

# *the way forward:* 2040 Metropolitan Transportation Plan

GASTON-CLEVELAND-LINCOLN METROPOLITAN PLANNING ORGANIZATION

Adopted March 27, 2014



*Belmont • Bessemer City • Boiling Springs • Cherryville • Cramerton • Dallas • Gastonia • Kings Mountain • Lincolnton • Lowell • Mount Holly • Randle • Shelby • Stanley • Cleveland County • Gaston County • Lincoln County*

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2040 MTP  
(8 Hour Standard)  
Gaston-Cleveland-Lincoln Metropolitan  
Planning Organization

*Prepared by the  
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# 1 Introduction

## 1.0 INTRODUCTION

The 2040 Metropolitan Transportation Plan (MTP) for the Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO) is the locally-adopted, fiscally-constrained, long-range transportation plan for Gaston, Cleveland, and Lincoln Counties. GCLMPO is the federally designated regional transportation planning entity for Gaston, Cleveland, and Lincoln Counties of North Carolina.

In 1962, Congress enacted a federal law that initiated a requirement that a continuing, cooperative, and comprehensive (3-C) transportation planning process be established for all urban areas with greater than 50,000 in population to qualify for federal transportation funds. This law is Title 23 of the United States Code Section 134(a) and reads as follows:

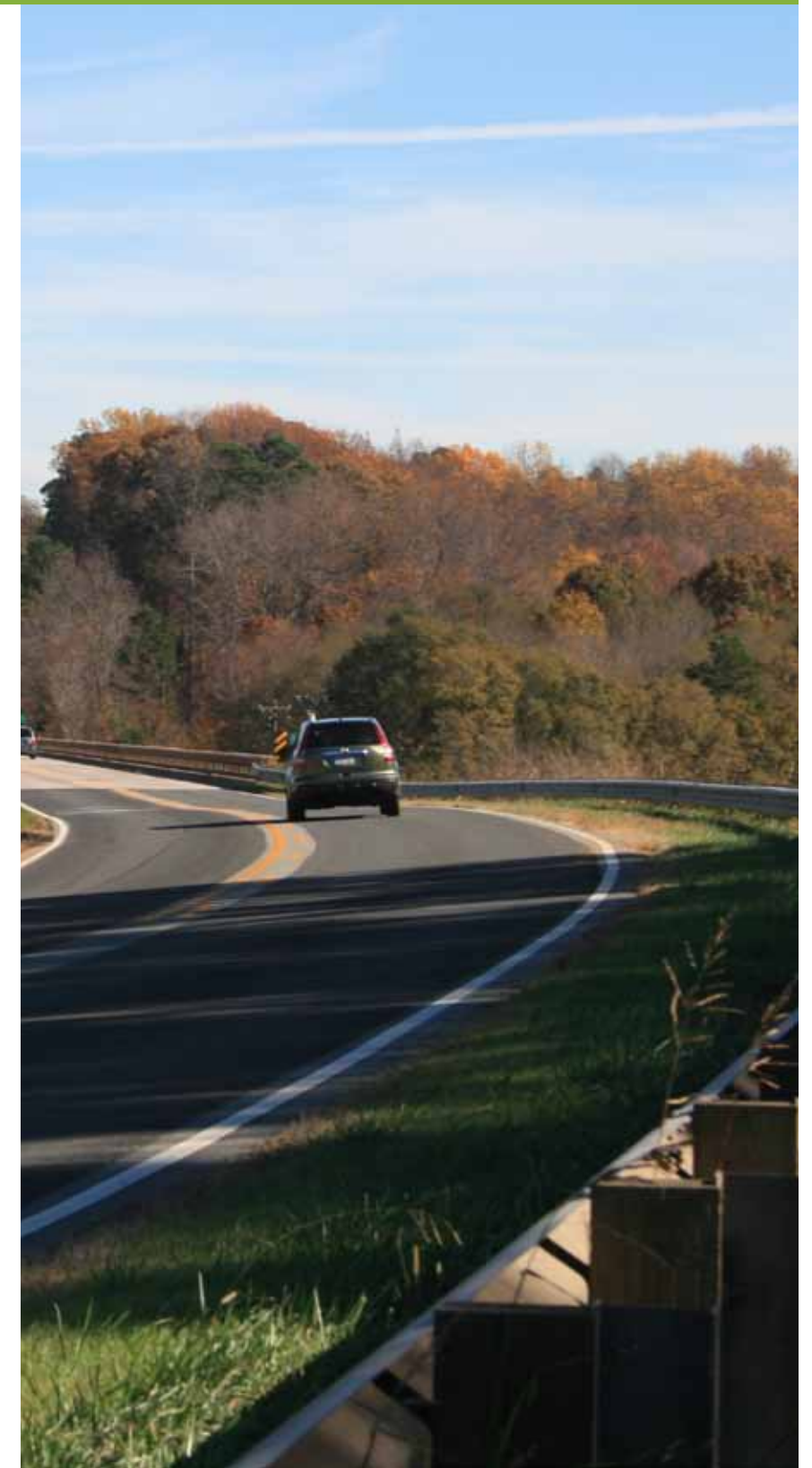
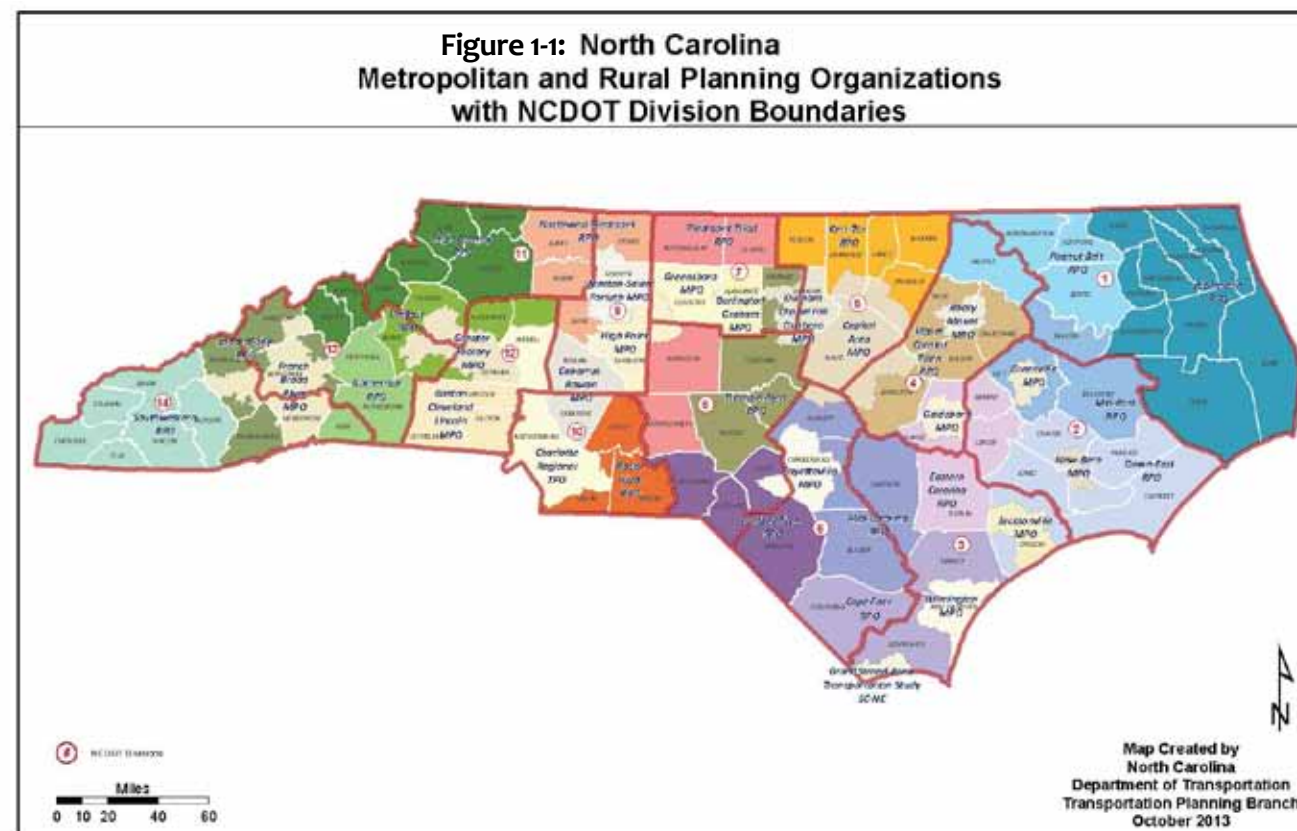
### “General Requirements

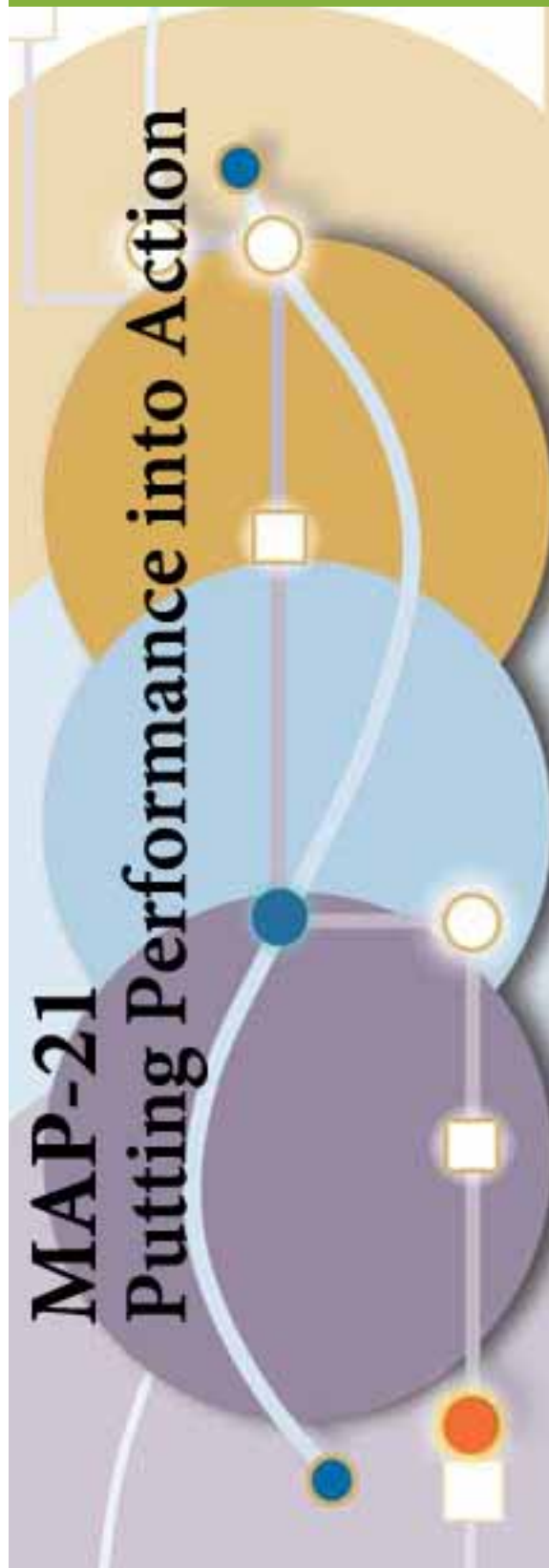
(1) Findings - It is in the national interest to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and through urbanized areas, while minimizing transportation-related fuel consumption and air pollution.

(2) Development of plans and programs - To accomplish the objective stated in paragraph (1), metropolitan planning organizations designated under subsection (b), in cooperation with the State and public transit operators, shall develop transportation plans and programs for urbanized areas of the State.

(3) Contents - The plans and programs for each metropolitan area shall provide for the development and integrated management and operation of transportation systems and facilities (including pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the metropolitan area and as an integral part of an intermodal transportation system for the State and the United States.

(4) Process of development - The process for developing the plans and programs shall provide for consideration of all modes of transportation and shall be continuing, cooperative, and comprehensive to the degree appropriate, based on the complexity of the transportation problems to be addressed.”





On July 6, 2012, the United States Congress adopted *Moving Ahead for Progress in the 21st Century Act (MAP-21)*. MAP-21 became effective on October 1, 2012 with average funding levels carried over from fiscal year 2012. MAP-21's purpose and intent is to strengthen the national highway and public transportation systems with focus and detailed guidance to promote:

- Job creation
- Economic growth and safety
- Federal program simplicity and focus
- Accelerate project delivery
- Innovation
- Federal program performance measures
- Multimodal investments
- Corridor planning with environmental linkages

Major MAP-21 provisions include the extension of Highway Trust Fund taxes and the promise of two (2) years of solvency for Highway Trust Fund (HTF). Effectiveness and efficiency of the MAP-21 program will be assisted by substantial program consolidations, elimination of funding earmarks/set asides for special interest projects, and the elimination of most discretionary programs.

### MTP Requirements

Each of the nineteen (19) North Carolina MPOs, in cooperation with the North Carolina Department of Transportation (NCDOT), shall develop a Metropolitan Transportation Plan (MTP). The MTP is a comprehensive plan that defines a transportation network that will serve both present and projected volumes of vehicular traffic and transit use in and around the urban area. The MTP is based on the most accurate and complete information available including, but not limited to, population and economic development growth and land development patterns in and around the urban area. The MTP shall

also provide for the safe and effective use of streets and highways through such means as parking regulations, signal systems, traffic signs, markings, and other devices.

Metropolitan Transportation Plans shall include:

- Description of the transportation system performance measures and respective performance targets. (23 U.S.C. 134(i)(2)(B))
- System performance report and subsequent updates evaluating the condition and performance of the transportation system including (23 USC 134(i)(2)(C)):
- Progress achieved by the MPO in meeting the performance targets in comparison with system performance recorded in previous reports.
- For MPOs that voluntarily elect to develop multiple scenarios, an analysis of how the preferred scenario improves transportation system conditions and performance.

By July 6, 2017, the Secretary shall submit to Congress a report on the effectiveness of the performance-based planning processes of MPOs that shall include, in part:

- (23 U.S.C. 134(l))
- Overall effectiveness as a tool for guiding transportation investments
  - Extent to which MPOs have achieved the performance targets or are making progress and whether the MPOs are developing meaningful targets.
  - The technical capacity of MPOs with populations of less than 200,000 to conduct these requirements.

### Optional Scenario Development

MPOs that choose to develop scenarios are encouraged to consider:

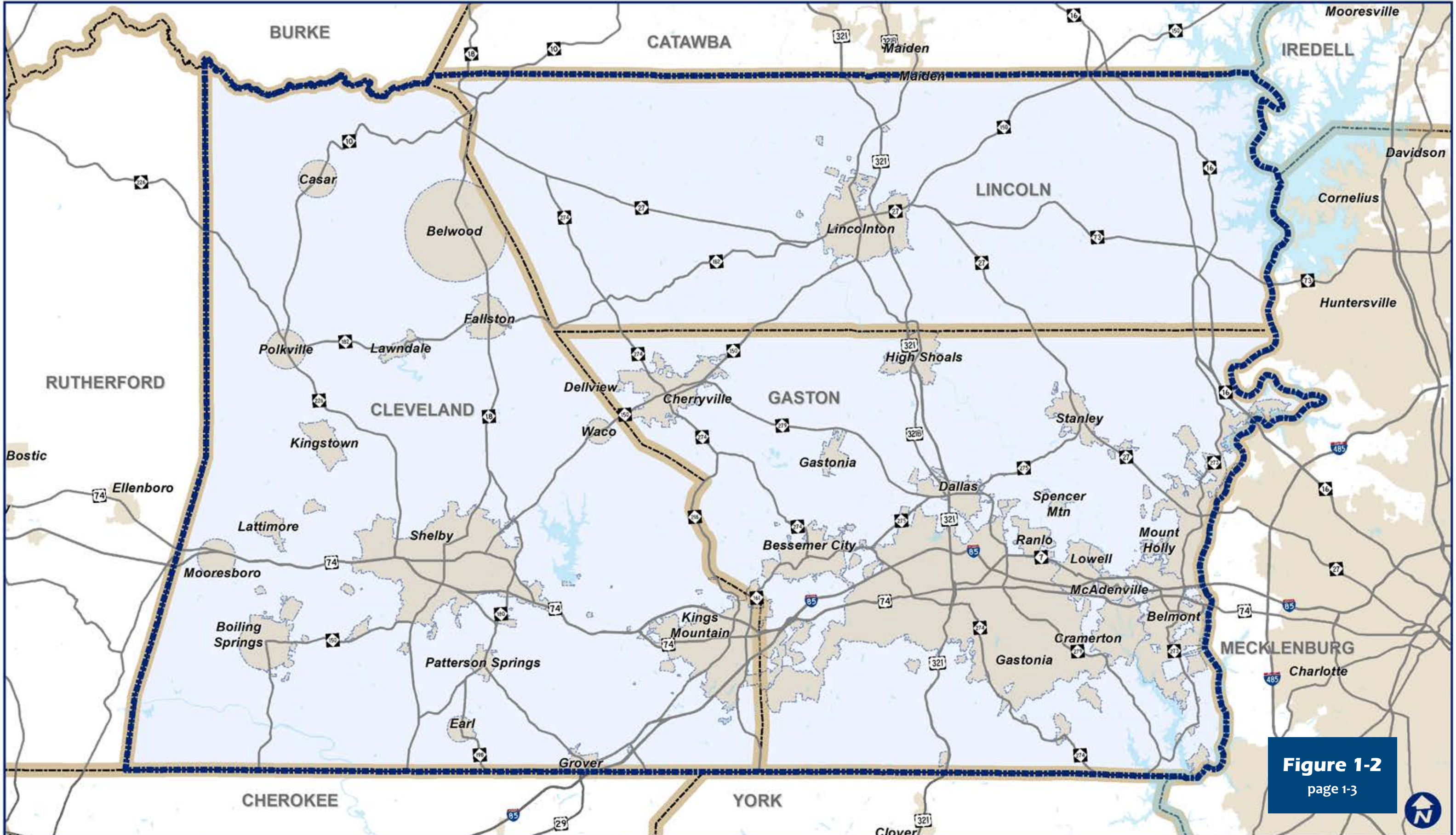
- Potential regional investment strategies for the planning horizon
- Assumed distribution of population and employment

- A scenario that maintains baseline conditions for the transportation system performance measures
- A scenario that improves the baseline conditions for as many of the transportation system performance measures as possible
- Revenue-constrained scenarios based on the total revenue reasonably expected to be available
- Estimated costs and potential revenues available to support each scenario
- In addition to the USDOT transportation system performance measures, MPOs may evaluate scenarios using locally developed measures.
- Secretary shall conduct a study on metropolitan planning scenario development (MAP 21 Section 1201(b))
- The Secretary shall evaluate the costs and benefits associated with MPOs developing multiple scenarios for consideration as part of the development of the MTP.
- The evaluation shall include an analysis of the technical and financial capacity of the MPO needed to develop scenarios.

### A. GCLMPO JURISDICTIONS

The Gaston-Cleveland-Lincoln Metropolitan Planning Organization was established in 2013 following the release of new Urbanized Area delineations, based on 2010 US Census data. The Metropolitan Planning Area (MPA) underwent a major expansion in 2013 based on input and a request from Cleveland and Lincoln Counties to be represented by one transportation planning organization. Based on the consolidation of these two counties into the Gaston County-based MPO, the GCLMPO grew from 12 member jurisdictions to 17. The MPO now includes the municipalities of Belmont, Bessemer City, Boiling Springs, Cherryville, Cramerton, Dallas, Gastonia, Kings Mountain, Lincolnton, Lowell, Mount Holly, Ranlo, Shelby, and





**Figure 1-2**  
page 1-3



# GASTON-CLEVELAND-LINCOLN METROPOLITAN PLANNING AREA

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties
- Municipalities
- MPO Area

0 1 2 4 Miles

Date created: 1/24/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





Stanley and the counties of Gaston, Cleveland, and Lincoln. There are several smaller municipalities in Cleveland County that do not choose to have formal membership in the MPO. They are represented by their respective county.

The GCLMPO total population is 382,429 based on the 2010 Census. The three county MPO area includes seventeen (17) member governments and a total of thirty four (34) jurisdictions. **Figure 1** displays the Gaston-Cleveland-Lincoln MPO boundary with the location of each municipality in the MPO.

### Gaston County

Gaston County is located in the southwestern edge of the Piedmont section of North Carolina just west of the City of Charlotte and Mecklenburg County, NC. It is bounded on the east by the Catawba River and Mecklenburg County, on the west by Cleveland County, on the north by Lincoln County and on the south by York County, South Carolina. Gaston was formed from the lower portion of Lincoln County in 1846. Today, Gaston County is part of the Greater Charlotte Metropolitan Statistical Area (MSA) and is the most urban of the three Gaston-Cleveland-Lincoln MPO counties.

Gastonia is the largest city and county seat of Gaston County and serves as the Lead Planning Agency (LPA) for the GCLMPO. Gastonia is a three-time All America City.

### Cleveland County

Cleveland County is nestled in the rolling piedmont of the southwest portion of North Carolina and is situated in the foothills of the Blue Ridge Mountains. The county lies equidistant from Asheville and Charlotte and is centered between two rapidly urbanizing metropolitan areas along the I-85 corridor: Charlotte, NC and Greenville/Spartanburg, SC.

Cleveland County's easy access to Interstate Highways 85, 40, 26 & 77 assures that goods and services flow freely to their destinations from one of 250 trucking firms located throughout the area. More than half of the nation can be reached by automobile within 24 hours.

Shelby is the largest city in Cleveland County. Affectionately known as the "City of Pleasant Living", Shelby was incorporated in 1843 and named for Colonel Isaac Shelby, a Revolutionary War hero at the nearby Battle of Kings Mountain. The Uptown Central Business District is a nationally registered historic district by the US Department of the Interior. Shelby is also home to the annual American Legion Baseball World Series.

### Lincoln County

Lincoln County lies to the north of Gaston County. The county was formed in 1779 from the eastern part of then-Tryon County. It was named for Benjamin Lincoln, a general in the American Revolutionary War.

In 1782 the southeastern part of Burke County was annexed to Lincoln County. In 1841 parts of Lincoln County and Rutherford County were combined to form Cleveland County. In 1842 the northern third of Lincoln County became Catawba County. In 1846 the southern half of what was left of Lincoln County became Gaston County.

The Madison Cold-blast Charcoal Iron Furnace was built in 1809 on Leiper's Creek near Lincolnton, owned by James F. & R. D. Johnson. By 1815, North Carolina had 23 iron works, mostly in the Piedmont area. By 1823, Lincoln County had ten operating forges and four furnaces, producing 900 tons of bar iron and 200 tons of cast hollow ware items.

Lincolnton was established in 1785 and is the only municipality in the county and serves as the county seat of Lincoln County. It was laid out with a central courthouse surrounded by a grid plan of streets, blocks, and lots with four primary streets—East Main, West Main, North Aspen and South Aspen—leading from the courthouse and dividing the town into quadrants. Due to a steady influx of pioneers to North Carolina's backcountry, by 1840 Lincoln County was one of the largest and most populous counties of the State. By 1849, the county's ironworks lead the industry in North Carolina, producing large quantities of iron castings, bar iron, and wrought iron tools.

### B. Coordination with Federal Transportation Planning

Federal law (20 CFR part 450 subsection c) mandates that the MTP be fiscally constrained, have at least a twenty-year planning horizon and be updated every five years (four in non-attainment areas). The last updated MTP, which was previously known as a Long-Range



*Madison Cold-blast Charcoal Iron Furnace*



# the way forward: 2040 Metropolitan Transportation Plan

Transportation Plan (LRTP) was adopted in 2009, with a plan horizon of 2035. In response to the recent 8-hour ozone (O<sub>3</sub>) non-attainment designation of “marginal” by the United States Environmental Protection Agency, a new set of projections for the region’s travel demand model has been developed for the greater Charlotte region. Figure 1-3 shows the nine county non-attainment area for the greater Charlotte region. The regional travel demand model was developed through coordination and collaboration between the Charlotte Regional Transportation Planning Organization (CRTPO); Gaston-Cleveland-Lincoln MPO; Cabarrus – Rowan MPO (CRMPO); and the Rocky River Rural Planning Organization (RRRPO) in North Carolina and the Rock Hill – Fort Mill Transportation Study (RFATS) in South Carolina.

The most significant improvements to this MTP are the socioeconomic data forecasts and the financial plan. Since population and economic growth often occur in ways that are unexpected, it is necessary to review the dwelling unit and employment forecasts every three years and to make adjustments as needed. In addition, the 2010 Census data was released during this update process. A detailed description of the dwelling unit, population and employment forecasts are included in the appendix. The Financial Plan describes the expected revenue and expenditures for the Gaston-Cleveland-Lincoln MPO and outlines funding resources and how this money will be spent to implement the Metropolitan Transportation Plan. Assumptions regarding the amount of funds were developed regionally through collaboration between the four MPOs and one Rural Planning Organization (RPO). The detailed Financial Plan is included in Chapter 15.

The remaining chapters cover each of the modal elements of the MTP as well as Goals & Objectives, Planning Factors & Performance Measures, Public Involvement, Physical & Human Environment, Socio-Economic Projections, Travel Patterns, Safety & Security, Bicycle & Pedestrian, Public

Transportation, Aviation, Freight and Other Transportation Modes. These chapters have been updated and recently implemented projects are highlighted. Examples of recent projects include the adoption of local pedestrian plans, the implementation of the Community Transportation Services Plan (CTSP) recommendations, and a Multi-Modal Transit Alternatives study that provides recommendations for Gaston County to tie into the Charlotte Area Transit System’s West Corridor.

In addition to the MTP, there are other required documents that the MPO must follow: the annual Unified Planning Work Program (UPWP), and the Metropolitan Transportation Improvement Program (MTIP). The UPWP describes all of the tasks and projects that the MPO will embark on each fiscal year, including the amount of funds allocated to each work task. The MTIP is established through NCDOT’s Board of Transportation to allocate funds to highway, transit, congestion management, enhancements, transit and other transportation programs within immediate funding cycles. For a complete list of previous and current planning activities visit [www.gclmpo.org](http://www.gclmpo.org)

## 1.1 RELATED PLANS & PROGRAMS

The City of Gastonia is the Lead Planning Agency for the Gaston-Cleveland-Lincoln MPO. The City’s Transportation Planning Division serves as the MPO staff. Responsibilities of the staff include conducting planning studies, forecasting travel demand and patterns, and preparing meeting materials for and implementing directives of the MPO Board and the Technical Coordinating Committee. In addition, staff provides technical expertise to all of the member MPO jurisdictions.

As required by federal law, the 3-C process in each urban area is carried out by its Metropolitan Planning Organization. A Memorandum of Understanding (MOU) signed by the participating local governing bodies as well

as NCDOT and Federal Highway Administration (FHWA), established the specific framework for how each MPO operates.

## 1.2 TRANSPORTATION BOARDS- AGENDAS & ORGANIZATION

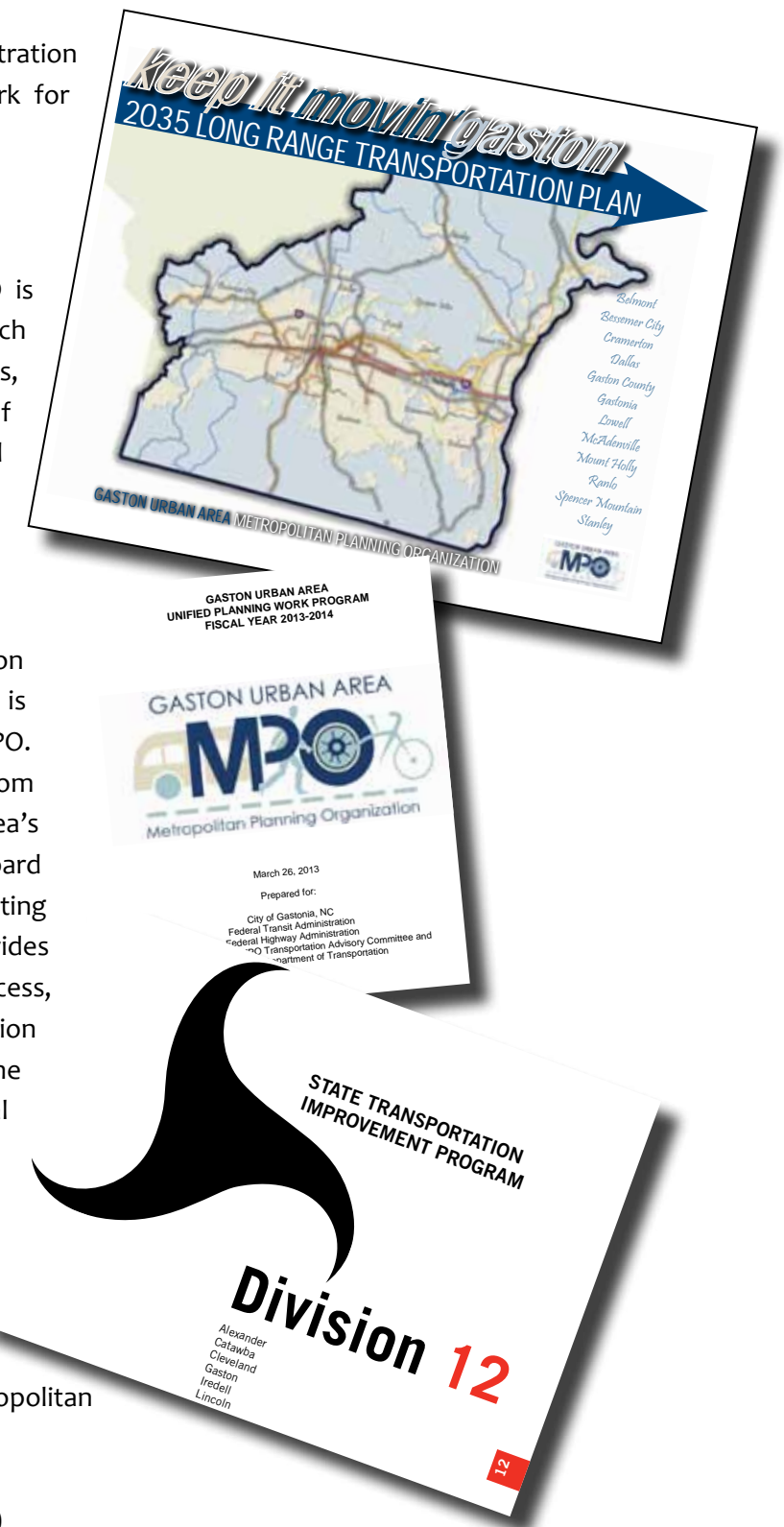
In North Carolina, each urban area’s MPO is defined as an “umbrella” organization which includes all member local governments, NCDOT, USDOT, and any other providers of transportation services, such as airports, and transit operators. The MPO organizational structure has three main components:

### MPO Board

Previously known as the Transportation Advisory Committee (TAC), the MPO Board is the decision making policy board for the MPO. The membership includes elected officials from each member local government, the area’s representative on the North Carolina Board of Transportation, and an advisory non-voting member from FHWA. The MPO Board provides policy direction for the planning process, facilitates communication and coordination among the member jurisdictions and guides the development of a comprehensive multimodal transportation program for the urban area. The MPO Board directs the 3-C process through its annual review and approval of the Unified Planning Work Program; the MPO’s Metropolitan Transportation Improvement Program, and through review and approval of changes to the Metropolitan Transportation Plan.

### Technical Coordinating Committee (TCC)

The TCC is comprised of staff representatives of the various member governments, NCDOT, FHWA, and







other agencies with an interest in transportation planning. The TCC has the responsibility of supervising and coordinating the 3-C process by making technical recommendations to the MPO Board on decisions required pertaining to that process.

**Lead Planning Agency (LPA)**

The City of Gastonia is the LPA for the Gaston-Cleveland-Lincoln MPO and provides staff support to the MPO. The LPA develops the draft documents, prepares the MPO Governing Board and TCC meeting materials, schedules meetings, administers the distribution of federal transportation planning funds (PL) to member governments, and carries out the directives of the MPO Board and TCC.

In addition to the federal and state required components, the Gaston Cleveland Lincoln MPO implemented a participatory memorandum of understanding to be a party of a regional organization that was established in 2001.

Other transportation related entities include:

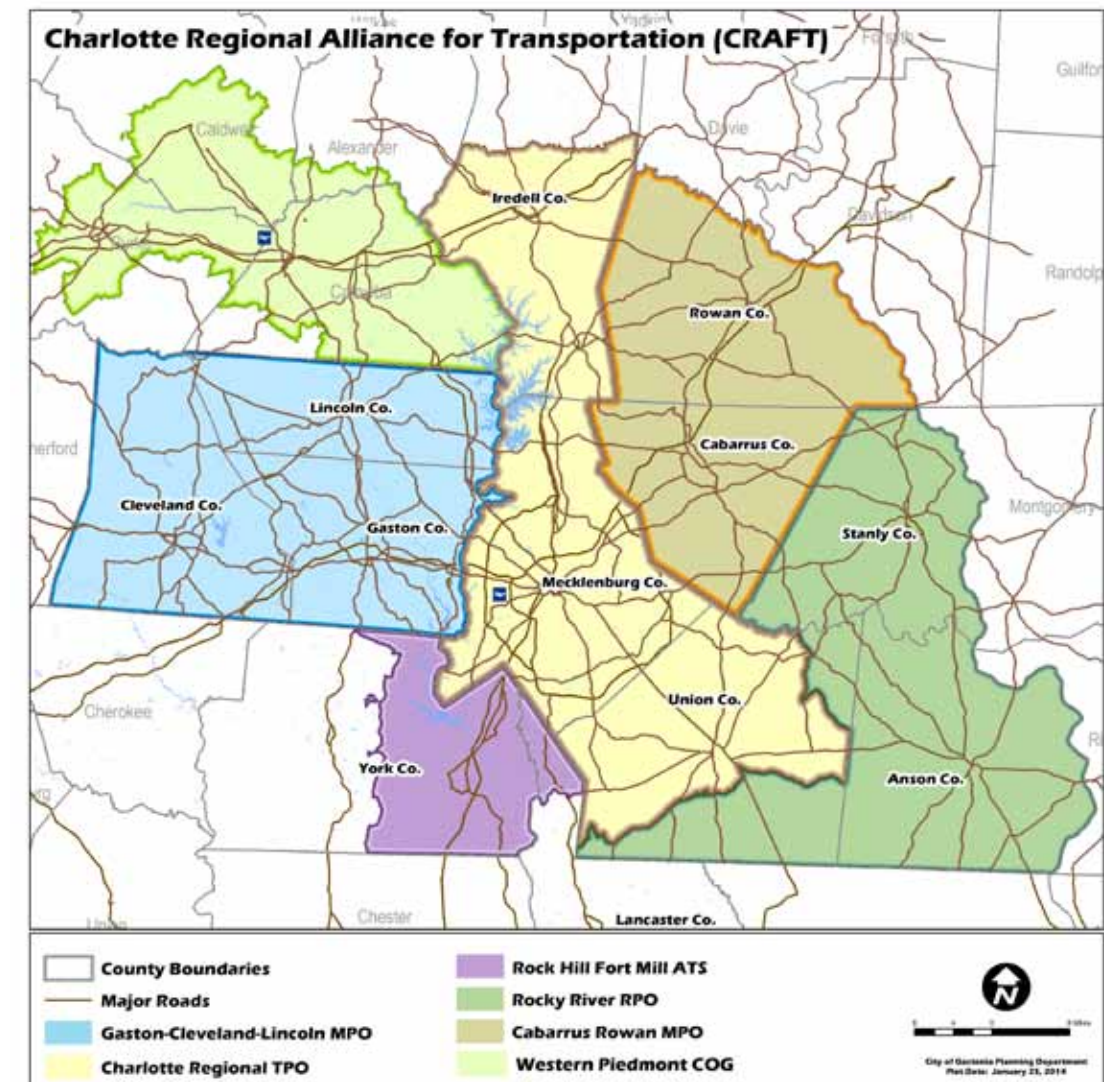
**Charlotte Regional Alliance for Transportation (CRAFT)**

The neighboring transportation planning organizations work together in a continuing, cooperative and comprehensive regional transportation planning process through an entity known as the Charlotte Regional Alliance for Transportation (CRAFT). Members of CRAFT include the Cabarrus-Rowan MPO, Gaston-Cleveland-Lincoln MPO, Charlotte Regional Transportation Planning Organization (CRTPO), the Rock Hill-Fort Mill Area Transportation Study, and the Rocky River Rural Planning Organization. CRAFT’s role is to enhance communication among jurisdictions, promote awareness of regional concerns, and to provide an educational forum in the Charlotte metropolitan bi-state region that addresses significant common issues.

