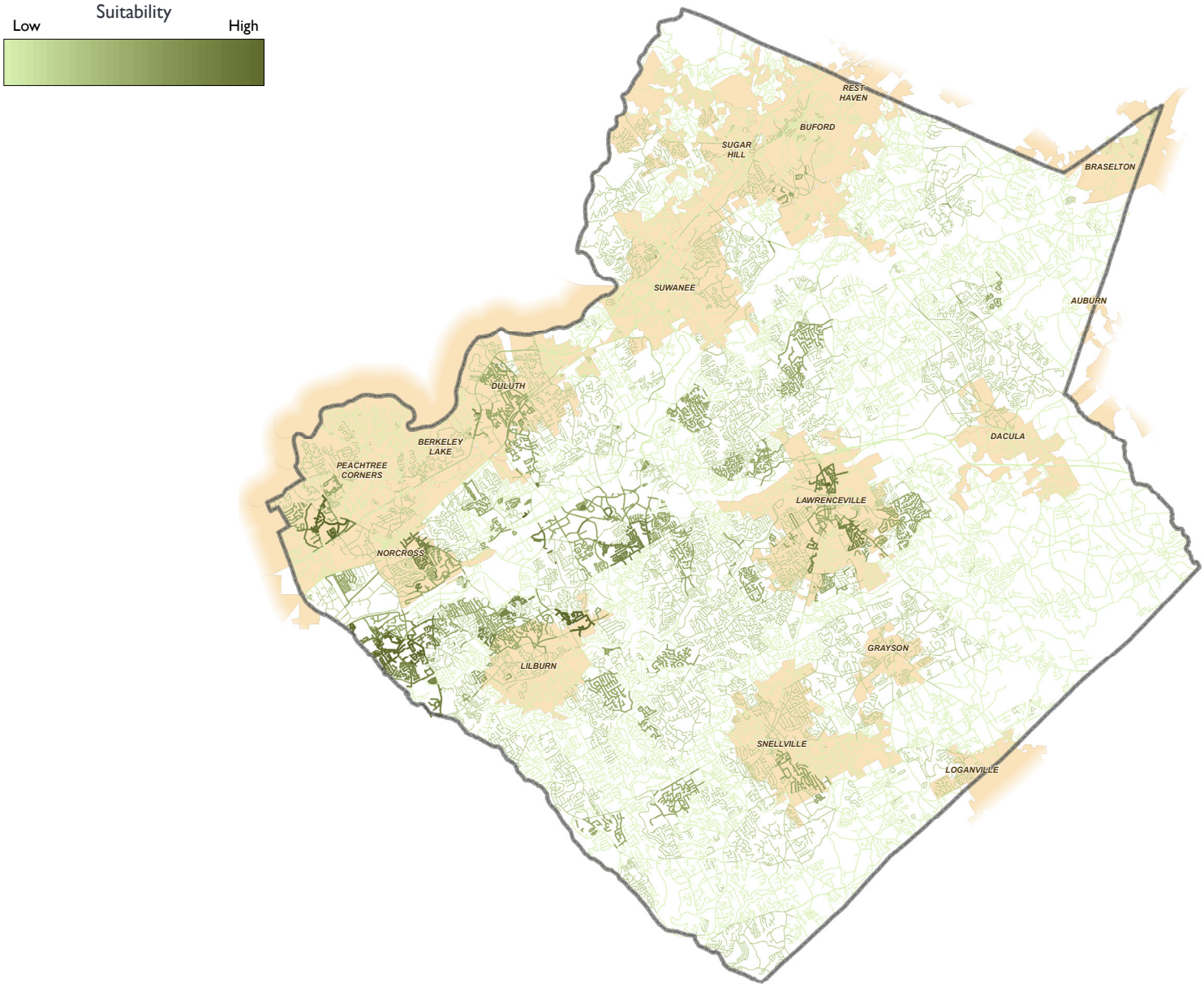
Schools

Demand Analysis

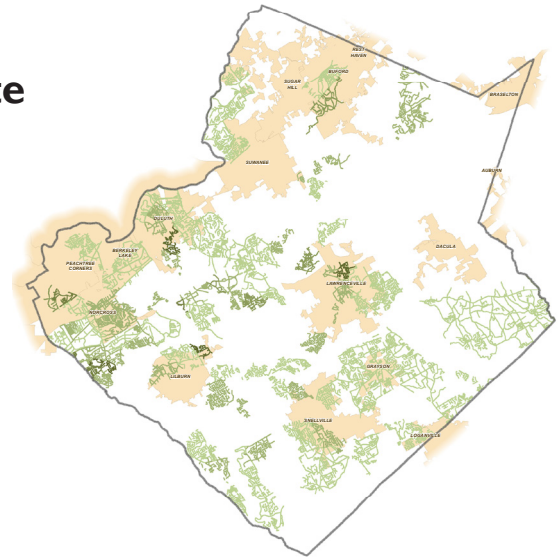
This piece of the bike and pedestrian suitability analysis considers where populations that are more likely to walk or bike live. Some of these include areas with higher percentages of residents who do not have access to a car, where children live, or where short-distance trips are more common. These factors were analyzed at either the Census Block, Census Block Group, or ARC Traffic Analysis Zone (TAZ) level.

- Walk Commute
- Transit Commute
- Bike/Other Commute
- Overall Density
- Density of Children
- Density of Aging Individuals

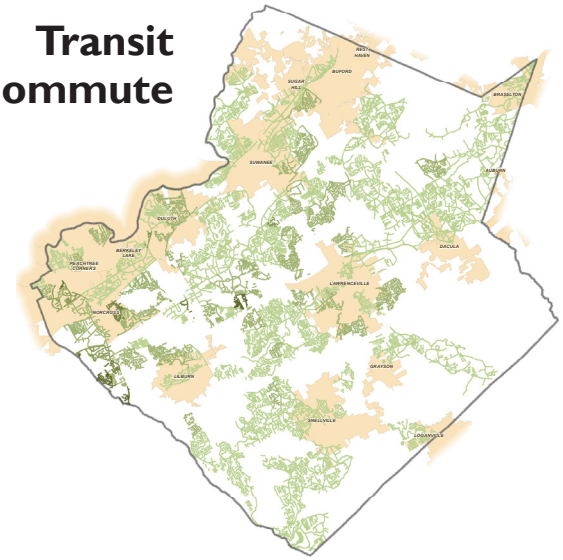
Total Demand Score



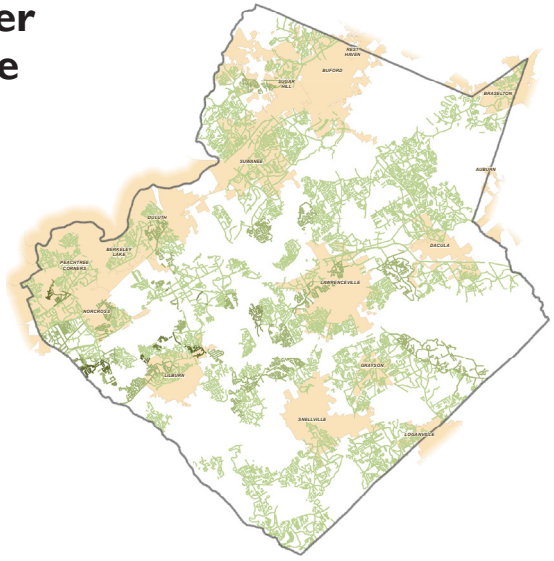
Walk Commute



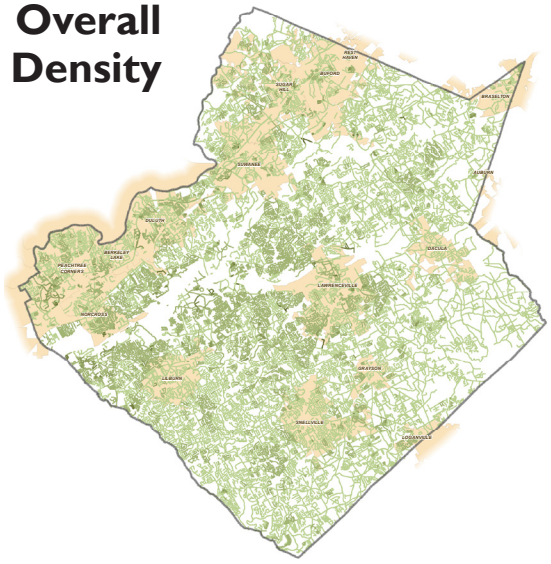
Transit Commute



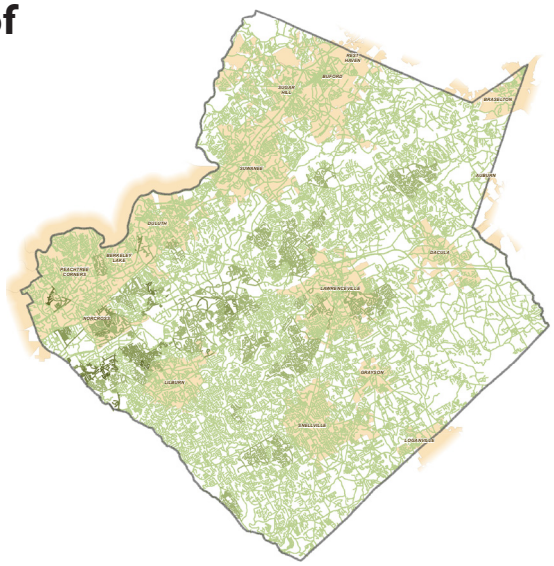
Bike/Other Commute



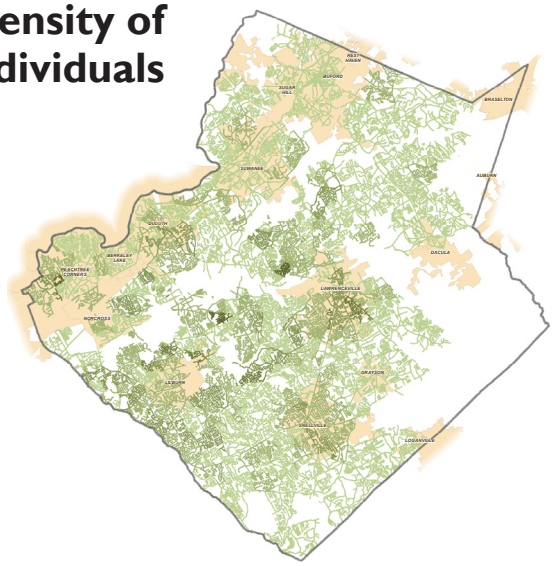
Overall Density



Density of Children



Density of Aging Individuals

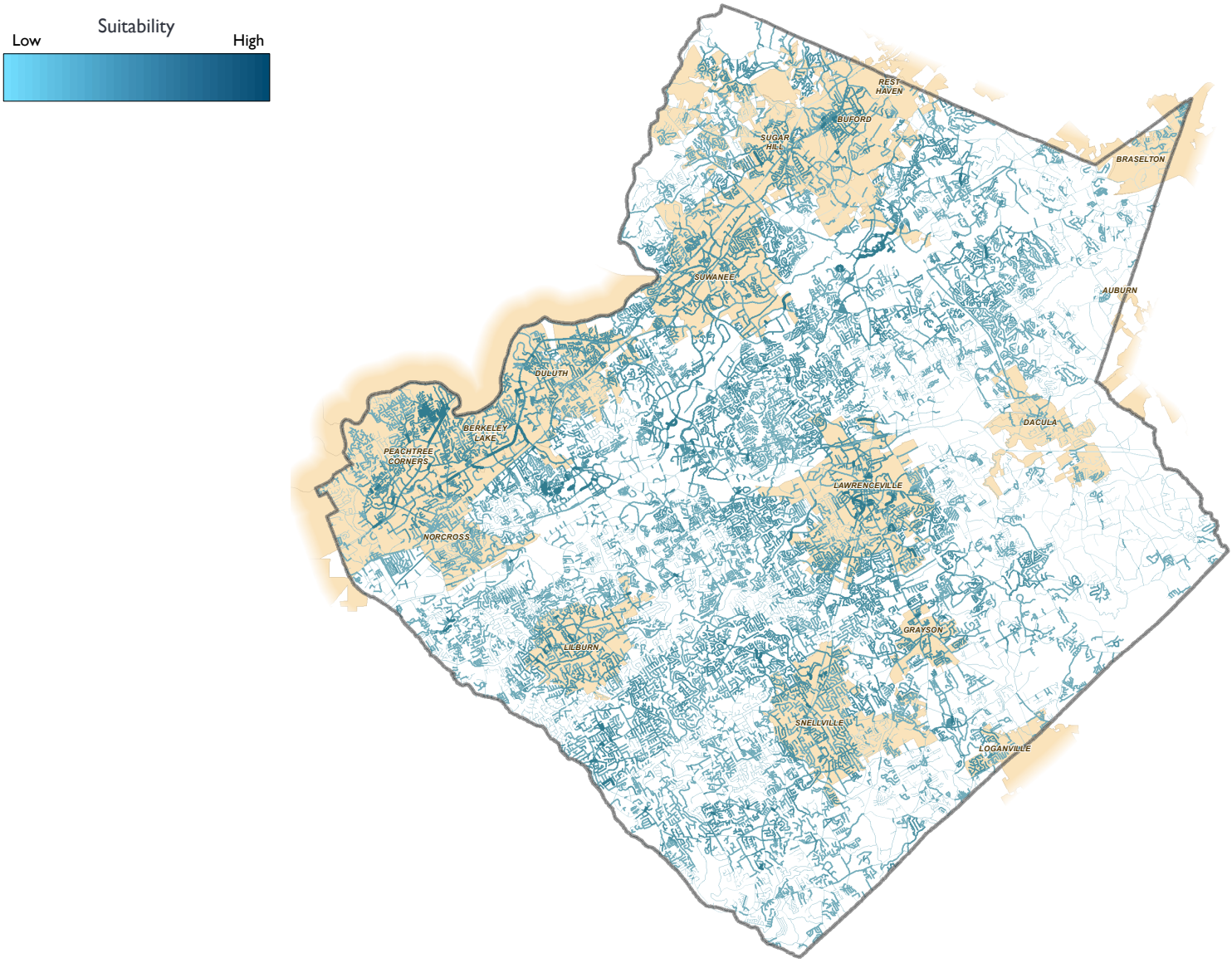


Character Analysis

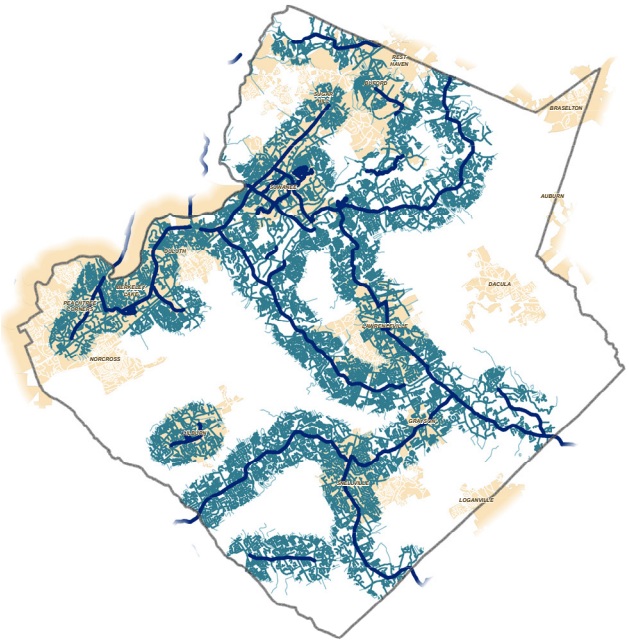
The maps below show analysis of the existing character of roadway segments. This analysis prioritizes roadways with less vehicular volume, easier slopes, and proximity to other bike and pedestrian facilities like greenways and sidewalks. This was done to give preference to network segments that would be safer, and more comfortable for users. Additionally, segments near the locations of bike and pedestrian crashes were scored higher to prioritize investment in areas where safety is a problem.

- Proximity to Existing Bike Facilities
- Proximity to Existing Sidewalks
- Adjacent Roadway Vehicle Speeds
- Short, Local Trips
- Slope
- Adjacent Roadway Traffic Volumes
- Block Size