**North Carolina Board of Transportation (BOT)**

Besides local and regional involvement, there is a statewide Board that oversees the transportation infrastructure in North Carolina. In 1931, North Carolina took ownership of all county and local roads in order to construct, manage, maintain and plan for a transportation network. At that time, the state established the State Highway Commission to control and take responsibility as the governing body for the transportation network. In 1973, they changed the name to the NC Board of Transportation. Each Highway Division has a member on the Board to represent their area.

Figure 1-3



The Governor of the State of North Carolina appoints the BOT. They adopt the Statewide Transportation Improvement Program (STIP), the seven-year investment program determining how state and federal transportation funds will be spent statewide. They then award contracts for construction based on the MTIP. They set policies for state maintained and operated transportation systems regardless of mode. Nineteen men and women from across the state make up the BOT. Each member represents a specific Transportation Division or at-large area of interest and works with NCDOT staff members to make decisions about transportation priorities. The BOT meets monthly in Raleigh, typically the first Thursday of each month, with subcommittee meetings held the first Wednesday.

## North Carolina Turnpike Authority

The North Carolina Turnpike Authority was created in 2002 by the General Assembly in response to concerns about rapid growth, heavy congestion and dwindling resources. The Turnpike Authority is authorized to study, plan, develop, construct, operate and maintain up to nine projects.

The mission of the Turnpike Authority is to supplement the traditional non-toll transportation system serving the citizens of North Carolina by accelerating the delivery of roadway projects using alternative financing options and facilitating the development, delivery and operation of an integrated, creative system of toll roads.

The North Carolina Turnpike Authority is governed by a nine-member board of directors. Four members of the board are appointed by the Governor; two members are appointed by the President Pro-Tem of the Senate; and two by the Speaker of the House of Representatives.

- Secretary Anthony Tata, Chair
- Perry R. Safran, Vice Chair
- Robert D. Teer, Jr. , Sec.-Treasurer
- **Robert C. Clay, GCLMPO Ex-Officio Member**
- John Collett
- James H. Ferebee
- Scott Aman
- Vacant (Governor Appointee)
- Vacant (House Appointee)

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# 2 Goals, Policies & Objectives

## 2.0 GOALS, POLICIES & OBJECTIVES

The Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO) has set goals, policies, and objectives relating to various responsibilities charged to the organization. One goal is to develop and direct a continuing, comprehensive transportation planning process implemented cooperatively by the NCDOT and the communities within the GCLMPO area, in conformance with federal guidelines. In addition, the MPO is responsible for the general review, guidance, and coordination of the transportation planning process, the facilitation and coordination between the various urban area jurisdictions, developing MPO alternative transportation plans, and adopting a Metropolitan Transportation Plan for the Metropolitan Planning Area.

### 2.1 MISSION

The GCLMPO will provide a system of transportation modes that are consistent with the development and growth desired for the jurisdictions that comprise the GCLMPO. The system of roadway, transit, bicycles, and pedestrian travel modes will deliver safe and efficient movement of people and goods. The GCLMPO will strive to implement transportation choices and mobility that positively coexist with the natural and built environments and strengthen the economic prosperity of the region.

Programs and projects recommended for implementation by this Metropolitan Transportation Plan (MTP) were selected through a process that included an assessment of existing travel conditions and a variety of land development and environmental factors. The assessment was based on the Goals and Objectives for the MPO's study area described in the following pages.

### 2.2 GOALS

- Provide a safe, comprehensive, and efficient transportation system that allows the movement of goods and people into, through, and out of each jurisdiction within Gaston, Cleveland and Lincoln Counties.
- Improve the quality of life for residents of the Gaston-Cleveland-Lincoln MPO area.
- Provide a transportation system that affords the public with mobility choices including walking, bicycling, and transit options.
- Provide a transportation system that is sensitive to significant features of the natural and human environment.
- Provide equitable transportation options to low-income and minority neighborhoods.
- Engage the public and stakeholders.
- Satisfy MAP-21 requirements by including freight planning in the 2040 GCLMPO Metropolitan Transportation Plan.
- Provide a fair and equitable distribution of planning services to each member jurisdiction of the GCLMPO.

## 2.3 OBJECTIVES

### 2.3.1 Mecklenburg County Connectivity: Catawba River Crossing

☒ **Require and promote transportation improvements to better connect Gaston County to other cities in the region, particularly Charlotte and Mecklenburg County.**

- Promote additional bridge crossings (e.g. Garden Parkway) and widen existing crossings over the Catawba River to handle increases in traffic in and out of Mecklenburg County.
- Strengthen major GCLMPO municipal connections to the regional transportation network (Gastonia, Lincolnton, Kings Mountain, and Shelby).

### 2.3.2 Land Use

☒ **Promote land use patterns that combine different uses such as industrial, retail and residential.**

- Promote efficient land development that improves both cost benefit and functional efficiency of the MPO's transportation system.
- Evaluate the impact of land use on the transportation system when new development, plans are adopted and policy decisions are made.





- Promote and implement Context Sensitive Solutions, taking into consideration safety, mobility, community, and environmental goals in all projects.

### 2.3.3 Streets and Highways

**Develop an efficient street and highway network capable of providing an appropriate level of service for a variety of transportation modes.**

- Develop streets and highways in a manner consistent with adopted Land Use Plans. Improve access to city and town centers.
- Enhance mobility by increasing the connectivity of the existing street network.
- Develop regionally significant streets and highways in a manner which minimizes travel times and distances.
- Optimize the inter-city, inter-regional and intra-regional capacities of major transportation corridors
- Develop streets and highways that are accessible to, or compatible with, multiple modes of transportation.
- Develop visually attractive corridors.
- Minimize accident potential and severity.
- Incorporate sidewalks and bicycle facilities into the design of roadways to accommodate and encourage pedestrian and bicycle travel.
- Efficiently manage the existing transportation system by reducing delay and congestion caused by weather events and incidents, and by implementing Intelligent Transportation Systems and relatively low-cost improvements such as signalization improvements and Travel Demand Management.
- Ensure that all planning studies and design standards for future facilities incorporate specific features that are known to reduce crashes, fatalities, or injuries.
- Improve access to all modes in the transportation system.
- Require right-of-way dedication, payments in lieu of construction, and installation of transportation improvements when warranted for new development.

### 2.3.4 Public Transportation

**Promote an integrated multimodal local and regional public transit system.**

- Promote a safe, efficient and diverse public transportation system that is accessible to various segments of the population.
- Operate safe and efficient scheduled transit service that minimizes travel times and distances.
- Implement and use strategies that maximize the potential for transit patronage and coverage.
- Develop and use land density criteria for transit centers and corridors.
- Establish programs and incentives that encourage ridesharing and/or eliminate barriers thereto.
- Enhance the visibility and public image of the fixed-route and community transportation systems.
- Serve the elderly and transportation disadvantaged populations with convenient transportation to needed services.
- Increase transit's patronage as a percentage of total trips.
- Maximize transit's coverage area to the extent feasible.
- Reserve designated rail and transit corridors for future needs.
- Consider alternative transportation solutions to relieve congestion and accommodate customer choice for movement of people, goods, and freight in high-growth corridors.
- Support ridesharing programs, park-and-ride programs, telecommuting programs, and transit benefit programs to increase peak-period travel options and reduce the rate of growth of vehicle miles traveled.

### 2.3.5 Pedestrian & Bicycle Transportation

**Develop a transportation system that integrates pedestrian and bicycle modes of transportation with motor vehicle transportation and encourages the use of walking and bicycling as alternative modes.**

- Increase the design sensitivity of specific transportation projects to the needs of pedestrians and bicyclists.
- Assist the development of pedestrian and bikeway systems for both recreation and transportation purposes.
- Improve the transportation system to accommodate pedestrian and bicycle access along roadways through design and facility standards.
- Increase pedestrian and bicycle safety through public awareness programs.
- Provide linkages for pedestrians and/or bicyclists between neighborhoods, employment centers, services, cultural facilities, schools, parks, and businesses.

### 2.3.6 Rail and Air Transportation

**Maximize rail and air transportation opportunities.**

- Support expansion opportunities for the Charlotte/Douglas International Airport that will increase the attractiveness of the airport as a major passenger and cargo facility.
- Maintain the airport's ongoing long range planning function.
- Promote future opportunities for inter-regional mobility with enhancements to inter-city rail service and the provision of high-speed rail service.
- Promote airport expansions in Gaston, Cleveland and Lincoln counties.
- Promote economic development in the GCLMPO area.





# the way forward: 2040 Metropolitan Transportation Plan

## 2.3.7 The Environment

### 2.3.7.a Physical

#### Develop a transportation system that preserves and coexists with the natural and built environments.

- Develop transportation systems and programs that maintain or improve air quality.
- Design transportation facilities that minimize transmission of traffic noise to surrounding properties.
- Design transportation systems and facilities that preserve and complement the area's natural features.
- Plan transportation facilities that reinforce the community's standard of appearance.
- Plan transportation facilities that minimize neighborhood disruption and related impacts.
- Designate safe routes with minimal urban exposure for the transport of hazardous materials.
- Designate truck routes that minimize exposure to neighborhoods and historic and cultural resources.
- Identify, protect, and/or acquire future right-of-way as early as possible to minimize negative impacts on communities and the natural environment.
- Reduce the impact of transportation facilities on water quality, watersheds, and ecosystems, working to identify and avoid or mitigate impacts to irreplaceable natural resources.

### 2.3.7b Human

#### Develop a transportation system that is designed to support and improve community health.

- Encourage transportation and land-use planning policies, such as a Complete Streets policy, that support healthy communities.
- Establish performance measures to promote safe, affordable and equitable public transit and alternative modes of transportation such as walking and cycling.
- Use health impact assessments to inform and guide transportation policy, projects and planning.
- Foster the participation of local communities

and underserved populations in all stages of the transportation planning and development process.

- Expand the funding of community-based transportation programs and services that promote health and provide access to healthy food and water, affordable housing, employment, schools, health care and recreation.
- Fund programs that expand transportation options for disadvantaged populations and people with disabilities, and that promote safe, convenient transportation options for children and seniors.
- Design and construct multi-modal transportation systems to meet the needs of users of all ages and abilities, including those in rural areas.
- Collect data and fund research to evaluate how transportation and planning policies affect public health and health equity.
- Support reductions in transportation-related emissions and greenhouse gases.
- Increase vehicle, motorist, passenger, cyclist and pedestrian safety.

## 2.3.8 Freight & Goods Movement

#### Support and promote a freight transportation system which supports the movement of goods.

- Develop a transportation system supporting Charlotte's position as a major distribution center, improving and maintaining access for freight to other markets via a network of highways, railroads and airways.
- Develop streets and highways that are accessible to and compatible with multiple modes of transportation.
- Facilitate coordination among transportation modes through the establishment of intermodal facilities.
- Identify opportunities to share rail corridors with transit.
- Support expansion opportunities at Charlotte-/Douglas International Airport that increase the attractiveness of the airport as a major cargo facility.
- Designate safe routes, with minimal urban exposure,

for the transport of hazardous materials.

- Designate truck routes that minimize exposure to neighborhoods and to historic and cultural resources.
- Identify and build high-impact projects that connect transportation modes seamlessly so that people and freight can move efficiently around and through the region.
- Determine the freight impact on existing infrastructure.
- Assess the community's perception of freight.
- Identify existing transportation projects with freight impact.
- Create a freight planning strategy.
- Promote competitive freight options by improving existing transportation facilities in strategic corridors.

## 2.3.9 Financial

#### Make investment decisions for transportation modes that make the most efficient use of limited public resources.

- Minimize implementation and operation costs of transportation projects.
- Develop transportation projects that enhance the local and regional economies.
- Build new and stronger partnerships, public and private, to develop and finance transportation projects that maximize public investments and support community and regional growth strategies.

## 2.4.0 Public Involvement

#### Actively engage the public and regional stakeholders in all phases of planning.

- Actively engage minority and disadvantaged communities in identifying transportation needs, developing alternative strategies to meet those needs, and implementing solutions that are affordable and sensitive to a community's heritage and supportive of local economic institutions.



- Coordinate transportation investment strategies with other state agencies to support balanced economic growth across the Metrolina Region with particular focus on tourism and similar industries that are highly dependent on the transportation system.

## 2.4 POLICIES

2.4.1 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the comprehensive transportation system.

2.4.2 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the street and highway system.

2.4.3 The GCLMPO will research, implement, and enforce laws and tools to improve, enhance, and link public transportation systems in the area.

2.4.4 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the bicycle and pedestrian system.

2.4.5 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the rail and airport systems.

2.4.6 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the environment.

2.4.7 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance the Freight and Goods movement into and out of the area.

2.4.8 The GCLMPO will research, implement, and enforce laws and tools to improve and enhance public participation in the Transportation Planning process.



# 3 Planning Factors & Performance Measures

In 2013, Congress enacted the Moving Ahead for Progress in the 21st Century Act, or MAP-21. This legislation dramatically changed the manner in which appropriations for transportation improvements were handled, in that it clearly recognized the importance of modes of travel other than the automobile. This milestone legislation adopted July 6, 2012 became effective on October 1, 2012 with average funding levels equivalent to fiscal year 2012. MAP-21's purpose and intent is to strengthen the national highway and public transportation systems, with focus and detailed guidance to promote the goals described below.

While the United States Congress approved a new Federal Transportation Bill, after floating numerous continuing funding resolutions, North Carolina Governor Pat McCrory signed House Bill 817 or the New Strategic Mobility Formula (STI) Law on June 26, 2013, replacing the 1989 Highway Trust Fund Law. The STI Law is a more efficient way of funding infrastructure investments that will better connect citizens to opportunities, increase jobs, and enhance economic development. The law also cancels a legislative mandate for construction of three turnpike projects in Currituck, New Hanover and Gaston counties. North Carolina will work collaboratively to implement this new state transportation funding formula and create more opportunities for communities statewide.

The new formula was sponsored by Representatives William Brawley, John Torbett, Frank Iler, Phil Shepard, and Senators Kathy Harrington and Bill Rabon. It serves as the first step in addressing a decline in North Carolina transportation revenue, and issues related to an increasing state population, by allowing NCDOT to more efficiently use existing funds. This will result in more transportation projects and more jobs for North Carolina. NCDOT will work closely with the N.C. Department of Commerce, local municipalities, and metro and regional planning organizations to identify projects that spur economic growth throughout the state through a new data-driven process.

The goal of the new law is to better connect people to jobs, health care, education, and recreation centers, as well as to maintain and attract new business. The Strategic Mobility Formula (STI) allows us to make a stronger investment in our people and our state sooner by focusing on reducing congestion and travel time, while increasing economic competitiveness, freight and multimodal connectivity.

The STI replaces the state's former Equity Formula, which was implemented in 1989 and did not provide sufficient flexibility to meet North Carolina's current needs. The new formula takes a tiered approach to funding transportation improvements, with the statewide level receiving

40 percent of available funding (\$6 billion), the regional level receiving 30 percent of available funding (\$4.5 billion) and the division level also receiving 30 percent of available funding (\$4.5 billion) over the next 10 years. The law also cancels a legislative mandate for construction of three turnpike projects in Currituck, New Hanover and Gaston counties.

The new formula is scheduled to be fully implemented by July 1, 2015. Projects funded for construction before then will proceed as scheduled; projects slated after that time will be ranked and programmed according to the new formula.

Projects will be selected using a combination of quantitative data as well as local input, with local input weighing more heavily for division projects than for regional impact projects. This law eliminates the Highway Trust Fund supplement to Powell Bill funds, tying future Powell Bill funding more closely to gasoline cost.

## A. EIGHT PLANNING FACTORS

### 1. Economic Vitality

The GCLMPO has worked extensively over the years with NCDOT and other state and federal agencies on transportation projects that enhance the economic prosperity of the study area. GCLMPO developed a local methodology



for ranking and prioritizing local projects which considers freight and congestion as well as actively including chamber of commerce representatives in the transportation planning process.

## 2. Safety

GCLMPO takes a number of measures to increase the safety the transportation system for all users. NCDOT produces an annual inventory of high accident locations to identify where there may be a need for safety improvements. Projects are then developed to improve the conditions. NCDOT also has a safety program to address these needs.

Further efforts supported by the Gaston-Cleveland-Lincoln MPO to ensure safety include: the construction of median guardrails on freeways, the replacement of deficient bridges and other roadway structures, the construction of sidewalks on all non-freeway road projects, the addition of bike lanes on roadways, and programs to improve safety at school crossings.

## 3. Security

The GCLMPO is considering security projects including the expansion of camera enforcement programs aimed at helping reduce congestion and provide for safe evacuation during emergency situations.

With the increasing attention put on emergency response, MPO staff and NCDOT personnel are becoming more comfortable and proactive in their roles as incident response partners. We will continue to work with our emergency agencies at local, regional and state level to develop a strong working relationship together.

The Gastonia Transit safety and security plan works in conjunction with the City of Gastonia emergency operation plan in order to provide coverage to the users and its citizens. There is constant review the plans to

provide the best practices to use in case of a natural or man-made disaster.

## 4. Accessibility and Mobility Options of People & Freight

1. Actively participate in future deliberations by NCDOT in developing MAP-21 compliant performance metrics for freight movement in North Carolina that:
  - a. Give incentives to projects improving travel time reliability;
  - b. Decrease on-road emissions from freight movement;
  - c. Develop a reliable network with flexible routing options; and
  - d. Improve access to freight-intensive land uses.

These deliberations should occur in consultation with area MPOs to ensure a consistent position and perspective from the region to NCDOT.

2. Initiate data collection and analysis programs to assess the effectiveness of completed projects, consistent with MAP-21 regulations and metrics as approved by USDOT, NCDOT, and GCLMPO.
3. Participate in CONNECT and other regional and statewide initiatives to determine support and direction for a freight mobility plan for the region. If recommended through these initiatives, the plan should take a broad approach to address issues identified through the 2012 freight mobility plan scoping process, which identified issues related to:
  - a. Inter-agency coordination,
  - b. Transportation,
  - c. Land use,
  - d. Economic development, and
  - e. Environment and energy.

4. Retain freight-oriented variables in GCLMPO MTP project ranking processes to adequately consider important freight-related variables, such as:
  - a. Land access
  - b. Travel time reliability
  - c. Congestion
  - d. Inter-modal connections
  - e. Safety
5. Implement Seven Portals Study recommendations for logistics villages and general freight-oriented development, including:
  - a. Improved access roads to freight facilities, i.e. “the last mile”
  - b. Increased rest areas and parking areas for trucks and their drivers
  - c. Addressing choke points and bottlenecks in transportation systems.

Increasing the accessibility and mobility options available to people and for freight is one of the most important objectives of GCLMPO. This is achieved by integrating land use and transportation planning, providing the necessary resources to enhance the existing transportation system, expanding the existing transit system and implementing fixed-route mass transit options.

Land use and transportation policies are being instituted that support transit, walking and bicycling, and reduce the dependency on the automobile. More compact development patterns at activity centers and along transit corridors will make the transit system more economically self-sustaining. In neighborhoods, transit-oriented development that emphasizes a mix of uses and easy pedestrian access to shopping and services could reduce the need to drive.



# the way forward: 2040 Metropolitan Transportation Plan

## 5. Environmental Protection, Energy Conservation Promotion, Quality of Life Improvements & Consistency between Transportation Improvements and State and Local Planned Growth and Economic Development

The GCLMPO is committed to protecting and enhancing the environment, promoting energy conservation, and improving the quality of life for citizens living, working or visiting the area. The member governments within the study area look to protect its important resources by enacting environmentally sensitive land use policies and transportation choices, and promoting air quality education programs. In some localities, land use decisions are being made to direct growth to reduce travel demand, which in turn leads to energy conservation and reduced pollutants.

## 6. System Integration and Connectivity across & between modes...

GCLMPO has begun to develop and support programs and projects that enhance the development, integration, and connectivity of a multi-modal transportation system. The current proposed Garden Parkway (toll facility) and the expansion of the Charlotte Douglas International Airport and Intermodal Yard provides a critical link for movement of goods between rail, highway, and air. Park-and-ride lots will provide auto commuters an opportunity to access public transit and will be available for the planned rapid transit system. Bike racks on buses allow people the flexibility to access bus stops by bike, improving the efficiency of the system. GCLMPO policy is to add sidewalks to non-freeway roadways which will enable citizens to leave their vehicle at home for short trips.

In 2009, The GCLMPO along with the City of Gastonia completed a Conceptual Design and Feasibility Study for a Multimodal Center to build in Downtown Gastonia. This work, accompanied by the re-activation of the old P&N

railroad, will allow GCLMPO to pursue opportunities to fund commuter rail in between Gastonia and Charlotte, while providing a one-stop destination for other travel needs.

## 7. Efficient System Management and Operations

In 2005-2006 the GCLMPO Technical Coordinating Committee began analysis of a Congestion Management System in cooperation with the NCDOT. The system identifies improvements to reduce traffic congestion at intersections throughout the urban area.

### A. Traffic Monitoring System

North Carolina Department of Transportation completes biannual traffic counts for the entire MPO. The City of Gastonia currently has thirteen (13) closed circuit television (CCTV) cameras for its computerized traffic signal system. The traffic system in Gastonia is also linked to the Metrolina Regional Traffic Management Center (MRTMC) in Charlotte. The cameras are used to provide depictions of the traffic patterns/flows during peak times, as well as during incidents that require the detour of I-85 traffic to Franklin Boulevard (US29/74). This information allows for the revision/tweaking of traffic signal timing to accommodate the existing conditions, thereby reducing delays, increasing capacity, decreasing idle time, and improving air quality. The City of Gastonia is actively searching for grant money to expand and improve the current system.

### B. Safety Management System

The GCLMPO works with NCDOT's Traffic Engineering Branch in implementing safety improvements on the State highway system. One new resource for the MPO is linking with the Strategic Highway safety plan, which is a statewide, comprehensive, data driven plan that provides a collaborative framework for safety on

public roads by reducing serious injuries and fatalities on public roads.

## 8. Preservation of the Existing System

GCLMPO has worked with NCDOT for many years in establishing and maintaining a transportation planning program that incorporates a standard set of planning principles. These planning principles require the development of a safe and efficient transportation system by: maximizing utilization of the existing facilities, increasing operational efficiency and altering travel demands when appropriate, and minimizing adverse impacts to the natural, social and economic environments. The MPO is also committed to providing the necessary resources for maintaining and preserving the existing and future transportation system.

## B. PERFORMANCE MEASURES

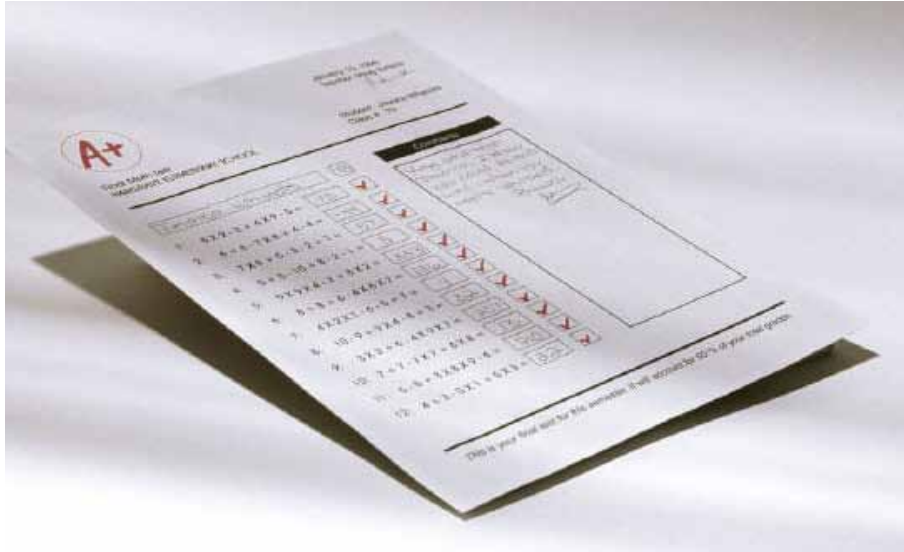
The cornerstone of MAP-21's highway program transformation is the transition to a performance and outcome-based program. States will invest resources in projects to achieve individual targets that collectively make progress toward national goals.

MAP-21 establishes national performance goals for Federal highway programs:

- **Safety**—To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition**—To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction**—To achieve a significant reduction in congestion on the NHS.
- **System reliability**—To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality**—To improve the national freight network, strengthen the ability of rural communities to access national







and international trade markets, and support regional economic development.

■ **Environmental sustainability**—To enhance the performance of the transportation system while protecting and enhancing the natural environment.

■ **Reduced project delivery delays**—To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The US Transportation Secretary, in consultation with States, MPOs, and other stakeholders, will establish performance measures for pavement conditions and performance for the Interstate and NHS, bridge conditions, injuries and fatalities, traffic congestion, on-road mobile source emissions, and freight movement on the Interstate System. States (and MPOs, where applicable) will set performance targets in support of those measures, and State and metropolitan plans will describe how program and project selection will help achieve the targets.

States and MPOs will report to their respective state DOTs on progress in achieving targets. If a State's report shows inadequate progress in some areas – most notably the condition of the NHS or key safety measures – the

State must undertake corrective actions, such as the following:

- **NHPP:** If no significant progress is made toward targets for NHS pavement and bridge condition, the State must document in its next report the actions it will take to achieve the targets.
- **HSIP:** If no significant progress is made toward targets for fatalities or serious injuries, the State must dedicate a specified amount of obligation limitation to safety projects and prepare an annual implementation plan.

In addition, due to the critical focus on infrastructure condition, MAP-21 requires that each State maintain minimum standards for Interstate pavement and NHS bridge conditions. If a State falls below either standard, that State must spend a specified portion of its funds for that purpose until the minimum standard is exceeded.

### Next Steps for Performance Measures

MAP-21 requires the mandatory installation and monitoring of performance measures for MPO Metropolitan Transportation Plans. At the time of drafting this document, no federal guidance for performance measures was established.

In expectation of future performance measure guidance, the GCLMPO researched various measures that would be easy to establish and monitor for this MTP effort, as it is always beneficial to utilize tools to track and monitor how MTP policies and methodologies fair over time with actual implementation efforts.

**Performance measurement** is broadly defined as a process of assessing progress toward achieving predetermined goals. Measuring transportation plan performance entails assessing progress toward the plan's stated goals and objectives. A "good" measure simply and clearly indicates how well a goal or objective is being met, is unambiguously defined, is understandable and acceptable to plan stakeholders, allows for economical data collection and analysis, and is sensitive to differences among alternative transportation

policies and investments. Federal policies and state policies require NCDOT and MPOs to consider various transportation and land use alternatives. Transportation performance measures that are commonly used in North Carolina to evaluate alternative plans and projects include per capita vehicle miles of travel, volume/capacity ratios, and auto occupancy. The current measures, however, do not address the full range of policies that currently guide North Carolina transportation planning. For example, they do not provide meaningful indications of

- 1) how well the transportation system delivers multi-modal services;
- 2) the efficiency with which public resources are used to deliver transportation services; and
- 3) how public policies affect the delivery of those services.

One measure commonly used to judge the reliance of transportation policies and systems on automobile travel is **vehicle miles of travel (VMT)** per capita. Its value comes from the implied relationship between the amount of automobile travel and the existence of alternative transportation modes and land use patterns which support their use. However, per capita VMT does not measure the effectiveness of delivering multi-modal transportation services. Per capita VMT will decline if nothing is done and congestion is simply allowed to increase. It is also difficult to separate the influence of public policy on VMT from other influences. For example, research has shown that the growth of VMT has been directly connected to the growth of personal incomes. Given that positive correlation, it could be hypothesized that North Carolinians becoming less prosperous would cause a reduction in VMT. Even a precipitous spike in the price of oil could bring about VMT reduction and claimed "success." An alternative hypothesis is that the decline of VMT is directly connected to the growth in the use of alternative transportation modes.

Another measure of transportation system effectiveness is **funding** - more specifically transportation revenues. In North Carolina the primary transportation revenue source is the gasoline tax. The main hypothesis with this measure is that the higher the tax the higher the revenues. It is evident today that VMT is decreasing, which translates in less gas purchased and less revenue collected. It is also evident that an increase in the use of alternative transportation modes and the purchase of **fuel efficient vehicles** also translates into less revenue collected.

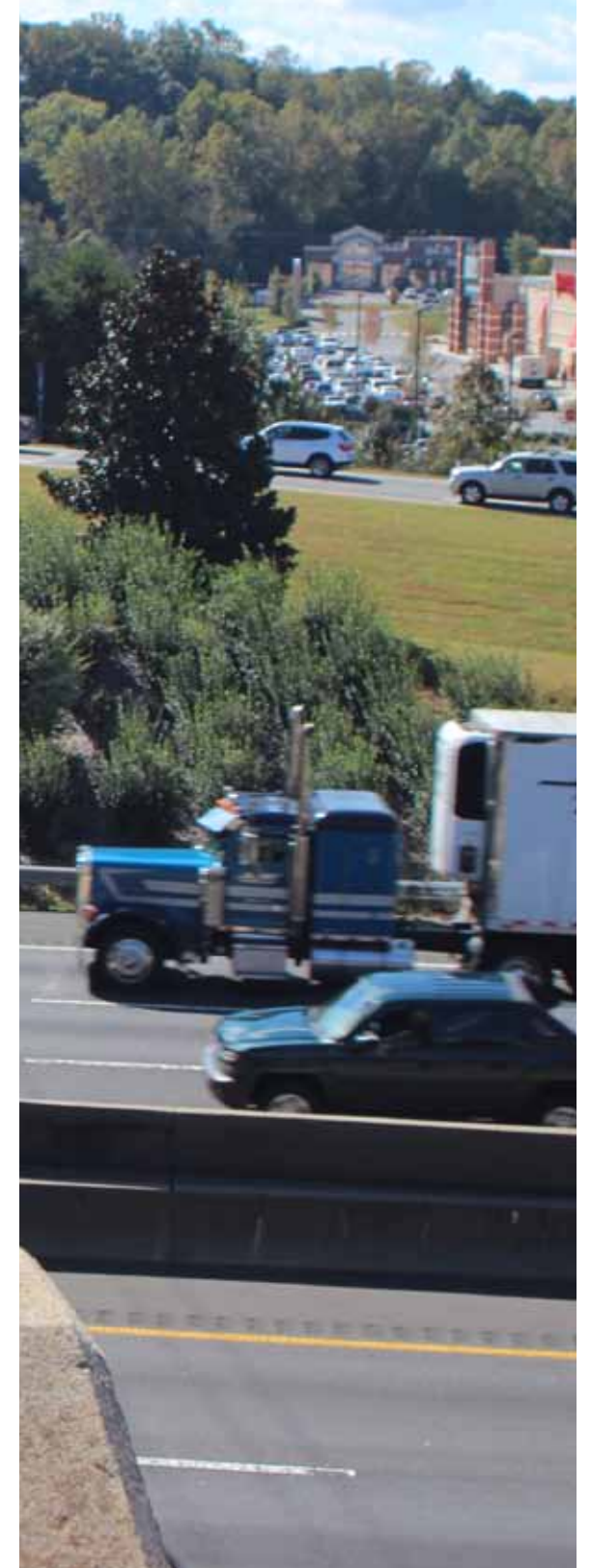
## *the way forward:* 2040 Metropolitan Transportation Plan

It is important that multi-modal transportation use, land use performance, and vehicle types get measured in the appropriate way to accomplish public goals and objectives. Using the wrong performance measures can result in inadequately assessing transportation needs, failing to accommodate growth, misallocating transportation and land use investments, failing to consider important aspects of transportation performance (such as safety), and failing to meet legal requirements (e.g. state / federal air quality requirements).

Although much of the attention on multi-modal transportation and land use performance measures has focused on the metropolitan areas, they have much broader statewide value. The fundamental purpose of transportation is to provide opportunities for people and businesses to trade and otherwise interact with one another. This is as much an issue in the less developed areas of the state as in metropolitan areas. Good multi-modal performance measures will permit the evaluation of transportation performance in all regions of the state.

The following objectives were identified for proposed performance measure:

1. Identify North Carolina transportation planning policies that currently lack adequate performance measures.
2. Identify, develop, and recommend multi-modal transportation performance measures that test the recommended performance measures using current MPO transportation planning models. Evaluate the results.
3. Identify the number of fuel efficient vehicles on the road. Calculate the amount of lost revenues, and recommend alternative revenue sources.



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# 4 Public Involvement

The Gaston-Cleveland-Lincoln MPO involved the public throughout the MTP development process. The MTP development began in August 2013 after the expansion of the previous Gaston Urban Area MPO (portion of Gaston County only) to three full counties (Gaston, Cleveland, and Lincoln) was complete. At that point the Technical Coordinating Committee (TCC) and MPO Board were expanded to include aviation, public transportation, chambers of commerce, and economic development representatives from the municipalities and counties throughout the three counties. These representatives, along with the traditional planning and engineering representatives on the TCC, and elected officials on the MPO Board, formed the backbone of outreach efforts to the community. All TCC and MPO Board meetings were open to the public, included a public comment period, and were advertised in local area newspapers. The handouts and public comment form were also available in Spanish.

## Public Input at MPO Meetings

The MPO enjoyed strong participation from both voting members and members of the public at its TCC and MPO Board meetings during the MTP development process. Several members of the local state legislative delegation attended and participated in the project identification and evaluation process, along with members of the

public. The most frequent topic of discussion for citizens and legislators attending these meetings was regarding the Garden Parkway and the widening of I-85. Residents and legislators spoke during public comment sessions both for and against the Parkway.

## Project Identification Input Process Meetings

The MPO staff began the project identification process by starting with projects from the previous plan, the 2035 LRTP, reviewing them with the TCC and MPO Board in several meetings between September and December 2013. MPO staff solicited projects in August, with the period closing in October. Staff then loaded the project information into a project database for ranking. These projects and their scores were presented at a series of public comment meetings in each of the three counties between November 18-20, 2013 in Gastonia, Shelby, and Lincolnton. The project lists were distributed to area public libraries and all MPO member city halls and county administration buildings for comments as well. A description of the project ranking process can be found in Chapter 15.

## Air Quality Conformity and Draft Plan Comment Meetings

The MPO staff released the draft MTP and supporting conformity document on February

24, 2014 for a 30-day public comment period. The two documents were presented to the public at a series of workshops in Shelby, Cleveland County, Lincolnton, Lincoln County and Gastonia, held on March 6, 2014. Comments were received and presented to the TCC and MPO Board for consideration. The TCC and MPO Board recommended and approved the MTP and corresponding conformity report at its March 12 & 27, 2014 meetings.

## Involving Traditionally Underserved Populations

Presidential Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Presidential Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency*, requires federal agencies to improve access to federally conducted and assisted programs and activities for persons who, as a result of national origin, are limited in their English proficiency. Both Executive Orders are based on Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, sex, or national origin, by government agencies that receive federal





funding. The number of U.S. residents for whom English is a second language is increasing, and minority and low-income populations frequently have limited English proficiency and/or literacy.

To respond to the ever-changing demographics of our population a range of methods is used to reach all populations. The end goal is to involve minority, low-income, and limited English proficiency populations in the transportation decision-making process. Differing techniques are utilized for adequate, effective, and meaningful participation of these populations to assist in understanding unique needs, cultural perspectives, and financial limitations of different socioeconomic groups. These include, but are not limited to, the groups outlined below.

**Limited English Proficiency** - the Census Bureau has a range of four classifications of how well people speak English. The classifications are 'very well', 'well', 'not well', and 'not at all'. For GCLMPO's purposes, we are considering people that speak English 'not well' or 'not at all' as Limited English Proficient persons.