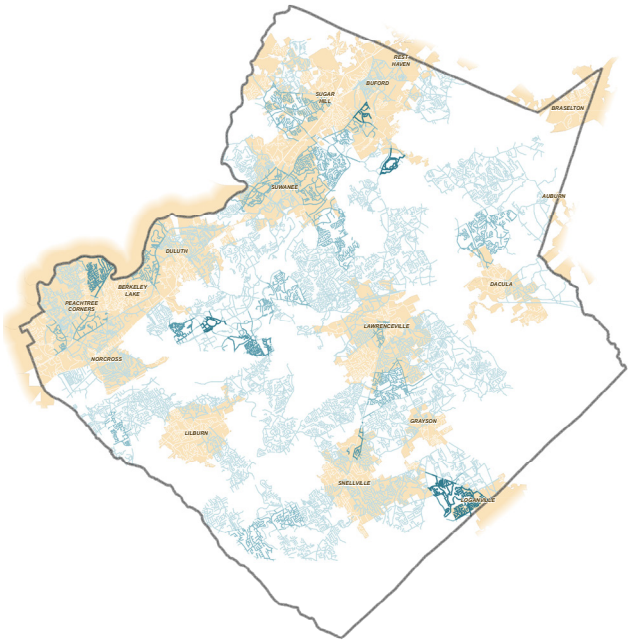
Existing Character of Roadway Segments



Proximity to Existing Bike Facilities



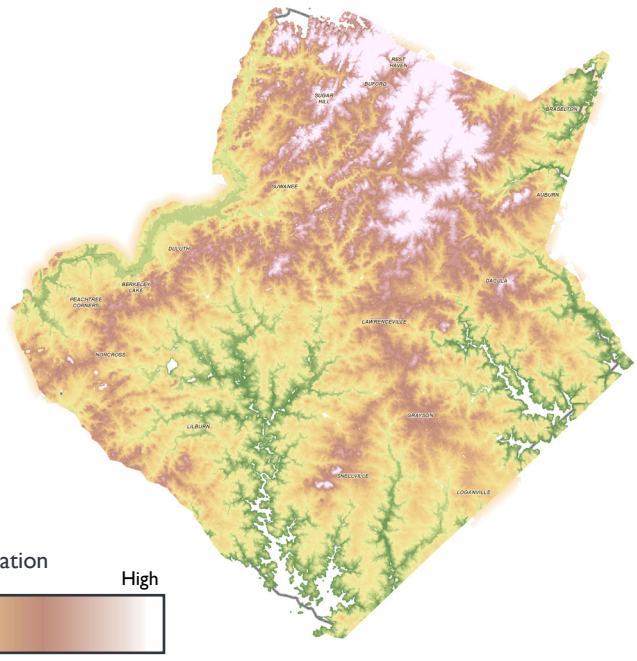
Short, Local Trips



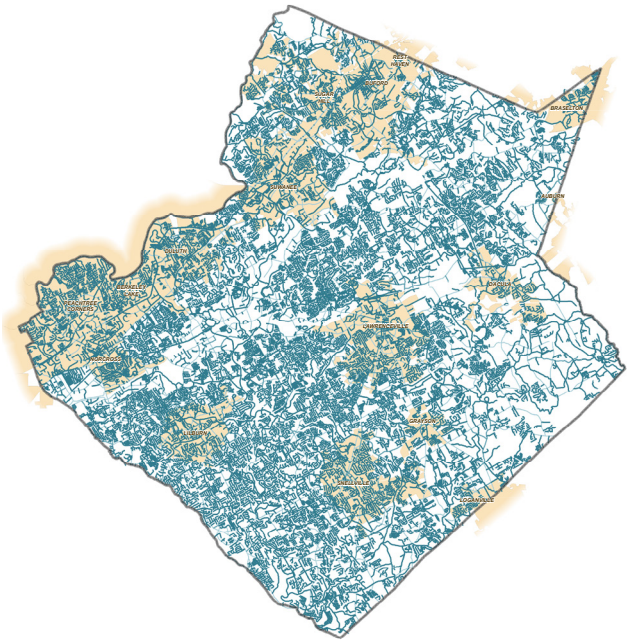
Proximity to Existing Sidewalks



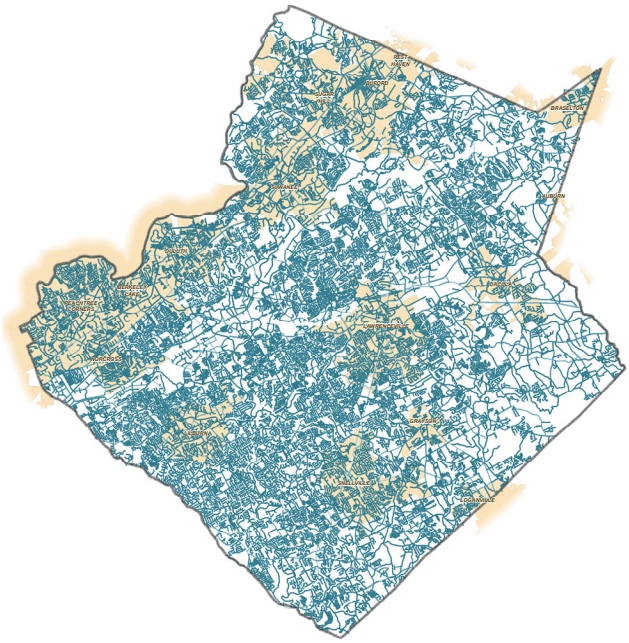
Slope



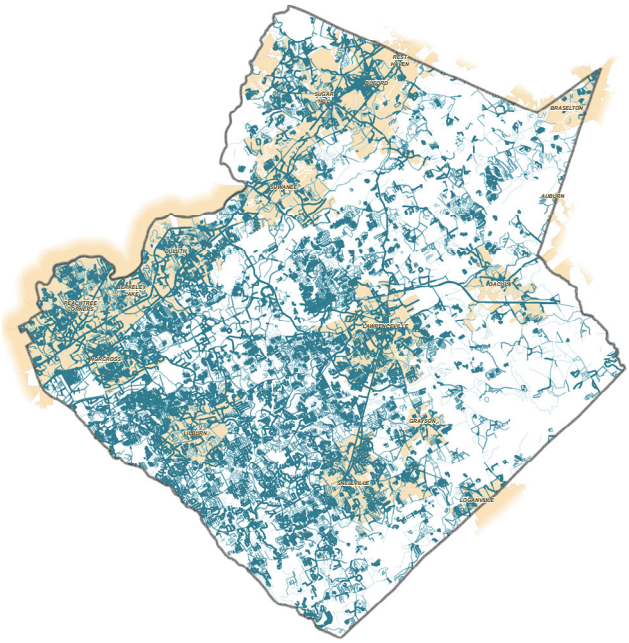
Adjacent Roadway Vehicle Speeds



Adjacent Roadway Traffic Volumes



Block Size

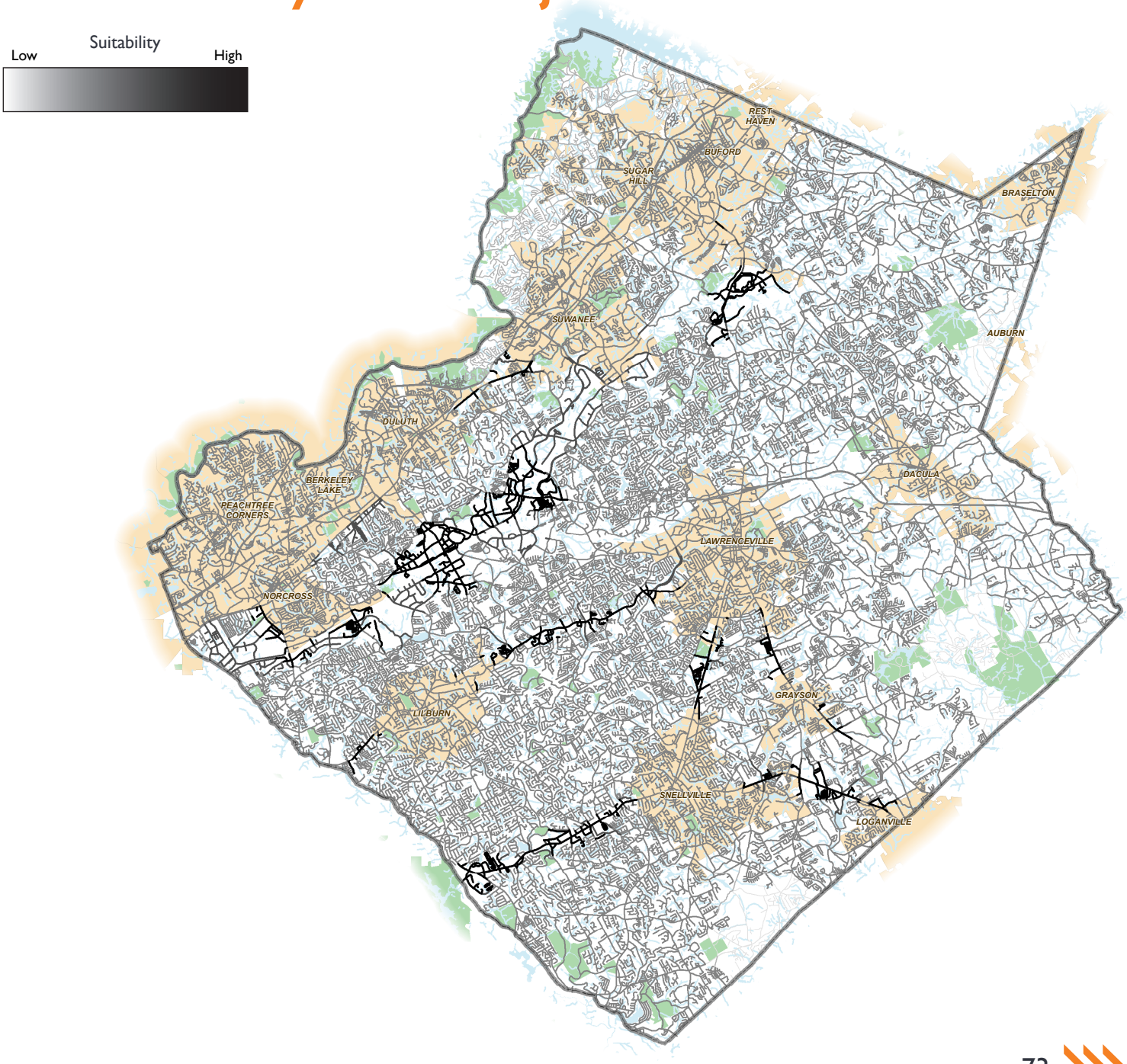


Future Needs Analysis

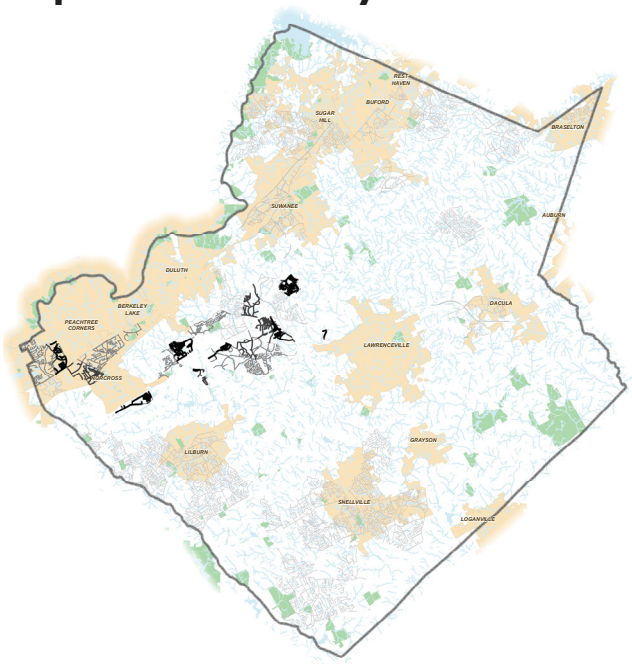
The final section of the analysis considers where growth is projected within the County, based on the County's Future Development Map and projections of employment and population density for the next several decades. These projections were provided by ARC at the TAZ level.

- Increase in Population Density
- Increase in Employment Density
- Increase in Short, Local Trips

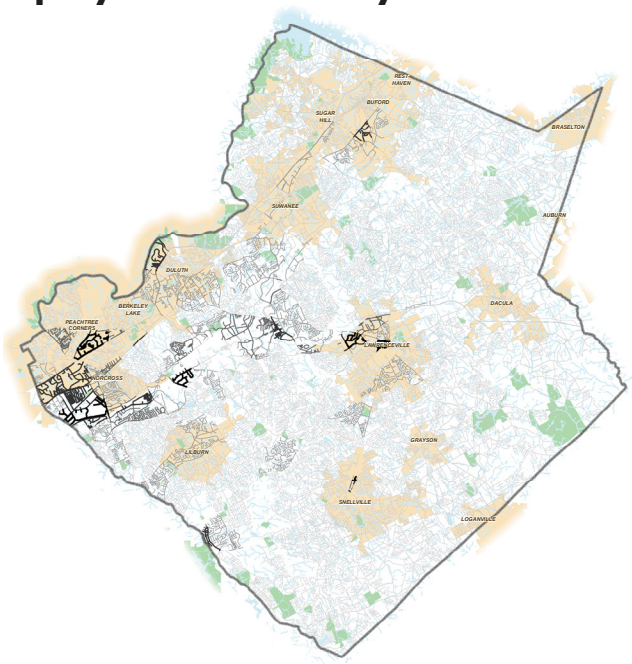
Future Analysis of Projected Growth



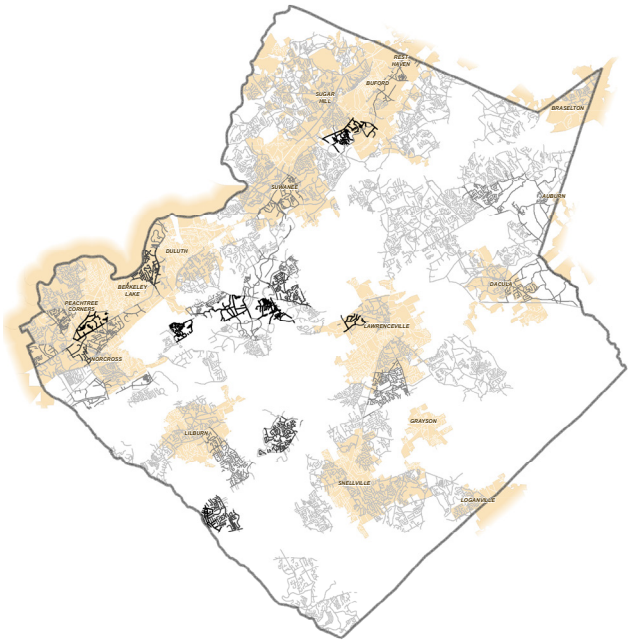
Increase in Population Density



Increase in Employment Density



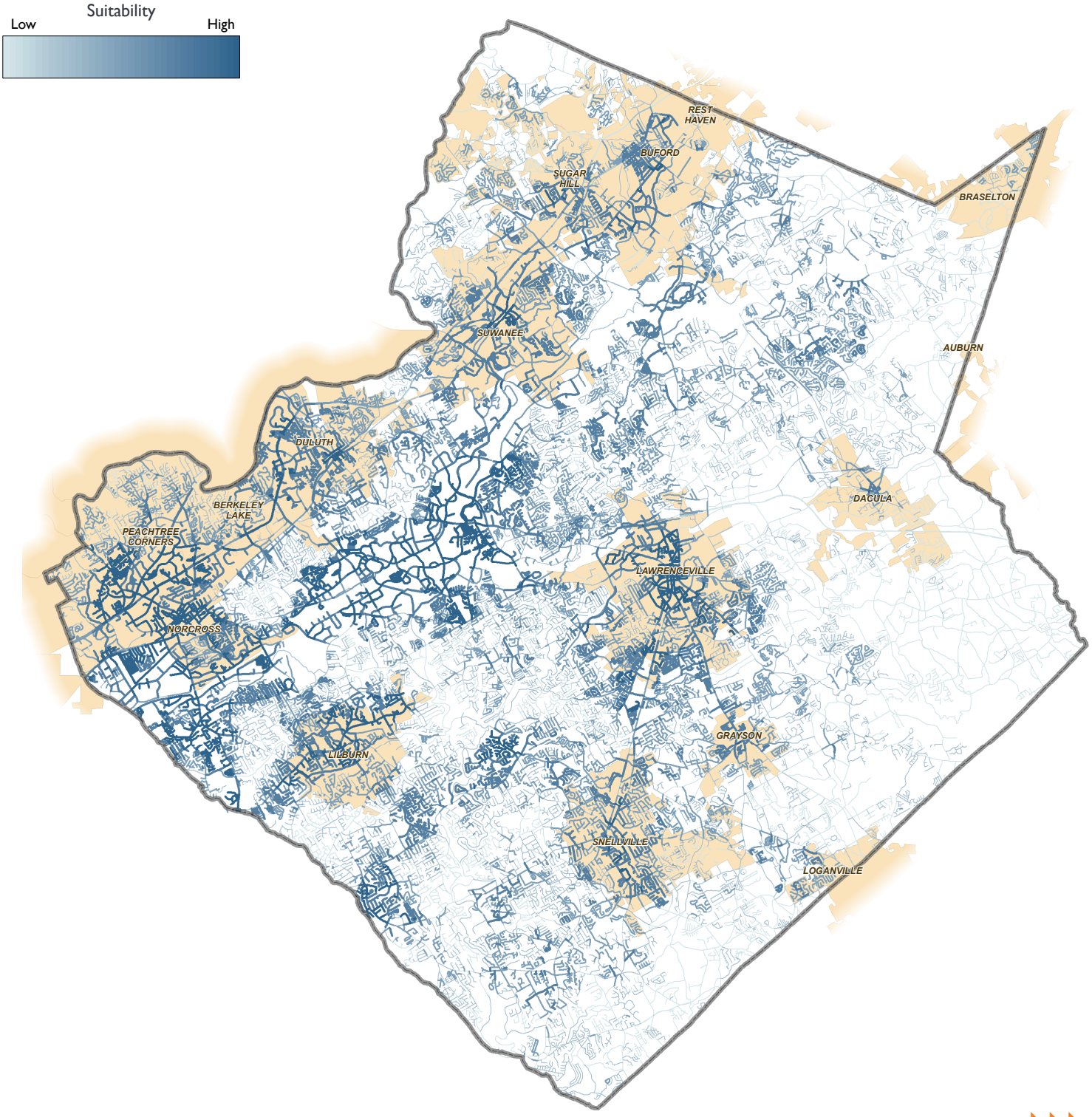
Increase in Short, Local Trips



Total Suitability Score

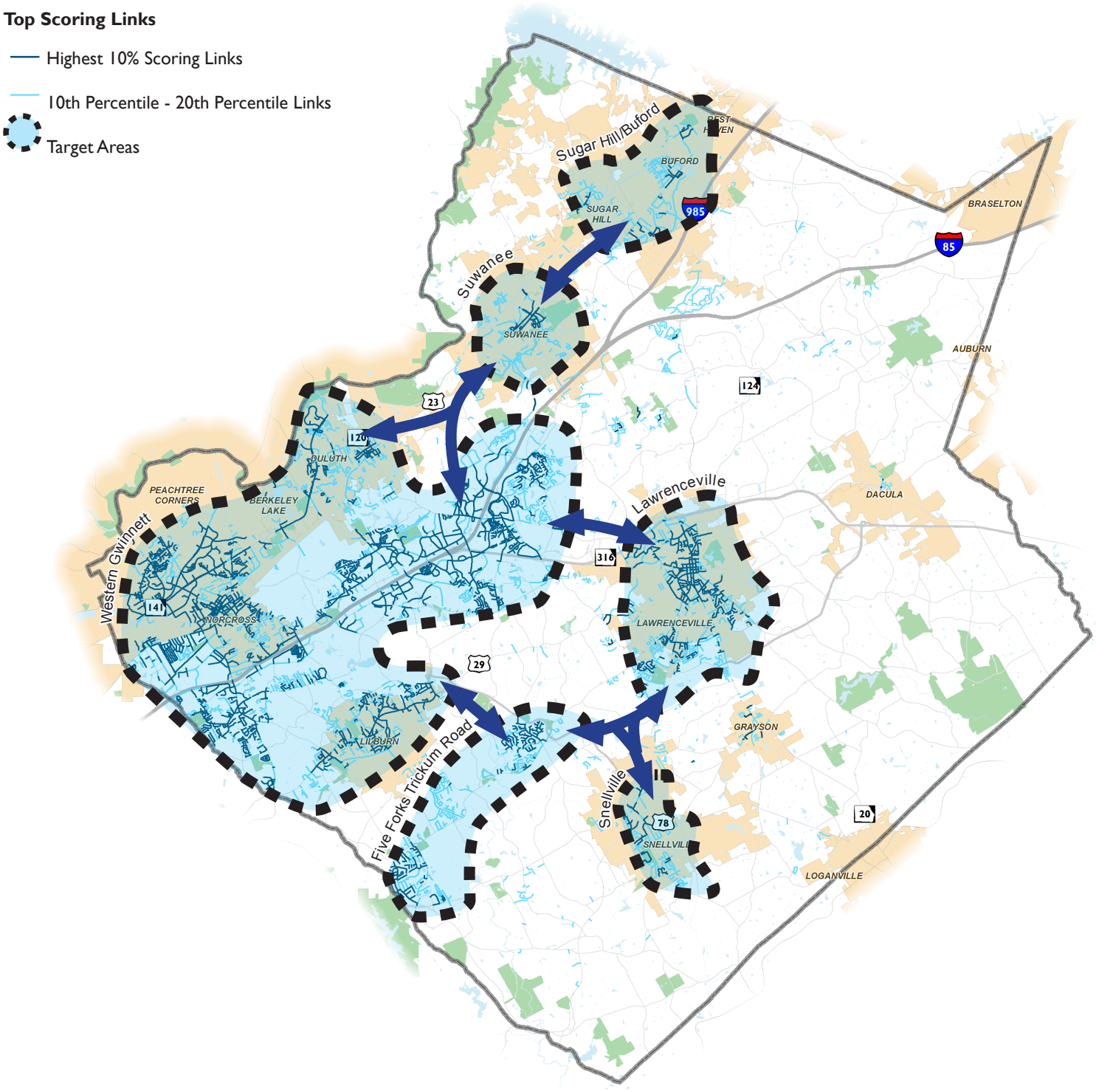
The map below shows the final score, evenly weighting each of the four categories: Attractions, Demand, Character, and Future Needs. Segments with higher scores are "more suitable," making them stronger candidates for pedestrian- or bicyclist-focused improvements than areas with lower scores.

Bike and Pedestrian Total Suitability Score



Based on the results from the suitability analysis, target areas and connections were derived, shown on the map below. These target areas contain concentrations of high-scoring roadways and other segments, and would likely be well-served by focusing on developing clustered, consistent, networks. Also identified are connections between these areas. These strong connections between target areas are critical to developing a truly countywide network.

Bike and Pedestrian Target Areas



BIKE/PEDESTRIAN PUBLIC INVOLVEMENT FEEDBACK

Six public meetings were held through March and April 2016. More than 300 people attended these meetings, providing valuable feedback, discussion, and insight. Below is a summary of the key themes pertaining to bike/ped needs discussed at the public meetings as well as a sample of some of the responses to and feedback from the MetroQuest survey.

Bicycles and Pedestrians

- Trails/Linear Parks
  - Connect to other parks and popular destinations within and outside of the County
  - Good examples include: Big Creek Greenway (Fulton County), Silver Comet Trail (Cobb County), and Atlanta BeltLine (City of Atlanta)
- Improvements near academic institutions for students of all ages
- Potential to reduce vehicular traffic and bus congestion
- Construct bicycle/pedestrian paths near schools

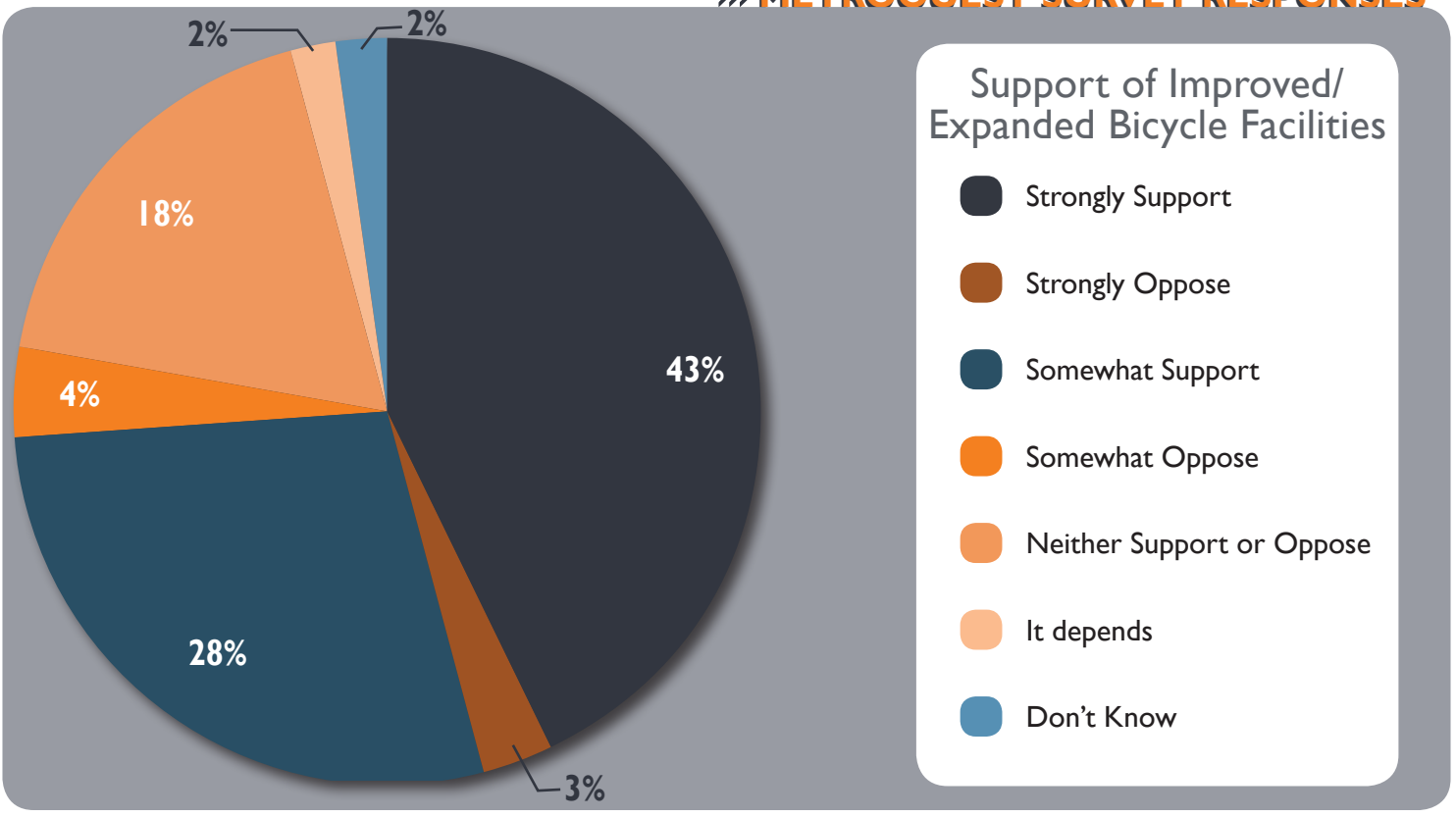
Bicycles:

- Need for bike lanes, wider shoulders, guard rails, and/or barrier separated cycle lanes/tracks
- Public education to improve cyclist safety
- Register and/or insure bicycles

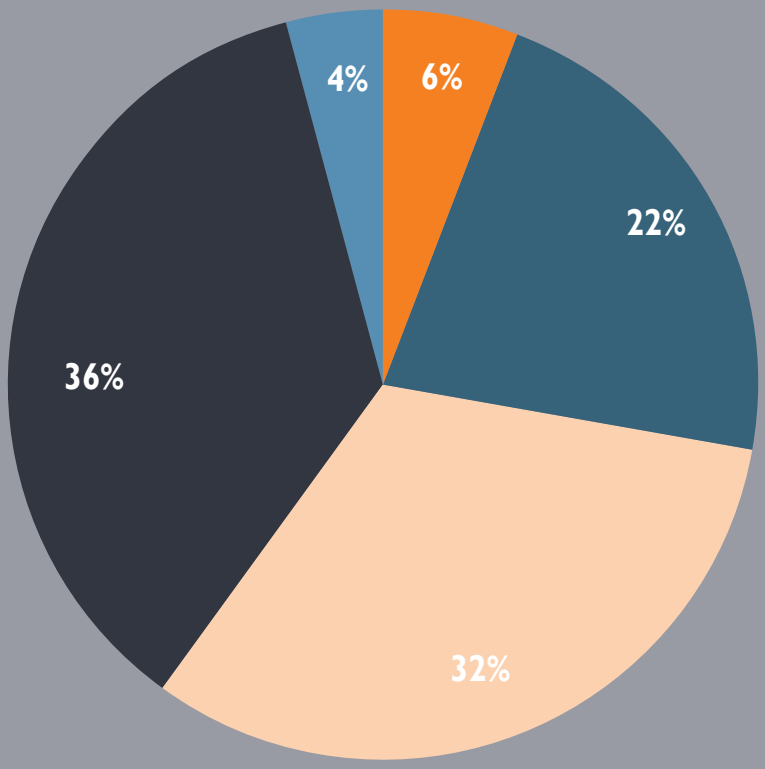
Pedestrians:

- Specific locations cited throughout the County for pedestrian safety/ infrastructure improvements:
  - Sidewalk gaps
  - Potential for mid-block crossings
  - Install new/upgrade existing pedestrian crosswalks at schools
  - Pedestrian lighting
- High concern where lacking infrastructure intersects high levels of pedestrian activity
- Good example of a walkable community: Suwanee

METROQUEST SURVEY RESPONSES



METROQUEST SURVEY RESPONSES

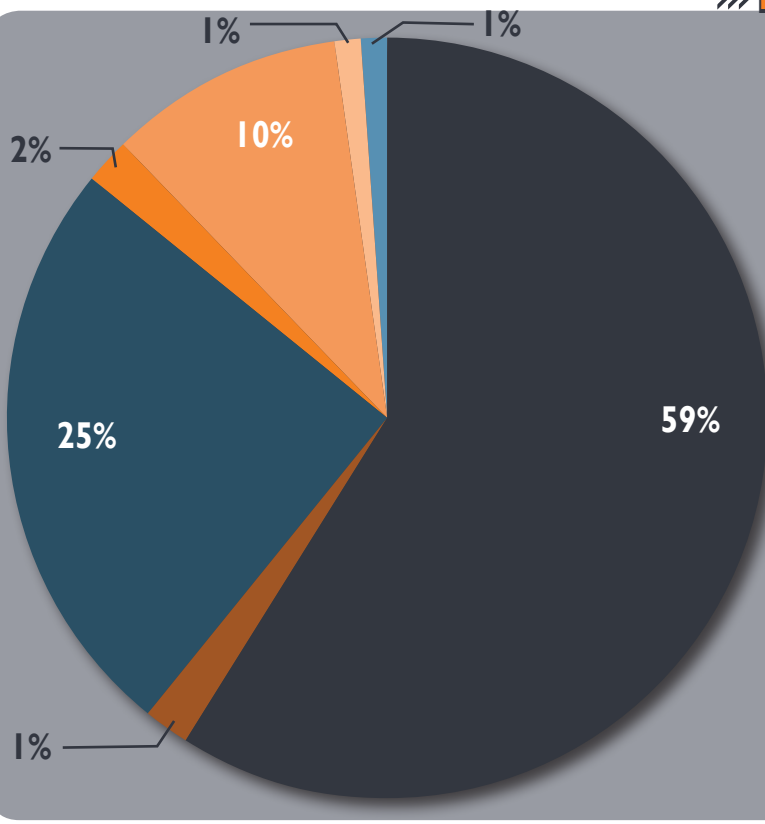


1-2 Best Bicycling Improvements

- Improved signage
- Wider paved shoulders
- Bicycle lanes
- Greenways/bicycle paths
- Don't know

A similar question was posed in regards to pedestrian improvements and nearly half of the respondents answered that sidewalks were their preferred pedestrian improvement, followed by crosswalks with traffic signals and greenways/trails.