**Blacks/African Americans** – a person having origins in any of the black racial groups of Africa.

**Hispanics/Latino** – a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

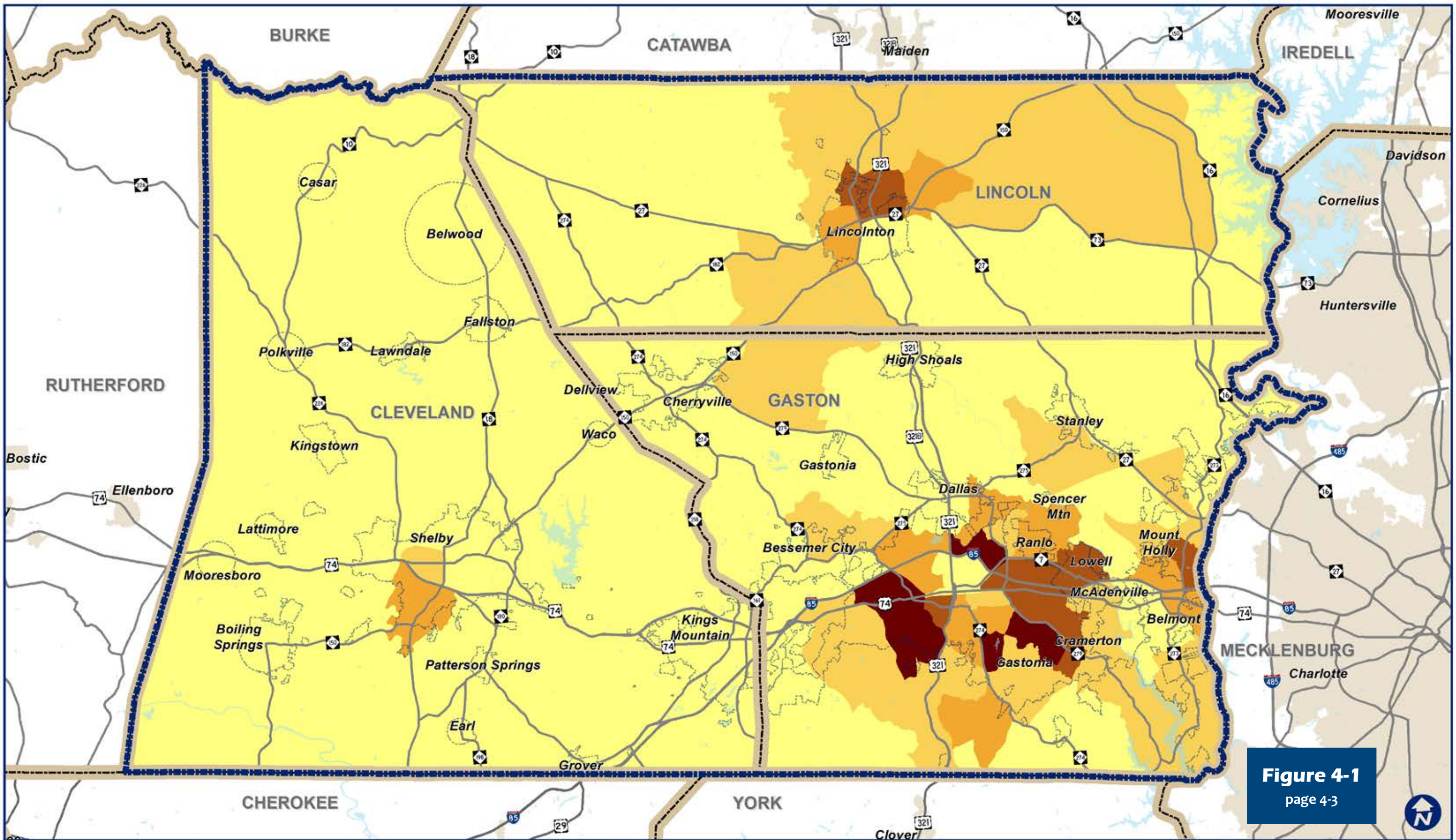
**Asian Americans** – a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

**American Indians and Alaskan Natives** – a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition.

**Low-income** – a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.

The MPO attempted to increase participation by these groups by translating public input documents into Spanish, holding public input meetings outside traditional meeting places, and by holding multiple meetings.





**Figure 4-1**  
page 4-3

**GASTON-CLEVELAND-LINCOLN MPO**  
**DENSITY OF ALL SPEAKERS WITH LIMITED ENGLISH PROFICIENCY**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Speakers with Limited English Proficiency**

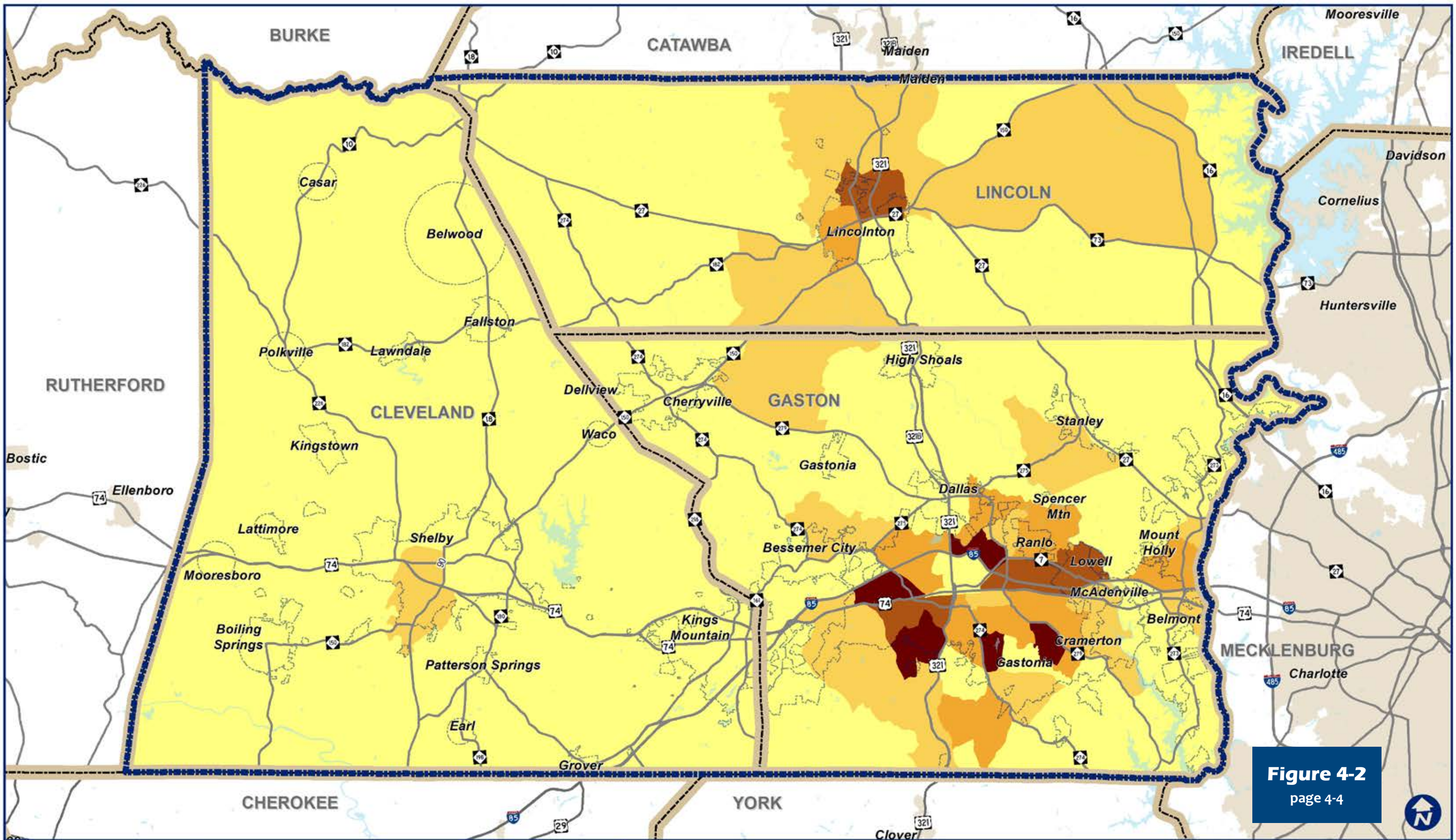
- Lowest Concentration
- Low Concentration
- Moderate Concentration
- High Concentration
- Highest Concentration

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 4-2**  
page 4-4

**GASTON-CLEVELAND-LINCOLN MPO**  
**DENSITY OF SPANISH SPEAKERS WITH**  
**LIMITED ENGLISH PROFICIENCY**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Speakers with Limited English Proficiency**

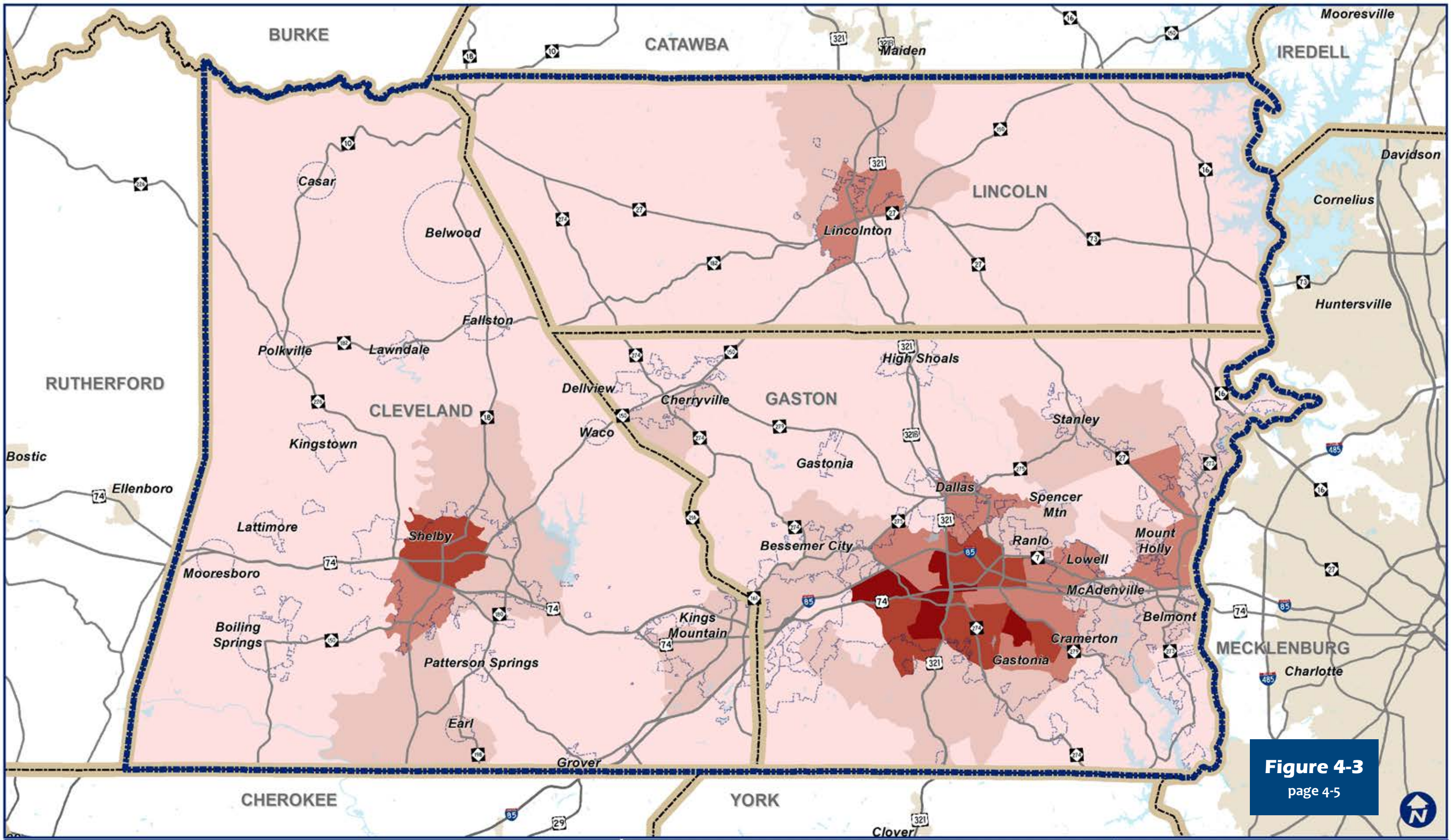
- Lowest Concentration
- Low Concentration
- Moderate Concentration
- High Concentration
- Highest Concentration

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Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 4-3**  
page 4-5

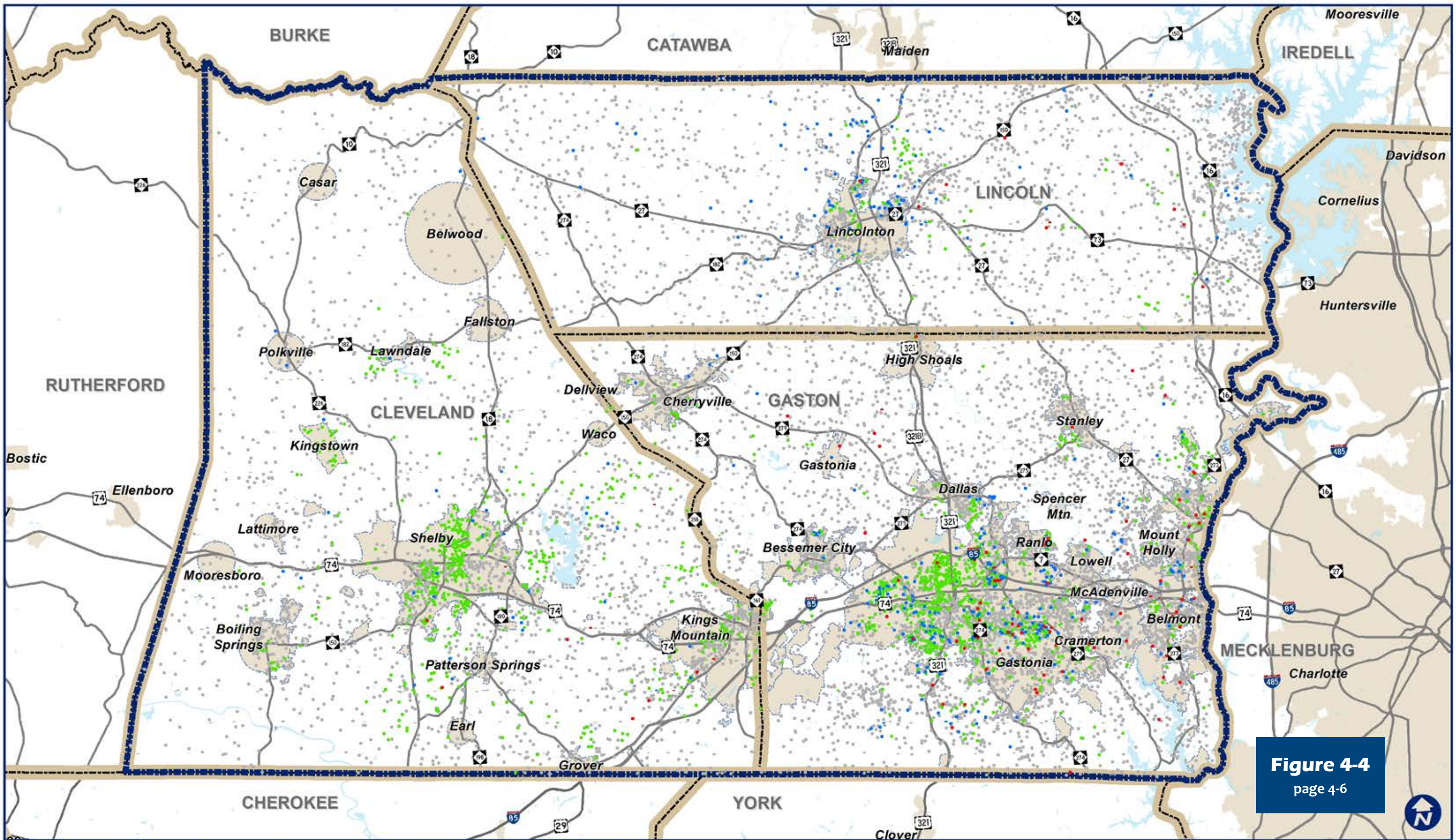
# GASTON-CLEVELAND-LINCOLN MPO DENSITY OF MINORITIES

<b>LEGEND</b>	Highways	<b>Density of Minorities</b>	Lowest Concentration	High Concentration
	Major Roads		Low Concentration	Highest Concentration
	Minor Roads		Moderate Concentration	
	Counties			

0 1 2 4 Miles  
Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 4-4**  
page 4-6

**GASTON-CLEVELAND-LINCOLN MPO  
DISTRIBUTION OF POPULATION  
BY RACE AND ETHNICITY**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Race & Ethnicity: 1 Dot = 30 Persons**

- White
- Black
- Hispanic
- All Other

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



# 5 Physical Environment

## A. AIR QUALITY CONFORMITY

The Clean Air Act requires the United States Environmental Protection Agency (EPA) to set limits on how much of a particular pollutant can be in the air anywhere in the United States. National Ambient Air Quality Standards (NAAQS) are the pollutant limits set by the EPA; they define the allowable concentration of pollution in the air for six different pollutants – Carbon Monoxide, Lead, Nitrogen Dioxide, Particulate Matter, Ozone, and Sulfur Dioxide.

The Clean Air Act specifies how areas within the country are designated as either “attainment” or “non-attainment” of an air quality standard, and authorizes EPA to define the boundaries of non-attainment areas. For areas designated as non-attainment for one or more NAAQS, the Clean Air Act defines a specific timetable to attain the standard and requires that non-attainment areas demonstrate reasonable and steady progress in reducing air pollution emissions until such time that an area can demonstrate attainment. Each state must develop and submit a State Implementation Plan (SIP) that addresses each pollutant for which it violates the NAAQS. Individual state air quality agencies are responsible for defining the overall regional plan to reduce air pollution emissions to levels that will enable attainment and maintenance of the NAAQS. This strategy is articulated through the SIP.

In North Carolina, the agency responsible for SIP development is the North Carolina Department of Environment and Natural Resources, Division of Air Quality (NC DENR/DAQ). The delineation of non-attainment areas, coupled with the implementation of strategies to control emissions from on-road mobile sources, are significant elements of the state’s plan to improve air quality. These actions link transportation and air quality planning activities within the non-attainment areas. The process of ensuring that a region’s transportation planning activities contribute to attainment of the NAAQS, or “conform” to the purposes of the SIP, is referred to as transportation conformity. In order to receive federal transportation funds within a non-attainment or maintenance area, the area must demonstrate, through a federally mandated conformity process, that the transportation investments, strategies and programs, taken as a whole, contribute to the air quality goals defined in the state air quality plan.

In order to ensure the conformity requirements are met, Section 176 (c) of the Clean Air Act authorizes the EPA Administrator to “promulgate criteria and procedures for demonstrating and assuring conformity in the case of transportation plans, programs, and projects.” This is accomplished through the Transportation Conformity Rule, developed by the EPA to outline all federal requirements associated with transportation

conformity. The Transportation Conformity Rule in conjunction with the Metropolitan Planning Regulations direct transportation plan and program development as well as the conformity process.

The purpose of this report is to comply with the provisions of the Clean Air Act Amendments of 1990 in concurrence with all conformity requirements as detailed in 40 CFR Parts 51 and 93 (the Transportation Conformity Rule) and 23 CFR Part 450 (the Metropolitan Planning Regulations). It demonstrates that the financially constrained metropolitan transportation plans and the transportation improvement programs (TIPs) eliminate or reduce future violation of the National Ambient Air Quality Standards (NAAQS). All Federally funded projects, as well as regionally significant projects regardless of funding source, in areas designated by the EPA as air quality non-attainment or maintenance areas, must come from a conforming Metropolitan Transportation Plan and Transportation Improvement Program (TIP). The Metrolina region is required by 40 CFR 51 and 93 to make a conformity determination on any newly adopted or amended fiscally constrained metropolitan transportation plan and TIP. In addition, the United States Department of Transportation (USDOT), specifically, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), must make a conformity determination on MPO Plans in the

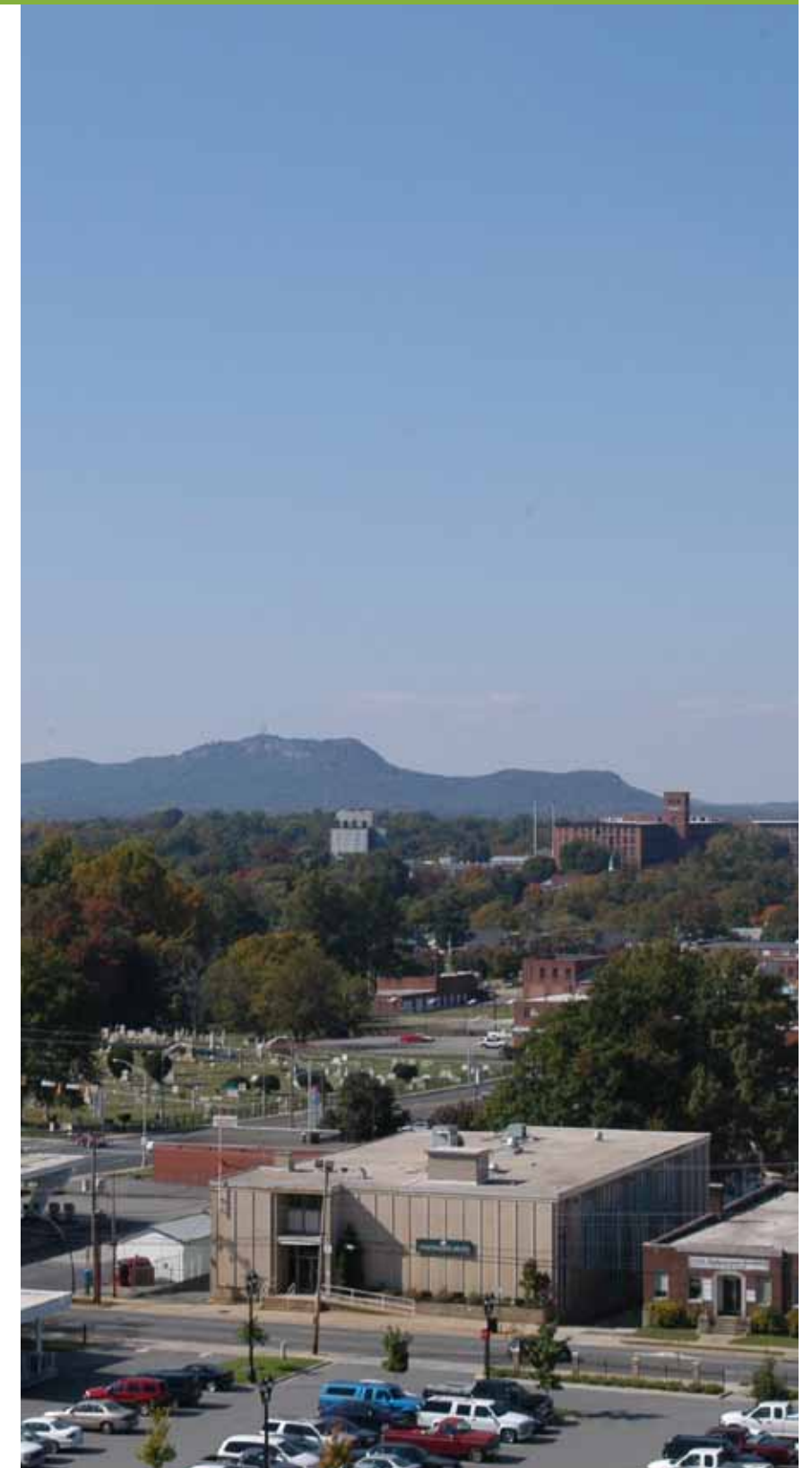




Figure 5-1: 3 Year Design Values for the Metrolina Area Ozone Monitors

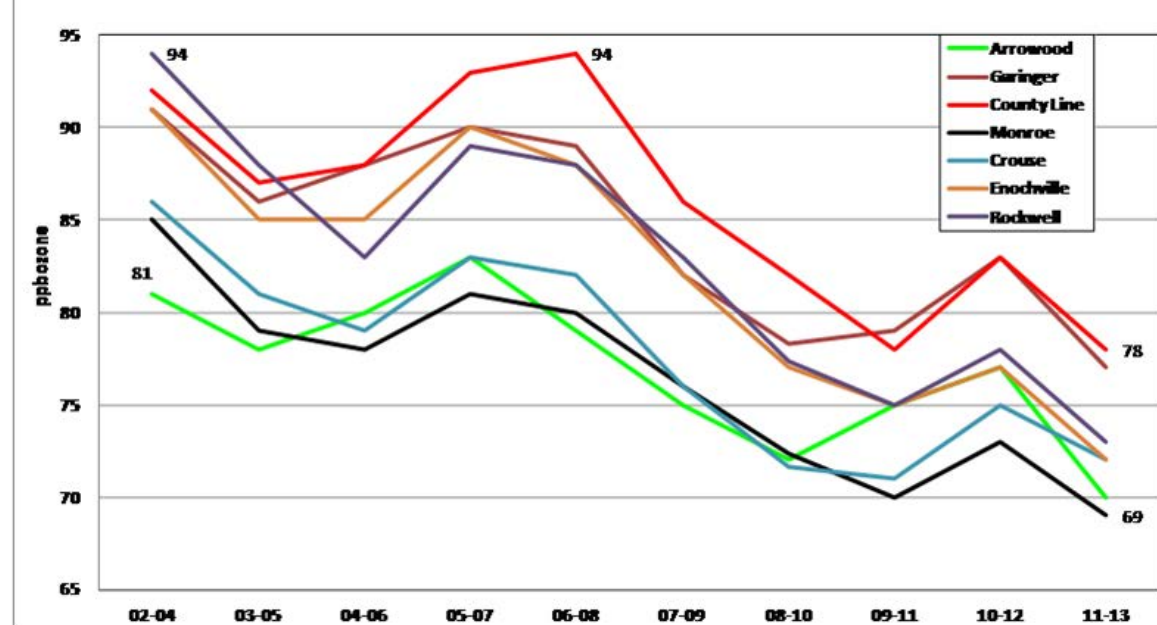
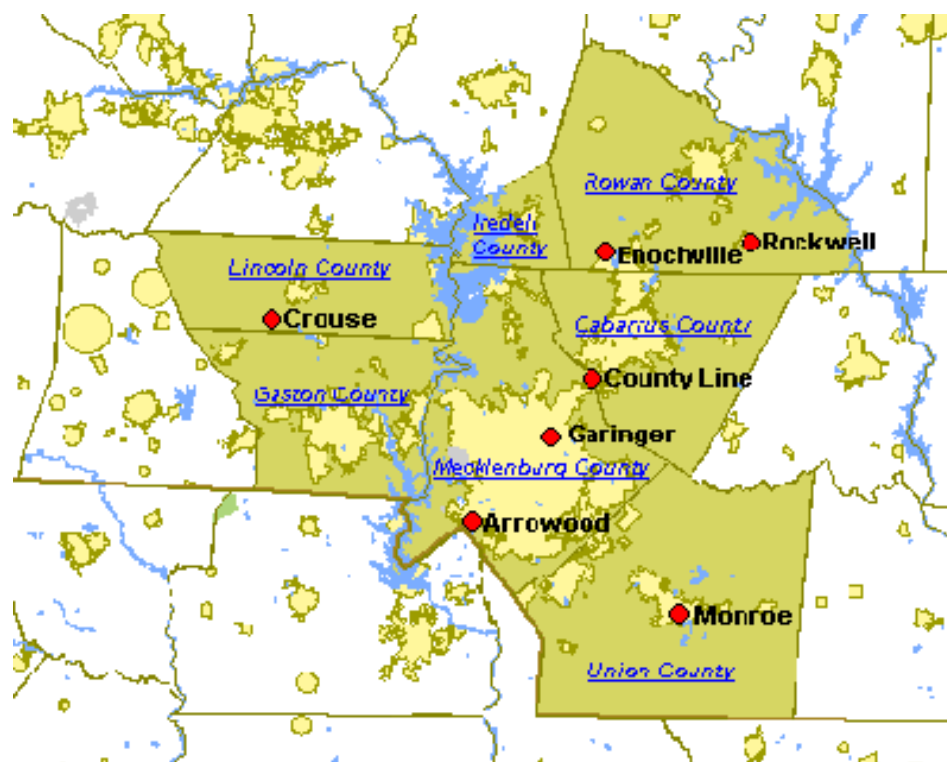


Figure 5-2: Locations of Ozone Monitors in the Charlotte Metropolitan area



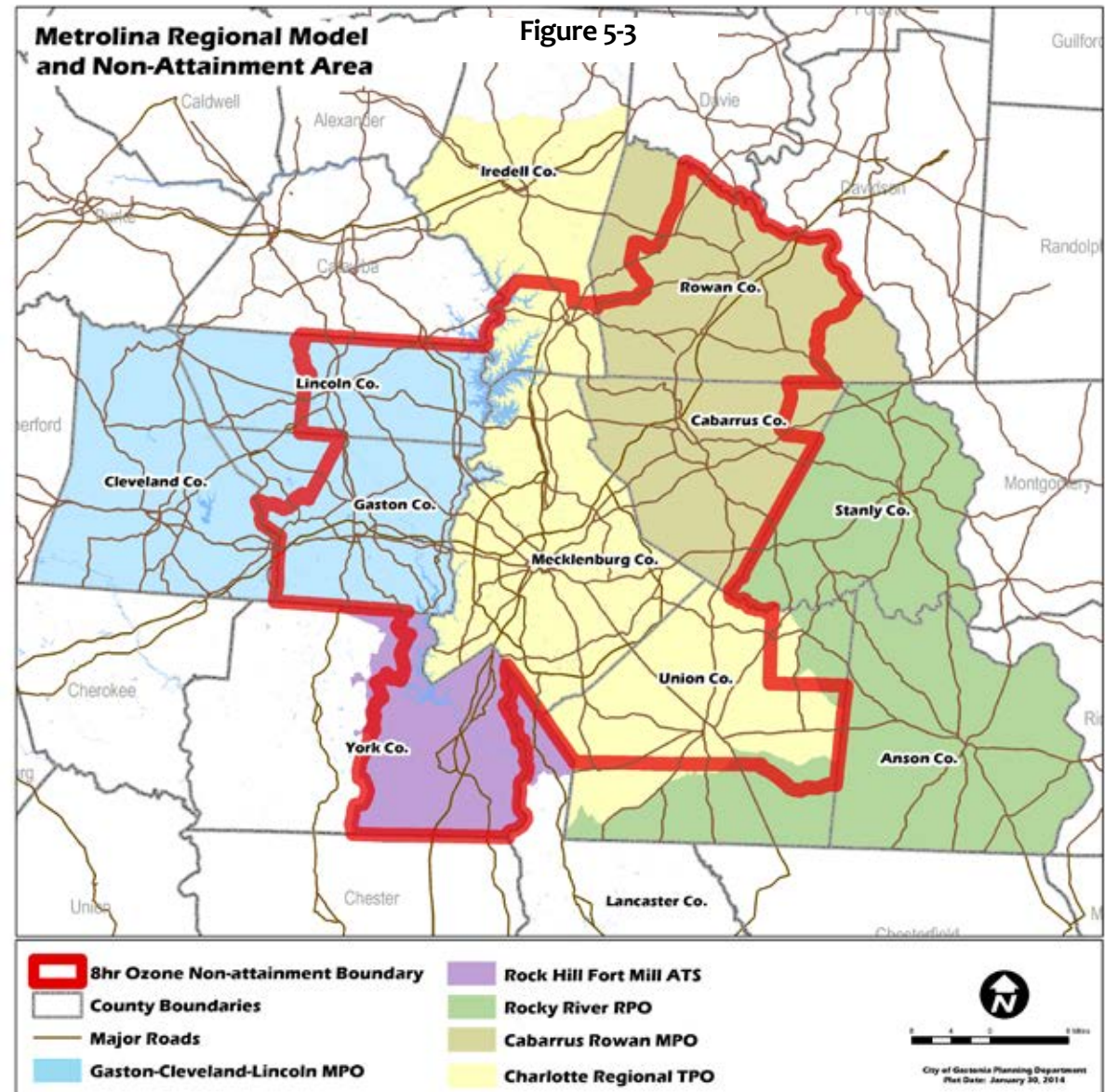
Metrolina region and the related TIPs in all non-attainment areas.

40 CFR Part 93 requires that a conforming transportation plan satisfy six conditions:

- The transportation plan must be consistent with the motor vehicle emissions budget(s) in an area where the applicable implementation plan or implementation plan submission contains a budget (40 CFR Part 93.118).
- The transportation plan, TIP, or FHWA/FTA project not from a conforming plan must provide for the timely implementation of TCMs from the applicable implementation plan (40 CFR Part 93.113b).
- The MPO must make the conformity determination according to the consultation procedures of 40 CFR Part 93.105.
- The conformity determination must be based on the latest emissions estimation model available (40 CFR Part 93.111).
- The conformity determination must be based on the latest planning assumptions (40 CFR Part 93.110).

The Conformity Report shows that Region's 2040 Transportation Plans, the Region's 2012-18 MTIPs, and projects from the State's 2012-18 STIP in the donut areas meets each condition. These analyses are consistent with the Transportation Conformity Regulation (40 CFR Parts 51 and 93).

The GCLMPO Metropolitan Transportation Plan and 2012-18 MTIP accomplish the intent of the North Carolina State Implementation Plan (SIP). This conformity determination is based on the regional emissions analysis that uses the transportation network approved by each MPO and NCDOT, for the 2040 transportation plan, and the



emissions factors developed in cooperation with the North Carolina Department of Environment and Natural Resources (DENR).

For the MPO Metropolitan Transportation Plans, lists of projects were developed based on congestion, identified local needs and other factors. Projects were added from MPO priority lists until estimated project costs equaled available funding.



# 6 Human Environment

## A. HEALTH ASSESSMENTS Public Health and Equity Principles for Transportation

Transportation decisions affect our individual lives, economy and health. Everyone needs to use various modes of transportation to get to work or school, to get medical attention, to access healthy foods at grocery stores and markets, and to participate in countless other activities every day. However, too many people are negatively impacted by inequitable transportation decisions that are detrimental to public health.

The resources below provide additional information on the links between public health, equity and transportation and advocacy efforts to ensure that transportation policy helps, rather than hinders, public health.

Our nation's transportation system has a direct and costly effect upon human health, by way of traffic accidents, mobile source air pollution, and influence on physical activity. These effects run into the hundreds of billions of dollars each year. Yet health is typically not considered in transportation policy and planning. Opportunities abound to increase alternative transportation options that support healthy activities like walking and cycling. **The National Prevention Strategy and Action Plan** is working to boost Americans' health in part through encouraging the development of

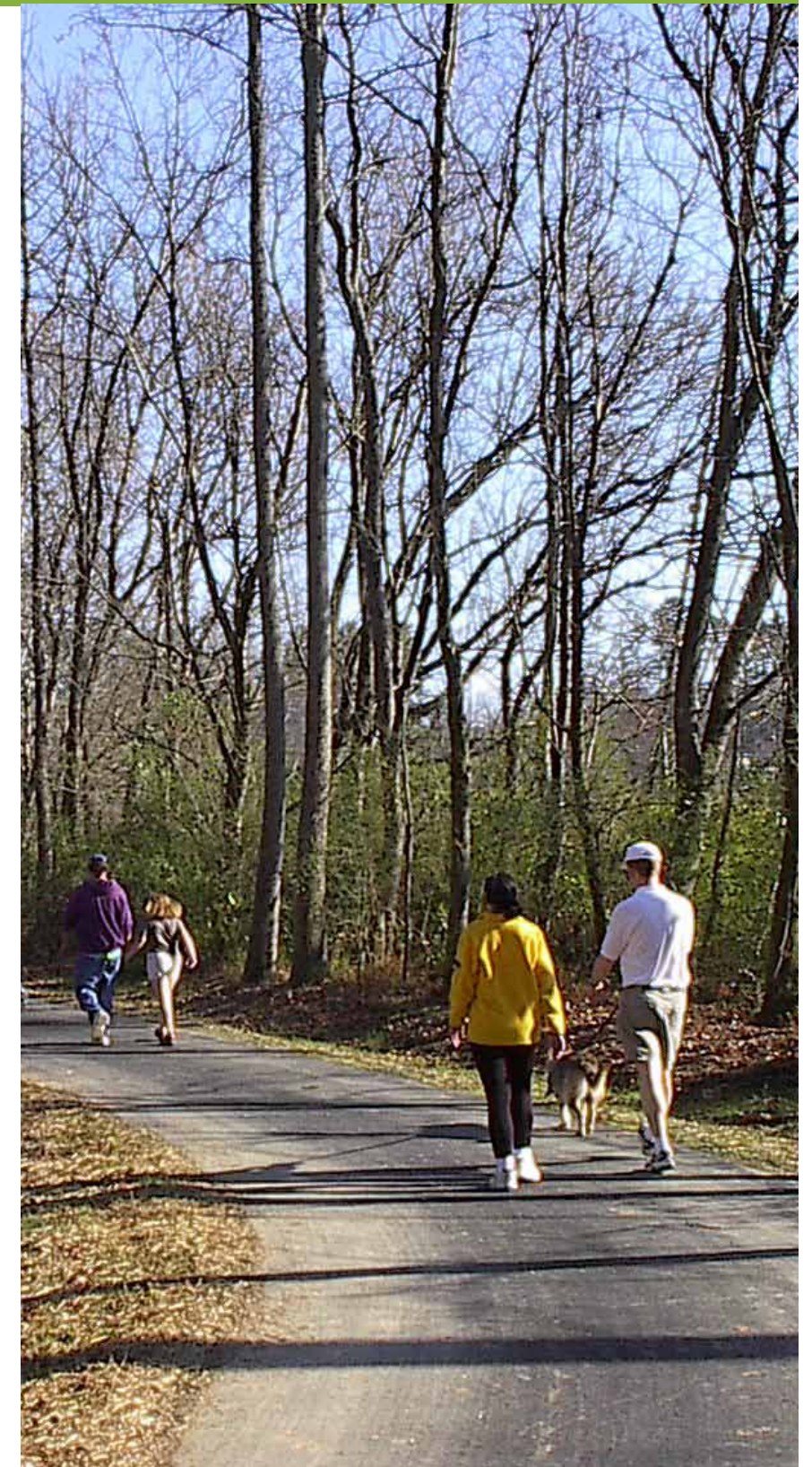
livable, walkable communities, bike lanes, and other healthy transit options. This snapshot, published online in October 2012, examines the health impacts and costs that should be factored into decisions about transportation and community development at all levels.