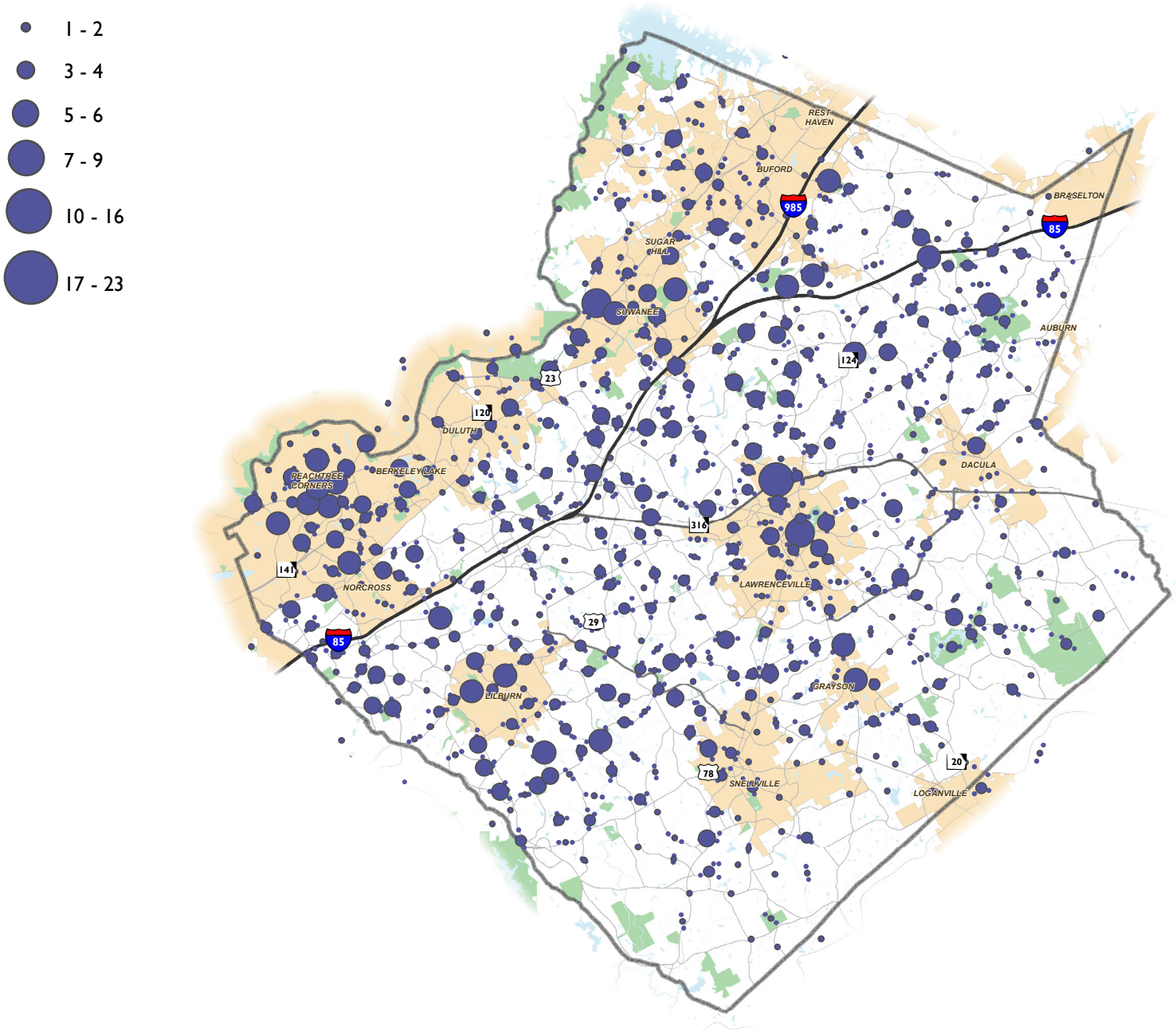
METROQUEST SURVEY RESPONSES



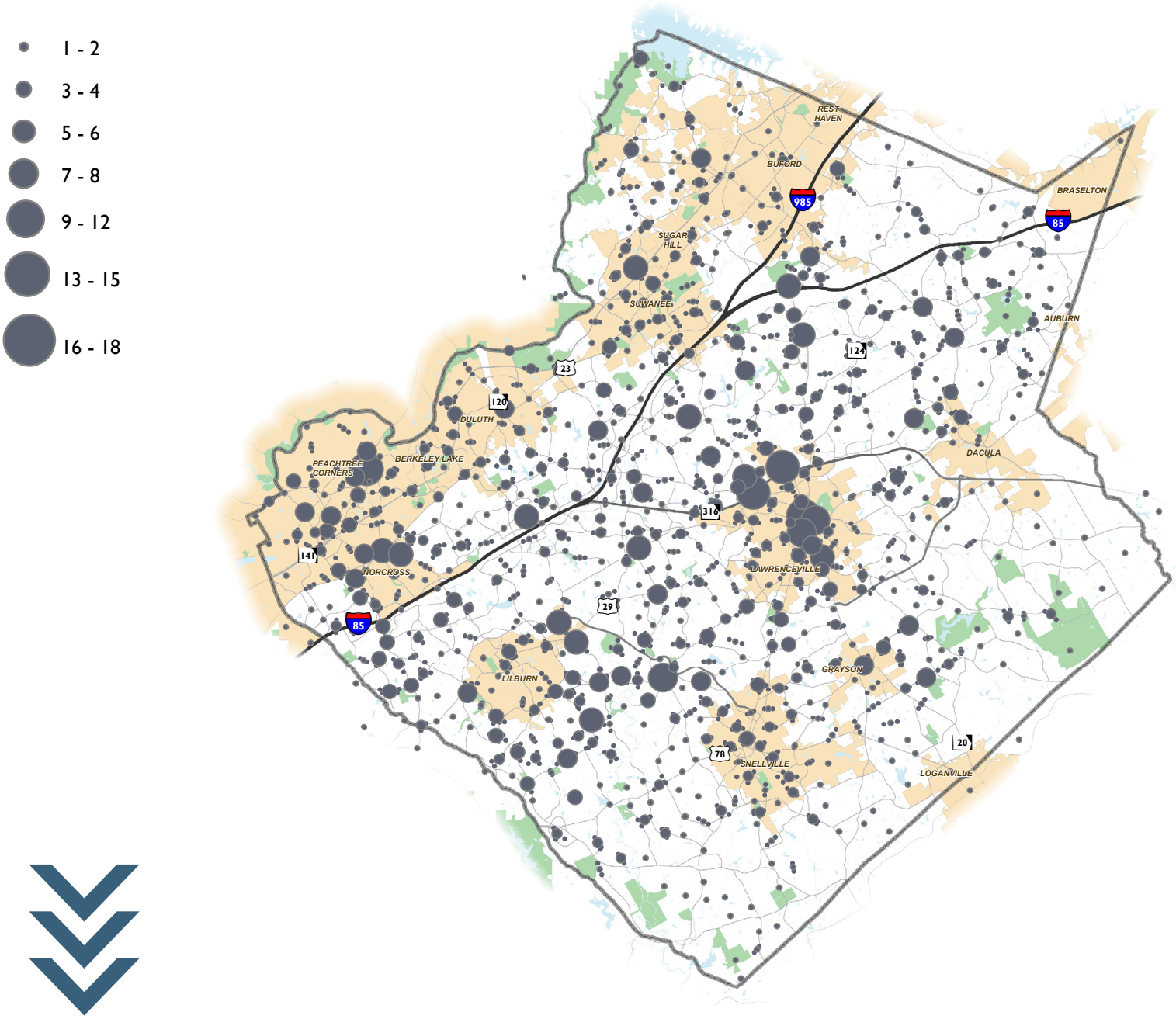
Support of Improved/ Expanded Pedestrian Facilities

- Strongly Support
- Strongly Oppose
- Somewhat Support
- Somewhat Oppose
- Neither Support or Oppose
- It depends
- Don't Know

MetroQuest Survey Bicycle Hotspots



MetroQuest Survey Pedestrian Hotspots



SUMMARY OF BIKE/PEDESTRIAN NEEDS

The analysis of existing bicycle and pedestrian facilities through the public's feedback highlights several areas of opportunity to improve the existing facilities and network. The range of opportunities provides the County with ways to make large impacts through smaller and quicker investments of time and money. While some of the identified needs can be addressed in the short-term, others require a more extensive process. The Countywide Trails Master Plan is currently underway and will serve as a great guide to assist in the forward progress of improving the County's bicycle and pedestrian facilities.

THE PLANNING PROCESS

WHAT'S NEXT?

Now that the planning team has thoroughly analyzed the County's current and projected future transportation needs across the spectrum of transportation modes, they can begin to identify solutions and projects that will meet these needs. These solutions and projects will form Destination2040's set of draft recommendations, which will undergo a robust project evaluation and prioritization process. To evaluate and prioritize the projects, the team will develop criteria that align with the project's vision and goals, keeping these objectives as the driving force of the plan.

In addition to the quantitative and qualitative assessment of the recommended projects through the evaluation and prioritization process, the planning team will gather public input and feedback on the draft recommendations as well as solicit ideas for additional potential projects. This feedback will provide the next layer of refinement that will help the team move toward a prioritized and constrained project list, which takes into account the County's ability to fund projects. This refined project list will feed into an implementation action plan that establishes short- and long-term projects. The implemenation action plan will establish project interdependencies and other considerations, such as game-changing projects that transform the County's system and new or emerging technology that may shift the paradigm of transportation planning. The refined project list and the implementation action plan will become Destination2040's Final Recommendations document, the last piece of the puzzle for Gwinnett County's Comprehensive Transportation Plan.

SOURCES

SOURCES

Page	Map/Chart/Image	Data Source
5	Citizens Transportation Plan Priority Rankings	Public Input across All Outreach Platforms
9	Density of Underserved Populations	Composite Score based on American Community Survey 5-Year Estimates by Block Group (2009-2013)
13	2015 Level of Service	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
14	2040 Projected Level of Service	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
15	Corridor-Level Congestion	INRIX data
16	Top 30 Bottlenecks	INRIX data
18	Mall of Georgia 2015 travel times; Mall of Georgia 2040 projected travel times	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
19	Gwinnett Place 2015 travel times; Gwinnett Place 2040 projected travel times	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
20	Top 15 Subarea TTIs from Gwinnett to Metro Atlanta (2040)	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
21	Top 15 Subarea TTIs within Gwinnett (2040)	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
22	Changes in Overall TTI (2015-2040)	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
23	Changes in TTI within Gwinnett (2015-2040)	Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
24	2012-2014 Crash Rate per 100 MVM	Crashes: GDOT Crash Data (2012-2014 - mapped and reviewed for significant location errors as part of this CTP) Traffic Volumes: Output from Atlanta Regional Commission's Travel Demand Model (calibrated for Gwinnett County as part of this CTP)
25	2014 Statewide Mileage, Travel, and Accident Data (GDOT); Pavement Conditions	GDOT 2014 Statewide Mileage, Travel, and Accident Data Report; Gwinnett County PAVER data export, February 2015
26	2015 Pavement Conditions	Gwinnett County PAVER data export, February 2015
31	Existing Freight Routes and Land Uses	Gwinnett County Existing Land Use (2009) and the Atlanta Regional Commission

Page	Map/Chart/Image	Data Source
32	Future Freight Land Uses	Gwinnett County Future Development Classifications (2016) and the Atlanta Regional Commission
33	Freight and Employment Change	2015 and 2040 Regional Travel Demand Model
34	Key Freight Corridors in Gwinnett	GDOT Traffic Count Data (2014)
35	Top 10 High Truck Volume Corridors in the County; Gwinnett County Corridors with the Highest Percentage of Trucks	GDOT Traffic Count Data (2014)
37	Existing At-Grade Railroad Crossings	Federal Railroad Administration, National Transportation Atlas Database, and Destination2040 inventory
38	Truck Volumes and At-Grade Railroad Crossings	Federal Railroad Administration and GDOT Traffic Count Data (2014)
39	Top 10 At-Grade Crossings by Truck Volume	Federal Railroad Administration and GDOT Traffic Count Data (2014)
40	Bridge Conditions along Truck Routes and near Schools	GDOT Bridge Inventory (Fourth Quarter 2015)
41	2014 GDOT Truck Volume Data	GDOT Traffic Count Data (2014) and the Atlanta Regional Commission
43	MetroQuest Survey Responses - 1-2 Best Driving Improvements	MetroQuest Online Survey
44	MetroQuest Survey Roadway Hotspots	MetroQuest Online Survey
45	Major Transit Destination	Gwinnett County Transit and the Atlanta Regional Commission
47	Transit and Population/ Employment Density	Gwinnett County Transit and American Community Survey 5-Year Estimates by Block Group (2009-2013), US Census LODES Workplace Area Characteristics (2014)
48	Transit and Underserved Populations	Gwinnett County Transit and American Community Survey 5-Year Estimates by Block Group (2009-2013), US Census LODES Workplace Area Characteristics (2014)
49	Transit Propensity vs. Survey Trip Origins	Gwinnett County Transit and American Community Survey 5-Year Estimates by Block Group (2009-2013), US Census LODES Workplace Area Characteristics (2014), Destination2040 On-Board Survey
50	Density of Existing Transit Origins/Destinations (O/Ds) - Density of Home-Based Work Trips	Destination2040 On-Board Survey

Page	Map/Chart/Image	Data Source
51	Existing Transit Riders' Home-Based Work Trip O/Ds - Origin/ Destination Of Home-Based Work Trips	Destination2040 On-Board Survey
52	Modeled 2015 and 2040 Home-Based Work Trip O/Ds - 2015 Home-Based Work Trips; Modeled 2015 and 2040 Home-Based Work Trip O/Ds - 2040 Home-Based Work Trips	2015 Regional Travel Demand Model; 2040 Regional Travel Demand Model
53	Modeled 2015 and 2040 Home-Based Work Trip O/Ds - Growth of Home-Based Work Trips between 2015 and 2040	2015 and 2040 Regional Travel Demand Model
54	Average Travel Speed of GCT Bus Service during the Peak Hour	Gwinnett County Transit
58	Transit Trips with Transfers in the GCT System	Destination2040 On-Board Survey
59	All Transit Trips	Destination2040 On-Board Survey
61	MetroQuest Survey Responses - 1-2 Best Transit Improvements	MetroQuest Online Survey
62	MetroQuest Survey Transit Hotspots	MetroQuest Online Survey
64	Roadway/Greenway Segments near Key Attractions	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
65	Total Demand Score	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
66	Existing Character of Roadway Segments	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
67	Future Analysis of Projected Growth	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
68	Bike and Pedestrian Total Suitability Score	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
69	Bike and Pedestrian Target Areas	Various Sources, including US Census, ARC TDM, County Data, and Consultant Analysis
70	MetroQuest Survey Responses - Support of Improved/Expanded Bicycle Facilities	MetroQuest Online Survey
71	MetroQuest Survey Responses - 1-2 Best Bicycling Improvements; MetroQuest Survey Responses - Support of Improved/Expanded Pedestrian Facilities	MetroQuest Online Survey
72	MetroQuest Survey Bicycle Hotspots	MetroQuest Online Survey
73	MetroQuest Survey Pedestrian Hotspots	MetroQuest Online Survey

APPENDIX

Destination2040
Gwinnett's Comprehensive Transportation Plan

Gwinnett County CTP Round I Public Meeting Summary

Public Meeting Events

- Tuesday, March 15th, 2016 – Bogan Park Community Recreation Center
- Saturday, March 19th, 2016 – Shorty Howell Park Activity Building
- Monday, March 21st, 2016 – Lucky Shoals Park Community Recreation Center
- Tuesday, March 29th, 2016 – Snellville City Hall Council Chambers
- Monday, April 18th, 2016 – Dacula Park Activity Building
- Thursday, April 21s, 2016 – Gwinnett County Department of Planning and Development

Attendance

A total of 323 people attended the six meetings.

Format

- Check-in followed by a brief Open House
- Welcome & Presentation by Gwinnett County staff and Consultants
- Interactive Table Exercises hosted at each table with participants
- Wrap-Up by Gwinnett County staff and Consultants

Summary

NOTE: The comments shown in this summary are direct inputs/comments from citizens and/or meeting/activity participants and do not necessarily reflect the opinions, findings, or policies of the County.

The meeting began with a welcome from Alan Chapman, Gwinnett County Department of Transportation Director. He gave an overview of the meeting's agenda and briefly talked about the upcoming public involvement efforts which includes six meetings, an online survey and phone survey. Mr. Chapman mentioned that they County presented the plan Vision & Goals to the Board of County Commissioners and then turned the meeting over to Consultant Team Project Manager Cristina Pastore.

Ms. Pastore began by informing the group that the project webpage and email are both available and encouraged them to visit and to test both tools. She talked about the upcoming public meetings which have been distributed throughout the County. Ms. Pastore stressed the importance of the Partner Agency Stakeholder Group to provide honest feedback at meetings such as this one where the Team will be presenting information and exercises similar to what the public will see at upcoming meetings. She described the Group as a 'sounding board' for engagement. Ms. Pastore talked about additional engagement tools such as the MetroQuest survey which is online and running. She encouraged attendees to actually take the survey to provide their input and informed them that they could do that at today's meetings on the iPads provided by the Team. Ms. Pastore led the group through an interactive mobile polling exercise.

Afterwards, she presented the draft Vision and Goals statement which was the result of the group's input. The draft Vision and Goals statement is as follows:

The Gwinnett County Comprehensive Transportation Plan will provide a framework to improve quality of life for everyone in the County by facilitating the mobility of people and goods safely and efficiently across all modes of transportation. This framework will be established through the following short and long term goals:

- *Improve **safety and mobility** for all people across all modes of travel*
- *Serve as **responsible stewards** of transportation resources*
- *Leverage the County's transportation system to improve **economic vitality** and **quality of life***
- *Improve **connectivity***
- *Proactively **embrace future** transportation **opportunities***

Each attendee was provided with a worksheet that included the draft vision and goals and asked everyone to review and to provide suggested edits. She also asked that they rank the goals, with the option of writing in a goal, if necessary. Ms. Pastore explained that this exercise is important in that it will help the Team understand priorities and to establish Evaluation Criteria for the project prioritization process.

Members of the group expressed concern that the wording of the goal which reads "Serve as Responsible Stewards of Transportation Resources" may sound biased towards transportation resources and that the expectation is that being a responsible steward of resources is an underlying and fundamental goal of the County.

Next, Ms. Pastore presented an overview of the Existing Conditions Analysis. She reviewed and discussed trends in population and population density, race and ethnicity, limited English proficiency, median household income, vehicular access, age, community facilities, environmental features, and school locations.

Following the presentation, the group was engaged in additional interactive polling activities as well as a series of table exercises regarding roadway, transit, and bicycle and pedestrian concerns. Supplemental information was presented before each discussion and also made available in the form of table maps.

A high level summary of input collected from these exercises is summarized by topic below. A comprehensive summary of participation is included as an appendix.

Roadway Discussion

- Congestion around Gwinnett County was the most talked-about topic during the public meetings. The public expressed concerns about several congested corridors, corridor segments, as well as intersections and specific locations that suffer from heavy congestion. Potential solutions for addressing these concerns were also noted.
- Poor signal timing and short turn signals were among primary concerns with several intersections across the County.
- Dangerous intersections, safety concerns and high accident locations were also cited as major roadway safety issues affecting traffic in Gwinnett County.
- Topography, geometry and sight distance issues were also cited as specific safety issues that should be addressed.

- Access management was voiced as an area of concern for a few locations throughout Gwinnett.
- Specific bridge and rail crossings that needed attention were noted by meeting participants.
- Schools were cited as a source of congestion. Concerns included parent/driver behavior, the volume of buses and where the schools are sited.
- Signage issues including inadequate spacing and a lack of signage were mentioned.
- Public meeting participants discussed potential solutions such as possible locations for road diets as well as the usefulness of and potential locations for alternate routes.
- Stakeholders also offered ideas for potential new connections, extensions, new interchanges, and highway elevation projects that may positively impact transportation throughout the County.
- There were also reactions to problems and possible solutions to improve the driver experience on I-85.
- Capacity improvements such as road widenings were recommended as possible solutions for roadway issues.
- Members of the public commented on locations where turn lanes may be lengthened or installed and where traffic lights as well as turn signals could be improved.

Transit Discussion

- There were a number of comments about Gwinnett County Transit's current service. Many transit users commented that the County needs to increase frequency, decrease wait times and extend service hours.
- Participants expressed difficulty in connecting between Gwinnett County Transit routes as well as transferring to MARTA routes outside of the system.
- Some participants believe that more should be done to increase ridership on the current system including educating the public and increasing visibility.
- Destinations – where people would like to connect to within and outside of Gwinnet County via transit – varied from local trips to the Mall of Georgia, the Infinite Energy Arena and parks to regional destinations such as Atlanta, Cobb for games, and the Hartsfield-Jackson Atlanta International Airport. There was also mention of more localized transit that could transport residents, specifically seniors, to medical appointments or special events.
- There were mixed views on negative and positive perceptions of the MARTA system and how it may impact Gwinnett County. Some believed that MARTA would be a good fit for the County while others expressed concern with crime and safety.
- Ideally, new service would be a more efficient service. There were mentions about specific modes that should be considered in Gwinnett including heavy rail, light rail and BRT, as well as circulators/trolleys (see "Localized Transit Needs" above).

Bicycle and Pedestrian Discussion

- Sidewalk improvements seem to be a common concern across the County, particularly in areas where there are high levels of pedestrian activity but no infrastructure to accommodate them. Suwanee was cited as a good example of a walkable community.
- Many locations were cited as specific places for pedestrian improvements, such as completing and filling in sidewalk gaps, installing mid-block crossings, and improving pedestrian lighting. This is a need throughout the County.

- Additionally, specific locations that are unsafe or where there are concerns for pedestrian safety were also offered by participants.
- There was significant support for a trail system or network of linear parks that could connect to one another throughout the County as well as to popular destinations such as the Mall of Georgia, colleges and downtown areas. The system could be open to both pedestrian and bicycle usage. Examples include the City of Raleigh, NC, Fulton County's Big Creek Greenway, the Silver Comet Trail and the Atlanta BeltLine.
- There were many recommendations to improve bikeability and walkability around all schools and universities, allowing more students to walk and bike to school. This would ideally reduce vehicular traffic, especially around schools, and also congestion due to busses. Ideas for improving bikeability and walkability include installing and upgrading pedestrian cross walks at all schools, filling in sidewalk gaps, constructing bike paths near schools and supporting mid-block crossings.
- Many participants feel that it is currently unsafe to cycle throughout Gwinnett County. There are places throughout the County that do not have bike lanes/are not accessible by bike.
- There were many suggestions for bike lanes, wider shoulders, guard rails and even barrier separated cycle lanes/tracks that would make cycling safer. There was mixed feedback regarding the usage of multi-use paths for cycling.
- Some desirable destinations for cycling include County parks, the PATH network at Arabia Mountain, Stone Mountain and downtown Atlanta.
- There were recommendations for more public education to increase safety for cyclists and to calm drivers' fears.
- Other cycling safety precautions could include 'tagging' bikes and requiring insurance for riding on public thoroughfares or required cycling groups to apply for permits to use certain roads.
- There were some statements of concern regarding the space taken up by cyclists traveling in 'packs' or large groups on the roadway.

Next Steps/Wrap Up

To conclude the meeting Ms. Pastore discussed the next phase of the project and asked the group to participate in and help advertise the online MetroQuest survey by sharing information with their networks.

Mr. Chapman closed the meeting by thanking everyone for their time and participation.

APPENDIX

ROADWAY DISCUSSION

CONGESTION ISSUES

Congestion around Gwinnett County was the most talked-about topic during the public meetings. The public expressed concerns about several congested corridors, corridor segments, as well as intersections and specific locations that suffer from heavy congestion. Potential solutions for addressing these concerns were also noted.

Congested Corridors

- Annistown Road
- Auburn Road (SR 324)
- Dacula Road
- Grayson Highway
- Harbins Road
- Hwy 120
- Hwy 124 (Braselton Highway) is congested
- I-85
- Indian Trail
- Killian Hill Road
- McGinnis Ferry
- Peachtree Parkway
- Peachtree Industrial Boulevard- Traffic patterns seem to indicate people refusing to take I-85 because of congestion. There is more and growing traffic on PIB and it is only going to get worse.
- Pleasant Hill Road
- Rockbridge Road
- Russell Road is congested
- Satellite Boulevard
- South Norcross-Tucker Road
- Spalding Drive during AM/PM commuting hours.
- SR 140 (Jimmy Carter Boulevard)
- SR 316
- SR 324 (Auburn Road) narrows from 4 lanes to 2 lanes north of Dacula; causes delays through Dacula.
- SR 378 (Beaver Ruin Road)
- SR 20
- Sugarloaf Pkwy has congestion issues
- Surface streets in the area of Gwinnett County south of Jimmy Carter Boulevard
- US 29

Congested Corridor Segments

- Dacula Road from Fence Rd to Hwy 29
- Dacula area retail stores (Kroger) located north of SR 316 to residential areas south of SR 316 - Unacceptable trip times.

- Dacula to Buford area - In general, travel characterized by delays and heavy volumes especially in the afternoons (3-6:30 pm).
- Gravel Springs Road (specifically where it reduces from 4 to 2 lanes near Hwy 124)
- Hwy 120 from Gwinnett to Alpharetta
- Hwy 124 between Snellville and Lawrenceville (commercial corridor)
- Hwy 124 from Webb Gin Road to Sugarloaf Parkway. The retail development is outpacing the roadway capacity.
- Hwy 124 (Scenic Highway) is congested from Lawrenceville to Centerville, with the worst between Sugarloaf Parkway and Snellville
- Hwy 124 - Scenic Hwy through Snellville
- I-85 from I-285 to Pleasant Hill Road in the afternoon
- I-85 near Sugarloaf Pkwy/Old Peachtree Road to Suwannee
- I-85 to NC/SC very badly congested
- Peachtree Industrial Boulevard through Duluth from Pleasant Hill Road to Sugarloaf Parkway in the morning and afternoon
- Peachtree Industrial Boulevard in Duluth towards Johns Creek in the evening
- Peachtree Industrial Boulevard is congested from Suwannee Dam Road to Sugarloaf Parkway
- Peachtree Industrial Boulevard is congested from north of Berkeley Lake south to the county line
- Russell Road from Buford Drive to Collins Hill Road gets backed up if there are incidents on I-85
- SR 20 (Cumming Highway) from the Coolray Field (Gwinnett Braves Stadium) to Sugar Hill
- SR 120 (Abbots Bridge Road) to North Fulton
- SR 316 through Lawrenceville
- Suwanee Dam Road from Peachtree Industrial Boulevard to SR 20 (Cumming Highway)
- US 78 (Stone Mountain Highway/Main Street) eastbound in the afternoon
- US 23/SR 13 (Buford Highway) is worse the further south you get

Congested Corridor Intersections/Specific Locations

- Alcovy at Harbins
- Beaver Ruin Road and Indian Trail at I-85
- Braselton towards Gravel Springs at I-20, all day long
- Britt Road from SR 140 (Jimmy Carter Boulevard) to Chamblee-Tucker Road
- Chattahoochee River - all crossings
- Dacula Road at SR 8 (Winder Highway) has operational challenges
- Fence Road and SR 316 intersection
- Harbins Road crossing SR 316; affects E. Fork Alcovy Road intersection with Harbins Road.
- Horizon Drive at Old Peachtree Road
- Hwy 124/Scenic Hwy, especially by Snellville, during peaks and weekend
- Hwy 124 (retail destination).
- Hwy 124 (Scenic Highway) at Webb Gin House Road
- Indian Trail near 85
- I-85 at I-285 interchange from 2 p.m. to 8 p.m.
- I-85 at SR 140 (Jimmy Carter Boulevard) - the diverging diamond interchange moved congestion up and downstream along SR 140 (Jimmy Carter Boulevard)
- I-85 South AM Peak at SR 316/I-85 interchange

- Jimmy Carter at the diverging diamond, all times of the day. On Saturdays, traffic backs up onto the interstate
- Lawrenceville-Suwannee Road at I-85
- Mall of GA area - so congested people are avoiding getting jobs in the area (affecting quality of life)
- McGinnis Ferry at Peachtree Industrial Boulevard
- McMillan Road and Broad Street due to at-grade railroad crossings.
- Peachtree Industrial Boulevard and McGinnis Ferry Road
- Peachtree Industrial Blvd at Pleasant Hill Road for left turns in all directions, all times of the day
- Pleasant Hill Road crossing State Bridge Rd at edge of county is bad
- Ronald Reagan Parkway at the Target in Snellville
- Rosebud and Old Loganville Highway
- Satellite Road at Beaver Ruin (in the AM) due to the merge that does not appear to be working
- SR 20 by Mall of Georgia
- SR 20 (Buford Drive) and SR 316 (University Parkway) interchange
- SR 20 (Cumming Highway) from Gravel Springs Road to Rock Springs Road
- SR 84 up to SR 20
- SR 120 (Duluth Highway) near the hospital in Lawrenceville
- SR 324 to the Mall of Georgia
- SR 316 and Harbins Road
- SR 316 (University Parkway) at SR 120 (Duluth Highway)
- State Bridge Road at Hwy 141 (in Fulton Co)
- US 23/SR 13 (Buford Highway) at Suwanee Dam Road
- US 29 and Auburn Road
- US 78 at edge of county line especially at Mountain Industrial

Solutions for Congestion

- Adding a variable message sign on SR 316 (University Parkway) westbound prior to the Sugarloaf Parkway exit advising travelers of traffic conditions ahead would allow motorists to exit and divert onto alternate routes
- Better/longer merge lanes
- Lane addition might be needed
- More lanes on I-85 from Hamilton Mill to the I-985 split would help congestion
- SR 324 (Gravel Springs Road/Auburn Road) needs to be widened east of Hwy 124 (Braselton Highway)
- Grade separations in Snellville similar to US 23 (Buford Highway) at Pleasant Hill Road would help (e.g. US 78 (Main Street) at Hwy 124 (Scenic Highway))

INTERSECTION CONCERNS

Poor signal timing and short turn signals were among primary concerns with several intersections across the County.

Poor Signal Timing/Re-Timing Needed

- Chattahoochee River crossings – All
- Dacula Rd and Hwy 29: split phase issue
- Harbins Road
- Five Fords at Killian Hill
- Hwy 124 – along corridor
- Hwy 124 (Scenic Highway) from Lawrenceville to US 78 (Main Street) – all signals
- Hwy 124 - Side street signals on don't actuate during off-peak
- Jimmy Carter Blvd at Norcross Tucker Rd. Consider removing the red left turn arrow.
- Lawrenceville Hwy past Walter Blvd
- Lawrenceville-Suwanee Road at Sugarloaf Pkwy
- Old Milton corridor
- Peachtree Industrial Blvd at Pleasant Hill Road - takes several signal cycles to pass through the intersection during the AM & PM commutes
- Pleasant Hill corridor
- SR 84 – along corridor
- SR 141 at McGinnis Ferry in Johns Creek/Fulton County
- SR 316 east of Winder Highway
- US 78 – multiple locations
- US 78 at the exit from Summit Chase

Short Turn Signals

- Hwy 124 Turn arrow timings are too short
- SR 84 and Rosebud Rd Left turn arrow onto Rosebud is too short
- SR 378 (Beaver Ruin Road) at Steve Reynolds Boulevard – left turn phase too short

SAFETY

Dangerous intersections, safety concerns and high accident locations were also cited as major roadway safety issues affecting traffic in Gwinnett County.

Dangerous Intersections, Safety Concerns, High Accident Locations

- Forest Vale at SR 140 (Jimmy Carter Boulevard) - Pedestrians crossing mid-block are a safety
- Grayson Parkway at Lakeview Road - Entering is difficult. The intersection is not perpendicular and there is no signal. It is dangerous.
- Hwy 124 (Scenic Highway) at SR 264 (Bethany Church Road)
- I-85 from I-985 to I-285 - Safety concerns and lots of wrecks along this stretch.
- Jimmy Carter Blvd. - People running red lights is a big safety issue
- Oak Road
- SR 316 at Drowning Creek
- SR 316 at Harbins Road
- SR 316 at Fence Road going into Rabbit Hill Park – lots of wrecks.
- US 78 (Stone Mountain Highway/Main Street)

- US 78 and Rosebud Road – lots of accidents
- US 78 at Cooper Road is a high crash area
- TWLT on Hwy 124 (Scenic Highway) is dangerous
- Majority of population driving over speed limit is a big safety issue everywhere.
- Safety and inexperienced drivers are factors. People are getting killed because they are not mature enough not to take risks.
- The speed along SR 316 is excessive, making it difficult to get into a short turn lane without the fear of being rear-ended.

Topography, geometry and sight distance issues were also cited as specific safety issues that should be addressed.

Geometry/Topography Concerns

- Hwy 124 - Topography causes people to speed up and slow down as they go up and down hills. No consistent speed.
- McMillan Road at Harbins Road – intersection is dangerous. It is unsignalized, on a curve, and the intersection is skewed.
- North Road at Hwy 124 needs to be realigned to a "T" intersection and a signal should be added here.
- US 78 and SR 84 (Grayson Parkway) has topography and geometry issues

Sight Issues

- Harbins and New Hope Rd needs traffic light, limited sight
- Oak Road and Mountain View Road has sight issues with turn lanes
- Ridgedale Road at Grayson Parkway is dangerous. Lots of cross/flower memorials there. Sight distance over the hill is not good.
- Ridgedale Drive and SR 84 has sight and visibility issues
- US 29/SR 8 grade issues with Railroad. Limited visibility and difficult to cross.
- US 78 approaching Rosebud Road - There are sight distance issues when traveling west
- US 78 and SR 84 (Grayson Parkway) has sight issues with center turn lanes.

Access management was voiced as an area of concern for a few locations throughout Gwinnett.

- Buford Highway has bad access management. Maybe have 1 lane transit devoted.
- Five Forks Trickum Road - Access management issues along
- Lawrenceville Highway near Gwinnett Medical Center – Access needed (low traffic volume on Lawrenceville but difficult to get to and from)
- Ronald Reagan Parkway from Centerville – poor access
- Scenic Highway - access management issues
- US 78 and Kilian Hill (near Bethany Church) is hard to get in and out of those driveways; also always a crash here

Specific bridge and rail crossings that needed attention were noted by meeting participants.

- Fence Road at SR 316 - There is a weight restriction sign but it is not adhered to or enforced. Lots of big trucks use this route.
- Harbins/Dacula Road - Bridge needs to be fixed
- Huff Drive in Lawrenceville - At-grade rail crossings an issue
- Sardis Church Road - The bridge needs to be replaced
- Winder Hwy. at Dacula Road - Concerned about new bridge project

Schools were cited as a source of congestion. Concerns included parent/driver behavior, the volume of buses and where the schools are sited.

- Traffic enforcement at schools for drop off and pick up is needed
- Around schools, people (parents?) are parking in turn lanes into neighborhoods to wait for their kids.
- Storage at middle school- cars lined up on small roads
- Too many delays in the area around Dacula High School, particularly early mornings.
- Stop putting schools on major roads, making the traffic stop
- Graves Road near the new school and the Piccadilly subdivision:
    - Traffic backs up into the neighborhood due to school traffic
    - Need another officer to direct traffic out of neighborhood
- Do something about all the heavy volumes and buses around the schools.
- Safety concerns around High Schools with young drivers.

Signage issues including inadequate spacing and a lack of signage were mentioned.

- Fence Road and SR 316 - Add no left turn signage. There is a safety concern since yield sign was removed
- US 78 and Hwy 124 heading east on US 78 - Signage is not sufficient at the intersection to let motorists know that the two left lanes are left turn only.
- Webb Ginn Road at The Avenue - There are left turn only lanes that are not signed enough in advance. People get confused and use the turn lanes to try speed ahead and bypass those cars in the through lanes.
- Signing and marking on roads, especially turn lanes, needs improvement.
- Signage stating jaywalking is prohibited is needed

POTENTIAL SOLUTIONS

Public meeting participants discussed potential solutions such as possible locations for road diets as well as the usefulness of and potential locations for alternate routes.

Road Diets

- I would be in favor of a road diet in live, work, play areas, such as downtown Lawrenceville, Suwanee, Duluth, etc. The current configuration of the roads appears to isolate pedestrians.
- Focus on Town Center area for potential road diets
- Potential areas for road diets include the southeastern part of the county (possibly connecting parks) and the northern part of the county
- Satellite Road has more capacity than needed. Going north on Satellite, there is not much traffic.
- Brook Hollow is a wide street that is not congested, except for at Jimmy Carter Blvd. Many other stretches of the road have light traffic and underutilized lanes.

Alternate Routes

- Existing Alternate Routes:
    - Many roads in industrial areas are not utilized but could be alternate routes if properly signed/identified
    - To avoid Hwy 124 (Scenic Highway) locals take Five Forks Trickum Road, Dogwood Road, and Oak Road
    - Satellite Blvd. is used as an alternative to I-85.
- Where Alternate Routes are Needed:
    - Hwy 124 to bypass retail traffic
    - US 78 past Snellville
    - Chattahoochee River
    - Outer loop
    - Widen Five Forks Trickum Road – possible solution to relieve Hwy 124 traffic heading to Atlanta
    - An alternate to Hwy 124 (Scenic Highway) between Lawrenceville and Snellville is needed

Stakeholders also offered ideas for potential new connections, extensions, new interchanges, and highway elevation projects that may positively impact transportation throughout the County.

- Balance new capacity with development intensity
- Connectivity to North Fulton - river crossings are limited
- Connection to I-85 from Lilburn/Snellville is needed
- Connection from Hwy 124 (Scenic Highway) to I-85 is needed.
- Connections from east to west - currently no way to get south/east from the Buford area other than SR 20 (Cumming Highway)
- Elevate the following routes and grade separate the intersections:
    - US 29
    - US 78
    - Hwy 124
- Extend HOT/Peach Pass Lanes on SR 316 to at least Sugarloaf Parkway
- Harbins approach to US 29 - Improve grade
- Sugarloaf Parkway - Extension makes sense, especially for freight
- Sugarloaf Parkway - Extend from SR 316 to I-85

- Sugarloaf Parkway - Extend northwest across the Chattahoochee River
- Sugarloaf Parkway - Extend through Dacula
- Sugarloaf Parkway - Phase 2 should not have interchange at Fence Rd
- I-85 near Jimmy Carter - Add new one-direction only interchanges
- Center Way - Add new northbound interchange
- Add new southbound interchange at the "no name bridge" near the DeKalb County line
- It is difficult to get back to I-85 at Beaver Ruin
- SR 316/SR 20 - great interchange!
- SR 316/Boggs Road – improve merge heading north turning left
- Need a plan to go across Cobb County

There were also reactions to problems and possible solutions to improve the driver experience on I-85.

- Ramp at Hamilton Mill and I-85 needs to be lengthened or metered
- Merge/weave and congestion issues on I-85 from Pleasant Hill Road to Old Peachtree Road. Northbound traffic from the C-D system conflicts with traffic on the main line trying to exit the highway at Suwanee, the end of the HOT lane complicates the situation
- Get rid of Peach Pass!
- Difficult to get to Peach Pass lanes when entering I-85 at 120

Capacity improvements such as road widenings were recommended as possible solutions for roadway issues.

- Widen 29
- Widen all of Dacula
- SR 316 should have three lanes in both directions
- SR 120 needs to be 4-laned to provide relief for other parallel facilities.
- US 23/SR 13 (Buford Highway) lanes drop too quickly – needs to be four lanes all the way to Buford
- Widen Harbins/Dacula from Dacula to SR 316- extend beyond

Members of the public commented on locations where turn lanes may be lengthened or installed and where traffic lights as well as turn signals could be improved.

Turn Lane Improvements

- Buford Hwy and McGinnis Ferry Road needs turn lanes so cars waiting to turn left don't back up traffic.
- Extend the left turn lanes from SR 316 onto Harbins Road.
- Hwy 124 - Difficult left turns/access management issues
- Lawrenceville-Suwannee Road at McKendree Church Road needs turn lanes
- Left turn movement from Green Valley Road to Lenora Church Road is difficult.
- Peachtree Industrial Blvd at Pleasant Hill Road needs double left turn lanes

- Peachtree Industrial Boulevard would benefit from the addition of left turn lanes
- SR 141 - Increasing the length of existing turn lanes would help traffic because cars waiting to turn are getting backed up into center lanes and causing congestion.
- SR 316 – left and right turn lanes are too short.
- SR-316/US-29/CR 8 at Hog Mountain Road – it is almost impossible to turn left from US 29 on to SR 316. It appears some work may have started there.

Traffic Lights/Turn Signals Needed

- Left turn signal from Winder Highway onto SR 316.
- Left turn signal toward Athens from Dacula on Harbins
- Left turn signal needed at Indian Trail/Wuthering Way
- Traffic signal needed at Northolt Pkwy
- Traffic signal needed at Harbins/Tanner Road
- Traffic signal at Fence Road/SR 316

Other Roadway Issues & Concerns

- Hwy 29 needs work, bad pot holes
- Increase speed limit on SR 316 south of Hurricane Shoals to 65 mph
- Consider converting one-way roads in Lawrenceville back to two-way.
- Roadway names change along corridors in the county which is confusing - Snellville, Athens Highway, etc.… (example would be Main to S. Main)
- More telecommuting needed in county
- Enforcement of trucks in left lane
- Heavy truck traffic on Buford Highway in the industrial area (Norcross/Peachtree Corners)

TRANSIT DISCUSSION

Concerns with Current System

There were a number of comments about Gwinnett County Transit's current service. Many transit users commented that the County needs to increase frequency, decrease wait times and extend service hours.

General Feedback about Current System

- "transportation deficiencies in Gwinnett restricts 90% of adults with disabilities from being employed" –mother of Adult with disability
- Human Services Transportation is not available in all areas of the County. Need more medical transportation services.
- Like how buses currently run.
- No east/west connection to north part of the county

Extend Hours/Improve Wait Times

- Extend bus service hours

- Offer weekend transit service
- Gwinnett Transit needs to run later at night
- Bus service doesn't run late enough in the evening
- Need higher frequency bus service and extended service hours
- People working late are not served by the bus system
- The worst part of the current available bus system is how long you have to wait on it.
- Transit without separation from regular traffic will not be helpful. If the roads are jammed, buses can't move either.
- More flexible schedules needed for bus service

Participants expressed difficulty in connecting between Gwinnett County Transit routes as well as transferring to MARTA routes outside of the system.

Improve Connectivity within/outside of County

- Local bus service is difficult. Connectivity from one route to another is awful. You sometimes have to take 4 different buses to get where you are going.
- Having to switch lines from Snellville to get on MARTA to go downtown
- Start thinking regionally to solve bus frequency issues
- Paratransit users need easier transfers into DeKalb County
    - Gwinnett doesn't take transfers
    - Price increases from $9 to $20 because of the lack of transfer
- Centralize transit instead of "piece-meal" transit through county lines
- Routes are not easily connected and do not allow transfers
- Fare interoperability is needed between Gwinnett Transit and MARTA.

Some participants believe that more should be done to increase ridership on the current system including educating the public and increasing visibility.

Work to Increase Ridership

- The bus system is growing. Educate the public about the system. Make it more visible, but also work to improve service and frequency.
- Take steps to increase ridership on existing transit
- Buses often times look empty, maybe take steps to increase ridership.

Desirable Transit Destinations

Destinations – where people would like to connect to within and outside of Gwinnet County via transit – varied from local trips to the Mall of Georgia, the Infinite Energy Arena and parks to regional destinations such as Atlanta, Cobb for games, and the Hartsfield-Jackson Atlanta International Airport. There was also mention of more localized transit that could transport residents, specifically seniors, to medical appointments or special events.

General Feedback about Transit

- SR 29 would be a good route for new transit
- Dedicated lanes are key for successful transit implementation. Don't put buses in lanes with existing traffic.
- Increase transit that runs perpendicular to I85 to increase East/West connectivity within the county.

Localized Transit Needs

- Bus service for events
- Local bus routes to access medical services would be great.
- Leisure transportation
- A circulator system within higher density areas would be nice for seniors especially to access shopping, medical services, etc.
- Trolleys for special events like Snellville Days and other special events work well
- Consider a shuttle to the Avenue during peak shopping seasons.
- Microbuses/Minibuses could be a good service around the county
- Consider aging in place.

Destinations within Gwinnett

- Extend local bus route on Sugarloaf Parkway down SR 124 (Scenic Highway) to Snellville to serve senior populations
- Connect parks with trains
- Serve Dacula
- Lawrenceville Square/Downtown Lawrenceville
- Mall of GA
- Snellville Mall
- Gwinnett Place Mall & surrounding shops
- Infinite Energy Arena
- Snellville to Lawrenceville on 124
- Bus service from Eastside Medical Center and downtown Snellville along SR 124 (Scenic Highway) to Lawrenceville and Georgia Gwinnett College
- Stops at Pleasant Hill
- Buses to GCC and Gwinnett Tech
- Hamilton Mill
- Brookwood/Parkview school zones
- More transit is needed from residential areas down along Buford Hwy/Peachtree Industrial.

Destinations outside of Gwinnett

- Direct rapid transit to downtown Atlanta/Midtown
- Hartsfield-Jackson Atlanta International Airport
- Decatur
- Stone Mountain
- "Brain Train" to Athens is a great idea.
- Athens
- OFS Site/Atlanta Media Center Campus (film school, retail, hotel coming soon on 160 acres)

- Doraville MARTA Station
- Perimeter Center area
- Chamblee MARTA station
- Transit connection to North Fulton
- Transit along I-85 and across I-285 to Central Perimeter

Perceptions about MARTA

There were mixed views on negative and positive perceptions of the MARTA system and how it may impact Gwinnett County. Some believed that MARTA would be a good fit for the County while others expressed concern with crime and safety.

- MARTA is not a good fit/desirable for the area
- Old "crime" opposition is still a factor, but it appears to be changing.
- Perception of mass transit is negative – crime, safety, social issues
- We need to get out of our comfort zone and try something new.
- MARTA dangerous
- Transit has the potential to bring an unwanted element to our area.

Ideas for New Service

Ideally, new service would be a more efficient service. There were mentions about specific modes that should be considered in Gwinnett including heavy rail, light rail and BRT, as well as circulators/trolleys (see "Localized Transit Needs" above).

Discussions about BRT

- BRT along US 23 (Buford Highway) from Buford to the Doraville MARTA Station
- BRT or rail along US 78 (Stone Mountain Highway) from Snellville to the Kensington MARTA Station (or other MARTA connection)
- BRT or rail along SR 316 (University Parkway) to Athens
- BRT service on US 29/SR 13 (Buford Highway) from Doraville to Duluth; possible connection to the Gwinnett Transit Center
- North side BRT connection

Discussions about Rail

- Fixed guideway transit is a benefit that would help us compete economically with other areas/markets.
- Commuter rail would work along Buford Hwy
- Gwinnett could provide an improved concentrated/internal system to get people to rail from within the County
- A light rail providing interconnectivity within the county would be great.

- I think rail would work in Gwinnett. When I go to the Doraville MARTA station, the parking deck is filled with cars with Gwinnett plates.
- A light rail loop around the county would greatly increase interconnectivity around the county
- Light Rail is a recommendation (connected to MARTA or BRT)
- Train is recommendation all the way through county along I-85
- Train needed near Suwannee
- Rail connection from Doraville to the Gwinnett Transit Center; possible branch to Lawrenceville; long-term continue to Mall of Georgia
- Rail line already built along Buford Highway but is not in use (owned by CSX)
- Convert Peach Pass Lanes to a light rail line.

BIKE & PEDESTRIAN DISCUSSION

Pedestrian Improvements

Sidewalk improvements seem to be a common concern across the County, particularly in areas where there are high levels of pedestrian activity but no infrastructure to accommodate them. Suwanee was cited as a good example of a walkable community.