Research increasingly indicates that current transportation investments can have a profound impact on public health, particularly for the poor, the elderly, people with disabilities and other vulnerable populations. These impacts may include increased risk of obesity, cancer, mental health disorders, asthma and heart disease. The public health community is strongly supportive of transportation investments that support the growth and establishment of health and equity in all communities; this is critical to the nation's economic revival and health.

***"The public health community envisions a transportation system that is carefully designed to support and improve community health. We must ensure that the billions of public dollars spent on transportation projects enhance the health, equity and well-being of communities."***

GCLMPO has developed ten principles to be used in the review of transportation policies to ensure that health and equity are well-represented:

1. Encourage transportation and land-use planning policies, such as a Complete Streets policy, that support healthy communities.
2. Establish performance measures to promote safe, affordable and equitable public transit and alternative modes of transportation such as walking and cycling.
3. Health impact assessments to inform and guide transportation policy, projects and planning.
4. Foster the participation of local communities and underserved populations in all stages of the transportation planning and development process.
5. Expand funding of community-based transportation programs and services that promote healthy lifestyles and provide access to healthy food and water, affordable housing, employment, schools, health care and recreation.
6. Fund programs that expand transportation options for disadvantaged populations and people with disabilities, and that promote safe, convenient transportation options for children and seniors.







7. Design and construct multi-modal transportation systems to meet the needs of users of all ages and abilities, including those in rural areas.
8. Collect data and fund research to evaluate how transportation and planning policies affect public health and health equity.
9. Support reductions in transportation-related emissions and greenhouse gases.
10. Increase vehicle, motorist, passenger, cyclist and pedestrian safety.

## Physical Activity in the Built Environment Policy Initiative

A unique partnership team comprised of staff from the City of Belmont, the City of Bessemer City, The City of Gastonia, the Gaston County Health Department and the Gaston Urban Area Metropolitan Planning Organization received a grant award by the NC Department of Health and Human Services (DHHS). The grant proposal was selected from a competitive field of statewide applicants as part of DHHS's Physical Activity in the Built Environment Policy Initiative. The partnership team was charged with developing a process for identifying barriers to physical activity in the built environment. Specifically, the grant focus was on state agency policies (NCDOT) and how those policies work against local efforts to create healthy communities (such as difficulties in constructing planted medians and pedestrian refuge spots within NCDOT streets, separating sidewalks and roadways with a planted landscape strip, and constructing bike lanes in urban areas).

The team seeks to make physical activity an integrated part of daily life by assembling affected stakeholder groups, using a facilitated process to identify policy

barriers, publicizing and educating officials about the barriers, and encouraging policy changes that will result in transportation decisions that include all types of transportation users. Results will be reported to applicable agencies, along with advocacy for policy change.

The team's goal was to build and sustain a group of community participants that represent a wide range of interests and backgrounds to best identify policy barriers at the state level. In addition to the multi-faceted project work team, a broad stakeholder group will be created including representation from the following community sectors/agencies:

- The Gaston County Fitness and Nutrition Council
- Connect Gaston, Inc. (a nonprofit organization promoting sidewalks, greenways, and bike paths)
- Partnership for Children of Lincoln and Gaston Counties
- City of Gastonia Parks and Recreation
- Gaston County Parks and Recreation
- Girls on the Run of Gaston County
- Gaston Memorial Hospital
- Gaston 2012 (a program of Gaston Together and the Gaston Regional Chamber to promote economic development and quality of life improvements in Gaston County)

Our working group has strong ties to two professional organizations, the NC Chapter of the American Planning Association, and the NC Chamber of Metropolitan Planning Organizations, which can assist in a statewide advocacy campaign. Jack Kiser and Michelle Nance are both past presidents of NCAPA and Hank Graham is current president of the NCAMPO.

Through these leadership positions and affiliations, the group will be able to plan and implement conference

sessions to educate planning practitioners throughout the state about the policy barriers that exist and proposed solutions, thus building a strong base for proposed change.

The legislative and policy committees for both organizations include a network of planners throughout the state with legislative contacts, a communication network, and a structure for proposing policy changes beginning at the grass roots level. Both groups have experience in initiating new policies and in mobilizing to fight legislation seen as detrimental to the public purpose of each group.

Both the NCAMPO and NCAPA have a coalition of allied agencies that routinely join together to address policy change that is seen as beneficial to all and a group of allied professions (architects, landscape architects, engineers, etc.) that share similar values on some public purpose initiatives.

For most of the history of the United States, cities were designed and built in ways that made physical activity a normal part of daily life. Houses were built near workplaces, and sidewalks or paths were a standard part of street systems. People walked to work, to school, to church, and to the store. Various land uses were located in close proximity to each other, so people could satisfy their daily needs on foot. With the advent of the automobile, this changed. As narrow, walkable city streets – designed and scaled for horses and people changed into wide roads built for automobiles – walking became dangerous.

In the post World War II era, federal and state transportation policies were dominated by the push to build new highways and freeways so people could quickly travel from the city center to areas outside of the city. People began living farther from work, school, church, and stores in large properties that were increasingly



## the way forward: 2040 Metropolitan Transportation Plan

spread out. This suburbanization gave people more freedom to travel around their cities and regions, but reduced the opportunity for physical activity in their daily lives. Physical activity changed from a routine and incidental part of life to an intended part of life. Walking or riding a bicycle switched from being a transportation choice to an exercise plan.

While land use decisions are generally made by local governments, transportation policies and decisions are made by state governments. North Carolina has made improvements in linking land use and transportation policies and in seeking local and regional government input into state transportation policies, but state transportation policies still focus on highways and automotive transportation. NCDOT adopted a “Complete Streets” policy in 2009 that outlined a policy of including all transportation users in street design and building projects. This was an important step in designing incidental physical activity back into our daily lives, but how the Complete Streets policy is implemented is crucial if the policy is to be successful.

Since street rights-of-way are often the largest public space in cities, how streets are designed and built makes a tremendous difference in the amount of incidental physical activity a person gets each day. If streets are designed and built with pedestrians and bicyclists in mind – and include sidewalks, bicycle lanes, narrow vehicle travel lanes, street trees, street furniture, and safe intersection crossings – then physical activity can again become an incidental part of life. This can only be accomplished by making policy changes at the state level at NCDOT and on the local level by making zoning changes to allow and promote walkable, mixed-use communities with an urban design.

The *Eat Smart, Move More* website provides staggering statistics on the results of a more sedentary lifestyle

common to North Carolinians. According to The Burden of Obesity in North Carolina report on the ESMMNC website, more than 65% of N.C. adults are overweight or obese. 56% report not meeting the recommendation for physical activity of moderate physical activity for 30 or more minutes per day, five or more days per week or vigorous physical activity for 20 or more minutes per day, three or more days per week. The total cost of unhealthy lifestyles in North Carolina was estimated to be \$57 billion in 2008, according to the report. Making transportation and land use decisions that promote incidental physical activity will result in healthier North Carolinians and will reduce this \$57 billion cost of unhealthy lifestyles.

State and Local policies are at times in conflict over transportation modes and infrastructure. There are also no regulations placed on local municipalities enabling them to curb urban sprawl even though this issue has been discussed for years with no action taken by our legislature. There are specific characteristics of a healthy built urban environment that should be addressed by policy:

- 1) Location of Development
  - A. Transit Oriented
  - B. Downtowns
  - C. Along Corridors
  - D. Mixed Use Centers
- 2) Urban Form and Character
  - A. Building Relationship to Street
  - B. Design and Aesthetics

- 3) Transit Access and Availability
  - A. Proximity
  - B. Frequency
  - C. Comfortable pedestrian environment
- 4) Connectivity of Streets
- 5) Roadway Design/Complete Streets
  - A. Width of Street and travel lanes
  - B. Speed design
  - C. Availability of on street parking
  - D. Street trees
  - E. Pedestrian signals, refuge islands, crosswalks
  - F. Flexibility in standards for retrofits within existing right of way
  - G. Sidewalks set back from curb on all streets
- 6) Bicycle Facilities
  - A. Proximity
  - B. Design
  - C. Completeness of Network
- 7) Access to Parks and Open Space
  - A. Proximity
  - B. Quality
  - C. Perceived Safety





## Workshop Activities and Results

Participants created, during a previous workshop, a shared vision (i.e., of building healthy communities for Gastonia–Belmont–Bessemer City), and they identified blocks and obstacles that can interfere with realization of their shared community vision.

Several of these blocks and obstacles are persistent, and a planning team selected three issues – relating to the blocks and obstacles – that would benefit from a closer look. The purpose of this third workshop (in the series) was to conduct a root cause analyses for the following three issues:

1. cost sharing/ creative funding (e.g., leveraging of agency funds for infrastructure projects),
2. NCDOT design standards, and
3. school siting.

All three issues have linkages with state policies, and each issue is additionally a potential candidate for the written case study required by the grant provider. The analyses involved a 7–step procedure in which participants identified:

1. problems/symptoms relating to the issue,
2. duration,
3. fault tree branch linkages (e.g., physical, organizational, or human),
4. why the problems/symptoms exist (i.e., root cause),
5. how to address the root cause,
6. desired level of commitment, and
7. what to do and how to start.

## Next Steps

Completion of the root cause analyses workshop provides staff with the necessary information to prepare a written case study.

In addition, the next workshop will give participants the opportunity to identify strategic directions that can address the blocks and obstacles they previously identified in the second workshop (in the series). This project will include a third activity report plus a final report. The Activity Report provides summary information about the strategic directions workshop highlighting three focus areas:

1. Cost sharing
2. NCDOT Design Standards
3. School Siting

NCDOT Design Standards was the issue area selected for future focus effort. Figure 6-1 below displays the recommendations.

Figure 6-1: Workshop Summary		
Encouraging Walkable, Mixed-use Developments	Developing a Multi-modal Transportation System that Provides for Connectivity	Creating and Promoting Wellness and Sustainable, Healthy, Lifestyles
<ul style="list-style-type: none"> <li>• Adopt form-based codes ... establish urban growth boundaries</li> <li>• Better maintain parks ... build more parks ... provide for pocket parks in neighborhoods ... require parks and common areas in developments</li> <li>• Build an aquatic center ... establish centralized senior centers</li> <li>• Improve coordination between communities</li> <li>• Incentivize redevelopment ... redevelop buildings to accommodate physical activities</li> <li>• Live–work–play locally ... make destinations more walkable ... people should live close to work, school, shopping, and parks ... build structures on a human scale ... encourage compact mixed development ... integrate residential-oriented businesses within neighborhoods</li> <li>• Make downtown areas more vibrant</li> <li>• Protect natural resources ... set aside natural assets to protect sensitive areas (greenprint process)</li> <li>• Provide for neighborhood, walkable schools ... schools should have playgrounds ... co-locate schools and parks</li> </ul>	<ul style="list-style-type: none"> <li>• Develop sidewalk plans for all neighborhoods ... construct more sidewalks ... better maintain existing sidewalks ... sidewalks should be both wide and part of an inter-connected system</li> <li>• Develop system of bike paths ... construct more bicycle lanes ... improve bike lane safety ... provide pedestrian/bicycle access between neighborhoods and work areas</li> <li>• Expand public transit system ... better link multi-modal transportation nodes ... improve bus stops</li> <li>• Expand the greenway system ... complete the Carolina Thread Trail</li> <li>• Implement complete streets ... make crosswalks more pedestrian-friendly ... utilize more green strips for safety ... shady street trees encourage walking</li> <li>• Improve connectivity of public transportation within and between communities ... incorporate many types/ modes of transportation (i.e., walking, biking, and transit) ... link activity centers (i.e., parks, homes, and urban nodes)</li> <li>• Make schools and parks more accessible by both foot and bikes</li> </ul>	<ul style="list-style-type: none"> <li>• Allow for public use of school recreational facilities during off-hours ... construct public walking tracks at schools ... provide summer day camp opportunities for children</li> <li>• Better promote all types of wellness ... promote healthy lifestyles ... start thinking of exercise as good medicine ... promote community nutrition programs ... provide for more diverse recreational opportunities ... ban smoking in all public places</li> <li>• Change general education curriculum to better emphasize importance of physical activities... increase physical education curriculum requirements ... improve school health programs</li> <li>• Create community gardens ... build gardens at schools and daycare facilities ... establish a farmers market that has easy access from neighborhoods</li> <li>• Encourage diversity in decision making</li> <li>• Have more festivals ... promote community activity programs</li> <li>• Incentivize physical activity within the workplace ... expand social networks</li> <li>• Make healthcare facilities more accessible by multi-modal transportation</li> <li>• Think safety ... slow traffic movement on local streets</li> </ul>



## B. ENVIRONMENTAL JUSTICE/ TITLE VI OF THE CIVIL RIGHTS ACT

### Overview

In 1994, Presidential Executive Order (E.O.) 12898 directed every Federal agency to make Environmental Justice (EJ) part of its mission. The United States Department of Transportation (USDOT), North Carolina Department of Transportation (NCDOT), and the GCLMPO are all committed to a comprehensive, inclusive approach to accomplishing this mission.

*“Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” E.O. 12898.*

**“Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”** requires each Federal agency to *“make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”* E.O. 12898 and the accompanying Presidential Memorandum underscore the importance of utilizing existing laws-including National Environmental Policy Act (NEPA) and Title VI of the Civil Rights Act of 1964 to ensure that all persons live in a safe and healthy environment. Specifically, Title VI prohibits discrimination on the basis of race, color, or national origin in programs or activities receiving Federal financial assistance. Consistent with Title VI and the E.O., the **USDOT Order emphasizes the importance of ensuring that programs or activities funded by USDOT which affect human health or the environment do not discriminate on the basis of race, color, or national origin.**

### EJ Principles

For federally funded projects, the E.O. directs federal, state, regional, and local agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of Agency programs, policies, and activities on minority populations and low-income populations. EJ at DOT includes incorporating EJ and non-discrimination

principles into transportation planning and decision making processes as well as project-specific environmental reviews.

The guiding EJ principles are briefly summarized as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

### EJ Strategy

The original EJ strategy was created to have the flexibility to be updated periodically to reflect changing social and technological conditions as well as new insights acquired through implementation. Recently, in 2012 an increased focus on public engagement has been established for EJ efforts.

A review of the strategy and the history of EJ implementation has **elicited new recommendations** that the Department believes will improve the strategy and ability of DOT to implement the principles of EJ. The updated strategy reflects DOT’s continued commitment to embracing these objectives. DOT will do so through enforcement of all applicable planning and environmental regulations and legislation, and through promoting non-discrimination in programs, policies, and activities that affect human health and the environment, consistent with E.O. 12898, NEPA, planning statutes in Title 23, U.S. Code and Title 49, U.S. Code., and Title VI of the Civil Rights Act of 1964 and related statutes. DOT also remains committed to bringing government decision making closer to communities and people affected by these decisions, and ensuring opportunities for greater public participation in providing input into these decisions relating to human health and the environment.

### Public Outreach on Implementation of EJ

Public engagement and participation in decision making is a fundamental principle of EJ, and is critical to achieving outcomes that reflect the needs of all affected stakeholders to the greatest extent possible. Low-income and

minority communities have historically borne disproportionately high or adverse human health or environmental effects of infrastructure projects. Active participation of all affected communities will help ensure that transportation plans and projects avoid, minimize, or mitigate these impacts on low-income and minority populations. For this reason, DOT is committed to developing and using public engagement to encourage EJ populations to participate during the planning and implementation of Federal and State DOT programs, policies, and activities.

The GCLMPO is committed to engaging low-income and minority populations in the transportation decision making process, from the earliest stages of planning through project implementation in geographic areas with high concentrations of low-income and minorities.

The GCLMPO staff is exploring traditional and nontraditional strategies for engaging low-income and minority populations, including regional workshops with State and local officials and online announcements, as well as a web-based portal to organize documents relevant to EJ in an easily searchable location. On this web site, GCLMPO will be able to create a site to facilitate informal dialogue and feedback from EJ stakeholders and representatives, as needed. GCLMPO will also ensure that geographic areas or communities with Limited English Proficiency (LEP) populations have access to information to the fullest extent feasible and that their participation in providing input into decision making is encouraged.

The GCLMPO has a current Public Involvement Plan that outlines procedures and policies for public participation. GCLMPO Public Involvement Plan **Administrative Modifications** can be made to previously included projects when; change in project costs are below the predetermined thresholds, movement of project phase initiation dates are within the 4 year STIP time window, change to project scope or description do not significantly diminish the ability to achieve the original project intent, and change in traditional funding sources occur.

Administrative modification is a streamlining process recommended in the FHWA/FTA/NCDOT Joint STIP Review of December 2011. Administrative Modifications do not require documentation of public review or comment,



redemonstration of fiscal constraint, or a local transportation conformity determination.

Examples of Administrative Modifications:

- Any change to projects in years 5 or later;
- Minor change to project descriptions, scopes, sponsor funding;
- Minor cost increases in highway projects that do not exceed both \$ 2 million and 25% of the original project cost;
- Minor cost change (increase or decrease) in transit projects that do not exceed either \$1 million or 25% of the original project cost;
- Schedule changes that move project authorization dates within the first 4 year STIP time window and do not affect local air quality conformity findings;
- Funding source changes between traditional funding sources (i.e. substituting available Congestion Mitigation Air Quality (CMAQ) funds for FTA section 5307 formula transit funds);
- Projects approved for Emergency Relief funds do not generally have to be included in the STIP, so any changes made for emergency projects may be considered minor modifications.

**State funded projects** are amended when the fiscal year changes or when there is a significant change in the project description. Unless the project is determined to be regionally significant for transportation conformity purposes, these amendments are approved solely by the State Board of Transportation. Local approval of these changes is desired but not legally required. MPO's may treat these as Administrative modifications if they wish. If a change to a state funded project that is regionally significant, this requires a new transportation conformity determination, this determination must be made before the amendment can be processed. The state public notification process will be the same for state funded projects as it is for federal-aid projects.

### GCLMPO PUBLIC INVOLVEMENT PROCEDURES:

All amendments to the transit portion of the STIP will be submitted to FTA Region IV for formal endorsement. The request letter for FTA endorsement of STIP amendments will include assurances that public involvement

processes were followed, in accordance with the federally approved state or local Participation Plans. Administrative modifications to the transit portion of the STIP will be posted on the Public Transportation Division website for informational purposes within 5 days of the changes being processed at NCDOT.

Established public involvement procedures at the local level shall be followed. Any significant negative reaction will result in either the Board being notified of the reaction prior to voting, or withdrawal of the proposal for further review.

### Federal Definitions according to 23 CFR 450.104

*Administrative modification* means a minor revision to a long-range statewide or metropolitan transportation plan, Transportation Improvement Program (TIP), or Statewide Transportation Improvement Program (STIP) that includes minor changes to project/project phase costs, minor changes to funding sources of previously-included projects, and minor changes to project/project phase initiation dates. An administrative modification is a revision that does not require public review and comment, redemonstration of fiscal constraint, or a conformity determination (in nonattainment and maintenance areas).

*Amendment* means a revision to a long-range statewide or metropolitan transportation plan, TIP, or STIP that involves a major change to a project included in a metropolitan transportation plan, TIP, or STIP, including the addition or deletion of a project or a major change in project cost, project/project phase initiation dates, or a major change in design concept or design scope (e.g., changing project termini or the number of through traffic lanes). Change to projects that are included only for illustrative purposes do not require an amendment. An amendment is a revision that requires public review and comment, redemonstration of fiscal constraint, or a conformity determination (for metropolitan transportation plans and TIPs involving "non-exempt" projects in nonattainment and maintenance areas). In the context of a long-range statewide transportation plan, an amendment is a revision approved by the State in accordance with its public involvement process.

The ultimate goal of transportation planning is to promote the best interest of the people. Planning, to be effective, must involve people early in the process. The proposed method of involving more citizens in the decision making process is three-tiered. Early involvement in each municipality at a study group level would be established through the existing planning boards. Responsibility for the presentation and promotion of recommendations would shift from the staff to the study group, though there would be, by necessity, active participation by the staff. This proposal would allow active participation at a local level while educating the study group in the process. Grassroots support could be developed early in the process with meetings involving the public as the alternatives are being considered.

The advantages of using the existing planning board members are several, the principle one being that there is less lead time in educating the study groups since they will already be familiar with the planning issues in their community. The disadvantage to this process is the increased staff time needed to work with the study groups and the slowdown of the process because of the increased citizen involvement. However, if we are to take the active participation of the public seriously these problems are unavoidable. Furthermore, since there were often delays in projects because of lack of public consultation early-on, the difference in the amount of time should be negligible.

Overall the new public involvement policy would have the support of both the staff and the community. By effectively using the process, citizens would have frequent, full use of the process with a minimum amount of delays in projects.

### Environmental Justice Assessment Process

Under the process outlined in Executive Order 12898 (EO 12898) and the US Department of Transportation's order, consideration of environmental justice issues must be considered during preparation of an Environmental Impact Statement (EIS). General principles required as part of the EIS analysis are as follows:

1. **Identification of Minority or Low-Income Populations:** Agencies should consider the composition of the affected area to determine

# the way forward: 2040 Metropolitan Transportation Plan

whether minority populations, low-income populations, or Indian tribes are present, and if so whether there may be disproportionately high and adverse human health or environmental effects on these populations. This identification should occur as early as possible during the EIS process.

- 2. Public Participation: Agencies** should develop effective public participation strategies that assure meaningful community representation in the EIS process.
- 3. Numeric Analysis:** Where a disproportionate and adverse environmental impact is identified, agencies should consider relevant demographic, public health and industry data concerning the potential for exposure to human health or environmental hazards in the affected population, to the extent that such information is reasonably available.
- 4. Alternatives and Mitigation:** The relative impact of alternatives should be considered, and measures to avoid, minimize, and mitigate impacts should be evaluated as part of the EIS.

## TITLE VI – NON-DISCRIMINATION EFFORTS

“In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non low-income areas. (U.S. Department of Transportation Order on Environmental Justice).

It has been both the Federal Highway Administration’s (FHWA’s) and the Federal Transit Administration’s (FTA’s) longstanding policy to actively ensure nondiscrimination under Title VI of the 1964 Civil Rights Act in federally funded activities. Under Title VI and related statutes, each Federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, national origin, age, sex, disability. The Civil Rights Restoration Act of 1987 clarified the intent of Title VI to include all program and activities of Federal-aid recipients, sub-recipients and contractors whether those programs and activities are federally funded or not.

The National Environmental Policy Act of 1969 (NEPA) stressed the importance of providing for “all Americans safe, healthful, productive, and esthetically pleasing surroundings”, and provided a requirement for taking a “systematic, interdisciplinary approach” to aid in considering environmental and community factors in decision-making.

This approach was further emphasized in the Federal-aid Highway Act of 1970: 23 United States Code 109(h) established further basis for equitable treatment of communities being affected by transportation projects. It requires consideration of the anticipated effects of proposed transportation projects upon residences, businesses, farms, and accessibility of public facilities, tax base, and other community resources.

On February 11, 1994, President Clinton signed Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (PDF, 20KB). The Executive Order requires that each Federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid “disproportionately high and adverse” effects on minority and low-income populations.

In April 1997, the U.S. Department of Transportation (DOT) issued the DOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2) to summarize and expand upon the requirements of Executive Order 12898 on Environmental Justice. The Order generally describes the process for incorporating environmental justice principles into all DOT existing programs, policies, and activities.

In December 1998, the FHWA issued FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 6640.23) that requires the FHWA to implement the principles of the DOT Order 5610.2 and E.O. 12898 by incorporating environmental justice principles in all FHWA programs, policies and activities.

The FHWA and the Federal Transit Administration (FTA) issued a memorandum Implementing Title VI Requirements in Metropolitan and Statewide Planning on October 7, 1999. The memorandum provides clarification for field offices

on how to ensure that environmental justice is considered during current and future planning certification reviews. While Title VI and environmental justice have often been raised during project development, it is important to recognize that the law also applies equally to the processes and products of planning. The appropriate time for FHWA and FTA to ensure compliance with Title VI in the planning process is during the planning certification reviews conducted for the Transportation Management Areas (TMAs) and through the statewide planning finding rendered at approval of the Statewide Transportation Improvement Program (STIP). However, the GCLMPO is not designated a TMA and currently endeavors to improve its EJ and Title VI efforts.

### Other Environmental Justice Legislation and Guidance Resources

- Title VI Requirements in Metropolitan and Statewide Planning
- Title VI of the 1964 Civil Rights Act
- Title VI Regulation 49 CFR 21
- 23 U.S.C. 140 -- Nondiscrimination
- Executive Order on Environmental Justice
- DOT Order on Environmental Justice
- FHWA Order on Environmental Justice
- 23 CFR 200.5 -- Title VI Definitions
- 23 CFR 200.7 et.al. -- Title VI Policy and State Responsibilities
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Impacts of the Civil Rights Restoration Act of 1987 on FHWA Programs
- Title VI Legal Manual, US. Department of Justice, Civil Rights Division
- The Council on Environmental Quality coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives.

## GCLMPO LIMITED ENGLISH PROFICIENCY PLAN (LEP) Title VI Complaint and Investigation Procedures

These procedures cover all complaints filed under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, for alleged discrimination in any program or activity administered by Gaston Cleveland Lincoln Metropolitan Planning Organization (GCLMPO).



These procedures do not deny the right of the complainant to file formal complaints with other State or Federal agencies or to seek private counsel for complaints alleging discrimination. Every effort will be made to obtain early resolution of complaints at the lowest level possible. The option of informal mediation meeting(s) between the affected parties and the Gaston Cleveland Lincoln MPO may be utilized for resolution. Any individual, group or individuals or entity that believes they have been subjected to discrimination prohibited under Title VI and related statutes may file a written complaint to the following address:

**Gaston Cleveland Lincoln Metropolitan Planning Organization**  
**PO Box 1748**  
**Gastonia, NC 28053-1748**  
**Phone (704) 854-6663**

The following measures will be taken to resolve Title VI complaints:

- (1) A formal complaint must be filed within 180 days of the alleged occurrence. Complaints shall be in writing and signed by the individual or his/her representative, and will include the complainant's name, address and telephone number; name of alleged discriminating official, basis of complaint (race, color, national origin, sex, disability, age), and the date of alleged act(s). A statement detailing the facts and circumstances of the alleged discrimination must accompany all complaints.
- (2) In the case where a complainant is unable or incapable of providing a written statement, a verbal complaint of discrimination may be made to the Principal Transportation Planner. Under these circumstances, the complainant will be interviewed, and the Principal Transportation Planner will assist the Complainant in converting the verbal allegations in writing.
- (3) When a complaint is received, the Gaston Cleveland Lincoln MPO will provide written acknowledgment to the Complainant, within ten (10) days by registered mail.
- (4) If a complaint is deemed incomplete, additional information will be requested, and the Complainant will be provided 60 business days to submit the required information. Failure to do so may be considered good cause

for a determination of no investigative merit.

(5) Within fifteen (15) business days from receipt of a complete complaint, the Gaston Cleveland Lincoln MPO will determine its jurisdiction in pursuing the matter and whether the complaint has sufficient merit to warrant investigation. Within five (5) days of this decision, the Director of Planning and Development Services or his/her authorized designee will notify the Complainant and Respondent, by registered mail, informing them of the disposition.

a. If the decision is not to investigate the complaint, the notification shall specifically state the reason for the decision.

b. If the complaint is to be investigated, the notification shall state the grounds of Gaston Cleveland Lincoln MPO jurisdiction, while informing the parties that their full cooperation will be required in gathering additional information and assisting the investigator.

(6) When the Gaston Cleveland Lincoln MPO does not have sufficient jurisdiction, the Director of Planning and Development Services or his/her authorized designee will refer the complaint to the appropriate State or Federal agency holding such jurisdiction.

(7) If the complaint has investigative merit, the Director of Planning and Development Services or his/her authorized designee will assign an investigator. A complete investigation will be conducted, and an investigative report will be submitted to the Director of Planning and Development Services within sixty-(60) days from receipt of the complaint. The report will include a narrative description of the incident, summaries of all persons interviewed, and a finding with recommendations and conciliatory measures where appropriate. If the investigation is delayed for any reason, the investigator will notify the appropriate authorities, and an extension will be requested.

(8) The Director of Planning and Development Services or his/her authorized designee will issue letters of finding to the Complainant and Respondent within ninety-(90) days from receipt of the complaint.

(9) If the Complainant is dissatisfied with Gaston Cleveland Lincoln MPO resolution of the complaint, he/she has the right to file a complaint with the:

Department Office of Civil Rights  
US Department of Transportation  
400 7th Street, SW, Room #10215, S-30  
Washington, DC 20590  
(202) 366-4648  
(202) 366-5992  
TTY Access: (202) 366-9696  
DC Relay: (202) 855-1000

Department Office of Civil Rights  
US Department of Transportation  
400 7th Street, SW, Room # 10215, S-30  
Washington, DC 20590.  
(202) 366-4648  
(202) 366-5992  
TTY acceso:-número (202) 366-9696  
Relé de DC: (202) 855-1000

GASTON CLEVELAND LINCOLN METROPOLITAN PLANNING ORGINAZATION  
TITLE VI COMPLIANCE PROGRAM

ÁREA URBANA DE GASTON ORGANIZACION METROPOLITANA DE PLANIFICACIÓN  
TÍTULO VI PROGRAMA DE CUMPLIMIENTO

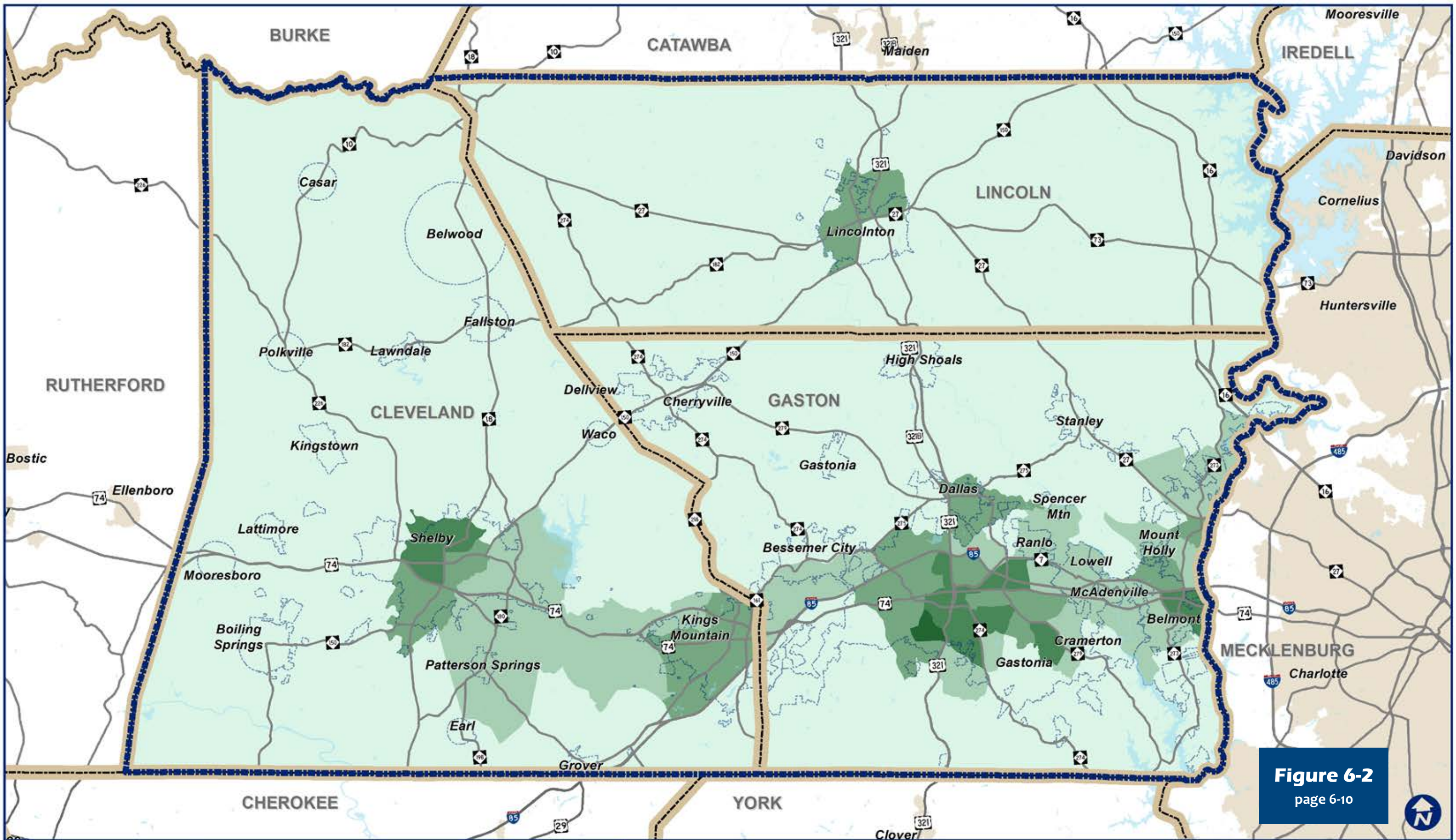
RECORD OF TITLE VI COMPLAINT, INVESTIGATION, AND RESOLUTION  
49 CFR 21.9(B)

REGISTRO DEL TÍTULO VI DENUNCIA, INVESTIGACIÓN Y RESOLUCIÓN  
49 CFR 21.9(B)

1. Date Title VI complaint received by Gaston Cleveland Lincoln MPO:  
\_\_\_\_\_
2. Summary of complaint allegation(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Status of Investigation of complaint: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Action(s) taken by the Gaston Cleveland Lincoln MPO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Date complaint resolved or closed: \_\_\_\_\_

1. Fecha denuncia título VI recibida por tránsito de MPO Area Urbana de Gaston: \_\_\_\_\_
2. Resumen de alegaciones del denunciante: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Estado de la investigación del denunciante: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Acciones tomadas por MPO Area Ubana de Gaston: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Fecha de denuncia resuelto o cerrado: \_\_\_\_\_