General Support/Concern for Sidewalk Improvements

- Sidewalks need improvements
- Suwanee is a good example of a walkable community.
- Love the idea of tunnels under railroad tracks like in Suwannee.
- Sidewalks would entice people to walk a short distance rather than drive
- Sidewalks are disconnected/discontinuous.
- Pedestrian over/under passes are needed
- There are some sidewalks to nowhere
- Discontinuous sidewalks are an issue in the county.
- Add more sidewalks within city limits to increase walkability.
- New sidewalks on Jimmy Carter Boulevard and Buford Highway are great.
- No sidewalks at all crosswalks
- Concentrate sidewalks in cities, where density and walkability are desired.

Many locations were cited as specific places for pedestrian improvements, such as completing and filling in sidewalk gaps, installing mid-block crossings, and improving pedestrian lighting. This is a need throughout the County.

Specific Locations for Improvements

- Buford Highway
- Peachtree Industrial Boulevard
- Lester Road = no sidewalk but many people walk it
- Sidewalk connections are missing between the Mall of Georgia and surrounding subdivisions
- Sidewalks are needed on all of Hamilton Mill Road
- Sidewalks needed in older neighborhoods (only seen in new subdivisions)

- No sidewalks in Dacula or they are disconnected. When areas are under construction, they often don't refill the sidewalks they cut
- Sidewalks are needed on SR 124 from Webb Gin House Road to Sugarloaf Parkway
- Buford Hwy needs sidewalks; many worn trails show the need
- The south side of I-85 needs sidewalks in the area roughly bounded by SR 378 (Beaver Ruin Road) and the western county line
- Mid-block crossings are needed generally and on the following facilities:
    - SR 140 (Jimmy Carter Boulevard)
    - Singleton Road
- Sidewalks and pedestrian lighting are needed on Peachtree Industrial Boulevard, similar to downtown Buford
- Graves Road needs better sidewalks and safer crossings
- Five Forks and Oak Road = no sidewalks/hard to cross
- Pleasant Hill at PIB very dangerous for biking/pedestrians
    - Hoverboards are used here as well
- Pedestrian bridges across Buford Hwy – is this an option? If not, mid-block crossings.
- Sidewalks needed on Dacula Road to Hurricane Shoals. It's not safe.
- Hwy 8 to SR 316 on Harbins Road needs sidewalks.
- Buford Hwy could benefit from more mid-block crossings
- Fence Road needs sidewalks.
- Areas with LEP, and low income populations should all have improved sidewalks and crossings – many walkers and mothers with children are seen walking

Additionally, specific locations that are unsafe or where there are concerns for pedestrian safety were also offered by participants.

Unsafe Crossings/Safety Concerns

- Railroad crossing in Dacula is dangerous.
- Dangerous pedestrian crossings:
    - Wisteria Drive/Skyland Drive and US 78 (high school is located there)
    - SR 124 and Ronald Reagan Parkway
- Crossing the following intersections/facilities as a pedestrian is difficult:
    - US 78 (Main Street) at SR 124 (Scenic Highway)
    - Sugarloaf Parkway
    - US 78 (Stone Mountain Freeway) and West Park Place
    - SR 317 (Lawrenceville – Suwannee Road) at US 23 (Buford Highway)
    - SR 120 (Abbotts Bridge Road) at Peachtree Industrial Boulevard
    - Annistown Road at SR 124 (Scenic Highway)
- Why in the world did GDOT install a pedestrian crosswalk across SR 316 at Harbins Road?

Trails/Greenways

There was significant support for a trail system or network of linear parks that could connect to one another throughout the County as well as to popular destinations such as the Mall of Georgia, colleges and downtown areas. The system could be open to both pedestrian and bicycle usage. Examples include the City of Raleigh, NC, Fulton County's Big Creek Greenway, the Silver Comet Trail and the Atlanta BeltLine.

Local and Regional Examples

- The City of Raleigh, NC has a great system of linear parks and greenways that connect different areas of the City to one another. Planned connectivity in Gwinnett would be great once finished.
- Follow the Belt Line concept of connecting communities via greenways/multi use paths.
- Look for opportunities in County to replicate Silver Comet Trail
- Create something similar to Fulton County's Big Creek greenway to connect communities.
- Build greenway facilities similar to Lilburn and Suwannee

Support for Multi-Use Paths/Greenways; Policy Considerations

- Most walking done in Gwinnett is out of need (no access to vehicle). Recreational walking is mostly concentrated to trails/parks.
- Greenway/multi-use path is the preferred facility type for ped and bicycle facilities
- Cycling Multiuse sidewalks for bikes, skateboards, scooters, walkers, etc. (Harbins and New Hope)
- Put path through as a greenway idea rather than down the side of the road
- Consider multi-use paths with all new construction.
- Ensure that all future improvements to major arterials look towards including multi use paths adjacent to the roadway.
- More multi-use paths needed
- Town centers should accommodate all modes
- Work on interconnectivity of neighborhoods – so you can walk or bike to nearby subdivisions.

Connections to Parks

- Connect county parks and neighborhoods via greenways.
- Build paths along waterways within county for recreational use.
- Connecting parks with bicycle/pedestrian facilities as recommended in the Open Space Master Plan is a good idea
- Connect Lilburn Park to Bethesda and McDaniel Parks
- Bike/pedestrian access to Tribble Mill Park.
- Bicycle/pedestrian facilities connecting the east side parks are needed
- Finish on road bike lanes that start at Suwannee Creek Park to Sugarloaf Parkway to SR 316.
- Greenway along Lenora Church Road from Briscoe Park to Lenora Park would be great
- More bicycle/pedestrian connections along the Chattahoochee River between parks are needed

Potential Connections within Gwinnett County

- Consider converting sidewalks along Satellite Rd. to multi-use paths.
- Extend the multi-use path south on Satellite Boulevard
- Multi-use path on Breckenridge Boulevard
- The Lilburn Greenway should connect to Indian Trail up to Peachtree Corners.
- A greenway from the Sugar Hill area to Suwanee is needed
- Extend existing greenway to Mall of Georgia
- Consider connecting the downtown districts or at least extending bicycle and pedestrian facilities to integrate them more with their surroundings
- Would like off-road trails in downtown Lilburn
- Is there a plan to connect greenways? Downtown Duluth could use a connection to the greenway/path
- A trail along Buford Hwy would offer a flat trail and a good place for other trail connections
- The multi-use trail along PIB is getting a lot of use, the project to extend it is a great idea.
- Bicycle/pedestrian connection from Gwinnett Village to Norcross is needed
- East to west bicycle/pedestrian connections are needed
- Lilburn to Lawrenceville bicycle/pedestrian connection is needed
- Downtown Duluth needs more bike infrastructure

Potential Connections outside of Gwinnett County

- Connect college to downtown Lawrenceville with a multi-use facility
- Connect the Anniston Road bike path to Stone Mountain Park and the PATH to Decatur and downtown Atlanta.

CYCLING

There were many recommendations to improve bikeability and walkability around all schools and universities, allowing more students to walk and bike to school. This would ideally reduce vehicular traffic, especially around schools, and also congestion due to busses. Ideas for improving bikeability and walkability include installing and upgrading pedestrian cross walks at all schools, filling in sidewalk gaps, constructing bike paths near schools and supporting mid-block crossings.

Support for Bicycle and Pedestrian Improvements near Schools

- Schools should have safe crossings for children/students/parents
- Increase sidewalks around schools that connect to neighborhoods.
- Sidewalks should be required 1 mile around all schools.
- Sidewalks are needed around schools.
- Interest in Safe Routes to School
- Pedestrian Walkways by schools
- Bike paths by schools
- Most students currently cannot walk/bike to school currently because it is too dangerous without sidewalks.
- Bike/ped improvements needed near schools

- Gaps in sidewalks around schools. Fill them in!
- All the universities and high schools should be bikable, but as the landscape currently stands, it is nearly impossible to reach Georgia Gwinnett College, Gwinnett Tech, or area high schools by bike.
- Would like to see sidewalks/multi use paths up to 1 mile for high school campuses and up to ½ mile around middle school campuses.
- Wider sidewalks needed near schools
- Poor ped lighting around schools
- Pedestrian access to schools is not good either.

Specific Locations/School Sites

- 120 to BB Harris School needs bike path or trail
- Sidewalks are needed on Skyland Drive between high school and elementary school
- Schools on Beaver Ruin Road are close to neighborhoods but have poor access/walkability. Some students ride buses for a quarter-mile walk. More sidewalks could get buses off the road.
- North Gwinnett Middle School and North Gwinnett High School are not accessible except by bus or car. You CAN NOT walk or bike to these campuses.
- No back entry section to access HS by bikes from neighborhoods (trails there could lead to more walking/biking to school). George Pierce = good example of this
- Bike/Ped access to high school is "atrocious" (Grayson HS, North Gwinnett HS)

Crosswalks/Dangerous Crossings

- Dangerous pedestrian crossing at Wisteria Drive/Skyland Drive and US 78 (S. Gwinnett High School; Britt Elementary School)
- Support for more sidewalks and mid-block crossings (locations not specified)

Many participants feel that it is currently unsafe to cycle throughout Gwinnett County. There are places throughout the County that do not have bike lanes/are not accessible by bike.

General Feedback Regarding Safety

- Whole County is currently dangerous for bikers.
- Amateur cyclists do not think that it is safe to ride along on the roadway with cars.
- People don't feel safe biking on Gwinnett roadways
- Safety is a concern with on-street biking.
- Hub and spoke model: bicycle facilities within five miles of hubs (e.g. downtown areas, campuses, parks)
- Bike facilities can make an impact on congestion, even for commuting. See Holland as an example.
    - Safety is major issue preventing biking
- Bike paths on roads with cars is too dangerous.
    - Speeds too fast for biking

Specific Locations for Bicycle Safety Improvements

- Bicycling is currently unsafe throughout the county, the following facilities are unsafe:

    - SR 140 (Jimmy Carter Boulevard)
    - US 29 (Lawrenceville Highway)
    - Sugarloaf Parkway
    - Pleasant Hill Road
    - Peachtree Industrial Boulevard
- Brookwood area not accessible by bike
- Key corridors for bike/ped safety improvements
    - Buford Highway
    - Peachtree Industrial Boulevard
- Bike lane down 129 and Dacula
- Biking on Sugarloaf Parkway is very dangerous
- Need improved biking infrastructure at Suwanee Town Centers and other city town centers
- Hamilton Mill and Buford Highway bike lane stops abruptly. Should continue down to downtown Buford
- A bicycle facility along US 29/SR 13 (Buford Highway) from Suwanee to Duluth is needed
- Peachtree Industrial Boulevard could be bikable if the rumble strips on the shoulder were converted to a bike lane.
- Biking lanes needed in Snellville (near county parks)

There were many suggestions for bike lanes, wider shoulders, guard rails and even barrier separated cycle lanes/tracks that would make cycling safer. There was mixed feedback regarding the usage of multi-use paths for cycling.

- Wider shoulders are preferred shared bike lanes.
- More greenways needed = dedicated space just for bikers to connect areas
- Dedicated bike routes
- Bike lanes need to be wider
- Protected bike lanes on 316
- Guard rails and flexposts for bikers
- Need maintenance of sugarloaf bike paths
- Wider shoulders on streets are appropriate for cyclists.
- Favored bike lanes (NOT multi-use paths) for Dacula Road, Old Peachtree Road, and Fence Road
- Would prefer physical barrier/buffer to separate bike lanes to enhance safety
- Preference for cycle tracks.
- Providing a visual barrier for on street biking is helpful – painted stripes, flexible bollards, etc.

Some desirable destinations for cycling include County parks, the PATH network at Arabia Mountain, Stone Mountain and downtown Atlanta.

- It would be good to be able to bicycle into Duluth. Current infrastructure does not support this
- Bike path from Snellville to Lenora Park.
- Bike path along SR 124 to the County Line to connect with the Arabia Mountain PATH.
- Bike lanes on Ronald Regan Parkway.

FREIGHT

Freight movement plays a key role in the economies of Gwinnett County and the Atlanta Region. Metro Atlanta is currently a key freight and logistics hub in the southeast and is nationally ranked 6th in ground freight movement and 5th for logistics and supply chain employment[1]. During 2012, approximately 151 million tons of freight had an origin or destination in the Atlanta Region[2]. By mode, 83 percent of the tonnage was carried by truck and 14 percent was carried by rail[2].

Total freight is forecast to increase 76 percent from 2013 to 2040, to 266 million tons[2]. As noted in the Existing Conditions Report, Gwinnett County is an important center for freight and industrial production that is served by CSX and Norfolk Southern rail lines, 141 miles of regionally significant truck routes and 597 miles of designated truck routes. With the increase in capacity of the Panama Canal and the planned improvements to the Port of Savannah, freight will likely continue to play a growing role in the economies of Gwinnett County and the Atlanta Region.

Gwinnett County currently experiences substantial inbound and outbound freight flows. The tonnage and value of the annual Gwinnett County freight flows by truck and rail are as follows[1]:

- Inbound truck freight: 3.9 million tons, with a value of $19.3 million
- Outbound truck freight: 3.3 million tons valued at $19.8 million
- Inbound rail freight: 1 million tons, with a value of $2.3 million
- Outbound rail freight: 334 thousand tons valued at $1.7 million

Two regional freight intensive clusters in Gwinnett County were identified as part of the *ARC Freight Mobility Plan Update*: I-85/PIB/Jimmy Carter Boulevard, which extends into DeKalb County, and Gwinnett/Satellite Boulevard/SR 316. These clusters generate disproportionately large amounts of truck trips. The following statistics provide an indication of the scale of these areas:

- Warehousing:
  - I-85 and Peachtree Industrial Boulevard: 7.7 million square feet of leased area, 3rd in the region
  - Gwinnett/Satellite Boulevard/SR 316: 3.9 million square feet, 6th in the region
- Manufacturing:
  - I-85 and Peachtree Industrial Boulevard: 3.7 million square feet of leased area, 3rd in the region
  - Gwinnett/Satellite Boulevard/SR 316 3.3: million square feet, 4th in the region

According to the Atlanta Regional Commission's (ARC) *Freight Mobility Plan Update*, the I-85 long haul corridor between Atlanta and South Carolina has the second highest freight volumes in the Atlanta Region. Within Gwinnett County, I-85 between SR 140 (Jimmy Carter Boulevard) and Indian Trail Road has the fifth highest average annual daily truck traffic in the Atlanta Region, while I-85 south of the I-985

[1] *Gwinnett County Logistics Spotlight*, Georgia Center of Innovation for Logistics. 2014.
[2] *Atlanta Regional Freight Mobility Plan Update: Final Report.* Atlanta Regional Commission. May 2016.

split is the ninth ranked location. The I-85 corridor in Gwinnett County serves the local warehousing and manufacturing areas noted above, as well as long-haul, through shipments and goods originating in or destined for other parts of the Atlanta Region.

Planning for increasing goods movement through the regional freight system is critical to enhancing economic vitality and improving quality of life in Gwinnett County and the region. Addressing safety and capacity needs is important to keep the freight network functioning at a high level of service. This section assesses highway and freight rail crossings for all traffic and heavy trucks, identifies key truck corridors, and analyzes the proposed future land use plan with the existing network of truck routes.

Summary of Freight Needs

The following summary is based on the analysis presented in this section and will form the basis for recommended transportation improvements.

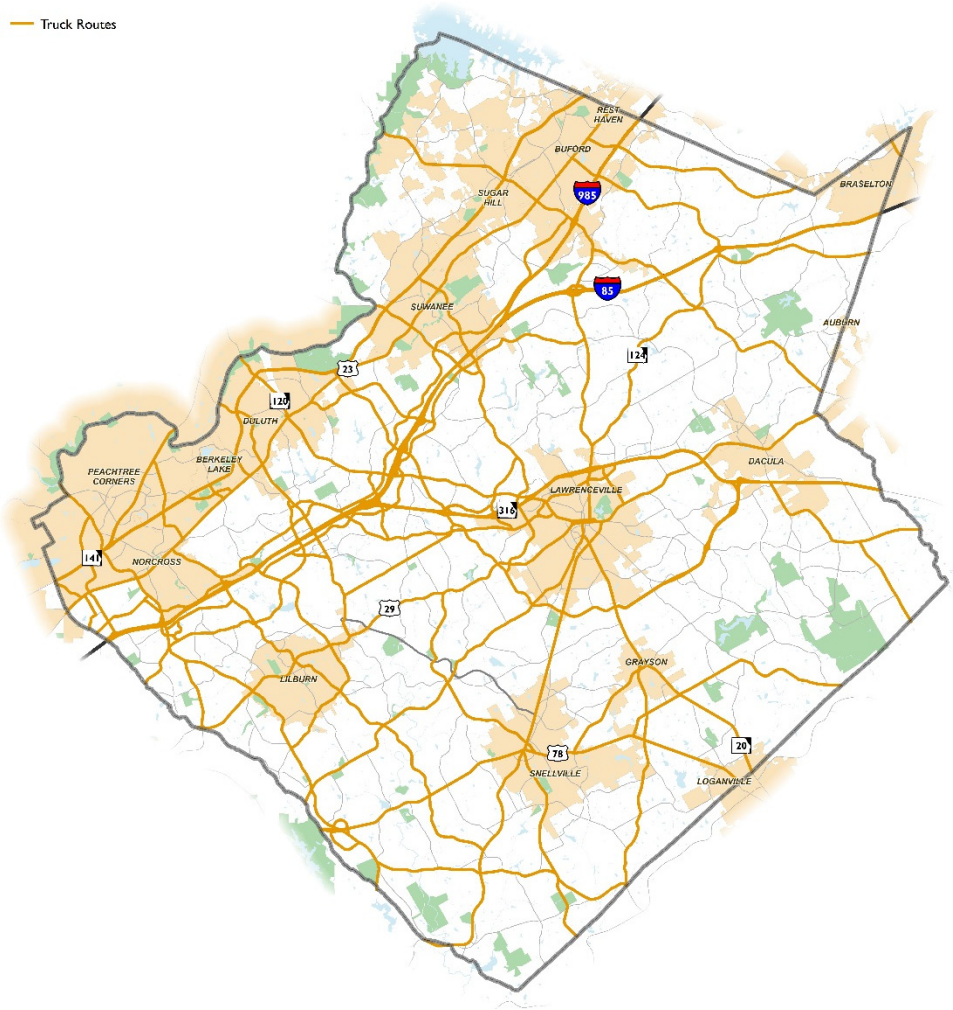
- There is a need to strengthen and enhance the current freight system to support existing land use patterns and future land use plans in Gwinnett County
    - Currently, 82 percent of all freight related land uses such as mining and manufacturing, wholesale and retail trade, transportation and utilities, and warehousing are within one mile of key facilities that include I-85, I-985, SR 316, and Peachtree Industrial Boulevard
    - Based on the adopted Future Development Character Areas Map, those corridors will continue to play a key role along with US 29 from DeKalb County to Lawrenceville, US 78, SR 124 from Lawrenceville to Snellville and SR 20 from Lawrenceville to Grayson
    - Freight related employment is projected to increase 10 percent countywide between 2015 and 2040
        - In 2015, 74 percent of freight related jobs, or 74,100 employees, are located in traffic analysis zones (TAZs) that are within a mile of I-85, I-985, SR 316, or Peachtree Industrial Boulevard
        - By 2040, 82,400, or 75 percent of freight related employees are forecasted to be in TAZs within one mile of those corridors
- There is a need to invest in current key freight corridors to support anticipated growth in freight movements and encourage continued economic development
    - Based on Georgia DOT 2014 traffic volume and truck counts:
        - The I-85, I-985, and SR 316 corridors have high average truck volumes and percentages:
            - I-85: 22,194 trucks per day; 11.8 percent
            - I-985: 3,944 trucks per day; 6.5 percent
            - SR 316: 2,962 trucks per day; 5.6 percent
        - The US 23 corridor has moderate volumes with 1,340 trucks per day and a high percentage at 7.2 percent
        - Several facilities in the Norcross area have moderate volumes of 1,000 to 2,500 trucks per day and high percentages that are greater than 7.3 percent
        - South of I-85/SR 316 volumes and percentages are low, with less than 1,000 trucks per day and percentages less than 4.7 percent on most roadways
        - SR 20 in Loganville is an exception with 2,550 trucks per day and a high percentage at 15 percent

  - The following general findings used the ARC travel demand model existing plus committed (E+C) run to forecast future truck volumes in 2040 and are a relative comparison between corridors:
    - I-85 and I-985 have the highest volumes and percentages
    - Peachtree Industrial Boulevard has moderate to high volumes and moderate to high percentages
    - Lawrenceville – Suwanee Road has high percentages and moderate volumes from Lawrenceville to Suwanee
    - In the southern half of the county, volumes and percentages are low except for SR 124 south of Snellville, which has moderate percentages and SR 20 in Loganville, which has a high percentage
- There is a need to improve safety at existing at-grade railroad crossings on the freight network to reduce injuries, fatalities, and property damage
  - There are currently 38 at-grade rail crossings in Gwinnett County and all of them are potential conflict points between trains and vehicles
  - Seven of the crossings occur in downtown areas which also have higher levels of pedestrian and bicycle activity
  - In Georgia, there were 96 highway-rail incidents statewide in 2013, resulting in 66 injuries and 13 fatalities
  - Within Gwinnett County, the following at-grade crossings experienced multiple crashes between 2005 and 2011:
    - Jones Mill Road
    - Church Street in Buford
    - Lanier Avenue in Sugar Hill

Truck Routes

The Gwinnett County Code of Ordinances Section 110-32 requires all motor vehicles with a Gross Vehicle Weight Rating (GVWR) exceeding 36,000 pounds to use authorized truck routes only. Exceptions are made for vehicles making a pickup or delivery on roads that are not authorized truck routes. The truck routes are enumerated in Section 110-36 of the code and are shown graphically on the map below.

Taken together, the authorized truck routes form a network that is essential to moving freight to and from destinations within Gwinnett County as well as accommodating pass through trips. Because heavy trucks are restricted to the authorized truck routes, freight dependent land-uses such as manufacturing and warehousing have located along these routes and will likely continue to do so in the future. The relationship between the existing truck routes and land use is discussed in more detail as part of the **Land Use and Freight** section.