**Figure 6-2**  
page 6-10

**GASTON-CLEVELAND-LINCOLN MPO  
DENSITY OF HOUSEHOLDS WITH  
NO VEHICLE AVAILABLE**

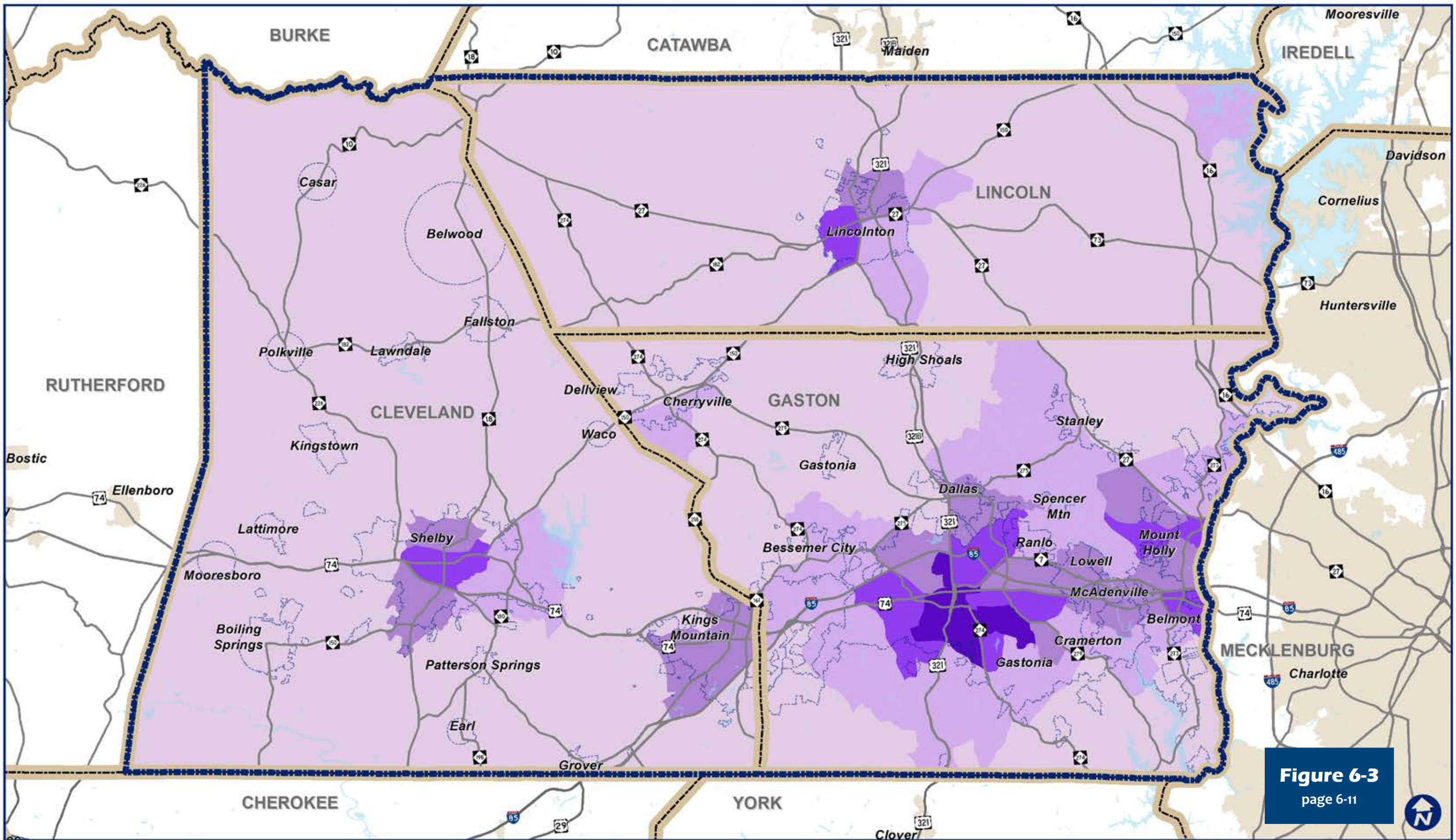
<b>LEGEND</b>	Highways	<b>Density of Households with No Vehicle Available</b>	
	Major Roads	Lowest Concentration	High Concentration
	Minor Roads	Low Concentration	Highest Concentration
	Counties	Moderate Concentration	

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 6-3**  
page 6-11

# GASTON-CLEVELAND-LINCOLN MPO DENSITY OF PERSONS WITH DISABILITIES

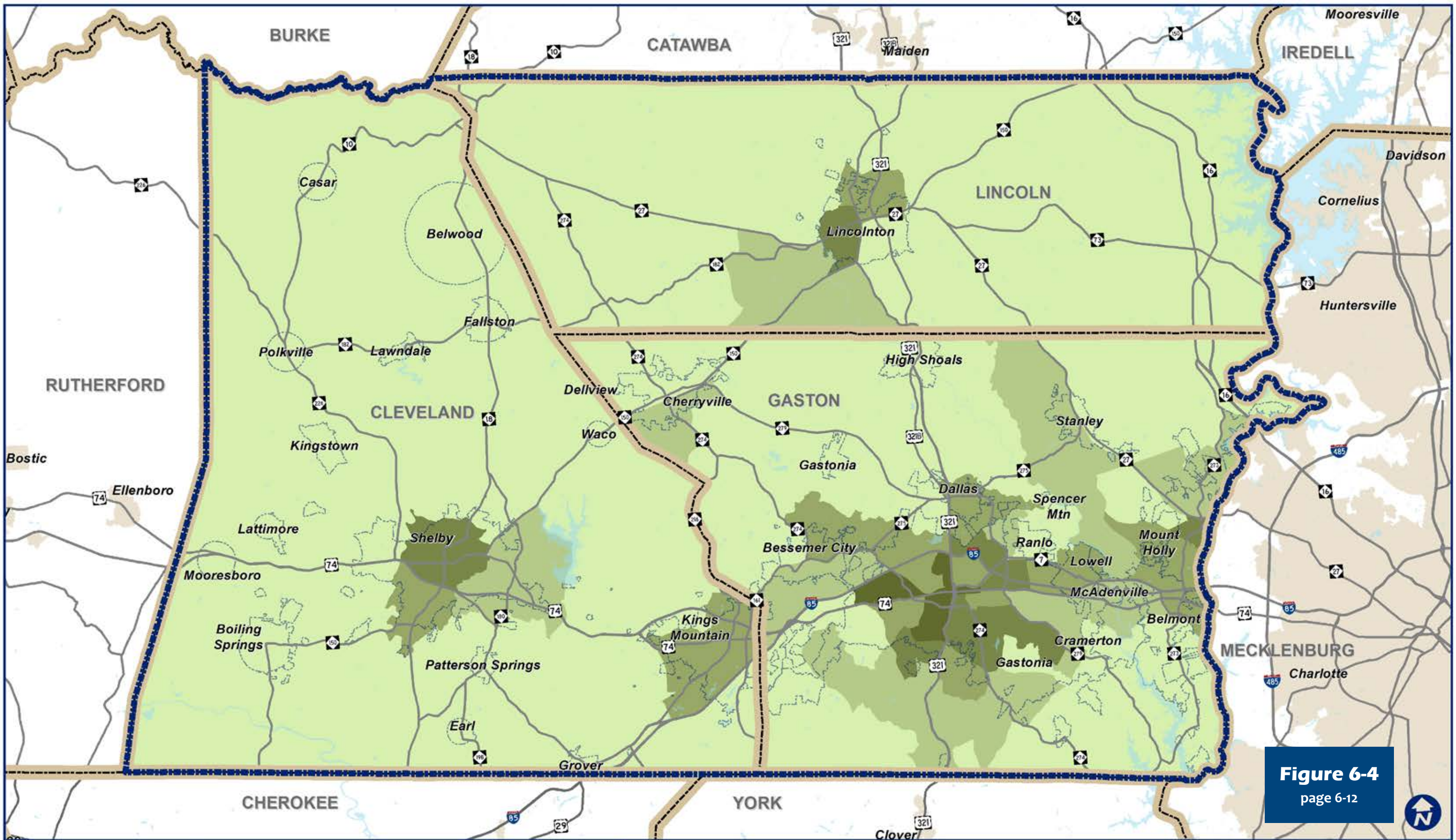
<b>LEGEND</b>	Highways	<b>Density of Persons with Disabilities</b>	
	Major Roads	Lowest Concentration	High Concentration
	Minor Roads	Low Concentration	Highest Concentration
	Counties	Moderate Concentration	

0 1 2 4 Miles

Date created: 2/18/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 6-4**  
page 6-12



**GASTON-CLEVELAND-LINCOLN MPO  
DENSITY OF HOUSEHOLDS  
BELOW THE POVERTY LINE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Households Below the Poverty Line**

- Lowest Concentration
- Low Concentration
- Moderate Concentration
- High Concentration
- Highest Concentration

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



# 7 Existing & Future Conditions: SOCIO-ECONOMIC PROJECTIONS

## OVERVIEW

Socio-economic projections are the basis for estimating future travel demand in an area. The number and distribution of jobs, people, and schools play a key role in what transportation facilities are used, when they are used, and who uses them. Developing an inventory of what land uses and population patterns exist in a particular area is difficult enough; it is even more difficult to accurately project how that same area will behave in 20+ years. How many people will live in the area? Where will people work? Will there be new schools built? This chapter outlines the process, assumptions, and outcomes of this socio-economic projection process for the Gaston-Cleveland-Lincoln Metropolitan Study Area.

The local governments within each of the counties of the bi-state Metrolina Regional Travel Demand Model (Metrolina Model), worked to project county level growth. GCLMPO members then worked from late-2012 through early 2013 to collectively determine how much growth would occur in each of the districts and individual Transportation Analysis Zones (TAZs) throughout the three counties. The work for Cleveland, Lincoln, and northwest Gaston counties was conducted by the Lake Norman Rural Planning Organization, which performed transportation planning activities for the county until mid-2013, when it was incorporated into the GCLMPO.

This chapter describes the development patterns, both in existing and future conditions, at the district level for each of the three counties in the MPO. The geographies for the nine districts, three in each of the three counties, were developed as a part of the Metrolina Model. These districts have distinct travel and development patterns, and so specific projections are made for each of the districts.

## EXISTING LAND USES

The descriptions of the individual districts within each of the counties are provided later in this chapter. The aggregated existing (2013) and future land use descriptions come from an ambitious coding of existing land uses, and depictions of build out patterns based on approved land use plans for municipalities and counties. This work was undertaken by Centralina Council of Governments for a Housing and Urban Development (HUD)-funded sustainable communities project.

The GCLMPO is separated into nine districts across the three counties for purposes of projecting growth. These districts form the basis for demographic projections through 2040. How are they currently developed? How are they expected to grow in comparison to the rest of their county? The following district descriptions help provide background on particular portions of the three counties, and how and why they will grow in the coming decades.

As shown in the following graphs, suburban residential land uses dominate the existing land uses. Gaston and Cleveland counties have a significantly higher percentage in industrial uses, while Lincoln County has a higher percentage of suburban land uses. Based on adopted land use plans, the three counties have planned future land uses in a remarkably similar pattern. Suburban residential development will still be the most common land use type, but rural residential land uses will become significantly more common. These proportions are based upon the assumption that all land is developed, which is not expected in any of the counties for many years. The actual projected land uses through 2040 are described for each of the nine districts in the study area later in this chapter.

Figure 7-1: GCLMPO Developed Land Use Patterns

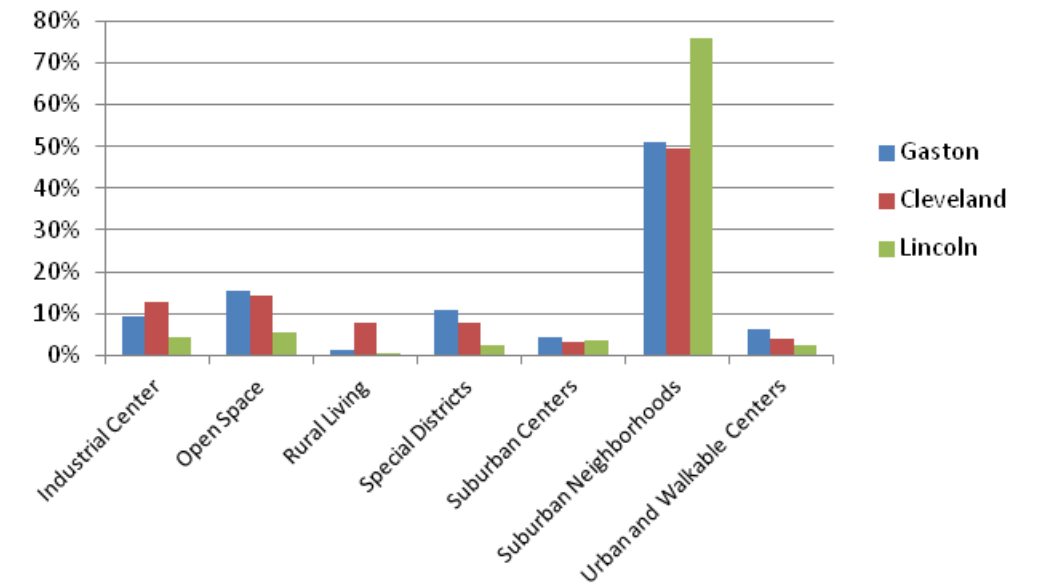
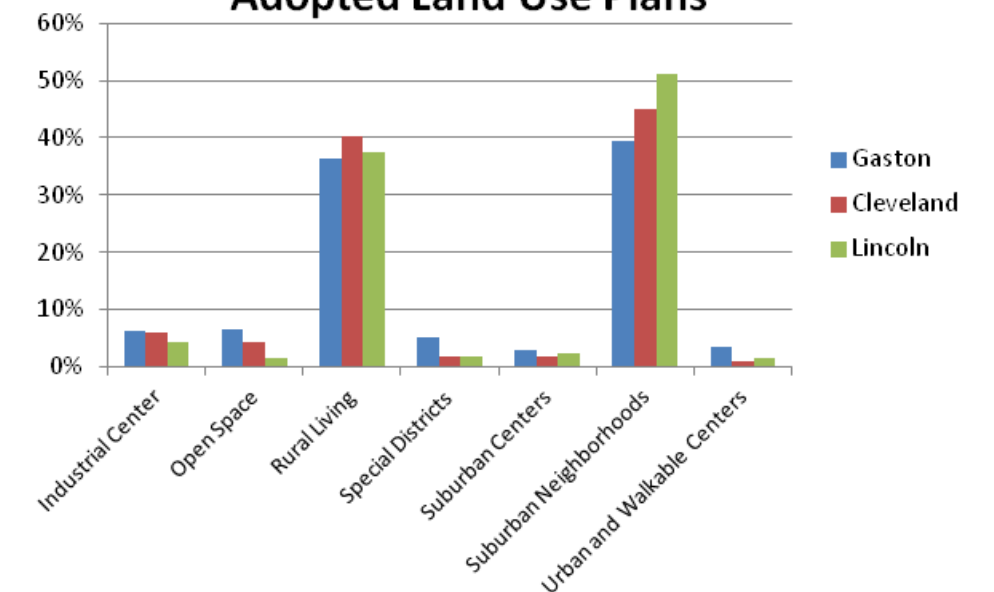


Figure 7-2: GCLMPO Build Out According to Adopted Land Use Plans





## CLEVELAND COUNTY

### District name: Shelby

Shelby is the largest city and county seat for Cleveland County. Shelby has an established downtown that is home to a range of public sector, professional, and retail sites. Shelby’s residential pattern is a mix of multi-family and small-lot single family, with some larger lot single-family development located on the edges of the city. The majority of Shelby’s retail and service jobs are located along the existing US 74 corridor, known as Dixon Blvd. Agricultural and large-lot residential land uses dominate the areas outside of Shelby. Apart from US 74, there are no multi-lane roads in the unincorporated areas, so most future growth will occur in a scattered pattern throughout the district, as well as at interchanges along the future Shelby Bypass, which is not scheduled to be fully completed until after 2030.

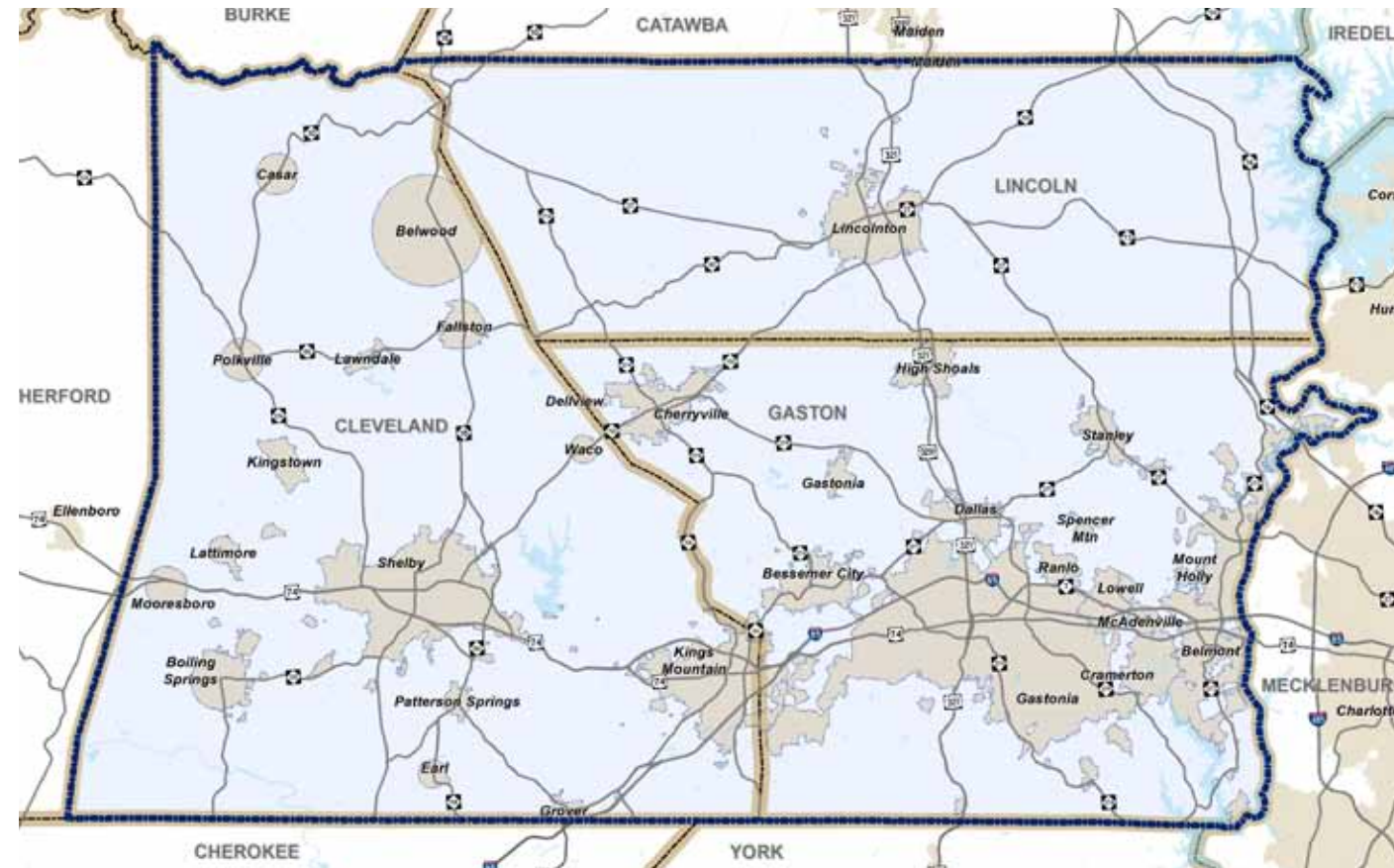
### District name: Kings Mountain

Kings Mountain is the second largest city in Cleveland County, with a small portion of its geography in Gaston County. I-85 and US 74 intersect immediately east of the city. The Kings Mountain area has experienced a loss of manufacturing and transportation jobs over the past decade, although the area has recently experienced new jobs announcements. Kings Mountain’s employment centers are at interchanges along I-85 and US 74.

Population growth is expected to be moderate through 2040, with most growth occurring in the unincorporated parts of the district through large-lot single-family housing.

### District name: Northwest Cleveland County

Northwest Cleveland County encompasses the areas north and west of Shelby. It is characterized by extremely low density residential patterns, with several small municipalities, primarily at the intersection of NC routes. There has been little subdivision-style growth in the area in recent years, which is not expected to change through 2040. The area is agricultural in nature, along with significant forested portions in the northern areas near the South



Mountain State Park. Apart from US 74, there are no multi-lane roads in the district. Most workers commute to Shelby for work, although a rising number of professionals live in the area and telecommute or work non-traditional schedules, such as working in the aviation industry at Charlotte-Douglas Airport. The projected population and commercial growth is projected to be accommodated in smaller individual developments and large-lot single family housing, as opposed to master planned developments.

## LINCOLN COUNTY

### District Name: Denver

The eastern third of Lincoln County is commonly referred to as “Denver.” This area has historically been comprised of lakefront homes and low density residential development, but over the past decade has experienced significant growth pressures, similar to other portions of Lake Norman in Iredell and Mecklenburg Counties. Compared to the I-77 corridor serving

Charlotte’s northern suburbs and southern Iredell County, the Denver portion of Lincoln County, or the NC 16 corridor, has not developed as intensely. However, with the new multi-lane NC 16, actual travel time from Uptown Charlotte to Denver is now the same as it is to Mooresville. The next thirty years are projected to see growth in the area at rates similar to Davidson, Cornelius, Huntersville, or Mooresville of the past decade (Source: 2040 Lake Norman RPO and CRTPO Socio-Economic Projections). Eastern Lincoln County’s population growth from now through 2040 will primarily occur as single-family subdivision developments on undeveloped land, although multi-family housing in the form of townhouses along the Business NC 16 corridor will occur more frequently as a reflection of market demands. The Denver area will continue to be the fastest-growing part of Lincoln County, becoming the most populated part of the county by 2030.

Employment growth between 2010 and 2040 will be concentrated along the NC 16 corridor and will continue to outpace employment growth in Lincolnton and western Lincoln County. In 2010, the Denver area witnessed high employment numbers in the retail sector. In the next thirty years, employment in the food and beverage and convenience store industries in particular is expected to increase. Another industry that is expected to grow is the high-traffic industrial and service jobs as the area matures and the county looks to increase employment opportunities through office park development.

Compared to Gaston, Cleveland, and the rest of Lincoln County, the Denver area has disproportionately low employment in the low-traffic service, low-traffic industrial, and educational sectors, although the area will continue to



# the way forward: 2040 Metropolitan Transportation Plan

mature and see an increase in overall jobs in all categories. Despite this growth, the Denver area will primarily remain a bedroom community for Mecklenburg County.

## District Name: Lincolnton

Lincolnton serves as the county seat. The urban form of city's historic core bears strong similarity to that of Shelby, but at a scale approximately half the size. The downtown is anchored by legal and public sector jobs, with limited retail in proximity. Most retail establishments are located on the eastern side of the city. The majority of city residents live in small-lot single-family housing, although nearly all multi-family housing in Lincoln County is also located in Lincolnton. There is little residential redevelopment occurring, with the majority of the population growth being accommodated in new housing on the edge of the city. Major road corridors, such as NC 150 and NC 27, are seeing very little non-residential redevelopment.

Lincolnton is projected to grow through 2040, but at a slower rate than Denver. Due to the availability of land surrounding the city, the vast majority of new development will occur along the edges, particularly residential development in the form of smaller subdivisions with moderate lot sizes of one-half to one-acre lots.

## District Name: West Lincoln

Western Lincoln County is overwhelmingly agricultural, with no multi-lane road access and little public water or sanitary sewer service. There are no new roads proposed in the area to affect development patterns. This portion of the county is projected to experience little absolute growth through 2040, with any population increases accommodated in large-lot (larger than one acre) single-family development scattered throughout the district.

## GASTON COUNTY

### District Name: Eastern Gaston

Eastern Gaston County has experienced a significant increase in development pressures from Charlotte over the past decade, primarily due to its proximity, access, and lower housing costs. This area has for decades been characterized by small town development around textile and other manufacturing plants. Many of these plants have closed over the past decade, which has changed commuting patterns and resulted in lower traffic on some local roads.

The residents of Eastern Gaston County do not have a predominant commuting pattern. Many do commute to Mecklenburg County, as well as to Gastonia, but a significant number also work nearby. The area is home to a range of retail, manufacturing, professional, and service job centers. The long-term projections for employment show the number of jobs growing slightly faster than the population, which should reduce commuting pressures for some residents. The growth in residential and non-residential development will be a mix of downtown redevelopment and greenfield development. This continues the trend from the past few years which have seen revitalization of several of the downtowns in the area.

### District Name: Gastonia

Gastonia has been the economic heart of the county for many years. It is the County seat and its largest city by far. Growth continues along its edges as undeveloped land is built upon and annexed in exchange for municipal services. Gastonia is home to many current and former textile mills and factories, with a corresponding "mill village" residential development pattern around them. This small lot pattern has recently become attractive for residential renovation.

Gastonia is bisected by US 321 and I-85, and these multi-lane facilities give city residents excellent access to adjacent counties. Much of the retail and service employment for the district is located at interchanges on these two routes. Workers in Gastonia travel from the surrounding counties, while some live nearby. Gastonia is expected to grow in population and jobs in equal proportions, with growth being a mix of downtown and neighborhood revitalization, and new development along the city's edges and nearby municipalities. The City of Gastonia has worked hard to redevelop former mills as residential and employment centers, and this hard work is starting to pay dividends in new infill activity.

### District Name: Northwest Gaston

The largest municipality in this district is Cherryville, which is located at the intersection of NC 279 and NC 150. The city has seen a significant decline in employment over the past decade due to manufacturing and distribution firm closures and relocations. Despite these challenges, the area has maintained its population, and is expected to grow slightly over the coming decades, although employment will grow faster than the population. The population outside of Cherryville primarily lives in single-family homes built along existing roads, as opposed to subdivision development patterns. The area has a strong agricultural base, with a significant number of horse farms.

This area is likely to remain primarily rural and experience a continual low density growth rate as public water and sewer systems do not currently exist in this district, and may not occur in the foreseeable future. This may change, however, if the County's Public Water and Sewer Plan is implemented or the cities of Cherryville or Bessemer City, or the Town of High Shoals, extend water and sewer lines. With sewer capacity being increased in High Shoals, this will attract growth in the future and impact its rate of





growth as well as give the town more command over the type of growth that occurs within its boundary.

Cherryville is very interested in having both NC 279 and NC 150 widened to provide increased access to I-85 and US 74, particularly for manufacturing and transportation operations. If widened, these roads are not expected to appreciably change the development patterns however, as the two corridors are currently relatively uncongested except near US 321.

## 2040 SOCIO-ECONOMIC PROJECTION PROCESS

The modeled study area includes three counties, 356,000 people and 134,000 jobs in 1,140 square miles. Not all of Cleveland County is included in the Metrolina Model, which means the socio-economic projections do not include the entire county, although the projections do encompass the areas expected to grow and urbanize over the next 20+ years. To effectively analyze this large area for travel behavior, future transportation needs, and air pollutants emitted by the motor vehicles used in the region, the study area is broken into Transportation Analysis Zones, or TAZs. Each of these TAZs includes over a dozen independent pieces of information about the travel behavior of that particular geography.

The GCLMPO is required to develop projections for the following variables:

- Total Population
  - Population in households
  - Population in group quarters (dormitories, group homes, etc.)
- Total Jobs
  - Industrial jobs

- High-traffic Industrial jobs
- Retail jobs
- High-Traffic Retail jobs
- Low-Traffic Service jobs
- High-Traffic Service jobs
- Education jobs
- Office and Government jobs
- Student Enrollment
  - K-8
  - 9-12
  - College

The GCLMPO must develop projections for each of these variables by decade (2020, 2030, and 2040) for each of the individual TAZs. These projections were approved in early 2013 by the governing boards of the former Lake Norman RPO and the Gaston Urban Area MPO, which are the predecessors to the GCLMPO, and are maintained by Charlotte Department of Transportation staff, who serve as model custodian for the Metrolina Model.



# the way forward: 2040 Metropolitan Transportation Plan

Figure 7-3: GCLMPO Area Population Growth by County				
Population	2010	2040	Absolute Growth	Percent Growth
Gaston County	204,406	266,045	61,639	30%
Lincoln County	78,260	122,641	44,381	57%
Cleveland County (partial)	74,026	94,737	20,711	28%
<b>Total</b>	<b>356,692</b>	<b>483,423</b>	<b>126,731</b>	<b>36%</b>

Figure 7-4: GCLMPO Area Population Growth by District				
Population by District	2010	2040	Absolute Growth	Percent Growth
Gastonia	113,890	147,924	34,034	30%
Eastern Gaston	65,516	92,324	26,808	41%
Denver	25,059	55,671	30,612	122%
Lincolnton	37,814	46,133	8,319	22%
Kings Mountain	33,770	44,304	10,534	31%
Shelby	33,594	43,089	9,495	28%
Northwest Gaston	25,000	25,797	797	3%
West Lincoln	15,387	20,837	5,450	35%
NW Cleveland (partial)	6,662	7,344	682	10%

## Population Projections

Although the GCLMPO's population will grow by 36 percent between 2010 and 2040, this growth is not evenly distributed throughout the Metropolitan Planning Area. In absolute terms, the central and eastern portions of Gaston County, as well as eastern Lincoln County, will see the most growth, with much of that development in the form of single-family suburban and exurban development. Lincolnton, Kings Mountain, and Shelby will see moderate growth, primarily on the edges of their developed areas, while the remaining portions of the three counties will see little population growth apart from scattered individual single-family construction.

Figure 7-5:

## 2010-2040 District-Level Population Projections

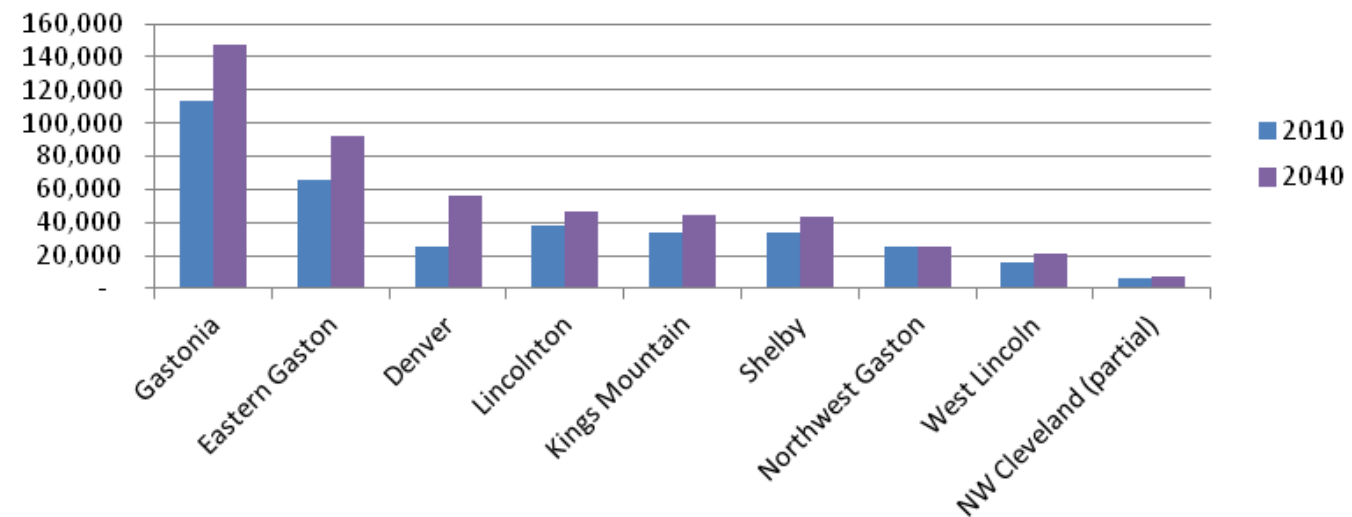




Figure 7-6: GCLMPO Area Job Growth by County				
Jobs	2010	2040	Absolute Change	Percent Change
Lincoln County	25,914	33,827	7,913	31%
Gaston County	78,868	107,057	28,189	36%
Cleveland County (partial)	29,829	37,528	7,699	26%
<b>Total</b>	<b>134,611</b>	<b>178,412</b>	<b>43,801</b>	<b>33%</b>

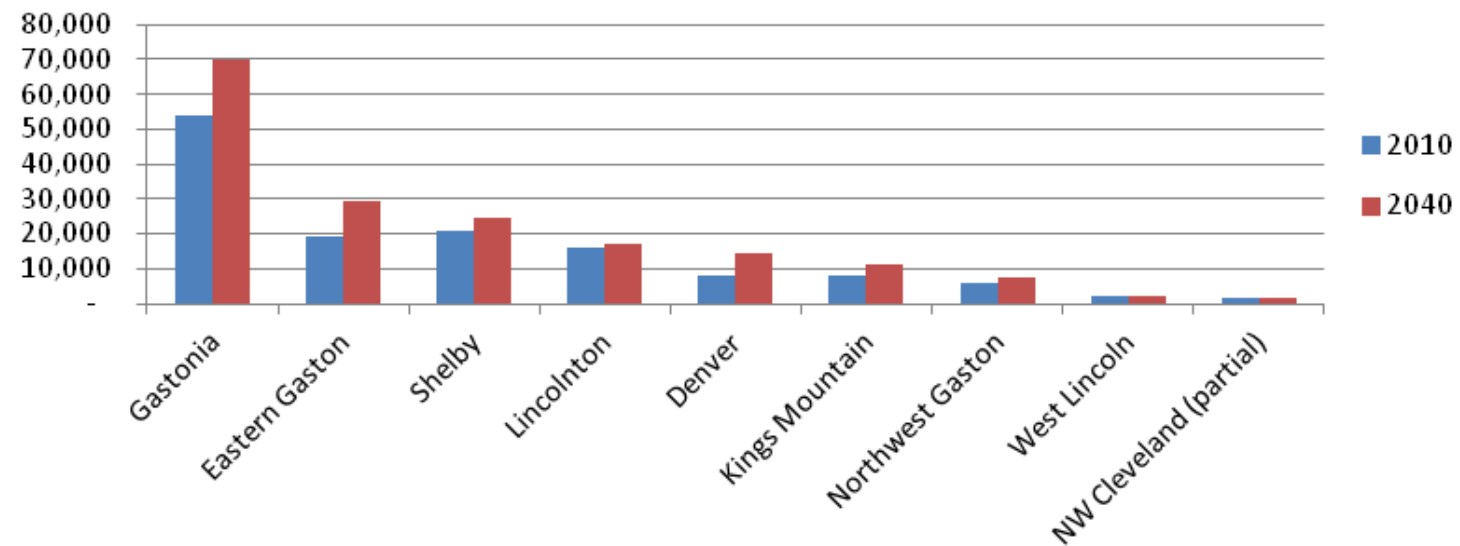
**Jobs Projections**

The three counties have seen significant changes over the past decade, with factory closings and shifts in commercial centers. New employment growth has occurred along I-85, NC 16, US 74, and US 321, and this trend is expected to continue into the future. All portions of the GCLMPO area will see job growth through 2040, but central and eastern Gaston County, as well as eastern Lincoln County, will experience the highest absolute increases in jobs. The remaining districts will each see between seven and 44 percent more jobs, although the share of jobs by type will vary. The increase in jobs will slightly lag the increase in population, as the increased percentage of retirees will depress overall workforce participation rates.

Figure 7-7: GCLMPO Area Job Growth by District				
Jobs	2010	2040	Absolute Growth	Percent Growth
Gastonia	54,010	69,994	15,984	30%
Eastern Gaston	19,230	29,404	10,174	53%
Shelby	20,571	24,654	4,083	20%
Lincolnton	15,811	17,251	1,440	9%
Denver	8,213	14,545	6,332	77%
Kings Mountain	7,891	11,377	3,486	44%
Northwest Gaston	5,628	7,659	2,031	36%
West Lincoln	1,890	2,031	141	7%
NW Cleveland (partial)	1,367	1,497	130	10%

Figure 7-8:

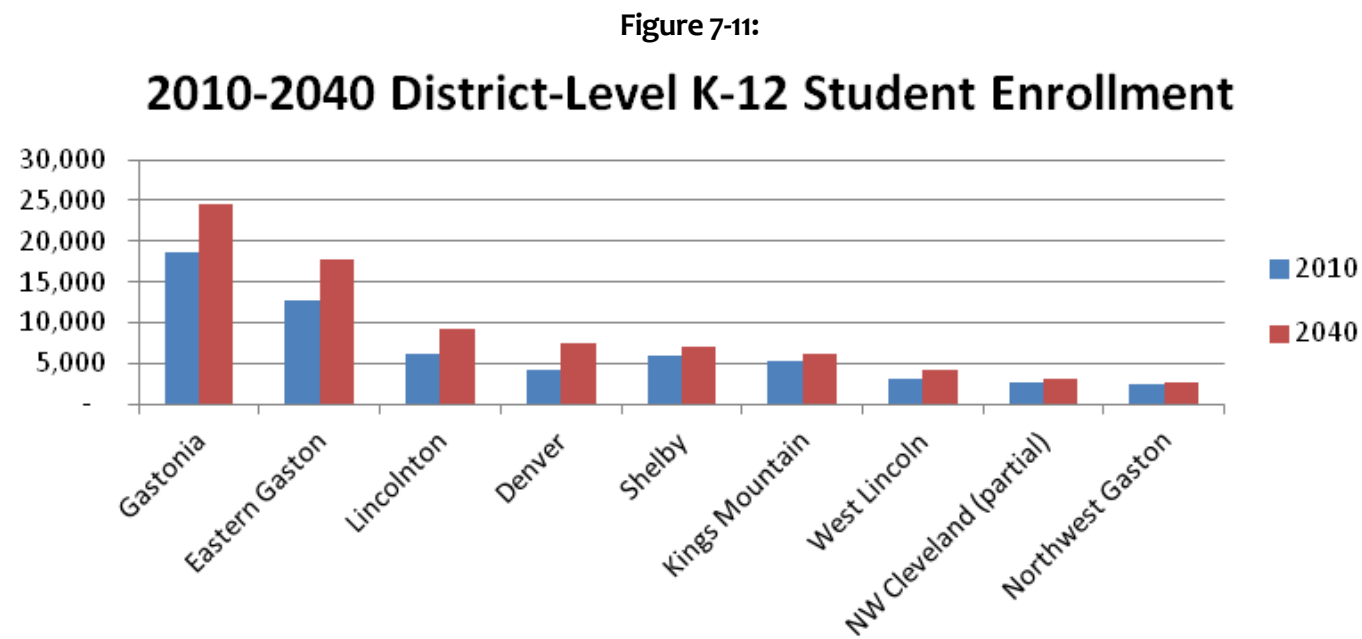
**2010-2040 District-Level Jobs Projections**



**K-12 Student Projections**

K-12 grade student enrollment projections typically correlate with household population growth. Knowing where student growth will occur is important in projecting future travel patterns, as education-related travel rivals commuting to work as a cause of peak-hour congestion. In addition, students traveling to school are a major component of bicycle and pedestrian travel.

The assumptions for student growth vary by county, but in the case of both Gaston and Lincoln Counties, the projected percentage increase of K-12 student enrollment and overall population growth are approximately the same. Cleveland County’s projected student enrollment increase of 17 percent is less than two-thirds its 28 percent population growth rate. This reflects an aging population, and is a continuation of the current slightly declining student enrollment figures for Cleveland County schools.



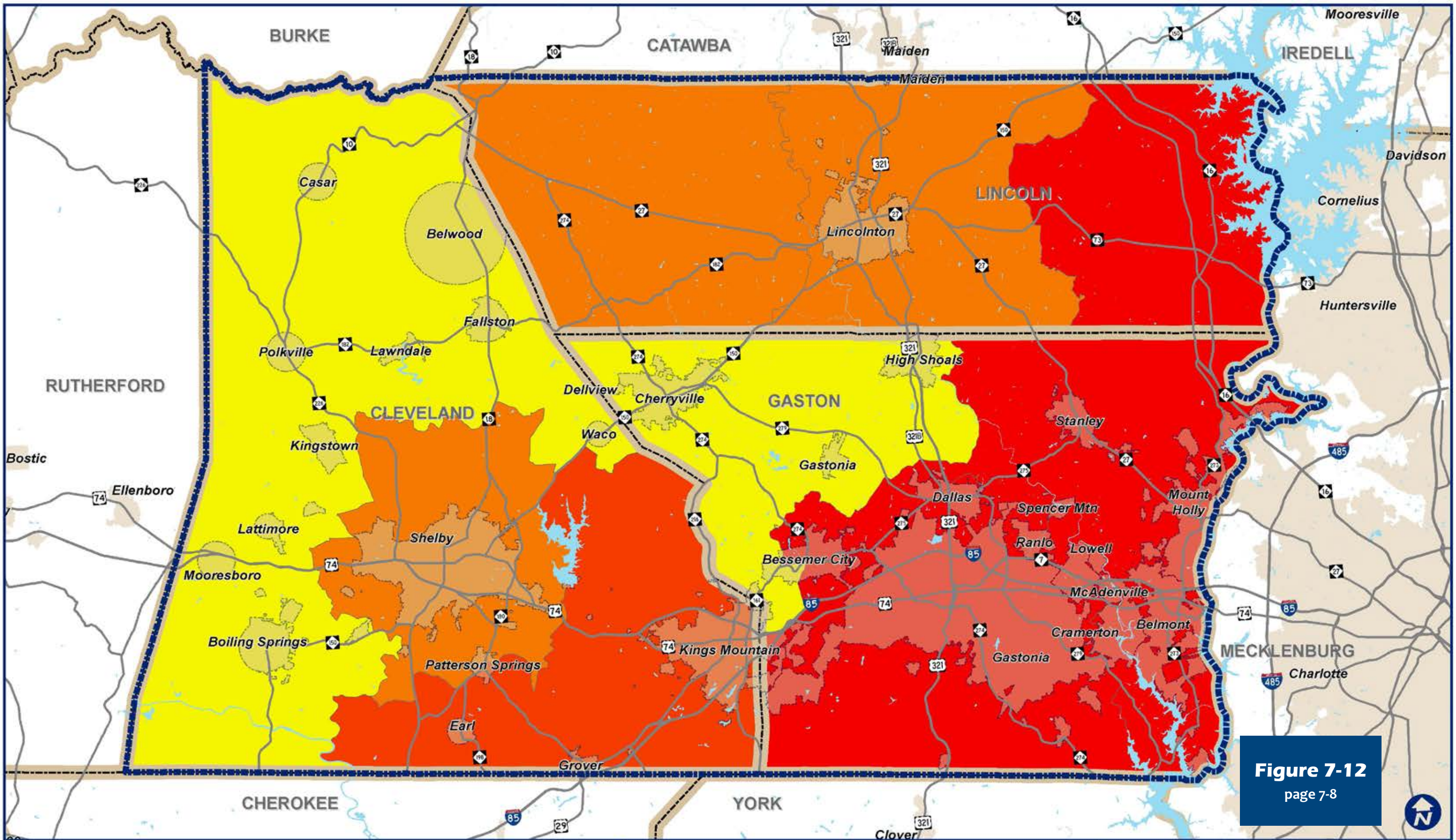
**Figure 7-9: GCLMPO Area Student Enrollment by County**

K-12 Student Enrollment	2010	2040	Absolute Change	Percent Change
Lincoln County	13,318	20,844	7,526	57%
Gaston County	33,732	44,993	11,261	33%
Cleveland County (partial)	13,925	16,265	2,340	17%
<b>Total</b>	<b>60,975</b>	<b>82,102</b>	<b>21,127</b>	<b>35%</b>

**Figure 7-10: GCLMPO Area Student Enrollment by District**

K-12 Student Enrollment	2010	2040	Absolute Growth	Percent Growth
Gastonia	18,666	24,610	5,944	32%
Eastern Gaston	12,639	17,817	5,178	41%
Lincolnton	6,091	9,244	3,153	52%
Denver	4,189	7,500	3,311	79%
Shelby	6,007	7,145	1,138	19%
Kings Mountain	5,323	6,117	794	15%
West Lincoln	3,038	4,100	1,062	35%
NW Cleveland (partial)	2,595	3,003	408	16%
Northwest Gaston	2,427	2,566	139	6%





**Figure 7-12**  
page 7-8

**GASTON CLEVELAND LINCOLN MPO**  
**2010-2040 POPULATION GROWTH**

**Legend**

- Highways
- Major Roads
- MPO Area
- Counties
- 682 - 2,000 people
- 2,001 - 5,000 people
- 5,001 - 10,000 people
- 10,001 - 20,000 people
- 20,001 - 34,034 people

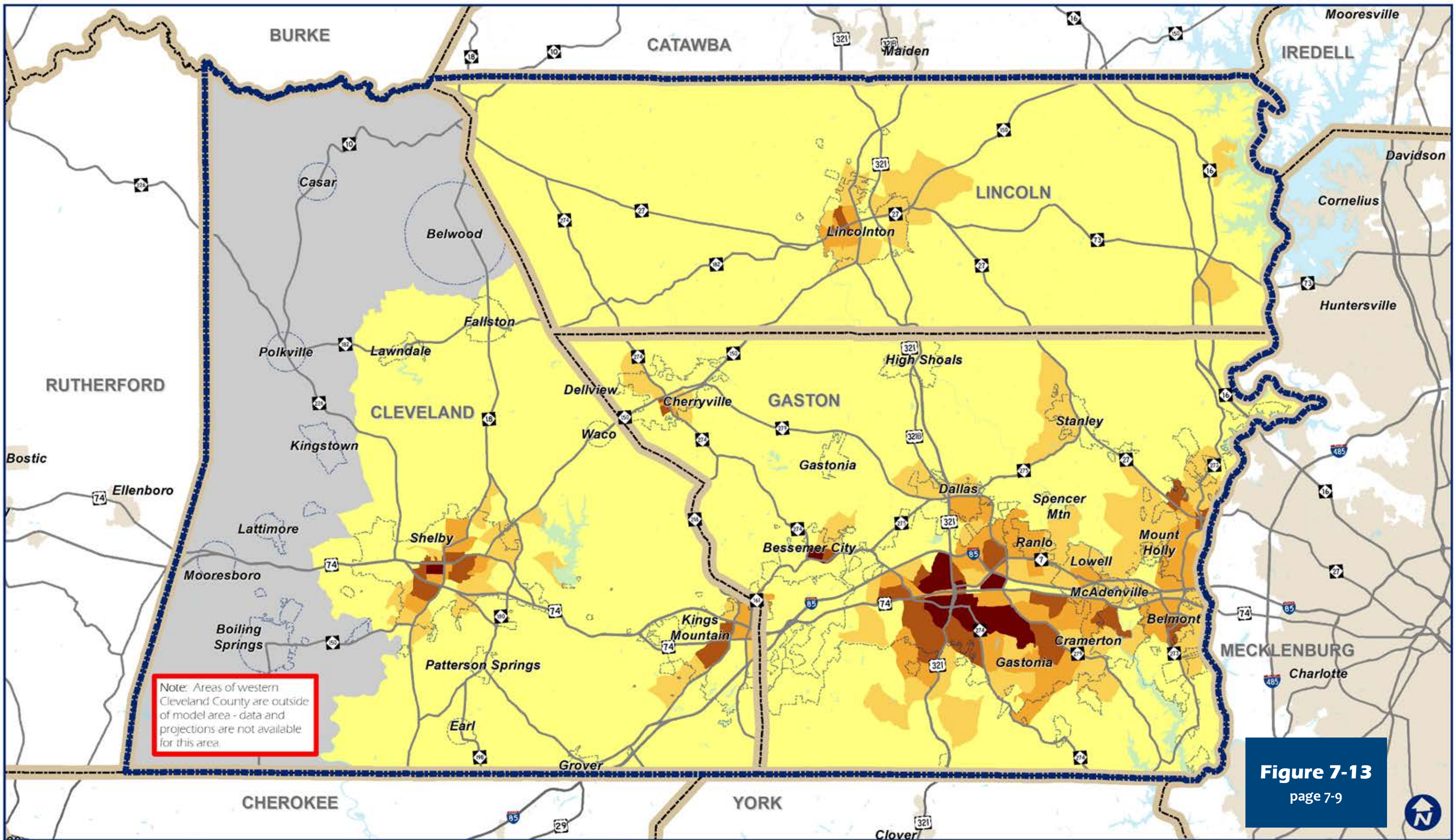
0 1 2 4 Miles

December 2013

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





Note: Areas of western Cleveland County are outside of model area - data and projections are not available for this area.

**Figure 7-13**  
page 7-9

# 2010 POPULATION DENSITY BY TRANSPORTATION ANALYSIS ZONE

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Population Density**

- < 1 / Acre
- 1 - 2 / Acre
- 2 - 3 / Acre
- 3 - 4 / Acre
- > 4 / Acre

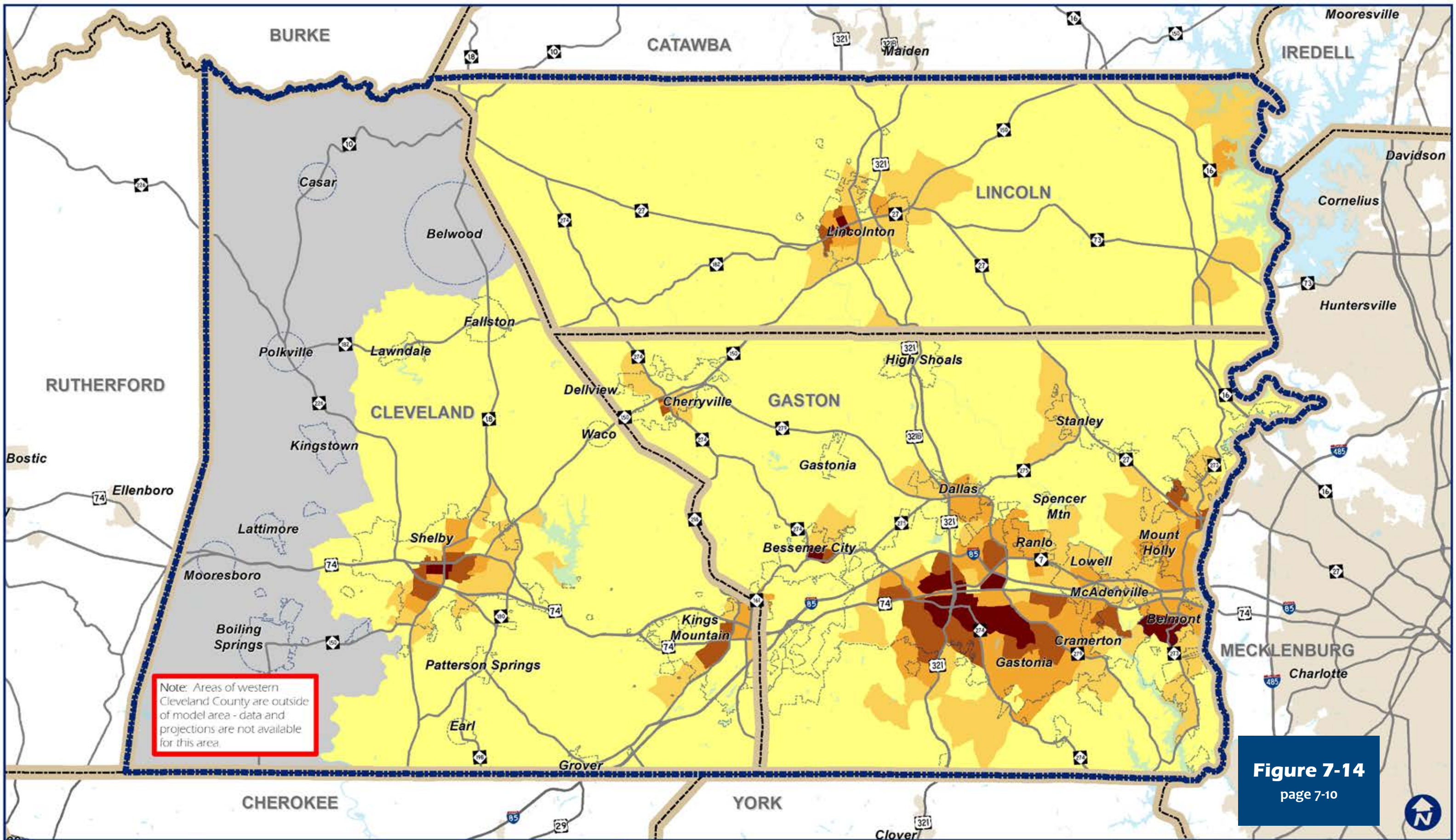
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





**Figure 7-14**  
page 7-10

**2020 PROJECTED POPULATION DENSITY BY TRANSPORTATION ANALYSIS ZONE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Population Density**

- < 1 / Acre
- 1 - 2 / Acre
- 2 - 3 / Acre
- 3 - 4 / Acre
- > 4 / Acre

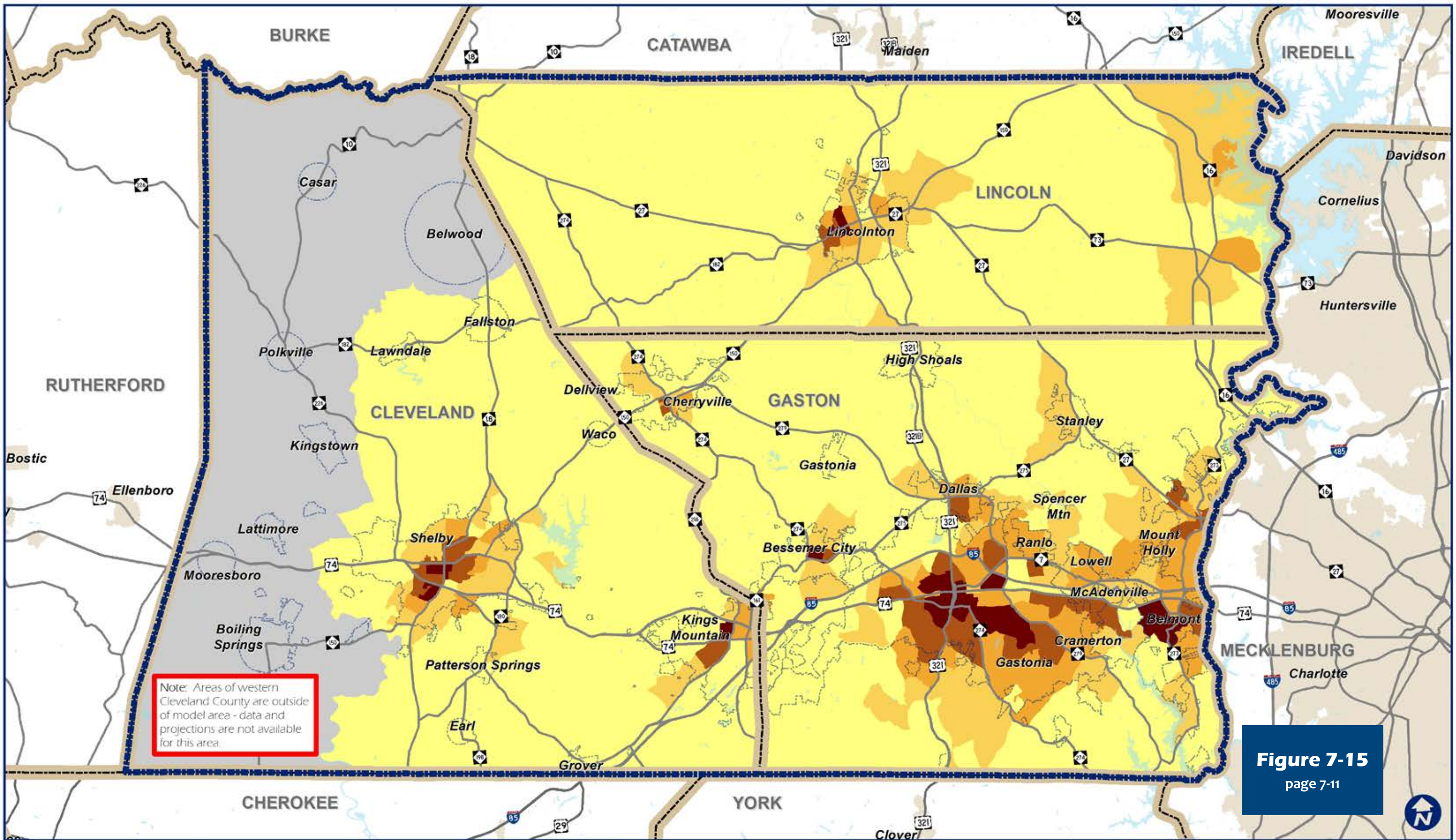
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





**Figure 7-15**  
page 7-11

**2030 PROJECTED POPULATION DENSITY BY TRANSPORTATION ANALYSIS ZONE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Population Density**

< 1 / Acre	3 - 4 / Acre
1 - 2 / Acre	> 4 / Acre
2 - 3 / Acre	

0 1 2 4 Miles

Date created: 2/21/14

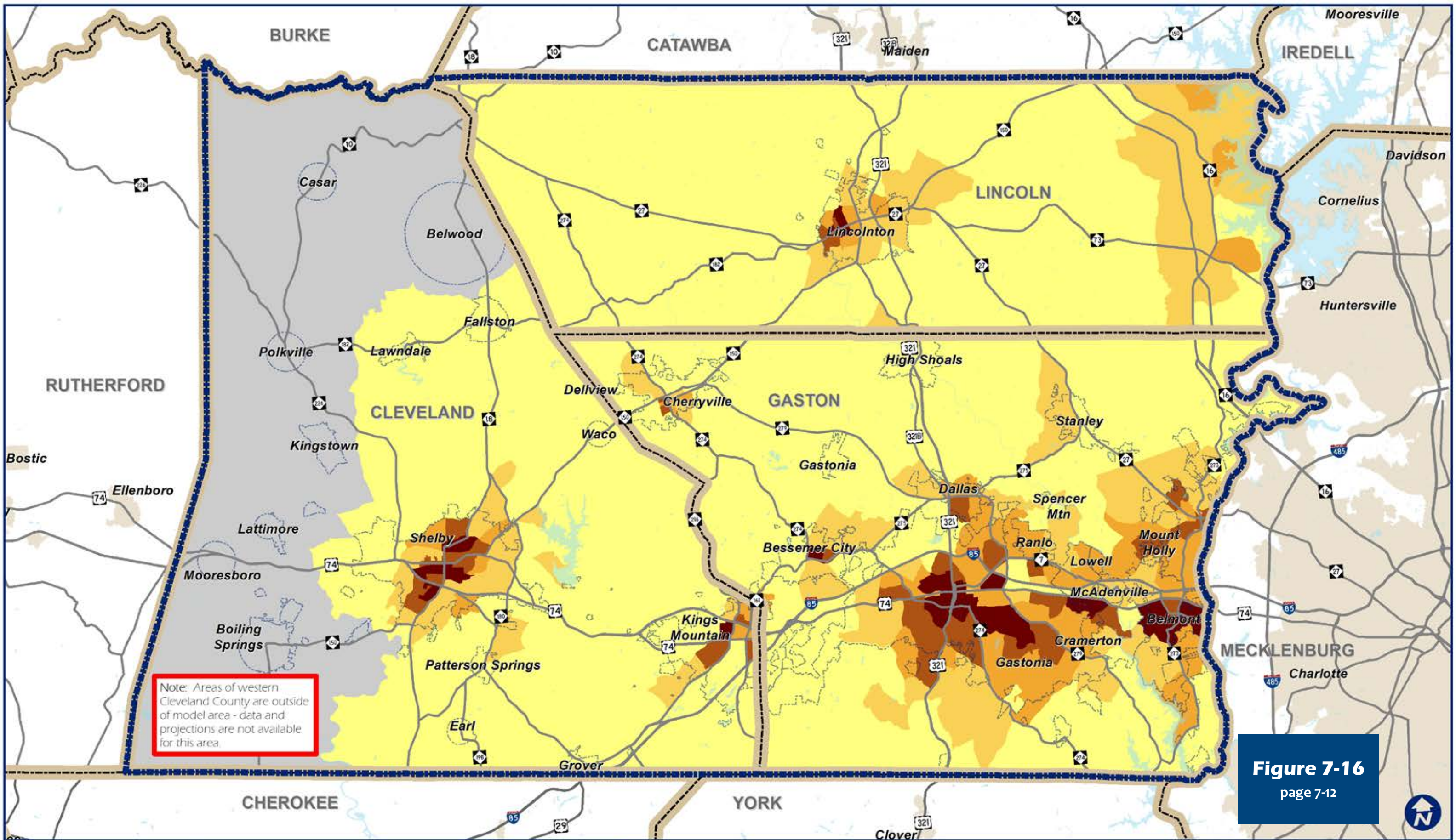
GASTON-CLEVELAND-LINCOLN

**MPO**

Metropolitan Planning Organization







**Figure 7-16**  
page 7-12

**2040 PROJECTED POPULATION DENSITY BY TRANSPORTATION ANALYSIS ZONE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Population Density**

- < 1 / Acre
- 1 - 2 / Acre
- 2 - 3 / Acre
- 3 - 4 / Acre
- > 4 / Acre

0 1 2 4 Miles

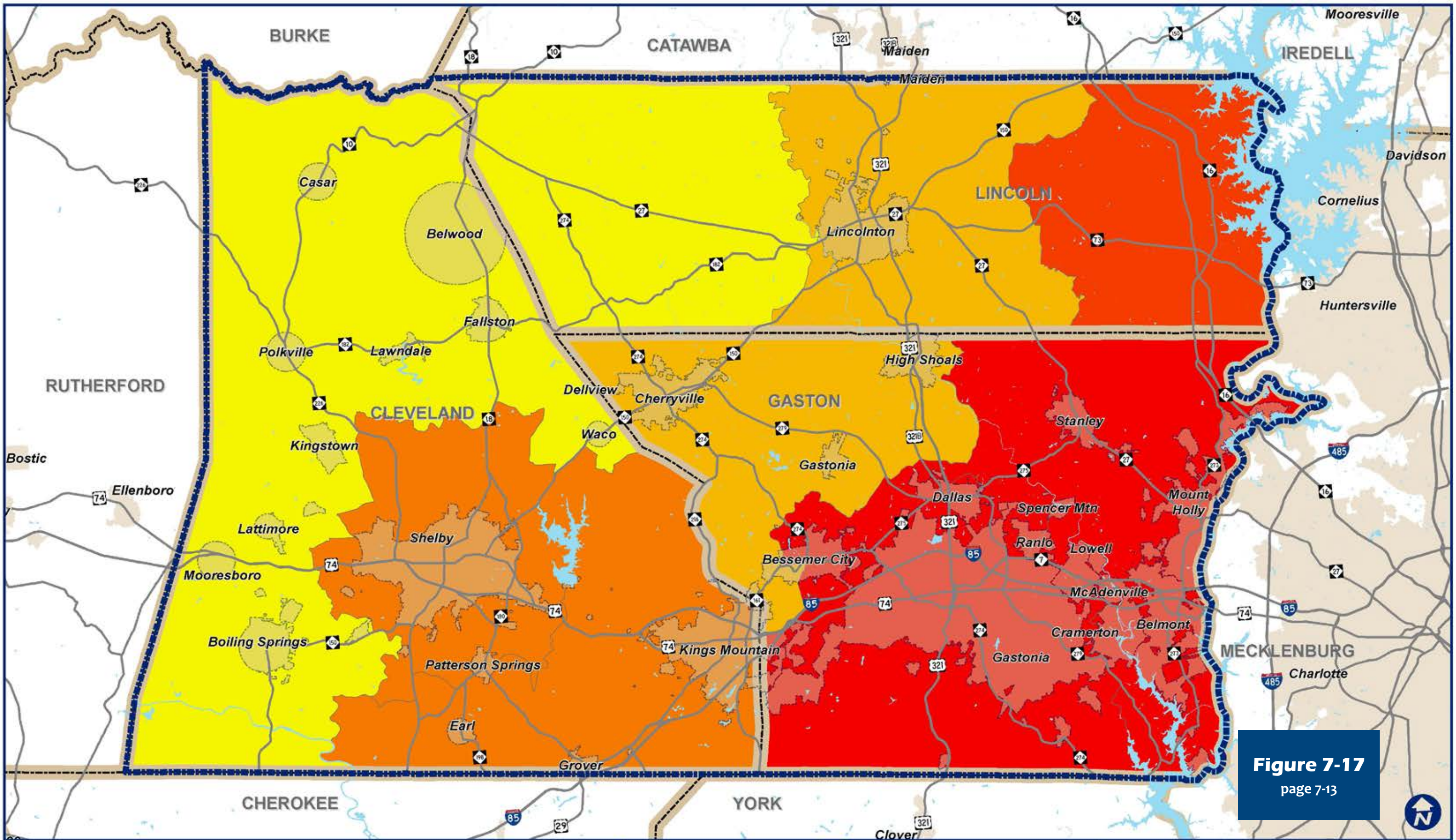
Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

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**Figure 7-17**  
page 7-13

**GASTON CLEVELAND LINCOLN MPO  
2010-2040 EMPLOYMENT GROWTH**

**Legend**

- Highways
- Major Roads
- MPO Area
- Counties

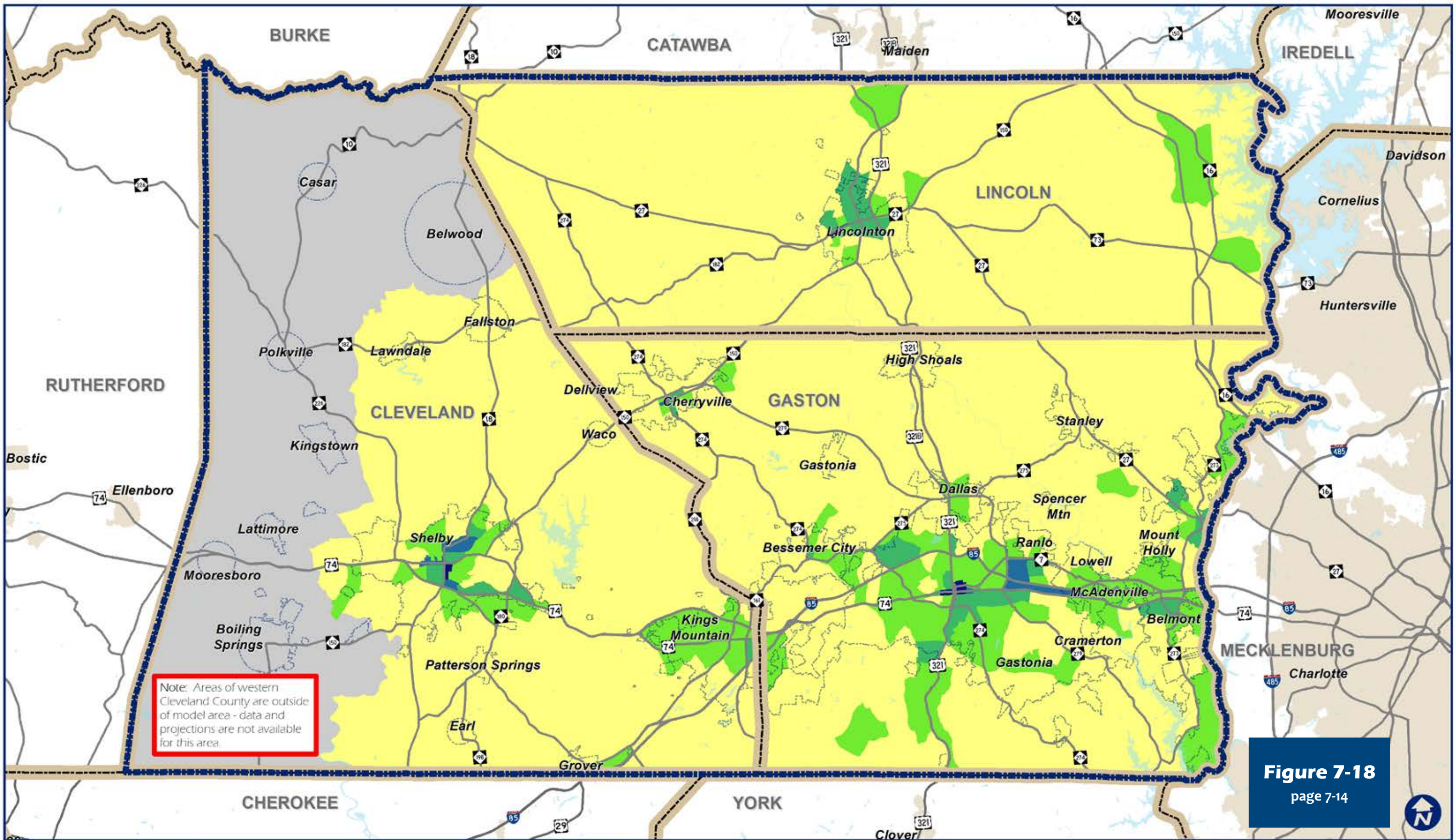
	130 - 1,000 jobs
	1,001 - 2,500 jobs
	2,501 - 5,000 jobs
	5,001 - 10,000 jobs
	10,001 - 15,984 jobs

0 1 2 4 Miles

December 2013

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





Note: Areas of western Cleveland County are outside of model area - data and projections are not available for this area.

**Figure 7-18**  
page 7-14

# 2010 EMPLOYMENT DENSITY BY TRANSPORTATION ANALYSIS ZONE

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Employment**

- < .5 / Acre
- .5 - 2 / Acre
- 2 - 5 / Acre
- 5 - 10 / Acre
- > 10 / Acre

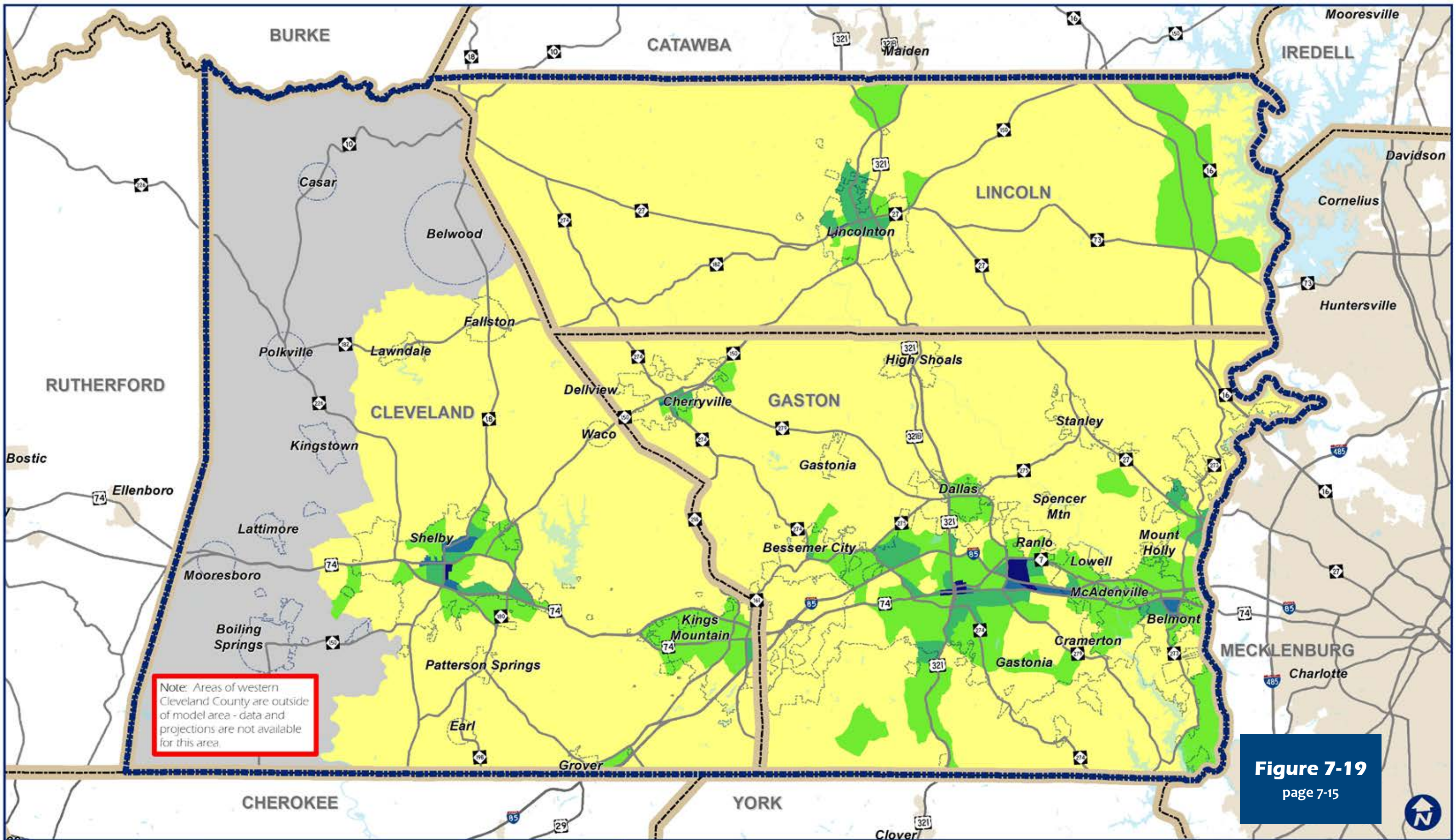
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





Note: Areas of western Cleveland County are outside of model area - data and projections are not available for this area.