Land Use and Freight

To assess the current freight network and identify future needs, existing land uses and future character areas from Gwinnett County's Comprehensive Plan were mapped and the authorized truck routes were overlaid. Freight related land uses were classified as mining and manufacturing, trade, transportation and utilities, and warehousing. The following nodes in Gwinnett County had a high concentration of existing freight land uses:

- Jimmy Carter Boulevard in Norcross
- Indian Trail Road at Beaver Ruin Road
- SR 316 (University Parkway) at Cedars Road
- US 23 (Buford Highway) and South Lee Street

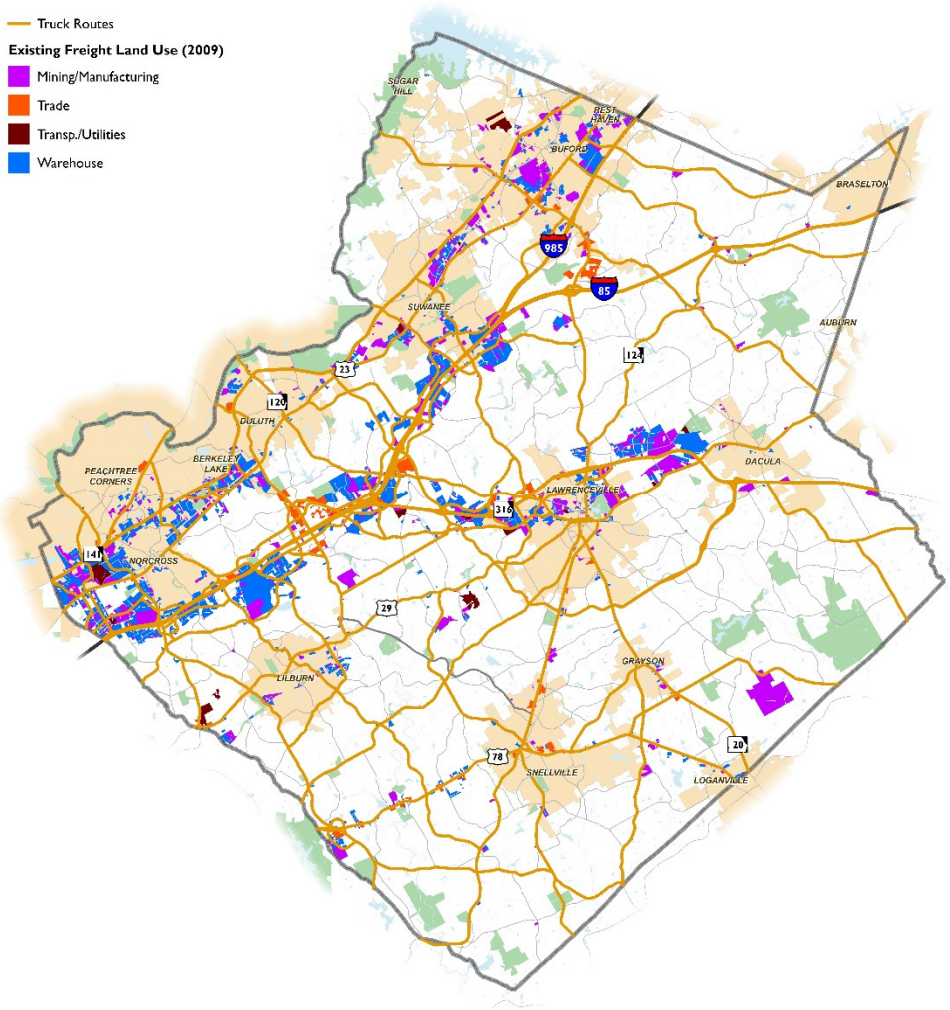
In addition to the above listed nodes, the following corridors had a high concentration of adjacent freight related land uses:

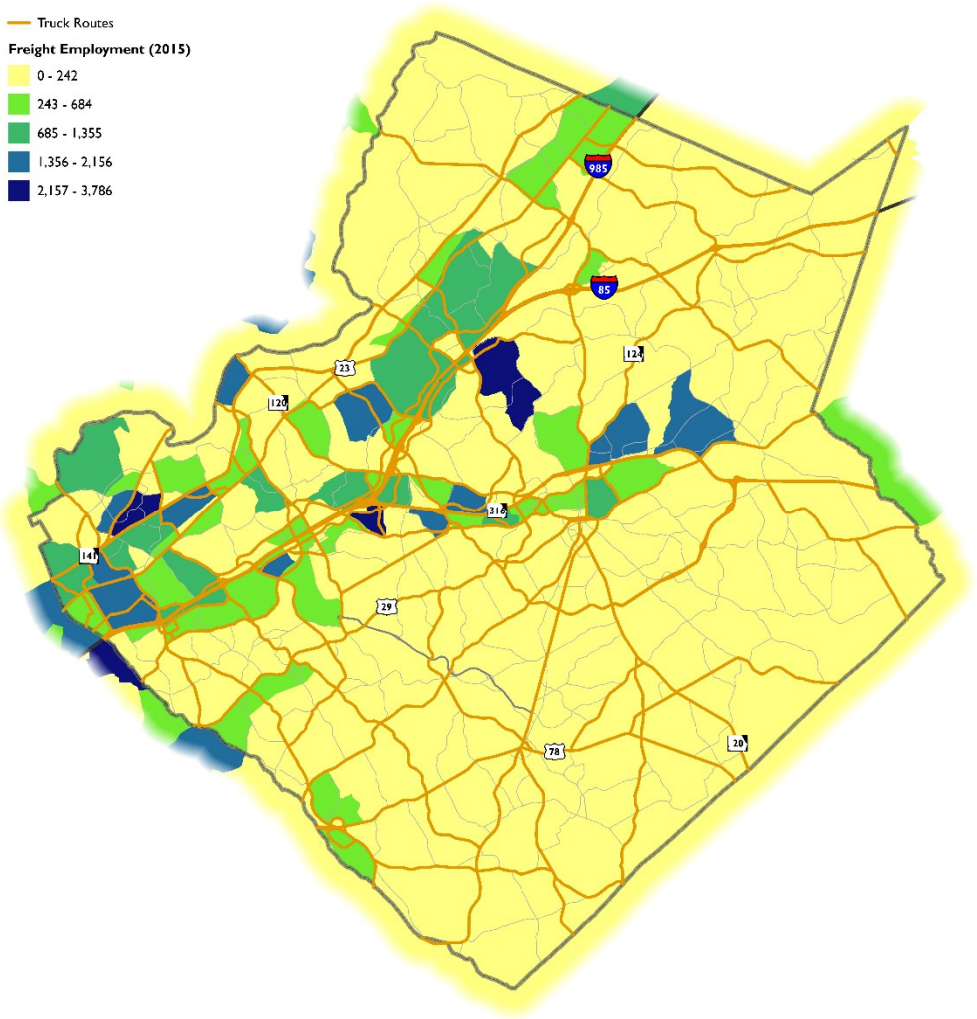
- Peachtree Industrial Boulevard

- US 23 (Buford Highway)
- I-85
- SR 316 (University Parkway)

Existing freight land uses are currently well served by the Gwinnett County truck route network. The following map shows existing freight land use in Gwinnett County overlaid with the truck routes.

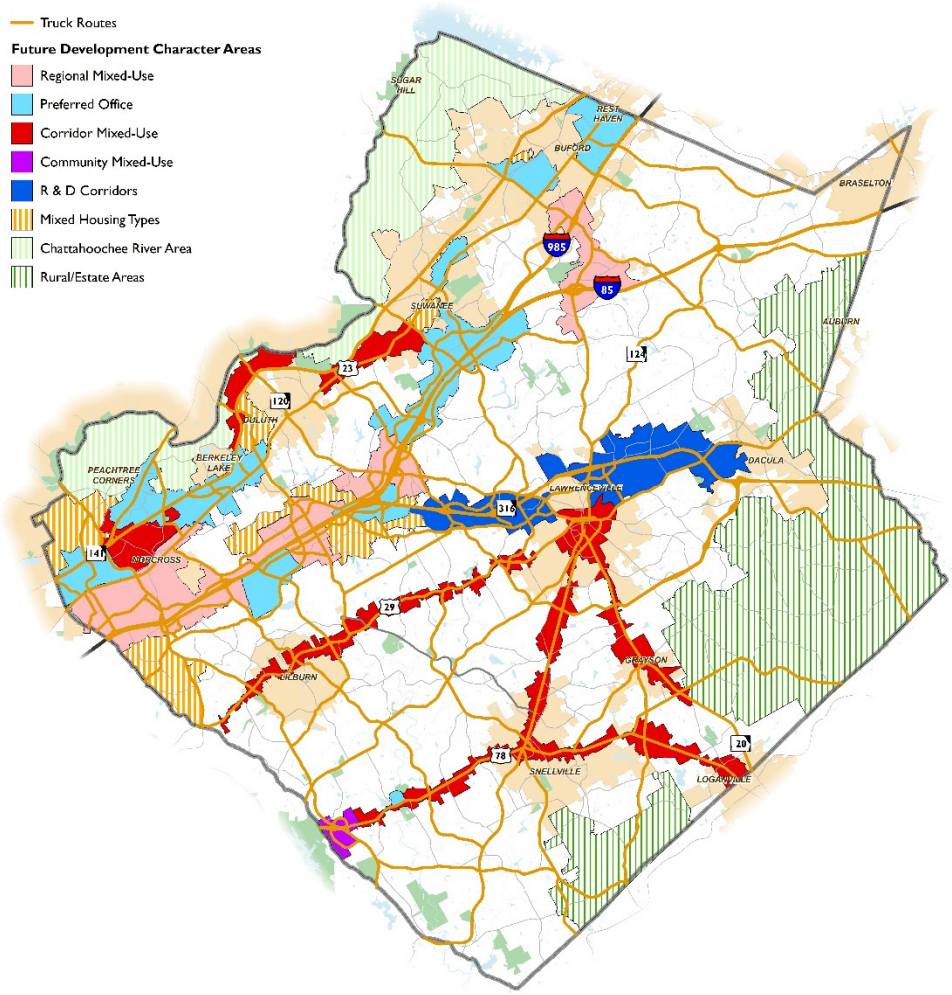
In addition to examining land use data, areas with high freight employment were identified using the socio-economic data from the Atlanta Regional Commission (ARC) travel demand model. This data set includes both current employment estimates and future forecasts out to 2040. The existing freight employment is shown on the map below and generally reflects the existing freight land uses. The area of Gwinnett County around Norcross has some of the highest freight employment, with other concentrations along I-85 near Suwanee, along Lawrenceville Suwanee Road and along SR 316 (University Parkway).



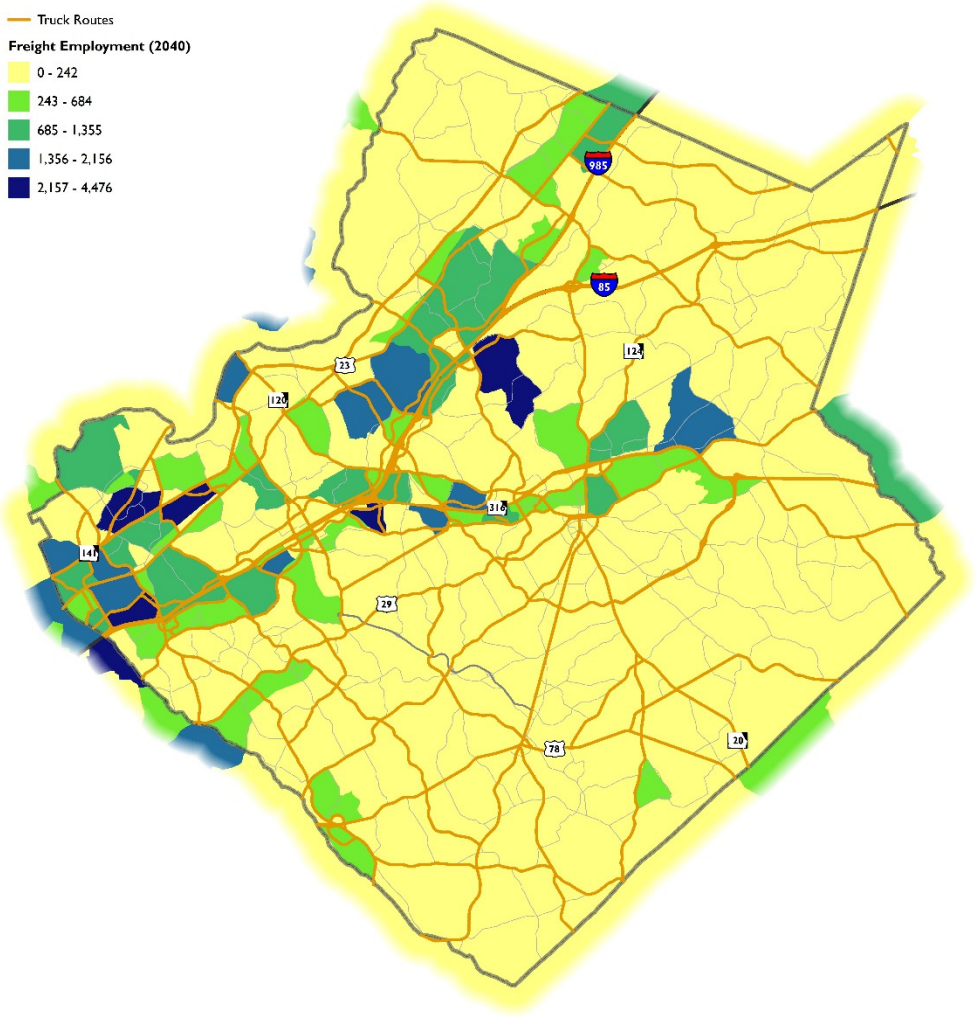


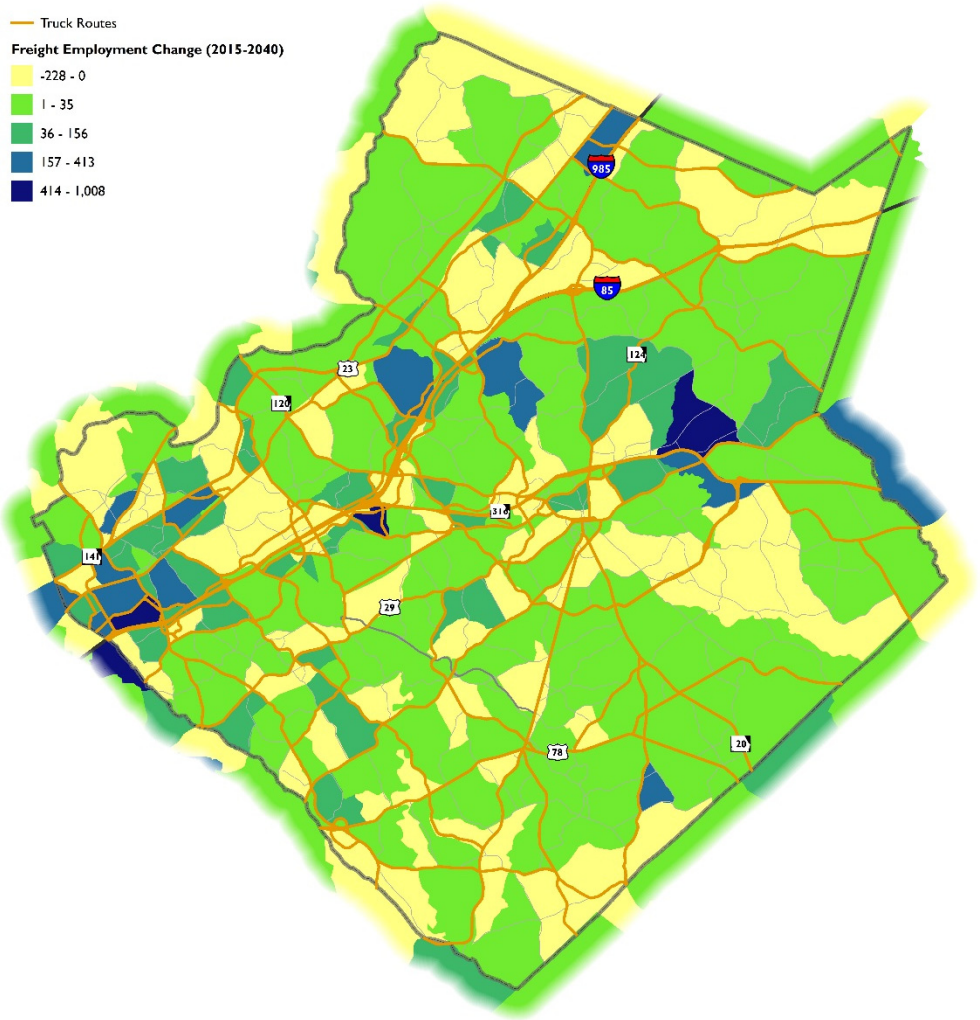
The Gwinnett County Comprehensive Plan identifies future development character areas. While no character areas are specifically identified for industrial or manufacturing uses, the Regional and Corridor Mixed-Use and R & D Corridors are likely to be the character areas where freight related land uses locate. These character areas generally follow established highway corridors including Peachtree Industrial Boulevard, US 23 (Buford Highway), I-85, SR 316 (University Parkway), and US 78 (Stone Mountain Highway). The following map shows the Gwinnett County future development character areas and current truck routes. All of the future development character areas where freight related land uses are likely to locate are served by at least one existing truck route.

The forecasted future freight related employment is shown on the map below. While there are some predicted changes in freight employment, they mostly take place in areas of the county with currently established freight land uses.



To gain a further understanding of forecasted changes in freight employment, the following map shows the forecasted difference in freight employment between 2015 and 2040. Several areas of the county are predicted to lose employment in freight related industries, while the areas around Norcross, just south of Suwanee along I-85, near SR 316 (University Parkway) just west of Dacula, and adjacent to I-985 near the Hall County Line are anticipated to gain freight employment. All of the areas projected to gain freight employment are currently well served by the existing network of truck routes.

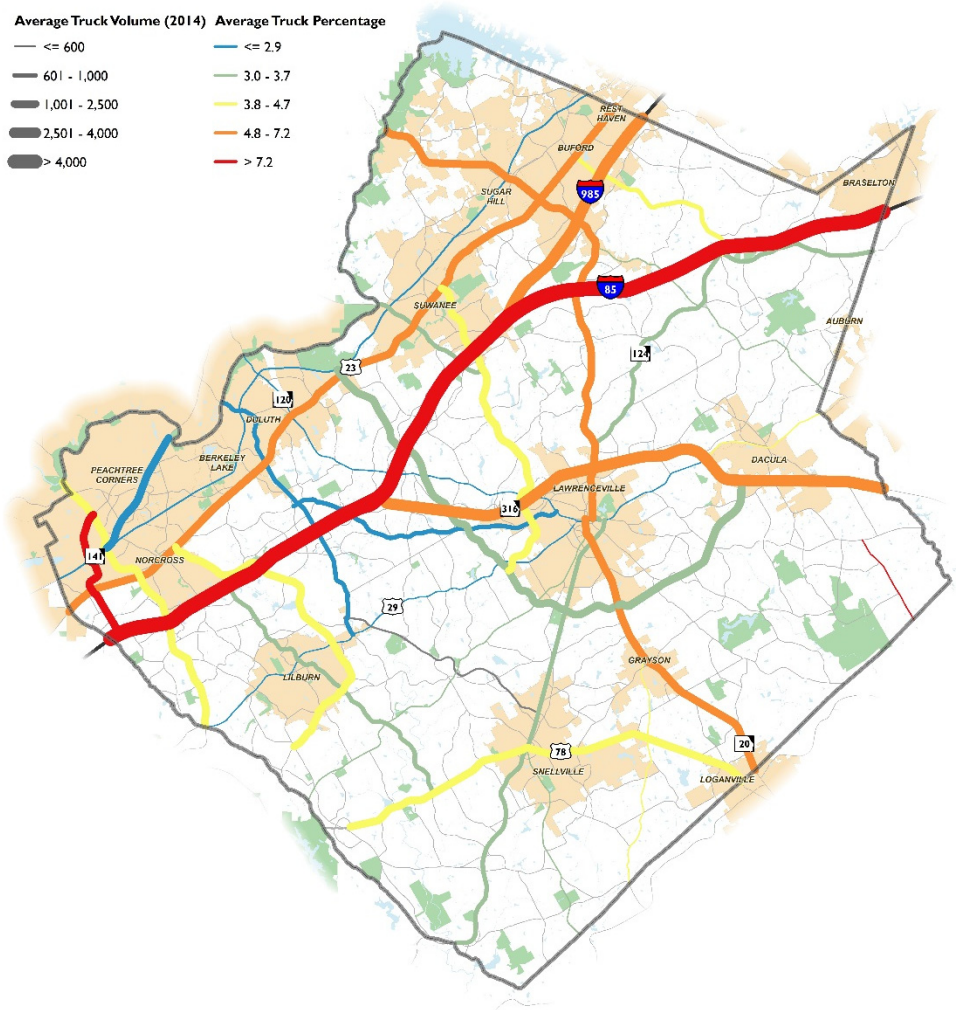

Truck Routes
Freight Employment (2040)
0 - 242
243 - 684
685 - 1,355
1,356 - 2,156
2,157 - 4,476
985
85
124
23
120
316
141
29
78
20



Key Freight Corridors

A two-step process was used to identify the corridors and locations in Gwinnett County that are important to freight movement. The first step is an overview of key freight corridors, which were based on average heavy truck volumes and percentages along facilities such as I-85, SR 316 (University Parkway), and SR 141 (Peachtree Industrial Boulevard). The second step is a more detailed examination of locations with high truck volumes or percentages, using individual traffic count locations.

To provide a high level view of freight volumes and the percentage of trucks in the overall traffic mix in Gwinnett County, existing truck volume count data from Georgia DOT was joined to the study network using geographic information systems (GIS) software. The heavy truck volume and percentage data was then averaged for each corridor and is presented visually on the map on the following page. The thickness of the lines indicates the average volume of heavy trucks, while the color of the lines shows the percentage of traffic that is made up of heavy trucks.



As presented in Table 1: Top 10 High Truck Volume Corridors, I-85 is by far the corridor with the heaviest average daily truck volume. Heavy truck volume on the I-85 corridor exceeds the average volumes on the next nine corridors combined. These high truck volume corridors are generally consistent with the location of existing and future freight related land uses and employment, with the exception of US 78 and SR 20.

Table 1: Top 10 High Truck Volume Corridors

Rank	Corridor Name	Annual Average Daily Truck Volume
1	I-85	22,194
2	I-985	3,944
3	SR 316	2,962
4	US 78	2,296
5	Jimmy Carter Boulevard	2,010

6	Peachtree Parkway	1,447
7	SR 20	1,358
8	Sugarloaf Parkway	1,344
9	Buford Highway	1,340
10	Lawrenceville Suwanee Road	1,263

Overall, the interstate corridors in Gwinnett County carry the highest volumes of truck traffic, followed closely by SR 316 (University Parkway). These corridors also appear in Table 2: Top 10 High Truck Percent Corridors, which shows the Gwinnett County corridors with the highest percentage of trucks as part of the traffic flow. The high truck percentage on Bold Springs Road is a combination of a low total traffic volume of approximately 3,400 vehicles per day and moderate heavy truck volume of 550 per day. Similar to corridors with high truck volumes, the corridors with high truck percentages generally serve areas of Gwinnett County with high numbers of freight related land uses and employment.

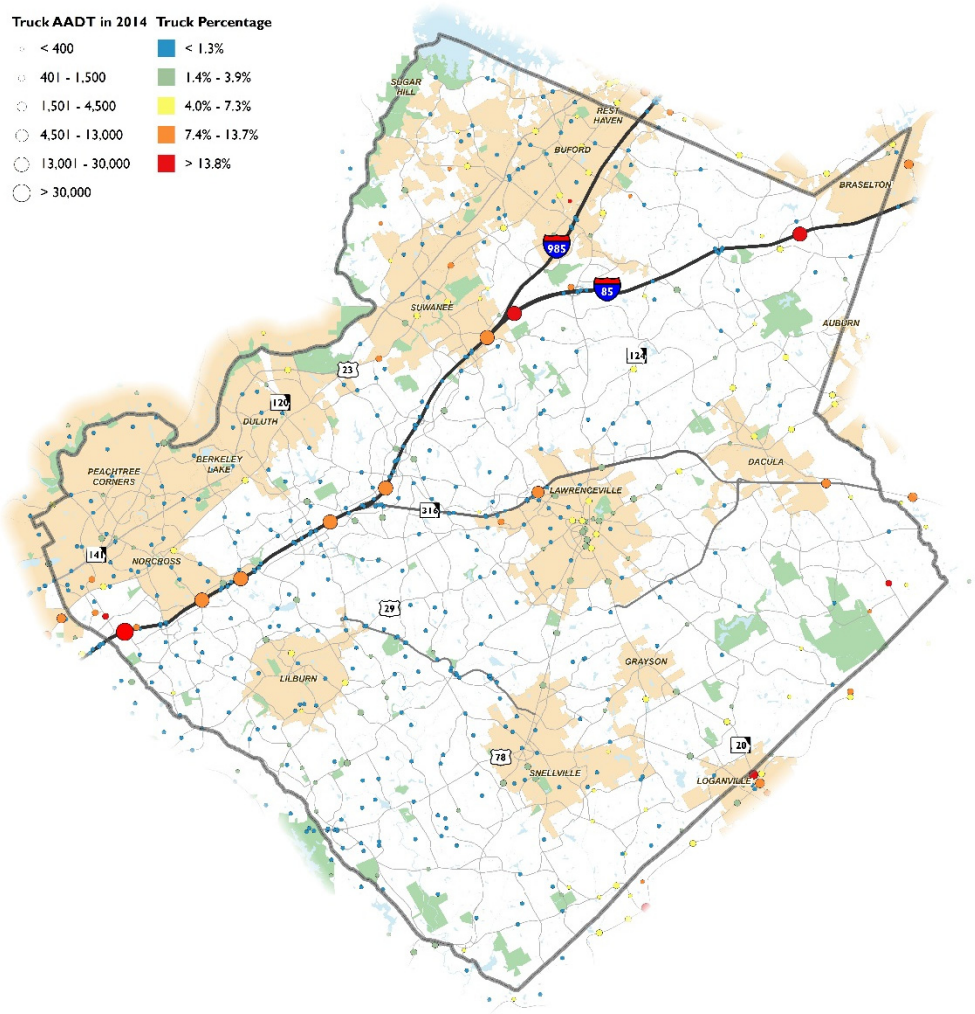
Table 2: Top 10 High Truck Percent Corridors

Rank	Corridor Name	Percent Trucks
1	Bold Springs Road	16.0
2	I-85	11.8
3	Button Gwinnett Drive/Jones Mill Road/Peachtree Circle	11.7
4	Buford Highway	7.2
5	I-985	6.5
6	SR 316	5.6
7	SR 20	4.7
8	SR 8	4.5
9	Jimmy Carter Boulevard	4.4
10	Rosebud Road	4.2

The individual traffic count locations are generally consistent with the corridor averages discussed above. Count locations on the interstates in Gwinnett County recorded the highest volumes of truck traffic, followed closely by SR 316 (University Parkway). Count locations with lower volumes, but a high percentage of truck traffic include:

- Jimmy Carter Boulevard north of I-85
- Peachtree Industrial Boulevard
- US 23 (Buford Highway)
- SR 20
- US 78 west of Snellville

These locations are also where the highest concentrations of existing freight related land uses and employment are located. The following map graphically illustrates average daily heavy truck volumes and percentages.