**Figure 7-19**  
page 7-15

# 2020 PROJECTED EMPLOYMENT DENSITY BY TRANSPORTATION ANALYSIS ZONE

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Employment**

- < .5 / Acre
- .5 - 2 / Acre
- 2 - 5 / Acre
- 5 - 10 / Acre
- > 10 / Acre

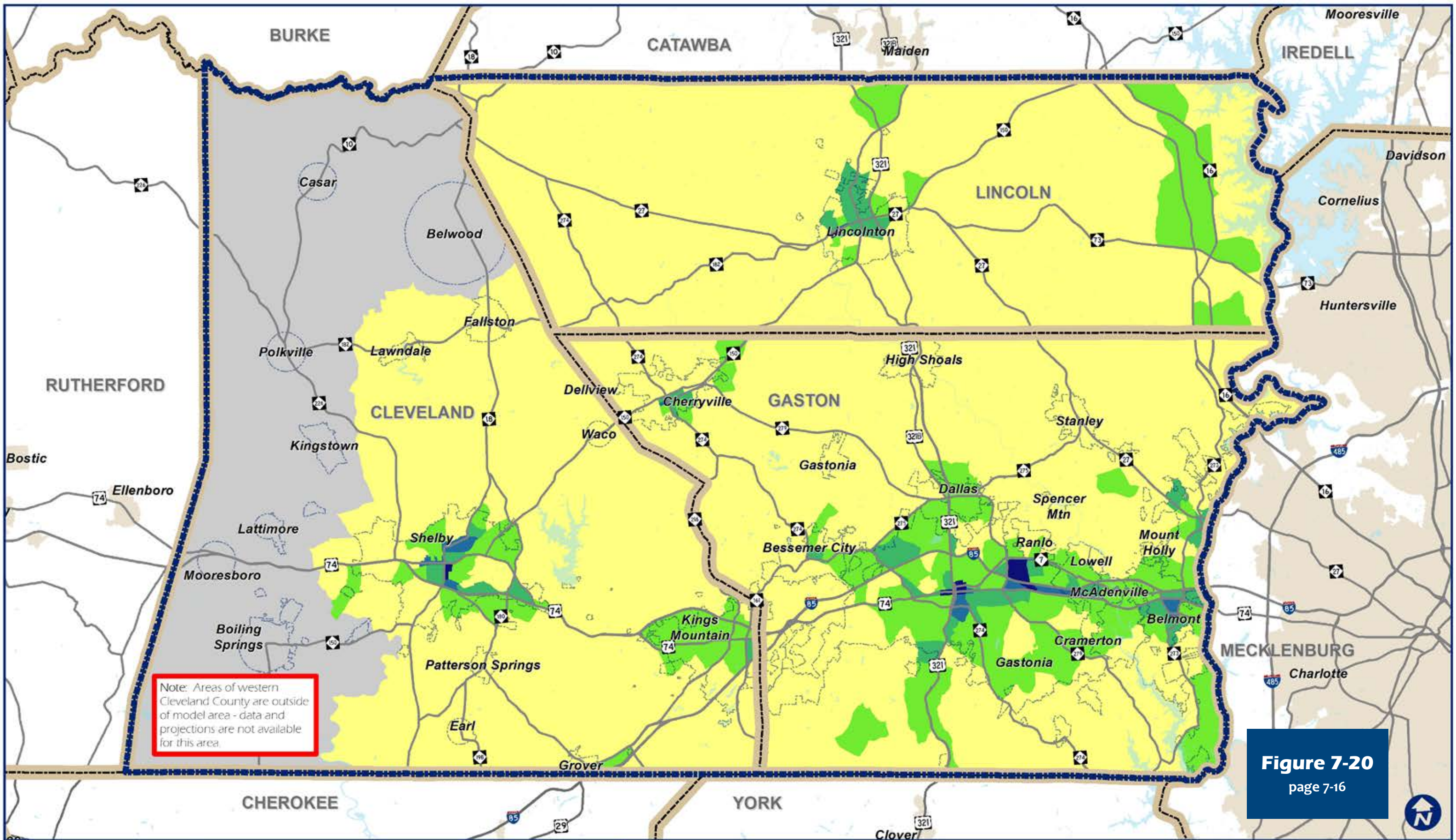
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





Note: Areas of western Cleveland County are outside of model area - data and projections are not available for this area.

**Figure 7-20**  
page 7-16

# 2030 PROJECTED EMPLOYMENT DENSITY BY TRANSPORTATION ANALYSIS ZONE

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Employment**

- < .5 / Acre
- .5 - 2 / Acre
- 2 - 5 / Acre
- 5 - 10 / Acre
- > 10 / Acre

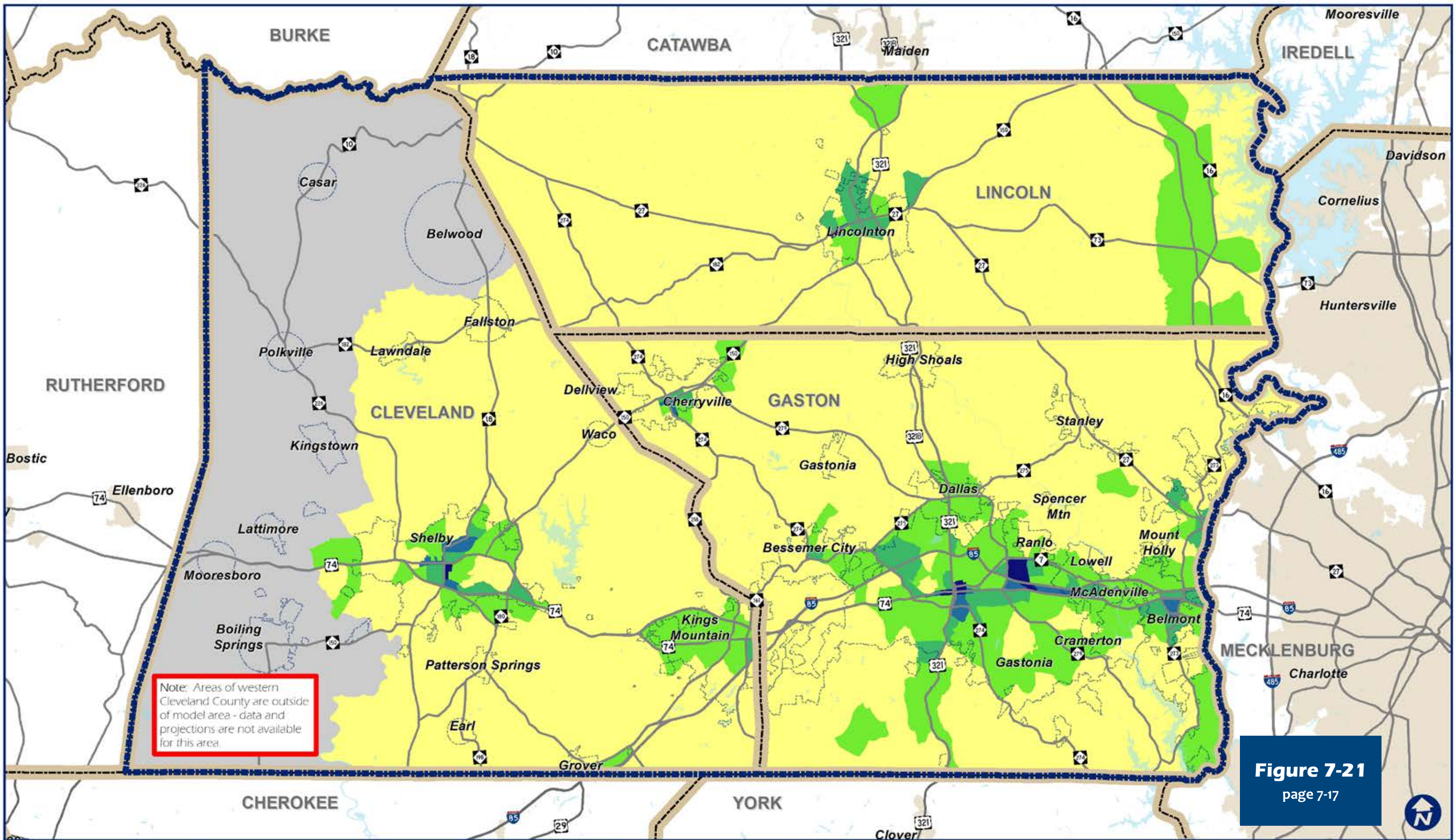
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





Note: Areas of western Cleveland County are outside of model area - data and projections are not available for this area.

**Figure 7-21**  
page 7-17

# 2040 PROJECTED EMPLOYMENT DENSITY BY TRANSPORTATION ANALYSIS ZONE

<b>LEGEND</b>	Highways	<b>Density of Employment</b>	
	Major Roads	< .5 / Acre	5 - 10 / Acre
	Minor Roads	.5 - 2 / Acre	2 - 5 / Acre
	Counties	> 10 / Acre	

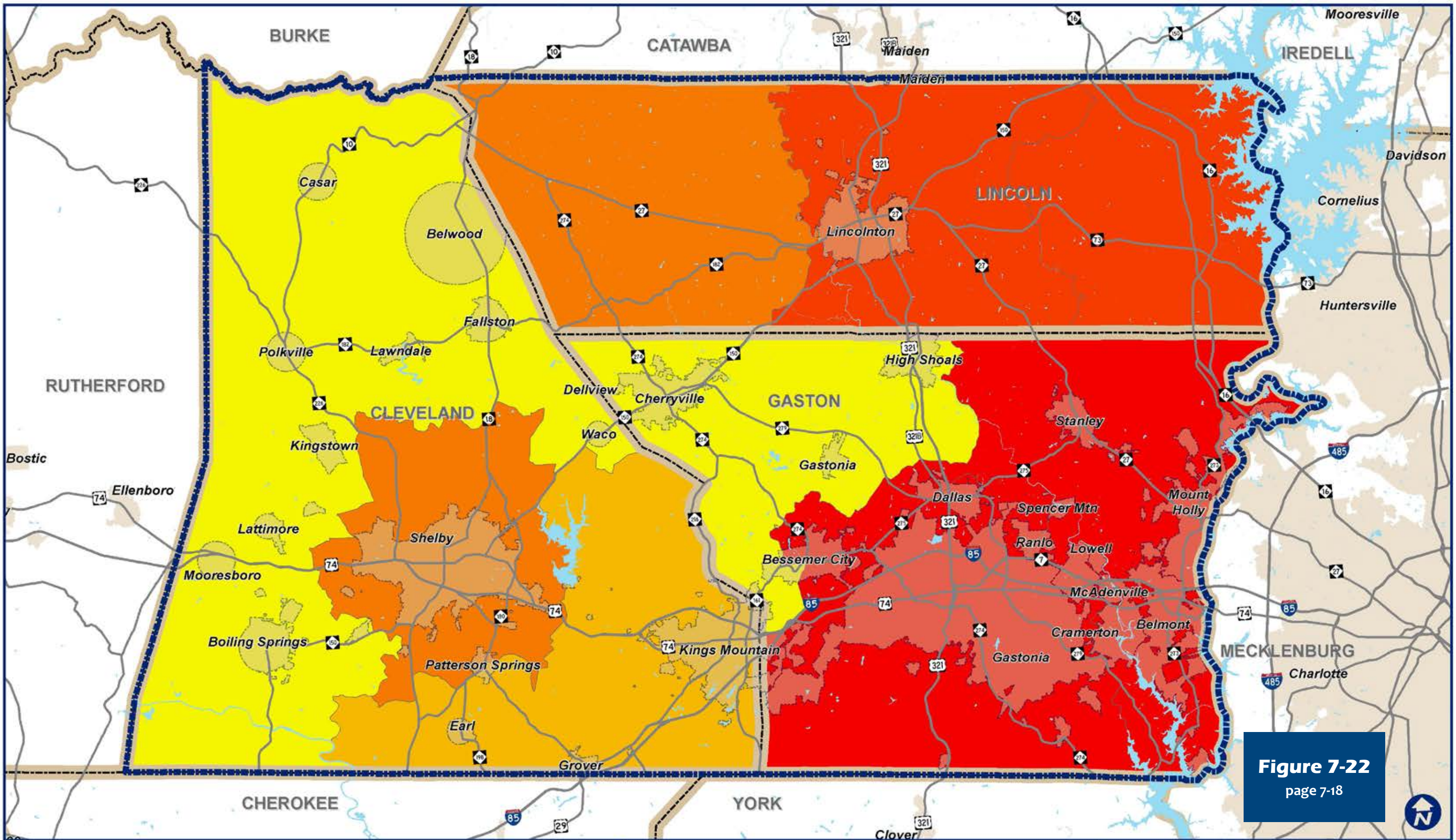
0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





**Figure 7-22**  
page 7-18

**GASTON CLEVELAND LINCOLN MPO  
2010-2040 K-12 STUDENT GROWTH**

**Legend**

- Highways
- Major Roads
- MPO Area
- Counties

139 - 500
501 - 1000
1001 - 2500
2501 - 5000
5001 - 5944

0 1 2 4 Miles

December 2013

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



## LAND USE DESCRIPTIONS

### Industrial Centers

Large & small-scale manufacturing and production uses, including assembly and processing, regional warehousing and distribution, bulk storage, utilities, medical research, and assembly operations.

### Open Space

Land held for conservation or dedicated for recreation uses. May include water bodies, state, regional or community parks, conservancy holdings, cemeteries, and athletic fields, golf courses, and open air sports complexes that are not part of a larger development.

### Rural Living

Large lots, abundant open space, and a high degree of separation between buildings. Includes homes, "hobby farms", working farms, conservation-based subdivisions, and small nodes of commercial activity along rural highways.

### Special Districts

Civic/Institutional districts serving a public purpose, such as schools and universities, libraries, fire stations, police stations, public works complexes, government buildings, as well as health care campuses, airports and regional employment centers.

### Suburban Centers

Commercial and office uses that are suburban in nature, such as multi-tenant strip centers, big box stores, and large shopping malls, as well as neighborhood-scale commercial centers, and office complexes featuring large-scale, isolated buildings or business parks containing multiple businesses.

### Suburban Neighborhoods

Residential properties including single-family homes under three acres, town home and condo communities, multi-family residential, mobile home communities and mixed residential areas.

### Urban Centers

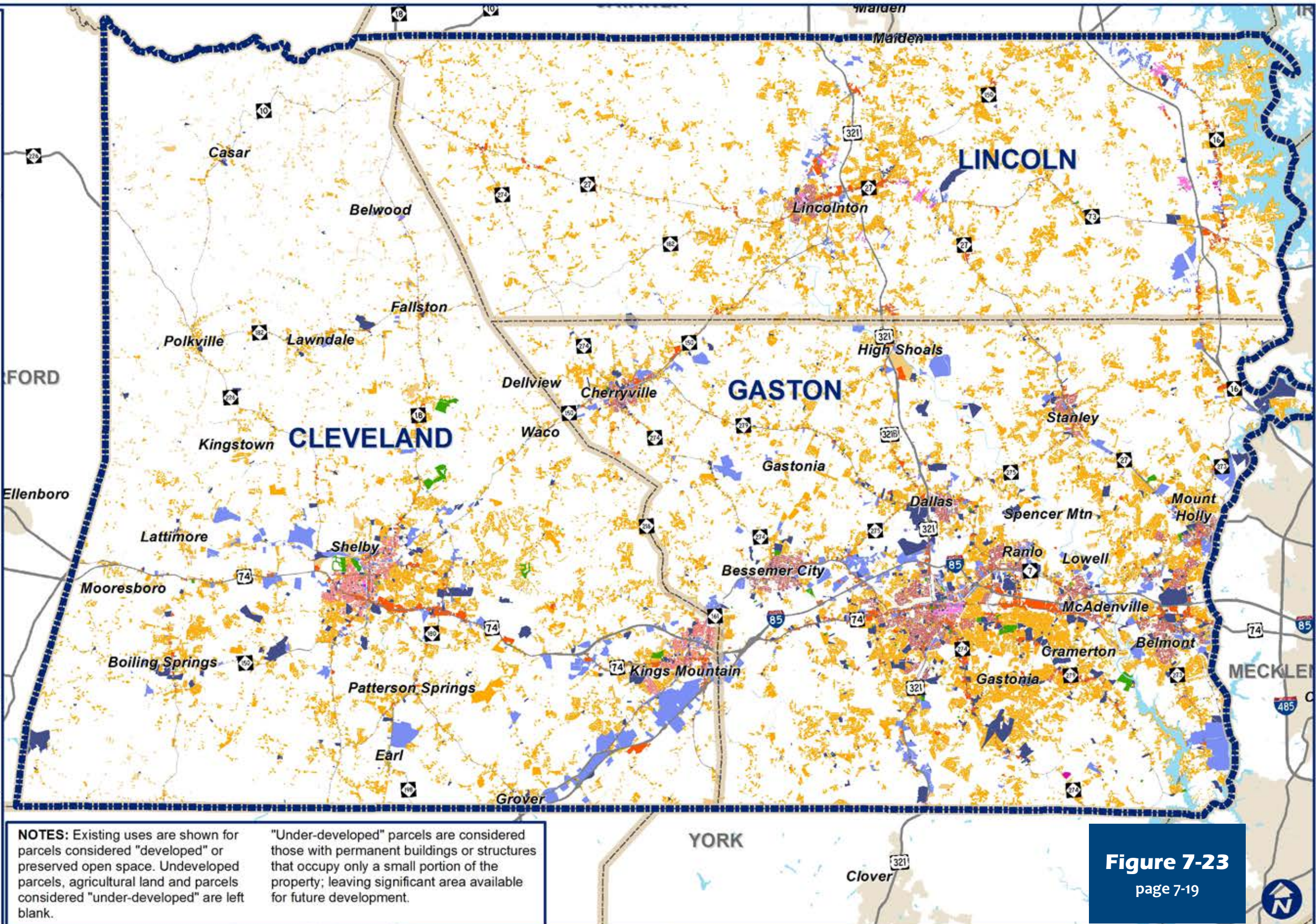
Town centers and urban neighborhoods supporting a mix of moderate- to high-density housing options on small blocks and a grid of streets.

### Walkable Centers

Developments serving broad economic, entertainment, and community activities. Buildings located on small blocks with streets designed to encourage pedestrian activities. Buildings in the core may stand three or more stories. Residential units or office space may be found above storefronts.

### Walkable Neighborhoods

Areas featuring a mixture of housing types and residential densities integrated with goods and services in a walkable community.



**NOTES:** Existing uses are shown for parcels considered "developed" or preserved open space. Undeveloped parcels, agricultural land and parcels considered "under-developed" are left blank.

"Under-developed" parcels are considered those with permanent buildings or structures that occupy only a small portion of the property; leaving significant area available for future development.

**Figure 7-23**  
page 7-19

# GASTON-CLEVELAND-LINCOLN MPO EXISTING LAND USE PATTERNS

## LEGEND

- Highways
- Major Roads
- Minor Roads
- Counties

0 1 2 4 Miles

Date created: 2/18/14



## LAND USE DESCRIPTIONS

### Industrial Centers

Large & small-scale manufacturing and production uses, including assembly and processing, regional warehousing and distribution, bulk storage, utilities, medical research, and assembly operations.

### Open Space

Land held for conservation or dedicated for recreation uses. May include water bodies, state, regional or community parks, conservancy holdings, cemeteries, and athletic fields, golf courses, and open air sports complexes that are not part of a larger development.

### Rural Living

Large lots, abundant open space, and a high degree of separation between buildings. Includes homes, "hobby farms", working farms, conservation-based subdivisions, and small nodes of commercial activity along rural highways.

### Special Districts

Civic/Institutional districts serving a public purpose, such as schools and universities, libraries, fire stations, police stations, public works complexes, government buildings, as well as health care campuses, airports and regional employment centers.

### Suburban Centers

Commercial and office uses that are suburban in nature, such as multi-tenant strip centers, big box stores, and large shopping malls, as well as neighborhood-scale commercial centers, and office complexes featuring large-scale, isolated buildings or business parks containing multiple businesses.

### Suburban Neighborhoods

Residential properties including single-family homes under three acres, town home and condo communities, multi-family residential, mobile home communities and mixed residential areas.

### Urban Centers

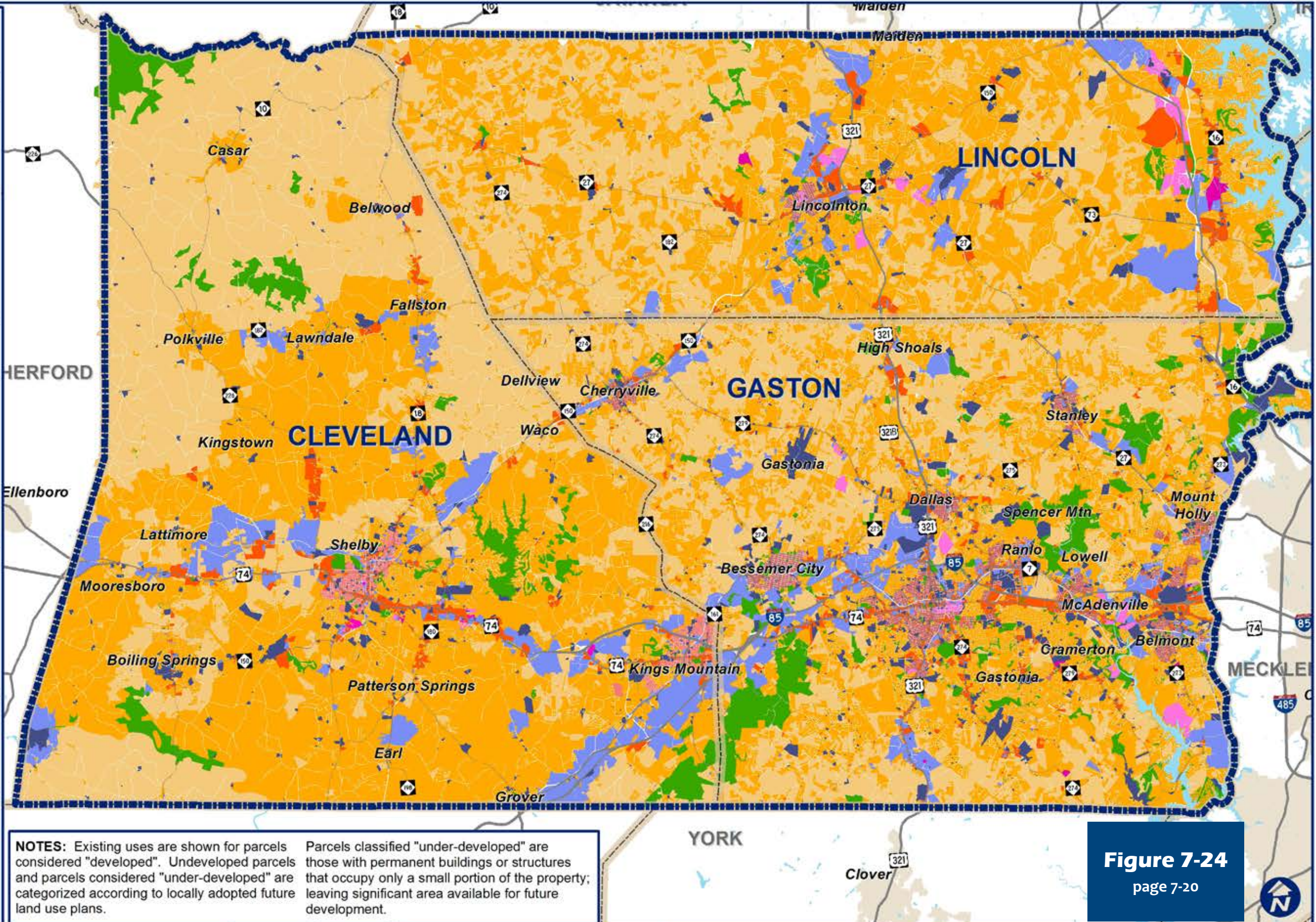
Town centers and urban neighborhoods supporting a mix of moderate- to high-density housing options on small blocks and a grid of streets.

### Walkable Centers

Developments serving broad economic, entertainment, and community activities. Buildings located on small blocks with streets designed to encourage pedestrian activities. Buildings in the core may stand three or more stories. Residential units or office space may be found above storefronts.

### Walkable Neighborhoods

Areas featuring a mixture of housing types and residential densities integrated with goods and services in a walkable community.



**NOTES:** Existing uses are shown for parcels considered "developed". Undeveloped parcels and parcels considered "under-developed" are categorized according to locally adopted future land use plans.

Parcels classified "under-developed" are those with permanent buildings or structures that occupy only a small portion of the property; leaving significant area available for future development.

**Figure 7-24**  
page 7-20

# GASTON-CLEVELAND-LINCOLN MPO FUTURE LAND USE PATTERNS

## LEGEND

- Highways
- Major Roads
- Minor Roads
- Counties



Date created: 2/18/14



# 8 Travel Patterns

Transportation planning in the MPO cannot occur without understanding where and how residents travel. Staff from the MPO use a range of census, survey, and traffic count information to help identify current and future issues in the study area. The MPO is concerned with properly evaluating travel modes, as well as travel patterns, so the MPO also analyzes transit, bicycle, pedestrian, and carpooling behaviors in order to help meet the needs of residents using those modes.

## Household Travel Behaviors

All of Gaston and Lincoln counties are included in the regional travel demand model, known as the Metrolina Model. The more populated southeastern parts of Cleveland County, including Shelby and Kings Mountain, are also included in the Metrolina Model. The Metrolina Region periodically conducts travel surveys to query area residents on travel behaviors, which is used to help calibrate the Model so it reflects local travel behaviors, such as trip generation rates, mode splits, and vehicular availability by household size. The most recent household travel survey, called the 2012 Metrolina Regional Household Travel Survey, was completed in mid-2012, and surveyed 4,231 households across the region.

The household travel survey indicated that only 1/8 (13.7%) of all trips in the Metrolina Region involve trips between a resident's home and

work. One-quarter (23.8%) of all trips are for things other than work, shopping, school or medical purposes, and an additional one quarter of trips do not begin or end from home. This information clearly shows that focusing all transportation funding on facilitating commuting will likely deliver sub-optimal benefits, since a minority of all household trips are for such purposes.

Vehicular availability, household size, and household income were each positively correlated with trip generation rates, which is to be expected. A one-person household generates 3.63 trips per day on average, while a four or more-person household generates 17.48 trips per day. Households with annual income in excess of \$75,000 generated 10.26 trips per day. A household with annual income of less than \$15,000 generated 5.16 trips per day - half the number of trips generated by the highest income households.

Trip length is also of particular interest to transportation planners and for inputting into the Metrolina Model. Trip lengths directly correlate to the number of miles traveled on the network and corresponding traffic volumes. Trip length was provided in minutes, rather than miles. The average trip length for all trips in the region was 17 minutes, with nearly half (43%) of all trips being 10 minutes or less. Home-based work trips were the longest average trip type, at an average of

25 minutes. All other trip types varied from 15-17 minutes. The results for Cleveland, Gaston, and Lincoln counties were in line with the trends detailed above, although Cleveland and Lincoln counties had the highest percent of trips 61 minutes or longer (1.7% and 1.6%, respectively) in the region.

Vehicular occupancy varied significantly depending on the trip type. Since approximately 5/6 of all home-based work trips are made by people driving alone, the average vehicle occupancy rate of 1.04 persons per trip is to be expected. The mean occupancy for other trip types ranged from 1.42 to 1.49 persons per trip.

Trip mode information (whether a trip was made via single-occupant automobile, carpooling, bicycle, walking, or public transportation) was also a product of this household travel survey. Not surprisingly, driving a vehicle alone was the most common form of transportation, but it was only 2/3 (67.9%) of all trips. Approximately 1/4 (24.7%) of all trips were made as a passenger in a private vehicle. Trips on school buses comprised more than half (4.4%) of the remaining 7.4% of trips. Public transportation only accounted for 0.6% of all trips, and walking and bicycling accounted for 2.2%. Even in households without vehicles, bicycling comprised 0.7% of all trips. Walking and transit were utilized more often, at 16.2% and 18.1% respectively.

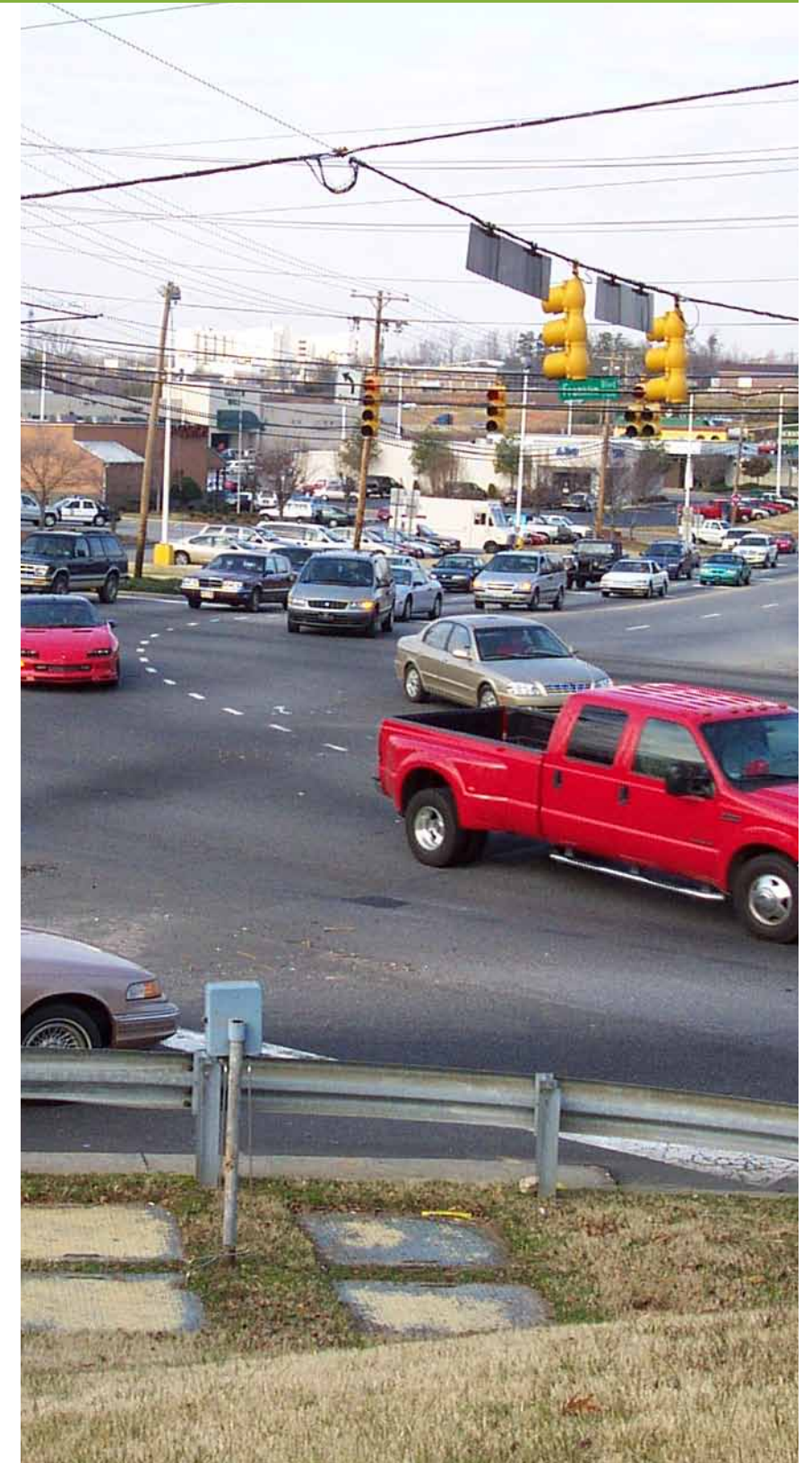
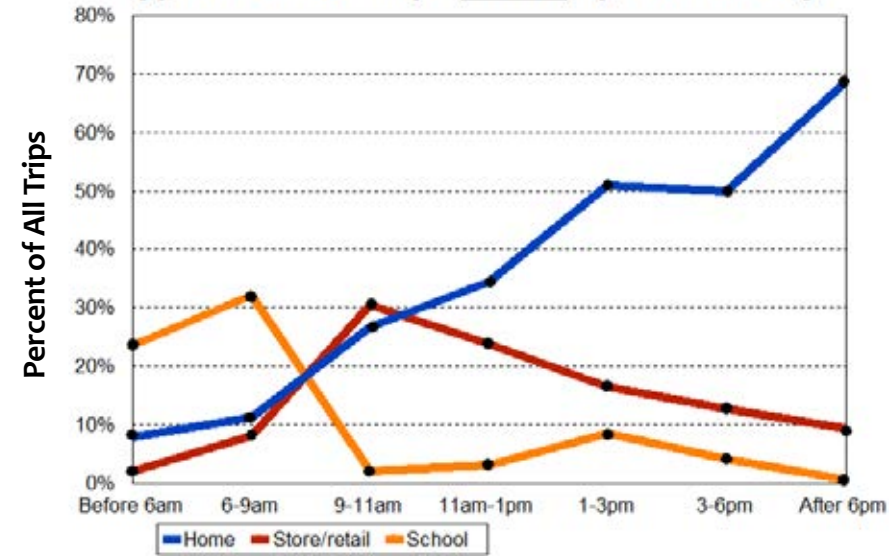






Figure 8-1: Type of Places Trips Ended by Time of Day



Source: Metrolina Regional Household Travel Survey (ETC Institute, 2012)

Trips by time of day for the three counties in the MPO was consistent with regional trends, in that on an hourly basis, trip generation was fairly consistent between 6 AM and 6 PM, with between 5-7% of all daily trips beginning each hour in that period. The availability of vehicles per household influenced this distribution, with more vehicles correlated with a concentration of trips into the traditional AM and PM peak periods, as well as a concentration into the home-based work trip category.

**Total Travel**

Vehicles traveling in and through the three counties add up to over 11 million miles per day. Approximately 40 percent of this traffic takes place on I-85, US 321 north of I-85, and US 74 west of I-85. These totals have been stable for the past five years, primarily due to the 2008-2009 recession and higher fuel prices reducing the growth in travel despite an increasing population. The Metrolina Model does project increasing VMT in the MPO through 2040, with approximately 44 percent more VMT per day from 2010 to 2040. This is a larger increase than the 36 percent more people and 33 percent more jobs projected between 2010 and 2040. Comparisons with future years were made between 2010 and 2040, as both totals are outputs of the Metrolina Model.

Figure 8-2: Daily Vehicle-Miles Traveled by County

County	2010	2015	2025	2030	2040
Cleveland (partial)	2,779,622	2,943,249	3,379,171	3,578,920	4,025,605
Gaston	6,459,897	6,842,517	7,908,149	8,255,715	9,134,142
Lincoln	2,340,518	2,623,563	2,951,922	3,159,955	3,524,603

As shown by the graphs below, the impact of having an interstate in a county dramatically impacts where travel occurs. In Gaston County approximately 1/3 of all travel occurs on I-85, while approximately 1/6 occurs on local roads (arterials and collectors). Lincoln County, which does not have an interstate, has a larger amount of travel occurring on local roads. Cleveland County, by virtue of having US 74 coded as partial expressway and arterial, has a much higher percent of its traffic on expressway and principal arterial roads. Since only the southeastern 2/3 of Cleveland County is actually in the Metrolina Model, the totals for Cleveland County do not represent all travel in the county.