Safety and At-Grade Railroad Crossings

Combined, CSX and Norfolk Southern operate over 220 miles of freight rail lines that traverse Gwinnett County. Both lines are generally parallel to I-85 through the county, with the CSX line south of the interstate and the Norfolk Southern line north of the interstate. The number of trains per day and tonnages on both lines are generally the same, with 15 – 34 trains per day and 25 – 50 million gross vehicle tons of freight annually. Regionally, these traffic levels are lower than the CSX and Norfolk Southern lines to the northwest and south and in line with the CSX line to the east. In addition to freight rail, Amtrak provides passenger service along the Norfolk Southern track in Gwinnett County, which is part of the Crescent long distance service from New Orleans to New York City. During fiscal

year 2013, approximately 306,700[3] passengers rode the Crescent, which are trips that did not have to be accommodated on Gwinnett's roadway infrastructure. The Crescent service does not stop within Gwinnett County.

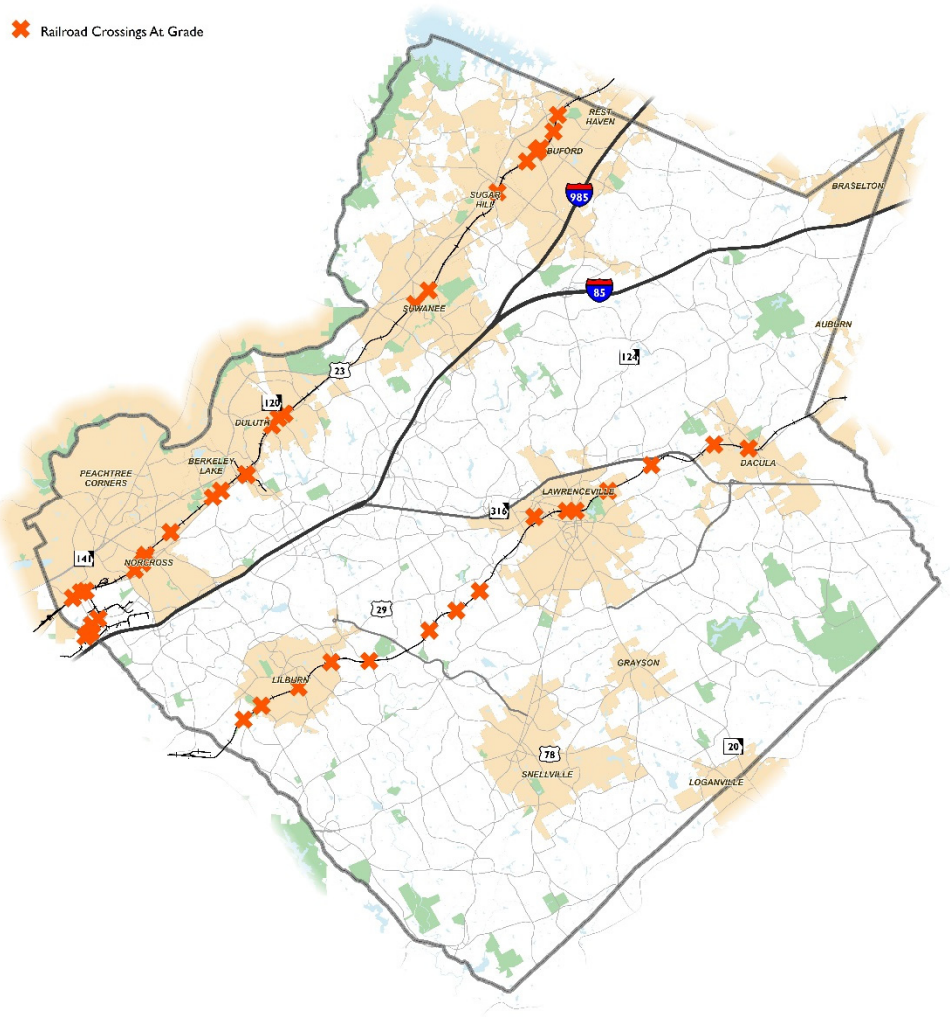
On the CSX and Norfolk Southern mainline facilities, there are 38 at-grade crossings with study area network streets. This analysis does not consider low volume crossings at sidings. The Norfolk Southern mainline has 23 at-grade crossings and the other 15 at-grade crossings are on the CSX mainline. The map on the following page shows the location of all mainline facility at-grade crossings on the study area network in Gwinnett County.

Each of the 38 at-grade crossings represents a potential conflict point between trains and vehicles. Additionally, there are several at-grade crossings in downtowns or other areas with high levels of street activity including pedestrians and bicyclists. In Gwinnett County, these areas include:

- Downtown Norcross
- Duluth – Main Street
- Downtown Suwanee
- Buford – West Main Street
- Lilburn – Camp Creek Greenway
- Lawrenceville – North Clayton Street
- Dacula – Broad Street and Second Avenue

The map on the following page shows the location of all existing at-grade crossings in Gwinnett County.

[3] Amtrak Sets Ridership Record and Moves the Nation's Economy Forward; Amtrak, October 14, 2013



Although total highway-rail incidents have been generally declining in the State of Georgia from 2004 to 2012, with a slight uptick in 2013, crashes at crossings are a concern because they often result in injuries and fatalities. During the 2004 to 2013 time period, fatalities and injuries have been quite variable, with highs of 15 fatalities in 2004 and 66 injuries in 2013. Removing at-grade rail crossings can reduce incidents, fatalities, and injuries by separating roadway and rail traffic and eliminating the potential for collisions.

Table 3: Highway-Rail Incidents in Georgia 2004 - 2013

Highway-Rail Incidents	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Incidents	155	131	135	138	110	107	81	97	85	96
Deaths	15	12	8	17	8	6	8	7	7	13
Injuries	42	26	37	46	38	36	32	27	40	66

Highway-Rail Incidents	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013

Source: FRA Office of Safety Analysis/2015 Georgia State Rail Plan

Within Gwinnett County, three at-grade crossings experienced multiple crashes between 2005 and 2011. Jones Mill Road experienced six crashes over this period, which was the highest crash location in Georgia, not just Gwinnett County. Five crashes occurred at Church Street in Buford and this was the site of a double fatality crash in 2005. Lanier Avenue in Sugar Hill experienced three crashes and was the site of an Amtrak crash in 2009. All multiple crash figures are from the *State Highway-Rail Grade Crossing Action Plan* dated December 1, 2011, published by the Georgia DOT.

Despite the potential for crashes at at-grade rail crossings, the rate of injuries per billion ton miles is 3.3 for freight rail, in contrast to 56.0 for trucks. Fatalities per billion ton miles show a similar pattern, with a rate of 0.4 for rail and 2.5 for trucks[4]. These figures are an average of rates from 2003 – 2007.

At-grade crossings with high traffic volumes or high truck volumes were identified as priority locations for mitigating freight related safety concerns. The following table is based on the ARC travel demand model and shows the top 10 at-grade crossings by total traffic volume during the PM peak period. Nine of the top 10 locations are crossings of the Norfolk Southern mainline.

Table 4: Top 10 Railroad At-Grade Crossings by Total Traffic Volume

Rank	Location	Total PM Peak Traffic Volume (2015 TDM)
1	Buford Highway (north of N Berkeley Lake Road) at Norfolk Southern	11,579
2	Buford Highway (north of Jones Mill Road) at Norfolk Southern	9,680
3	Jones Mill Road at Norfolk Southern	8,612
4	Suwanee Dam Road at Norfolk Southern	8,586
5	Duluth Highway at Norfolk Southern	8,517
6	Langford Road at Norfolk Southern	8,394
7	Amwiler Road at Norfolk Southern	7,079
8	South Old Peachtree Road at Norfolk Southern	5,865
9	South Berkeley Lake Road at Norfolk Southern	5,293
10	Oak Road at CSX	5,266

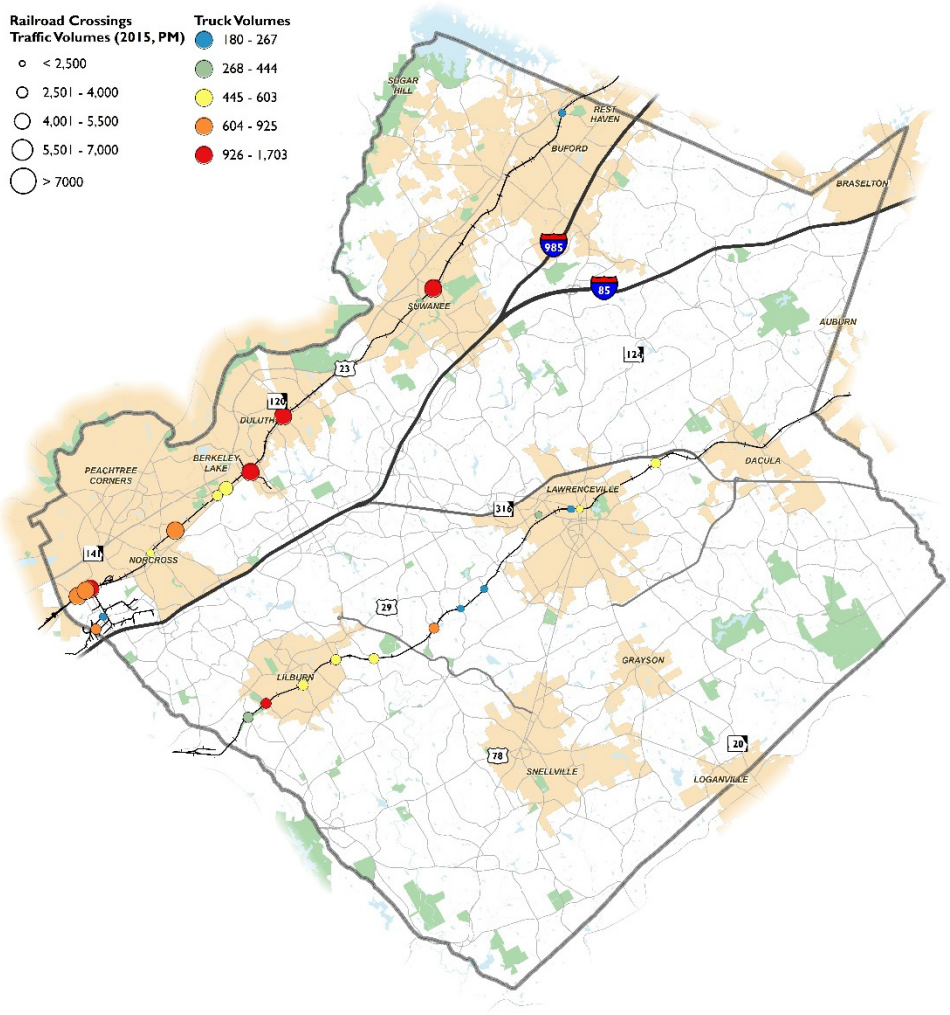
Source: ARC Travel Demand Model

Heavy Trucks and At-Grade Crossings

With the rise in lean manufacturing and just-in-time inventory systems, delays on the freight network negatively affect productivity and profits. At-grade crossings can increase heavy truck travel times and reduce the reliability of schedules when drivers are delayed while trains clear the crossing. At-grade crossings with truck volume data were mapped to spatially locate crossings with the highest volumes of

[4] Surface Freight Transportation; A Comparison of the Costs of Road, Rail, and Waterways Freight Shipments That Are Not Passed on to Consumers; GAO, January 2011/2015 Georgia State Rail Plan; GDOT, 2014

heavy trucks, as well as total traffic. The map on the following page shows traffic and truck volumes during the PM peak period. Because truck counts were not available at every at-grade crossing, only crossings with truck counts are shown on the map. The size of the dots represents total PM peak period traffic volume at the crossing, while the color of the dot shows truck volumes.



The following table shows the top 10 at-grade crossings by truck volume, based on Georgia DOT truck counts. Seven of the at-grade crossing locations that were in the top 10 for total PM peak period traffic volumes are also in the top 10 for truck volumes. Overall, the Norfolk Southern rail line has the highest volume of traffic and trucks at crossings during the PM peak period. This is consistent with the generally higher concentration of freight related land uses and employment parallel to the Norfolk Southern line. However, four of the top 10 high truck volume locations are crossings of the CSX line at:

- Rockbridge Road -1,019 trucks in the PM peak
- Oak Road – 690 trucks in the PM
- Cedars Road – 603 trucks in the PM

- Arcado Road – 569 trucks in the PM

Table 5: Top 10 Railroad At-Grade Crossings by Truck Volume

Rank	Location	Total PM Peak Truck Volume (2014)	Truck Percentage (2014)
1	Suwanee Dam Road at Norfolk Southern	1,703	19.8%
2	Duluth Highway at Norfolk Southern	1,059	12.4%
3	Rockbridge Road at CSX	1,019	23.0%
4	Jones Mill Road at Norfolk Southern	925	10.7%
5	Amwiler Road at Norfolk Southern	746	10.5%
6	Best Friend Road at Norfolk Southern	709	14.3%
7	Langford Road at Norfolk Southern	705	8.4%
8	Oak Road at CSX	690	13.1%
9	Cedars Road at CSX	603	12.9%
10	Arcado Road at CSX	569	13.4%

Source: Georgia DOT

Truck volume counts were not available for facilities at the following crossing locations:

- Little Mill Road at Norfolk Southern
- Shadburn Ferry Road at Norfolk Southern

Grade Separation Considerations

In addition to safety, road user delay is another criterion considered when identifying new highway and rail grade separations. Separating the flow of automobile traffic increases roadway capacity because vehicles no longer need to slow down prior to the crossing or stop and wait for a train to pass. Safety is increased at the location of the grade separation by eliminating the conflict between roadway and railroad traffic. Safety is often improved at nearby crossings when traffic is diverted to the new grade separation. Cost is also an important consideration, as implementing a grade separation requires at least one bridge.

Challenges Improving At-Grade Crossings

Topography around at-grade crossings is a challenge because of limitations on freight rail and roadway facility grades and vertical curve design standards. In general, where rail and roadway facilities meet at grade, a significant amount of distance on both sides of the crossing will be necessary to provide a grade separation that meets grade limitations and design standards.

Both the CSX and Norfolk Southern rail lines traversing Gwinnett County are currently double stack cleared from New Orleans to Charlotte and points north. The CSX line is Double Stack 3, which requires a minimum vertical clearance of 20 feet 2 inches. In comparison, Norfolk Southern requires a minimum vertical clearance of 20 feet 9 inches along double stack cleared lines. Any proposed grade separation projects that carry roadways over the rail lines will need to meet or exceed these minimums.

There are numerous locations in Gwinnett County where the railroad mainlines are at the same grade as roadway facilities running parallel on both sides. At-grade crossings that occur on streets perpendicular to the roadways and railroad facilities are short and generally range from 100 to 300 feet in length. This is especially true of the Norfolk Southern mainline, which is paralleled by US 23 (Buford Highway) throughout most of the county. The following at-grade crossings are examples of where distances between intersections with roads adjacent to the rail lines are limited:

- On Holcomb Bridge Road in Downtown Norcross, there is 180 feet between intersections at Thrasher Street and South Peachtree Street
    - 335 trucks during the PM peak period
    - 3,140 total vehicles during the PM peak period
- Along Lawrenceville Street in Duluth, the distance between intersections at US 23 (Buford Highway) and Main Street is 350 feet, with 125 feet between the Norfolk Southern rail line and Main Street
    - 1,059 trucks in the PM peak period
    - 8,517 total vehicles during the PM peak period
- In Suwanee, on Suwanee Dam Road there is 365 feet between intersections with US 23 (Buford Highway) and Brogdon Road, with 80 feet between Brogdon Road and the Norfolk Southern Line
    - 1,703 trucks in the PM peak period
    - 8,586 total vehicles during the PM peak period
- On North Clayton Street in Lawrenceville, there is 220 feet between intersections at Depot Street and Reid Street, and development along North Clayton Street adjacent to the tracks
    - 477 trucks in the PM peak period
    - 3,413 total vehicles during the PM peak period
- Along Broad Street in Dacula, the distance between intersections at Winder Highway and Hebron Church Road is 135 feet and no truck counts were available at this location

Bridges On Key Roadway Corridors

An inventory of bridges on the Gwinnett County study network was obtained from the Georgia DOT. Structurally deficient and functionally obsolete bridges on truck routes, within ½ mile of schools, or in a regulatory floodway were then identified and mapped. Structurally deficient bridges are not in imminent danger of collapse, but may have posted weight limits or be closed to traffic. Functionally obsolete bridges were built to standards that are no longer in use today and may not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand.

Summary of Bridge Needs

- There is a need to rehabilitate or replace functionally obsolete or structurally deficient bridges on truck routes, near schools, or in regulatory floodways
    - On truck routes, one bridge is structurally deficient and 27 bridges are functionally obsolete
    - Within ½ mile of schools, 9 bridges are functionally obsolete – none of these bridges currently have weight restrictions
    - Six functionally obsolete bridges are located in regulatory floodways

- Only four of the functionally obsolete bridges are not located on a truck route, within ½ mile of a school, or in a regulatory floodway

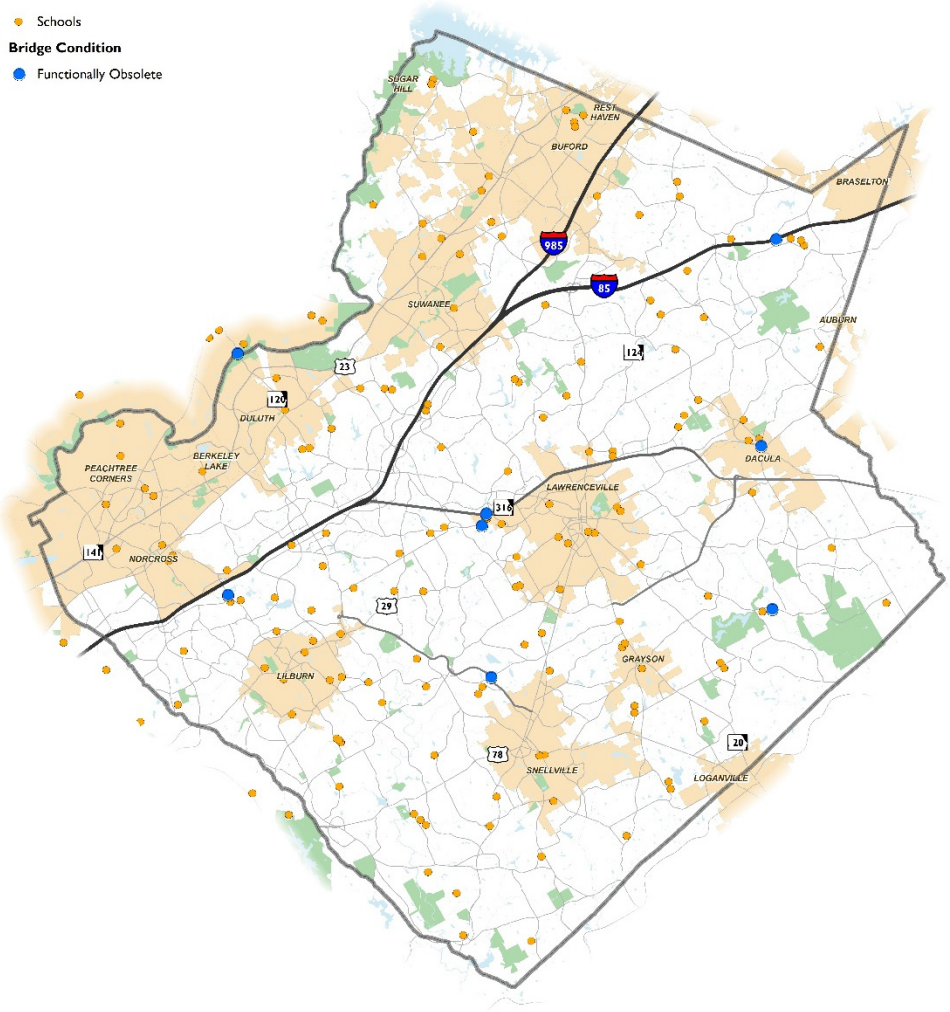
Bridges on Truck Routes

Only one structurally deficient bridge was identified on the truck routes: Patrick Mill Road at the Apalachee River. The following map shows structurally deficient or functionally obsolete bridges on truck routes.



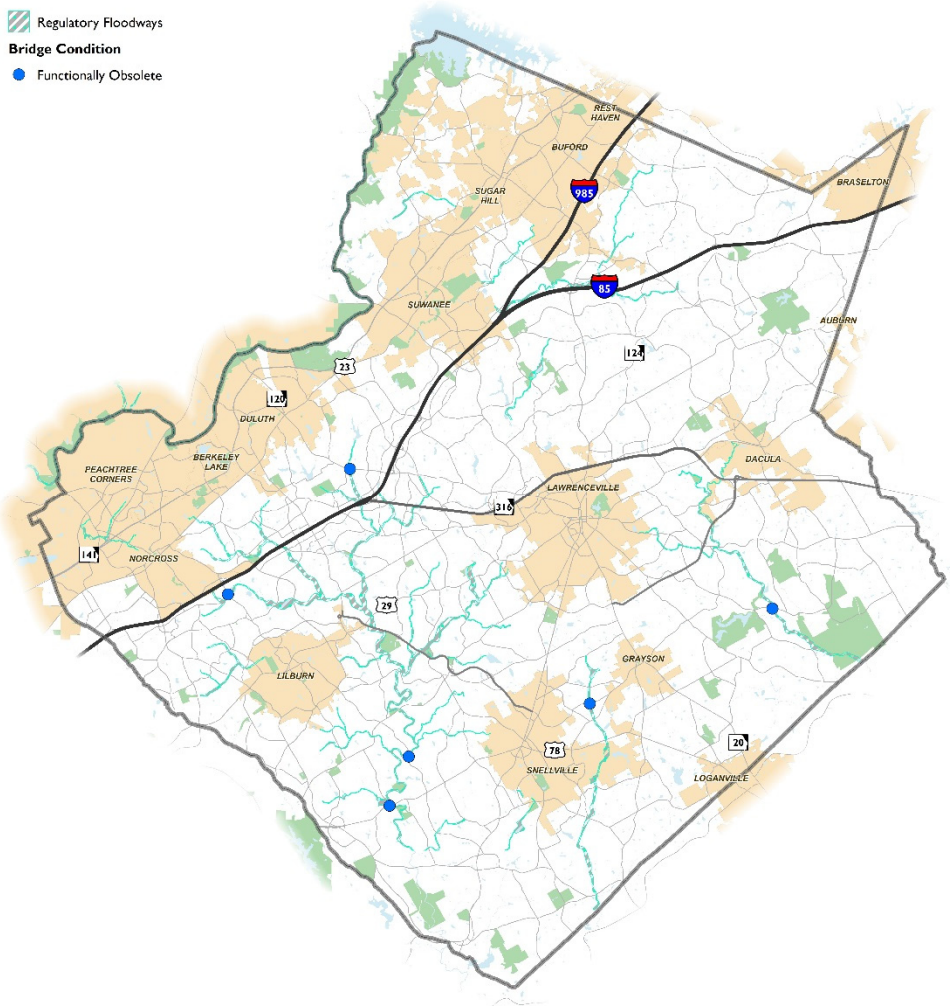
Bridges Near Schools

The following map shows functionally obsolete bridges within a half mile of Gwinnett County schools. None of the functionally obsolete bridges identified within a half mile of schools have posted weight limits.



Bridges in Regulatory Floodways

Bridges located in regulatory floodways are in known flood hazard areas and may be more susceptible to being inundated during storm events. The following map shows functionally obsolete bridges in regulatory floodways:



Functionally Obsolete or Structurally Deficient Bridges

Table 6: Bridges on Truck Routes, Near Schools, or in Regulatory Floodways summarizes structurally deficient or functionally obsolete bridges in Gwinnett County. An "X" in the truck route, school, or floodway columns indicates the bridge is located on a truck route, near a school, in a regulatory floodway, or some combination of the three. Only one bridge, on Indian Trail Road at Beaver Ruin Creek, was on a truck route, near a school, and in a regulatory floodway. Four Gwinnett County Bridges that are functionally obsolete did not fall on a truck route, were not near a school, and were not located on a regulatory floodway. They are:

- Spalding Drive at Crooked Creek
- New Hope Road at Palm Creek
- Old Auburn Road at Apalachee River
- Cardinal Lake Drive at Sweetwater Creek

Table 6: Bridges on Truck Routes, Near Schools, or in Regulatory Floodways

Bridge Location	Status	Sufficiency Rating	Year Built	Potential Federal Funding	Truck Route	School	Flood-way
Patrick Mill Road at Apalachee River	Structurally Deficient	29.3	1956	Replacement	X		
U-Turn I-85 N to S at I-85- N Fork P'Tree Crk	Functionally Obsolete	68.0	1980	Rehabilitation	X		
Ramp to Stone Mtn. at SR 10 EBL-SR 10R to 5242	Functionally Obsolete	80.7	1963	None	X		
Abbotts Bridge Rd at Chattahoochee River	Functionally Obsolete	55.0	1960	Rehabilitation	X	X	
Spalding Drive at Crooked Creek	Functionally Obsolete	37.9	1952	Replacement			
SR 8 - US 29 at Alcovy River	Functionally Obsolete	55.1	1929	Rehabilitation	X		
US 78 / SR 10 at Yellow River	Functionally Obsolete	53.9	1970	Rehabilitation	X		X
Lawrenceville Hwy at CSX Railroad	Functionally Obsolete	80.3	1976	None	X		
Cumming Highway at Chattahoochee River	Functionally Obsolete	55.5	1947	Rehabilitation	X		
Duluth Highway at Singleton Creek	Functionally Obsolete	57.6	1938	Rehabilitation	X		X
Jimmy Carter Blvd at I-85	Functionally Obsolete	50.0	1973	Rehabilitation	X		
Spout Springs Road at I-85 (SR 403)	Functionally Obsolete	64.6	1964	Rehabilitation	X	X	
SR 316 EBl at Yellow River	Functionally Obsolete	58.7	1960	Rehabilitation	X	X	
SR 316 WBL at Yellow River	Functionally Obsolete	53.7	1960	Rehabilitation	X	X	
I-985 (NBL) at Ivy Creek	Functionally Obsolete	59.0	1965	Rehabilitation	X		
I-985 (SBL) at Ivy Creek	Functionally Obsolete	56.0	1965	Rehabilitation	X		
Herrington Road at SR 316	Functionally Obsolete	61.4	1960	Rehabilitation	X		
Killian Hill Road at Yellow River	Functionally Obsolete	59.1	1960	Rehabilitation	X		X
Flowery Br Road at I-85 (SR 403)	Functionally Obsolete	58.8	1964	Rehabilitation	X		
Indian Trail Road at Beaver Ruin Creek	Functionally Obsolete	73.8	1985	Rehabilitation	X	X	X
Old Norcross-Lvill at Yellow River	Functionally Obsolete	77.3	1988	Rehabilitation	X	X	
Killian Hill Road at CSX Railroad	Functionally Obsolete	76.9	1975	Rehabilitation	X		
Ronald Reagan Pkwy at CR335 Webb Gin House Rd	Functionally Obsolete	88.2	1995	None		X	
Ronald Reagan Pkwy at M9294 Five Forks Trickum	Functionally Obsolete	89.3	1995	None	X		
Ronald Reagan Pkwy at Pleasant Hill Rd	Functionally Obsolete	94.4	1993	None	X		
SR 317 at I-85 (SR 403)	Functionally Obsolete	66.0	1994	Rehabilitation	X		
New Hope Road at Alcovy River	Functionally Obsolete	42.2	1976	Replacement		X	X
New Hope Road at Palm Creek	Functionally Obsolete	64.5	1976	Rehabilitation			

Bridge Location	Status	Sufficiency Rating	Year Built	Potential Federal Funding	Truck Route	School	Flood-way
Pinehurst Road at Big Haynes Creek	Functionally Obsolete	53.0	1965	Rehabilitation			X
Old Auburn Road at Apalachee River	Functionally Obsolete	76.3	1970	Rehabilitation			
Dacula Road at CSX Railroad	Functionally Obsolete	68.4	1980	Rehabilitation	X	X	
Cardinal Lake Dr. at Sweetwater Creek (Lake)	Functionally Obsolete	69.4	1960	Rehabilitation			
Lake Front Drive at Hales Creek	Functionally Obsolete	61.0	1992	Rehabilitation	X		
McGinnis Fry Rd WB at NS Railroad	Functionally Obsolete	79.5	1997	Rehabilitation	X		
Old Norcross Road at I-85 NB + SB, NBCD, SBCD	Functionally Obsolete	87.6	2007	None	X		

TRANSIT

Gwinnett County Transit (GCT) provides express, local, and paratransit services for the people of Gwinnett County. It operates six local bus routes and five express routes into DeKalb and Fulton Counties. Communities served by GCT include Doraville, Norcross, Lawrenceville, Lilburn, Peachtree Corners, and Duluth. GCT recently added a route to Emory University, Route 110, which is included in the maps of our report but is not included in the planning team's data analysis because it was not yet in existence when the analysis was performed. In addition, Georgia Regional Transportation Authority (GRTA) operates five express routes with stops in Gwinnett County. Major destinations served by transit include Sugarloaf Mills, the Gwinnett Place Mall, MARTA Doraville Station, the Gwinnett Justice & Administration Center, Gwinnett Civic Center & Arena, several park-and-rides along I-85, and Downtown Atlanta. A map of GCT and GRTA routes is included in the report.

As part of the CTP, the planning team is examining the current operation of GCT and identifying additional transit needs and opportunities within the County. The Transit Existing Conditions Assessment included a detailed review of current transit system performance, including a comparison of performance against established service standards. Based on the findings of that assessment as well as further analysis of potential transit markets, a set of transit needs have been identified for Gwinnett County. Transit needs are aligned around the following themes:

- Align service to meet existing and future transit needs
- Provide faster and more reliable service to key destinations
- Increase transit availability

Need: Align Service with Existing and Future Transit Needs

Key Destinations

A map of how existing transit services align with key destinations within and around Gwinnett County (including shopping malls, major employers, public facilities, hospitals, and sports venues) is included in the report. There are several major destinations just outside of Gwinnett County that are not currently served by transit from Gwinnett County or would require multiple transfers and significant out-of-direction travel to access via transit. These include Perimeter Mall in Dunwoody and employment hubs near Alpharetta.

Transit Demand

To assess existing transit service relative to the travel needs of Gwinnett County residents, existing demographic and travel activity was analyzed. Data was obtained from the 2010 U.S. Census, the American Community Survey (ACS), and the Travel Demand Model.

The maps on report page 46 of the report depict transit service relative to existing population and employment densities, respectively. As shown in the figures, there is some level of local transit service in most areas with medium to high population or employment density.

The maps on report page 48 depict local transit service relative to minority and low-income populations, respectively. Not all minority and low-income areas have transit service, although those areas without transit service are generally lower density below a level that can sustain fixed route transit service.

Many factors determine whether transit can be successfully and cost effectively implemented. These factors include population and employment density, income level, employment level, auto ownership, immigration status (TCRP Report 28, 1998). The numerous factors and their elasticities can be combined to identify markets that may have strong demand for transit. Performing this analysis allows for identification of markets that may be underserved or may be generating less ridership than would be expected. These markets would then warrant further study to determine how to best capture potential transit demand.

The map on report page 49 depicts transit propensity compared to trip origin locations for existing transit riders. As shown in the figures, most high propensity transit markets do have some level of transit access. Markets that may be underserved by transit or where transit is underutilized include Duluth and the area east of I-85 between SR 316 and 1-985.

Origin-Destination Pairs

The most common type of trip occurs between the home and the workplace. In fact, over 50 percent of all trips on the GCT system (including both local and express service) are between the home and the workplace. Therefore, an analysis of home-based work trips in the Travel Demand Model provides insight into the origin-destination characteristics of most trips, and therefore allows for an assessment of how aligned transit services are with travel demand needs. The Travel Demand Model was utilized to identify origin-destination patterns for existing and future residents and workers of Gwinnett County as a comparison to origins-destinations on the existing GCT system.

As shown in the map on report page 50, the densest destination market for home-based work trips within Gwinnett is Technology Park (Peachtree Corners), followed by Gwinnett Place. Downtown Atlanta is by far the densest destination market outside of the County for home-based work trips. The densest origin market for home-based work trips is North Lilburn, followed by Berkeley Lake/Peachtree Corners and West Lawrenceville. The origin-destination pair with the greatest trip density is Berkeley Lake/Peachtree Corners to Technology Park, followed by West Lawrenceville to Gwinnett Place. The origin-destination pair outside of the County with the greatest trip density is North Lilburn to Downtown Atlanta, followed by Dunwoody to Technology Park (Peachtree Corners).

The modeled existing origin-destination demand can be compared against current origin-destination use of the GCT system. Origin-destination patterns of existing transit users are shown on report page 51, which depicts origin-destination patterns of exclusively home-based work trips on the existing transit system.

The maps depict origin-destinations for trips with at least one end (home or work) within Gwinnett County based on the current year (2015) Travel Demand Model and future (Year 2040) land uses. The map on report page 53 highlights where origin-destination activity is forecast to grow the fastest between now and Year 2040. The biggest growth destination market (in trip density) between 2015 and 2040 is Technology Park, followed by Gwinnett Village/Norcross/Indian Trail. Minimal growth is forecast to areas outside of the County, with Tucker experiencing the greatest amount. The biggest growth origin market for home-based work trips is the Sugarloaf Mills Area, followed by several locations including Gwinnett Place, Norcross/Duluth, and Gwinnett Village/Norcross/Indian Trail. The origin-destination pair with the greatest growth in trip density is Berkeley Lake/Peachtree Corners to Technology Park, followed by Norcross/Duluth to Technology Park. The biggest inter-county growth for home-based work trips is forecast for Tucker to Best Friend Road/Button Gwinnett Drive Employment Area, followed by Doraville to that same area. There is a substantially greater growth in home-based inter-county work trips with Gwinnett County as the destination (i.e. work location) than with Gwinnett County as the origin (i.e. home location).

Need: Faster and More Reliable Service to Key Destinations

Enhancing the desirability and competitiveness of GCT service will serve to increase ridership and may reduce congestion. One of the most effective ways to achieving this is by reducing trip times and enhancing trip time reliability. Reductions in trip times and improved reliability can be achieved by providing more direct service to destinations, increasing operating speeds, reducing the number of transfers required, and by reducing transfer wait times.

As identified in the Transit Existing Conditions Assessment, all routes do not meet agency-established on-time performance standards. None of the routes have an on-time percentage greater than 70 percent (it should be noted that two of the express routes arrive late less than 20 percent of the time).

Transit Speed

Improving the speed of transit service will reduce trip time and make transit trips more competitive with auto travel. Travel speed for buses is impacted by congestion, traffic lights, vehicle queuing, and stop spacing. The table below depicts the current average travel speed for GCT buses during the peak hour.

Average Travel Speed of GCT Bus Service during the Peak Hour (mph)										
Direction	Route									
	10A	10B	20	30	35	40	101	102	103	103A
Inbound	12.5	14.9	16.7	18.1	15.9	19.9	33.0	23.3	24.1	31.6
Outbound	13.7	15.1	15.6	18.8	15.2	16.9	31.8	27.8	32.9	22.2

Table 1. Average Travel Speed of GCT Bus Service during the Peak Hour

Route 10A is by far the system's most productive and efficient route. Yet it also has the slowest average travel speed. Enhancing the speed of Route 10A through optimizing stop placement, providing transit priority through intersections, and/or bypassing congestion would enhance transit service for its riders and may attract new riders to the service.

One factor in the slow travel speeds on local routes is the density and placement of bus stops. Providing stops close to each other leads to more stops for the buses and more delays as the bus attempts to merge into and out of traffic. Placing stops at the far-side of intersections often reduces delays for buses, allowing them to travel through a green light with the flow of traffic before stopping. Optimizing stop density to reduce redundant stops and optimizing stop placement to reduce traffic congestion delays can improve travel speed and reduce overall trip time.

Routes 10A, 10B, 20, and 35 travel on Buford Highway to access the MARTA Doraville Station. Buford Highway near the County border carries over 700 transit passengers during the AM peak hour. This represents approximately 9 percent of the total travel activity on the roadway during that hour. During the PM peak hour, that same segment of the road carries over 600 transit passengers, representing approximately 6 percent of the total travel activity on the roadway. Button Gwinnett Drive has a similarly high transit mode share, of 9 percent in the AM peak hour and 7 percent in the PM peak hour. For these roadways, and others with high transit utilization, providing measures to improve transit reliability and reduce travel time may be an efficient way to maximize the capacity and throughput of the roadway.

As Gwinnett residents and workers make mode choice decisions, one of the key components is the travel time. Analysis was performed comparing transit travel time (from published schedules) with auto travel time (based on Google travel time estimates). Two comparisons were made, one for the most common origin-destination pairs of existing transit riders, and the other for the most common origin-destination pairs from the Travel Demand Model. These two comparisons are included in the following two tables.

Comparison of Auto and Transit Travel Time (Top 10 Existing Transit O-D Pairs)				
Existing Daily Transit Trips	Origin	Destination	Travel Time (HH:MM)[1]	
			Automobile (Peak Hour Traffic)[2]	Transit [3,4]
162	Suwanee/Duluth	Downtown Atlanta	1:04	1:06
141	NW Lawrenceville	Downtown Atlanta	0:59	0:58
132	Norcross/Duluth	Downtown Atlanta	0:51	0:58
131	Lilburn/Mountain Park/NW Snellville	Downtown Atlanta	0:48	1:05
123	West Lawrenceville	Downtown Atlanta	0:57	0:56
114	North DeKalb County	Norcross/Duluth	0:28	0:19
78	Norcross/Duluth	Norcross/Duluth	0:11	0:16
76	Berkeley Lake/Peachtree Corners	North DeKalb County	0:18	1:00
73	Gwinnett Place	North Lilburn	0:16	0:40
72	North Lilburn	North DeKalb County	0:11	0:30
72	Buford/Sugar Hill	Downtown Atlanta	1:15	1:20

Notes:

1) Trips for OD pairs with destinations in downtown Atlanta were assumed to depart at 7:00 AM; all other trips were assumed to depart at 5:00 PM. Major trip generator and attractor points utilized as origin and destination points to estimate travel time. Transit service may not be available within all portions of the zones indicated.

2) Vehicle travel times were estimated based on Google Maps travel times.

3) Transit travel times were estimated based on existing route schedules. Actual transit travel time may vary. Initial wait time to board the first bus is not included. Wait time to make a transfer, if needed, is included

4) For transit trips to and from origins or destinations with no transit service, it is assumed that part of the transit trip includes driving to or from a park and ride location.

Table 2. Top 10 Existing Transit O-D Pairs

Comparison of Auto and Transit Travel Time (Top 10 Modeled Home-Based Work O-D Pairs)				
Trips per Square Mile2	Origin	Destination	Travel Time (HH:MM)[1]	
			Automobile (Peak Hour Traffic)[2]	Transit [3,4]
82	Berkeley Lake/Peachtree Corners	Technology Park Employment Area	0:07	0:17
55	West Lawrenceville	Gwinnett Place	0:11	0:24
42	Norcross/Duluth	Gwinnett Place	0:08	0:27
38	North Lilburn	Gwinnett Place	0:14	0:40
37	North Lilburn	Gwinnett Village/Norcross/ Indian Trail	0:07	0:24
37	Norcross/Duluth	Technology Park Employment Area	0:08	0:27
27	North Lilburn	Downtown Atlanta	0:56	1:14
27	North Lilburn	Technology Park Employment Area	0:28	1:13
26	North Lilburn	Best Friend Road/Button Gwinnett Drive Employment Area	0:35	0:34
24	NW Lawrenceville	Gwinnett Place	0:14	0:21

Notes:

1) Trips for OD pairs with destinations in downtown Atlanta were assumed to depart at 7:00 AM; all other trips were assumed to depart at 5:00 PM.

2) Vehicle travel times were estimated based on Google Maps travel times.

3) Transit travel times were estimated based on existing route schedules. Initial wait time to board the first bus is not included. Wait time to make a transfer, if needed, is included

4) For transit trips to and from origins or destinations with no transit service, it is assumed that part of the transit trip includes driving to or from a park and ride location.

Table 3. Top 10 Modeled Home-Based Work O-D Pairs

As expected, origin-destinations that currently have high transit activity have a competitive transit travel time. However, many of the most heavily utilized origin-destination pairs do not have competitive transit travel times. These origin-destination pairs may present opportunities for achieving transit ridership growth with the improvement of existing service or provision of new service.

Transfers

One of the biggest factors in total travel time is associated with having to make a transfer. Transferring between routes often implies out-of-direction travel and is usually associated with wait time for the second route. In Gwinnett County, the percentage of riders who transfer is quite high for all local routes. Many of these transfers are to the MARTA transit system as transit riders access destinations in the broader Atlanta metropolitan area. Doraville Station accounts for 22 percent of total GCT system boardings. Furthermore, 54 percent of linked trips on local routes involve MARTA bus or rail. The routes that serve the Doraville MARTA station are by far the most heavily used of the local routes, with productivity (in terms of passengers per revenue mile) approximately double that of the two routes that do not serve Doraville. The Lawrenceville and Lilburn areas generate relatively fewer riders accessing MARTA, likely due to the lack of a direct connection to the Doraville station.

The number of transfers within the GCT system is also high as indicated by the 25 percent of riders transferring twice on their one-way trip, including 13 percent of riders transferring between two or more GCT/GRTA buses. By far the most common transfer pair in the system between two GCT routes is between Route 10A and 40. While a number of these users are ultimately accessing MARTA at Doraville, 42 percent of Route 10A-40 transfers do not include a transfer with MARTA.

The map on report page 58 illustrates origins and destinations of trips with transit transfers on the GCT system. Note that they do not include trips only involving transfers with non-GCT transit routes. Trips with transfers add inconvenience to the rider and often increase travel time. Reducing the number of transfers required may make transit more desirable and competitive with other modes of transportation. The origin-destination patterns of trips involving one or more transfers within the GCT system is shown in the map on report page 58. As shown in the figure (and consistent with the Route 10A – Route 40 transfer activity), the strongest transfer demand is for trips crossing I-85. Transfer pairs are most prevalent in the Lawrenceville, Norcross, and Indian Trail areas. Trip origins/destinations with two or more transfers are most prevalent in the Peachtree Corners area, the Lawrenceville area, and the Dacula area.

Reducing the reliance on transfers or making transfers more seamless (through measures such as coordinated scheduling, improved waiting facilities, or increased frequencies) would benefit a large portion of the existing GCT ridership and may be effective at increasing ridership. Further study will be required to identify the opportunity to reduce transfer activity and/or improve route connectivity.

Providing a high-level of amenities at transfer facilities has been proven to reduce the perceived out-of-vehicle transfer wait time, which is a critical factor in the mode choice decision. Given the large number of transfers occurring at the Gwinnett Transit Center and Sugarloaf Mills, providing wayfinding, service information, real-time bus information, amenities such as seating and shelter, and security at those facilities is of significance.

In addition, five local routes and four express routes stop at one or both of those two transit centers or the Indian Trail Park & Ride. Providing efficient means of access and egress for buses into and out of the transit center benefits travel time and transit operating costs. Infrastructure improvements at the transit centers and park-and-rides, such as in-line stations, direct ramps, and dedicated access roadways, would benefit users and reduce operating costs for the agency.

Need: Increase Transit Availability

This need is associated with the level of transit service provided in the system. As noted in the Transit Existing Conditions Assessment, Route 10A is by far the most productive and efficient route (Sugarloaf Mills – Gwinnett Place Mall – MARTA Doraville). Loads are highest in early AM (outbound), mid-day (inbound/outbound), and late PM (inbound). Therefore, this route may need increased off-peak service frequency and span of service on Route 10A. Route 10A also performs well on the weekend, with more boardings per trip on the weekend than any other route has on weekdays. Therefore, there is a need to evaluate potential for increased frequency on the 10A on weekends.

Route 10B does not meet the agency's off-peak service frequency standard due to its reduced mid-day schedule. To meet the agency's frequency standards, hourly mid-day service is needed on the 10B.

The earlier and later express route trips perform well. Expanding the hours of express bus trips has the potential to increase express bus ridership by providing its riders more flexibility in their schedules.

Express Route 101 and Route 103 users are concentrated in the Sugar Hill area. These users currently drive to the I-985 park-and-ride. There may be a benefit to extending that express service into Sugar Hill if a suitable pick-up/drop-off and/or park-and-ride location can be identified.

Express Route 103A is a reverse commute route that does not require additional resources. However, it performs very poorly, with less than five passengers per revenue hour. With the employment densities in the Norcross/Peachtree Corners area, there seems to be opportunity for reverse commute service into Gwinnett County from DeKalb and Fulton Counties. Therefore, there is a need for further evaluation of route and service alternatives for reverse commute service. This may include providing service to more job-rich areas such as Norcross, eliminating on-street Route 103A segments on Breckenridge, and connecting to other transfer points such as the Gwinnett Transit Center. It should be noted that in order to expand peak period service, GCT will need to acquire new buses. This acquisition would allow greater flexibility in service provision and optimization as well as increased frequencies on the busiest routes.

One element of transit availability is increasing the customer's awareness and usability of the transit system. Providing widely available route information – through the agency website, Google and other online transit information and trip planning portals, and at bus stops – is an effective way to inform the public of transit services and remove barriers to transit use. In addition, providing real-time transit information – at transfer points, online, and via mobile apps – allows passengers to optimize their trip planning and reduces the actual and/or perceived wait time for the bus. With new buses and modernization of technology infrastructure, GCT can enhance the information available to its users.

Public Involvement Feedback

Six public meetings were held through March and April 2016. Over 300 people attended these meetings, providing valuable feedback, discussion, and insight. At the public meetings, transit discussions covered a variety of concerns, pertaining both to GCT's current service and potential changes for future service. Many participants mentioned a desire for improved connections, not only between GCT routes or to MARTA routes, but also to other destinations outside of Gwinnett County, such as Hartsfield-Jackson Atlanta International Airport or the new SunTrust Park. Feedback consistently included the need for increased frequency, decreased wait times, and extended service hours to create a more efficient overall service. The list below presents the recurring and key themes pertaining to GCT service discussed through the public meetings.

Requests and desires:

- Increase frequency/decrease headways for buses and thus wait times for riders
- Extend service hours
- Improve connection and MARTA transfer experience
- Public education and increased visibility to increase ridership on existing system
- New/improved connections to destinations within and outside of the County
    - Mall of Georgia, Infinite Energy Arena, parks, etc.
    - Hartsfield-Jackson Atlanta International Airport, Atlanta, Cobb, etc.

- Localized services for residents, especially seniors, to medical appointments or events
- Improve service efficiency with considerations for other modes
    - Heavy rail, light rail, BRT, circulators/trolleys

Summary of Needs

The analysis of existing transit ridership patterns, travel demand origin-destination pairs, and existing transit service performance indicates that there may be opportunities to increase transit ridership and the productivity of the system by optimizing existing service, providing more direct service, or expanding service to new areas. Service modification may include new origin-destination pairs both within Gwinnett County or service to/from employment and residential areas outside of the County.

A few of the identified needs can be addressed in the short-term by GCT, while others will require additional funding, vehicle procurement, or further study and are longer term solutions.