Figure 8-3: Gaston County VMT by Road Type

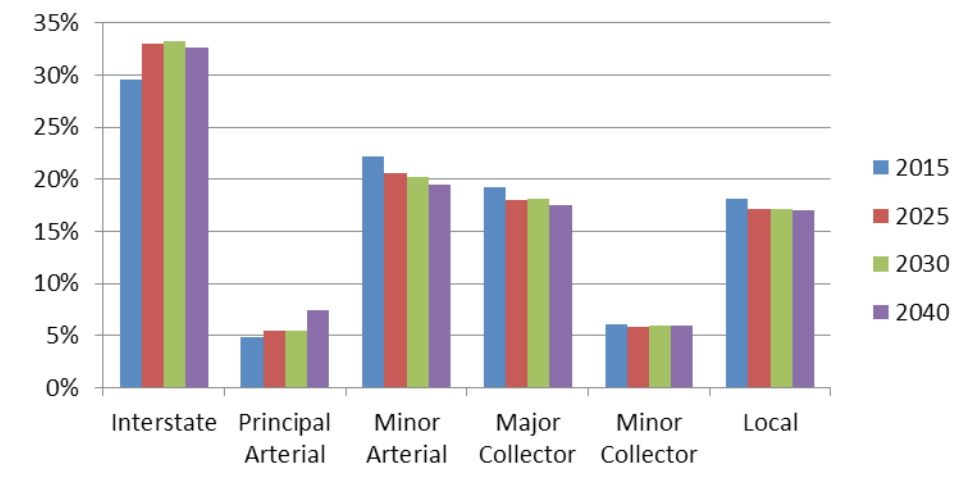


Figure 8-4: Lincoln County VMT by Road Type

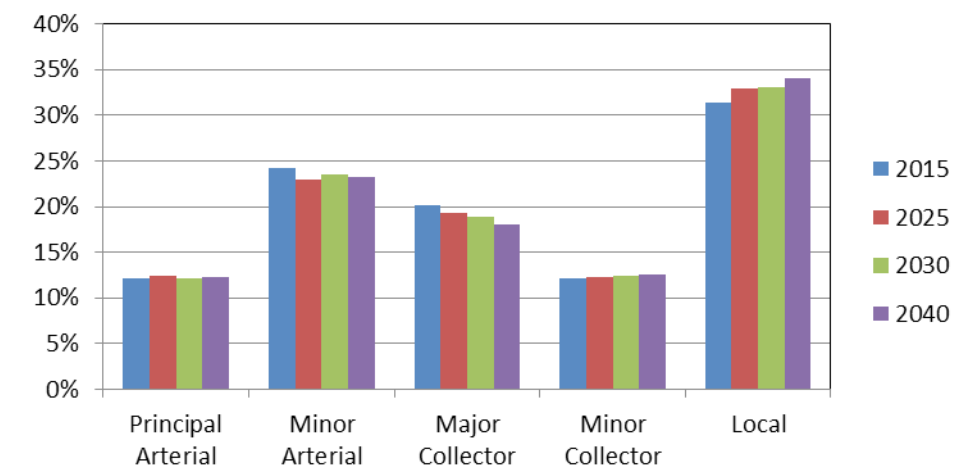




Figure 8-5: Cleveland County VMT by Road Type

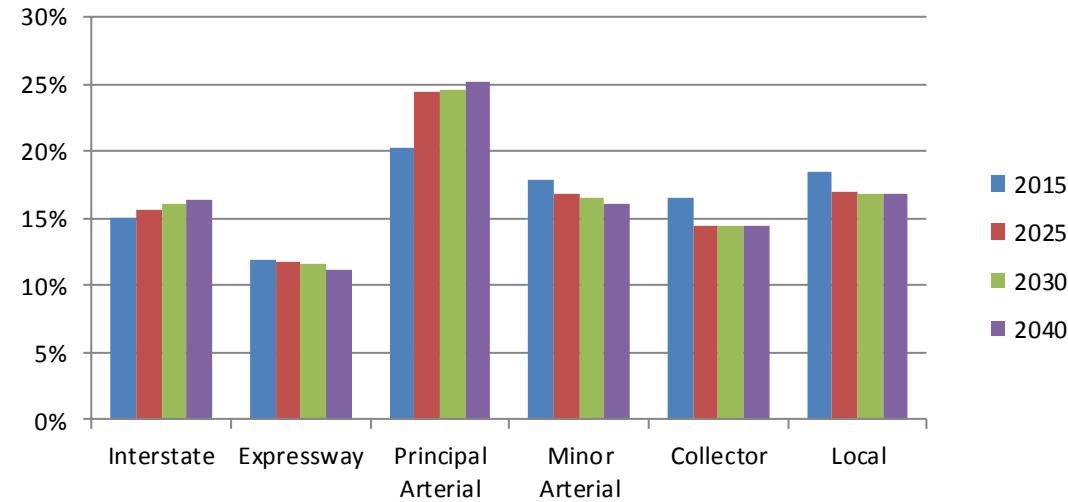


Figure 8-6: County Where Residents Work

County Residents	Cleveland	Gaston	Iredell	Lincoln	Mecklenburg	Catawba
Cleveland	25,925	6,125	186	1,580	2,280	380
Gaston	3,235	53,445	185	2,740	27,395	590
Lincoln	485	3,515	805	14,680	8,235	4,430

Figure 8-7: Single-Occupant Vehicle Commuting

County	Percent Drove Alone	Change Since 2000	Mean Travel Time
Cleveland	86.5%	+4.8%	22.5 minutes
Gaston	84.6%	+0.9%	24.5 minutes
Lincoln	83.9%	+1.8%	28.3 minutes

Figure 8-8: Non-Single Occupant Vehicle Commuting

County	Percent Carpooling	Percent Walk or Bicycle	Percent Using Transit	Percent Working at Home
Cleveland	8.4%	1.5%	0.2%	2.3%
Gaston	10.2%	0.7%	0.6%	2.4%
Lincoln	11.0%	0.8%	0.3%	3.0%

All data is from 2000 Census and 2006-2010 American Community Survey.

### Commuting Patterns

Commuting trips are a distinct minority (13.7%) of all trips generated, but do represent the focus of data collection through the Census Bureau, which reports a wide range of information on origins and destinations, mode, time, and demographics of commuters. What is most important for the GCLMPO to consider is, “where are workers travelling for work?” From Figure 8-6 & 8-7, the answer is, “mainly by themselves and within their own counties.” The map in Figure 8-11 shows that travel time is highest for those areas near the edge of feasible commutes to the jobs centers in Mecklenburg County. Cleveland County has the lowest average commute time at 22.5 minutes, and is also furthest from Mecklenburg County, with only 2,280 residents working in Mecklenburg County.

Transit usage for commuting to work in Mecklenburg County peaked at approximately 125,000 trips in 2008 before the recession cut jobs in central Mecklenburg County. Since then the express bus route from Lincoln County has been terminated and ridership on the express bus route from Gastonia is at approximately 67% of pre-recession levels. 2013 ridership for Gastonia Transit is stable compared to 2008, although the system is used for a range of trip types, so not all trips can be attributed to commuting.

The results of these travel demands are apparent on the congestion map on page 8-5. This map (Figure 8-9) depicts 2010 congestion levels in the three counties on all NC, US, and Interstate routes. In total, 4.3%, or 21.5 miles, of the 501 mile network is considered extremely congested. 7.8%, or 38.8 miles, of the network is considered moderately congested. The remaining 88%, or 441 miles, of the network is considered uncongested. These percentages are higher than for the state as a whole, as only 3.1% of roads are considered extremely congested, and 4.4% considered moderately congested. These definitions were developed by the NCDOT and likely under represent the congestion that local residents encounter at specific intersections due to combinations of poor access management, lack of turn lanes, and geometric deficiencies.

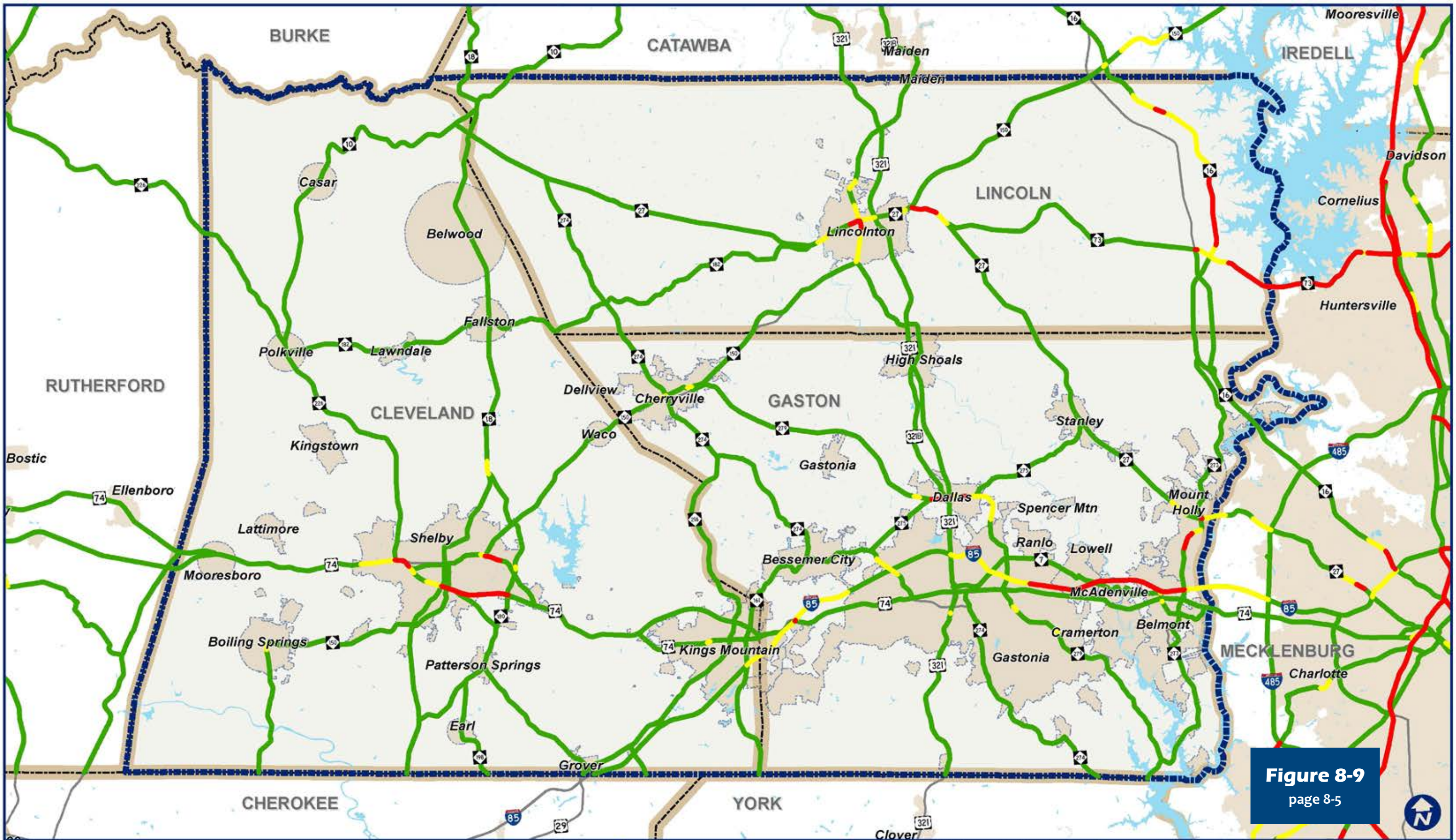






The most congested corridors are I-85 through Gaston County, US 74 through Shelby, NC 27 through Lincolnton, and NC 16 and NC 73 in eastern Lincoln County. The congestion shown for NC 16 is no longer current as the new NC 16 has since been completed through NC 150 and has resulted in significantly lower traffic volumes on the now “Business” NC 16. The most congested sections of each of the three remaining corridors are each identified for capacity improvements through 2040, with the Shelby Bypass (R-2707) already under construction. Congestion along the I-85 corridor is to be addressed through a combination of building the Garden Parkway and widening the I-85 corridor between Belmont and the US 74 split in Kings Mountain. The congestion along NC 73 east of NC 16 is to be addressed with the widening of NC 73 into Mecklenburg County, including a widened bridge across the Catawba River. The two projects to build a southern bypass around Lincolnton to connect NC 27 with NC 73 did not score high enough to be included in the 2040 fiscally-constrained plan, owing to their high cost and relatively low traffic volumes.





**Figure 8-9**  
page 8-5

# GASTON-CLEVELAND-LINCOLN MPO 2010 CONGESTION LEVELS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**2010 Congestion Levels**

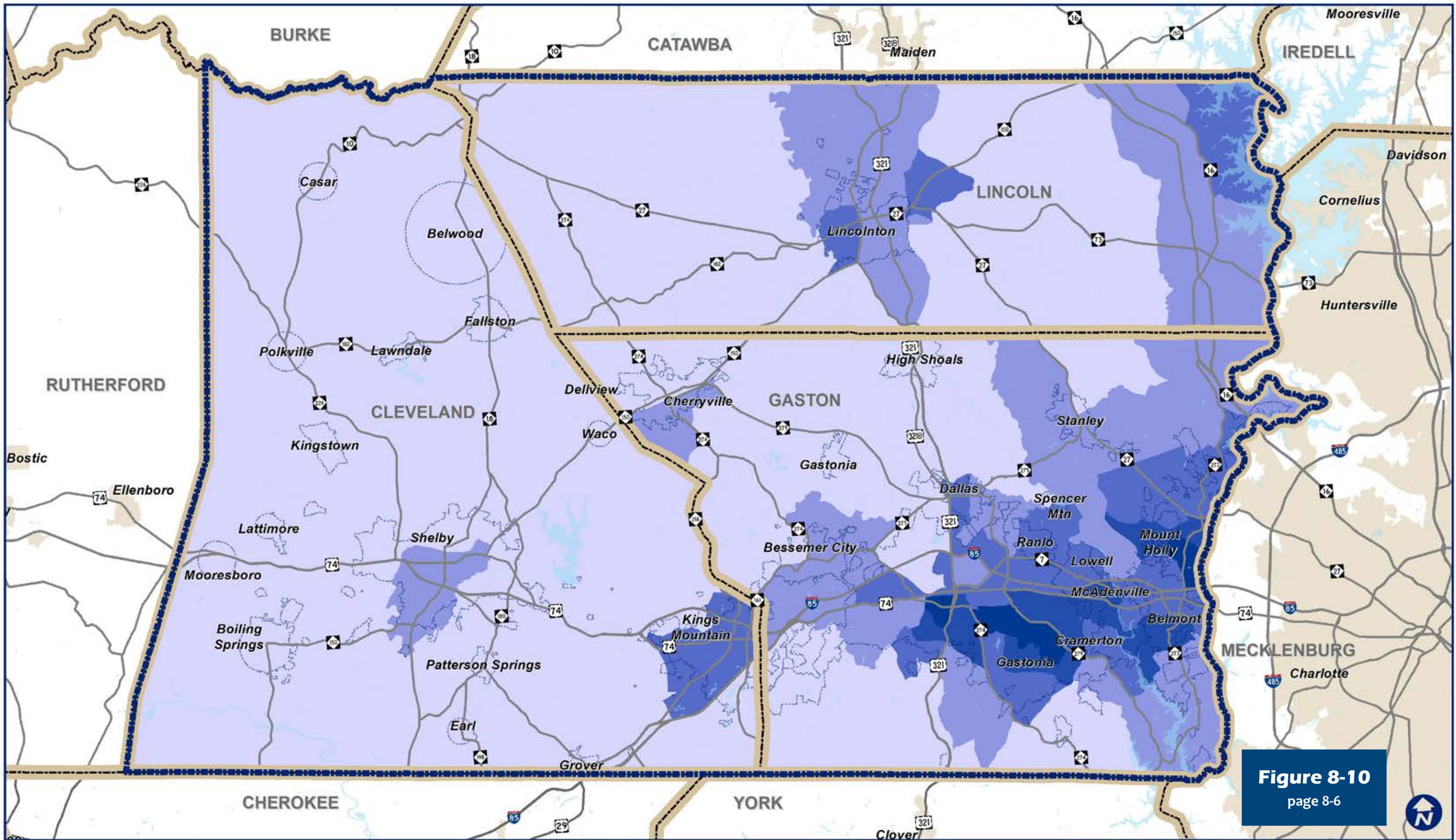
- Not Congested
- Moderately Congested
- Severely Congested

0 1 2 4 Miles

Date created: 1/24/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
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**Figure 8-10**  
page 8-6



**GASTON-CLEVELAND-LINCOLN MPO  
DENSITY OF COMMUTERS WORKING  
OUTSIDE COUNTY OF RESIDENCE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Commuters Working Outside County of Residence**

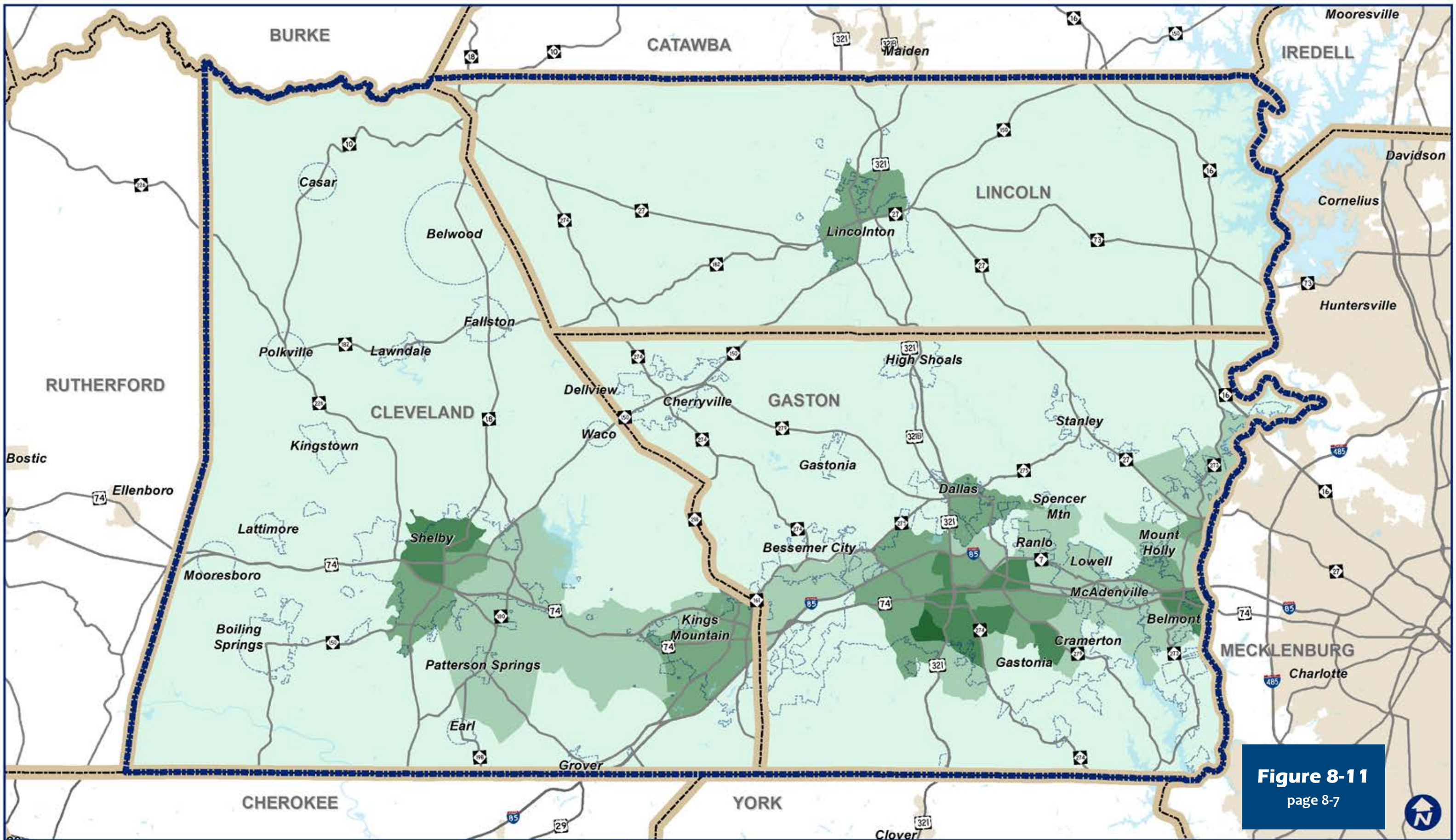
- Lowest Concentration
- Low Concentration
- Moderate Concentration
- High Concentration
- Highest Concentration

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 8-11**  
page 8-7

**GASTON-CLEVELAND-LINCOLN MPO  
DENSITY OF HOUSEHOLDS WITH  
NO VEHICLE AVAILABLE**

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties

**Density of Households with No Vehicle Available**

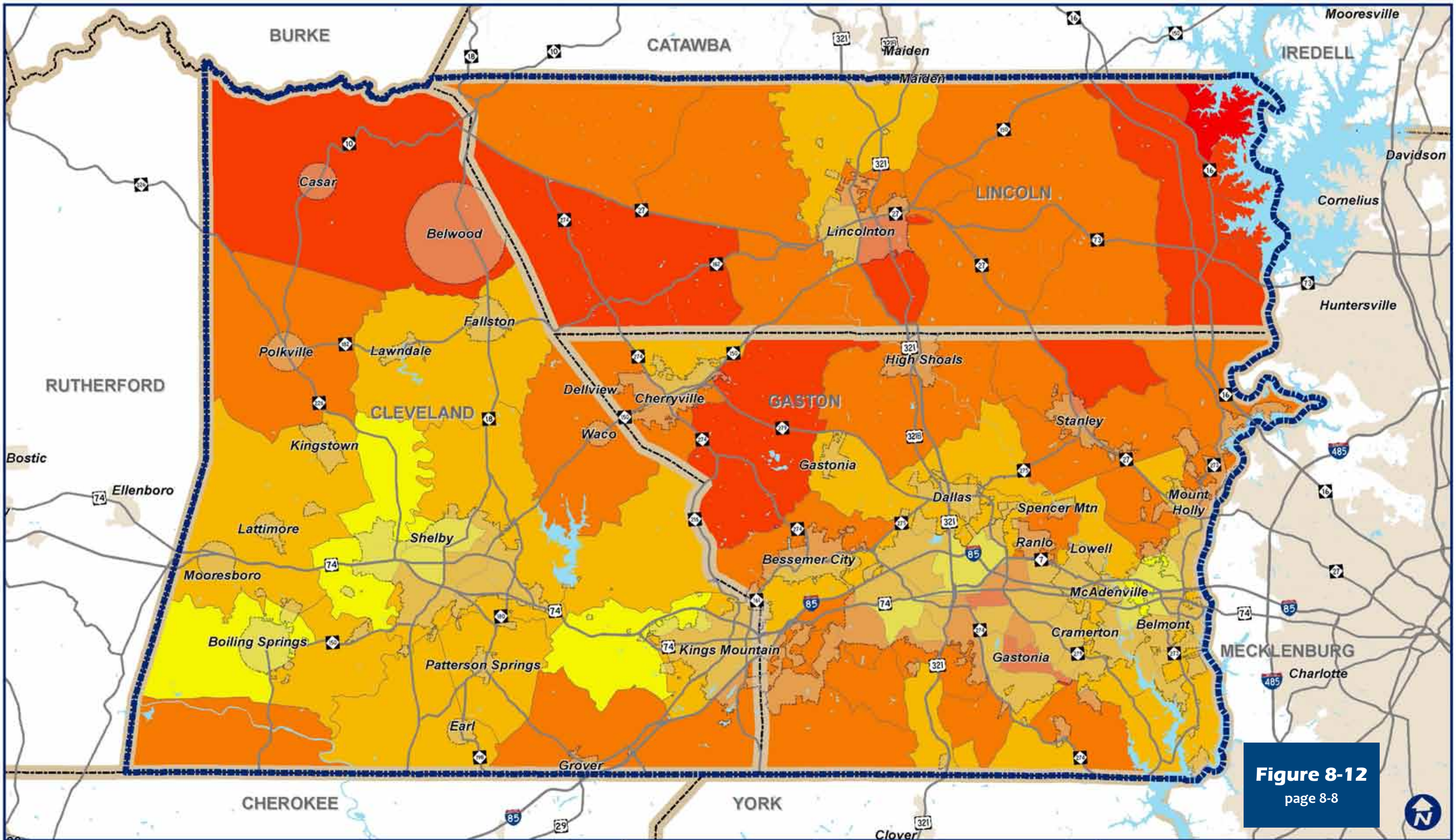
- Lowest Concentration
- Low Concentration
- Moderate Concentration
- High Concentration
- Highest Concentration

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
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**Figure 8-12**  
page 8-8

**GASTON CLEVELAND LINCOLN MPO  
2007-2011 AVERAGE COMMUTE TIMES**

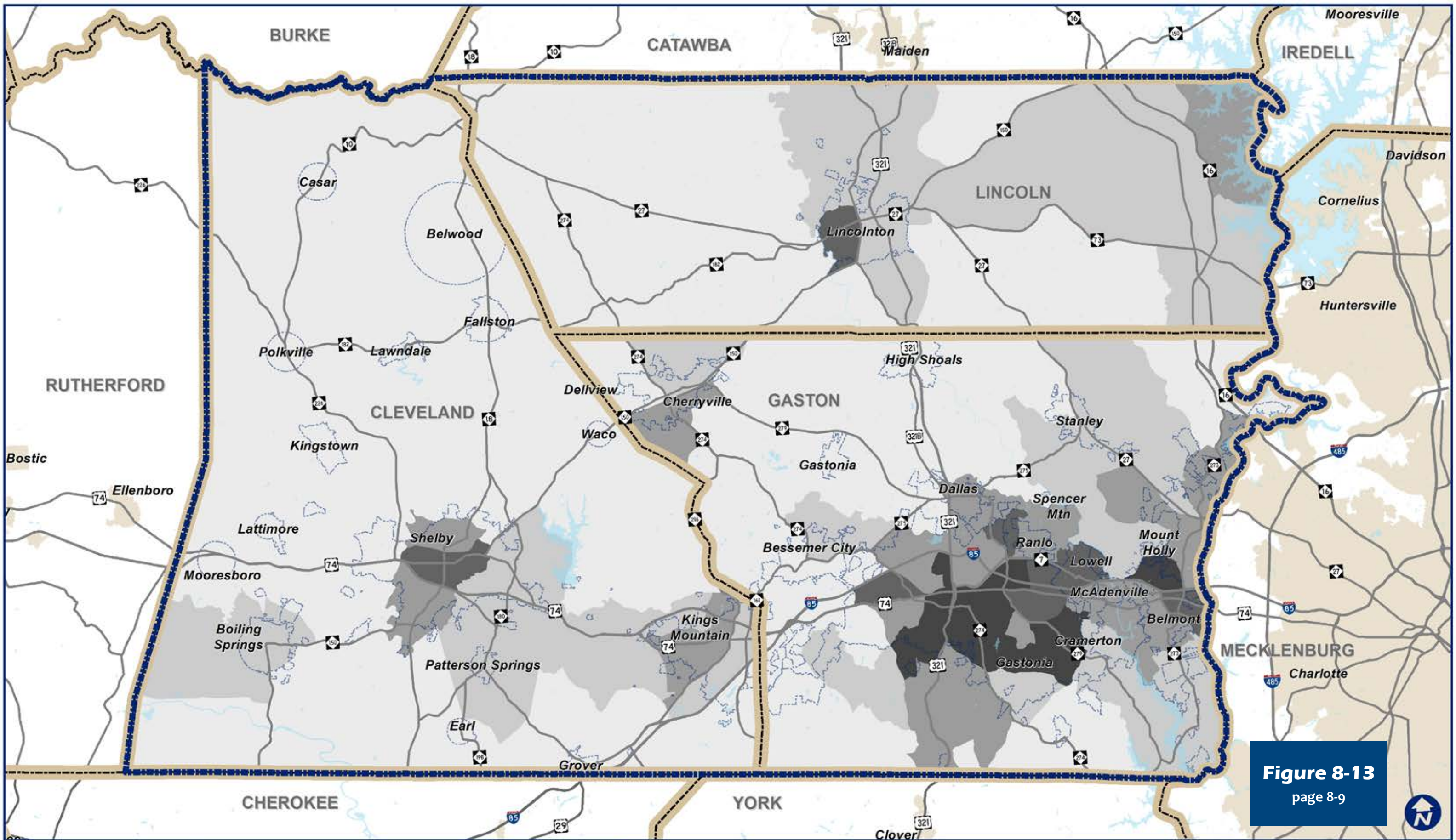
<b>Legend</b>		16 - 20 minutes
Highways	Counties	21 - 25 minutes
Major Roads		26 - 30 minutes
MPO Area		31 - 35 minutes
		36 - 43 minutes

0 1 2 4 Miles

December 2013

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 8-13**  
page 8-9

**GASTON-CLEVELAND-LINCOLN MPO  
DENSITY OF PERSONS COMMUTING IN  
OTHER THAN SINGLE OCCUPANCY VEHICLES**

**LEGEND**

Highways	Lowest Density	High Density
Major Roads	Low Density	Highest Density
Minor Roads	Moderate Density	
Counties		

0 1 2 4 Miles

Date created: 2/19/14

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# 9 Safety & Security

Two of the Planning Factors that the Moving Ahead for Progress in the 21st Century (MAP-21) legislation requires Metropolitan Planning Organizations (MPOs) to consider in the transportation planning process are safety and security. Specifically, MPOs should consider projects and strategies that:

- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users.

While safety and security are closely related, they are differentiated by the cause of the harm from which the transportation system and its users are being protected. Safety encompasses the prevention of unintentional harm to system users or their property. This includes vehicular crashes (whether of cars, trucks, buses, airplanes, or bicycles), train derailments, slope failures or other sudden destruction of roadways due to natural causes, and falls or injuries to pedestrians due to poorly constructed or absent facilities, among other issues. Security involves the prevention of intentional harm to the transportation system or its users, including theft or dismemberment of elements of transportation infrastructure, assault on users of the system, or large-scale attacks intended to completely disrupt the movement of people and goods.

While safety has long been a required planning factor for MPOs under federal transportation legislation, it was not until the terrorist attacks of September 11, 2001 that federal policy makers determined that transportation planners at all levels needed to consider security concerns more specifically.

Through proper engineering, education, enforcement and emergency management, a safe and secure transportation network can be provided to the region. Safety especially is a priority for the GCLMPO, as evidenced by the inclusion of safety metrics in the project prioritization process for roadway and bicycle/pedestrian projects.

## Streets and Highways

Enhancing highway safety is critical to the health and well being of the citizens of North Carolina and those who travel and conduct business on our streets and highways. Without the continued substantial improvement in highway safety, automobile crashes will continue to be a leading cause of death and injury for a large segment of the population, as well as a major socio-economic drain on the resources of government and the people of this State. Ways to incorporate safety in transportation are reflected in the American Association of State Highway and Transportation Officials Strategic Highway Safety Plan and the

North Carolina Strategic Highway Safety Plan.

MAP-21 maintains the Highway Safety Improvement Program (HSIP). This program is structured and funded to make significant progress in reducing fatalities on highways as well as other modes that use highway, railroads, and other conduits within the transportation network. The HSIP increases the funds for infrastructure safety and requires strategic highway safety planning focused on measurable results. States are required to have a safety data system to perform problem identification and countermeasure analysis on all public roads, adopt strategic and performance-based goals, advance data collection, analysis, and integration capabilities, determine priorities for the correction of identified safety problems, and establish evaluation procedures.

North Carolina's Highway Safety Improvement Program (HSIP) is structured into several distinct phases, including:

- System of safety warrants is developed to identify locations that are possibly deficient.
- Locations that meet warrant criteria are categorized as potentially hazardous (PH) locations.
- Detailed crash analyses are performed on the PH locations with the more severe and correctable crash patterns.







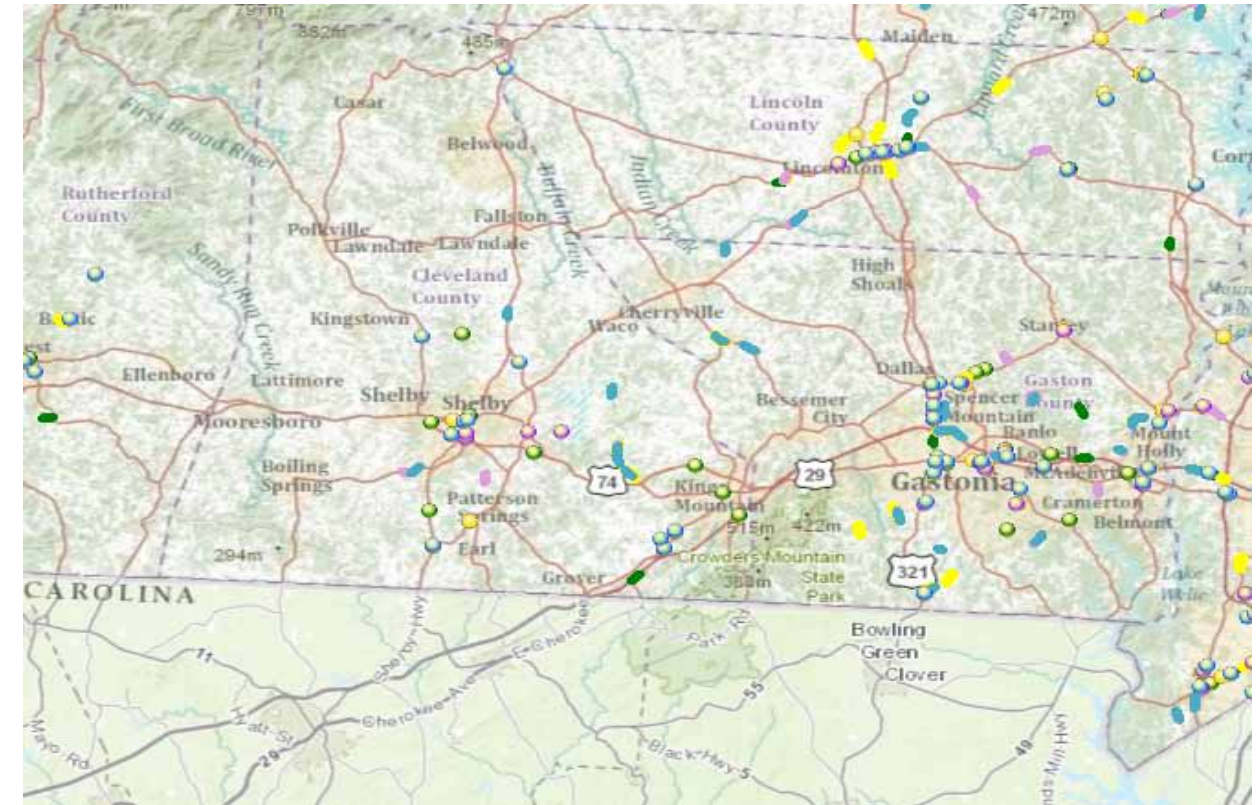
- The Regional Traffic Engineering staff performs engineering field investigations.
- The Regional Traffic Engineering staff utilizes Benefit: Cost studies and other tools to develop safety recommendations.
- Depending on the cost and nature of the countermeasures, the investigations may result in requesting Division maintenance forces to make adjustments or repairs, developing Spot Safety projects (typically under \$250,000), developing Hazard Elimination projects (typically \$400,000-\$1,000,000), making adjustments to current TIP project plans or utilizing other funding sources to initiate countermeasures.
- Selected projects are evaluated to determine the effectiveness of countermeasures.

The ultimate goal of the NC HSIP is to reduce the number of traffic crashes, injuries and fatalities by reducing the potential for and the severity of these incidents on public roadways. Figure 9-1 shows areas of identified hazard in the GCLMPO Metropolitan Planning Area from the 2010, 2011, 2012, and 2013 HSIP.

Education is generally handled by the Governor's Highway Safety Program (GHSP). "Click It or Ticket" and "Booze It or Lose It" are examples of these educational programs. Education can also be conveyed through driver's education courses. Enforcement is important to the success of programs as Safety laws are only effective if they are enforced.

Crash data collected in the field by emergency service workers are the basis on which safety programs are developed. The collection of accurate crash data help planners identify high-crash intersections and corridors and determine the type of crash and the contributing factors. The data are valuable in identifying and designing transportation improvements. The NCDOT Transportation Mobility and Safety Division currently provides the MPO with crash data from its Traffic Engineering Accident Analysis (TEAAS) data.

Figure 9-1: NC HSIP Locations for years 2010, 2011, 2012, and 2013

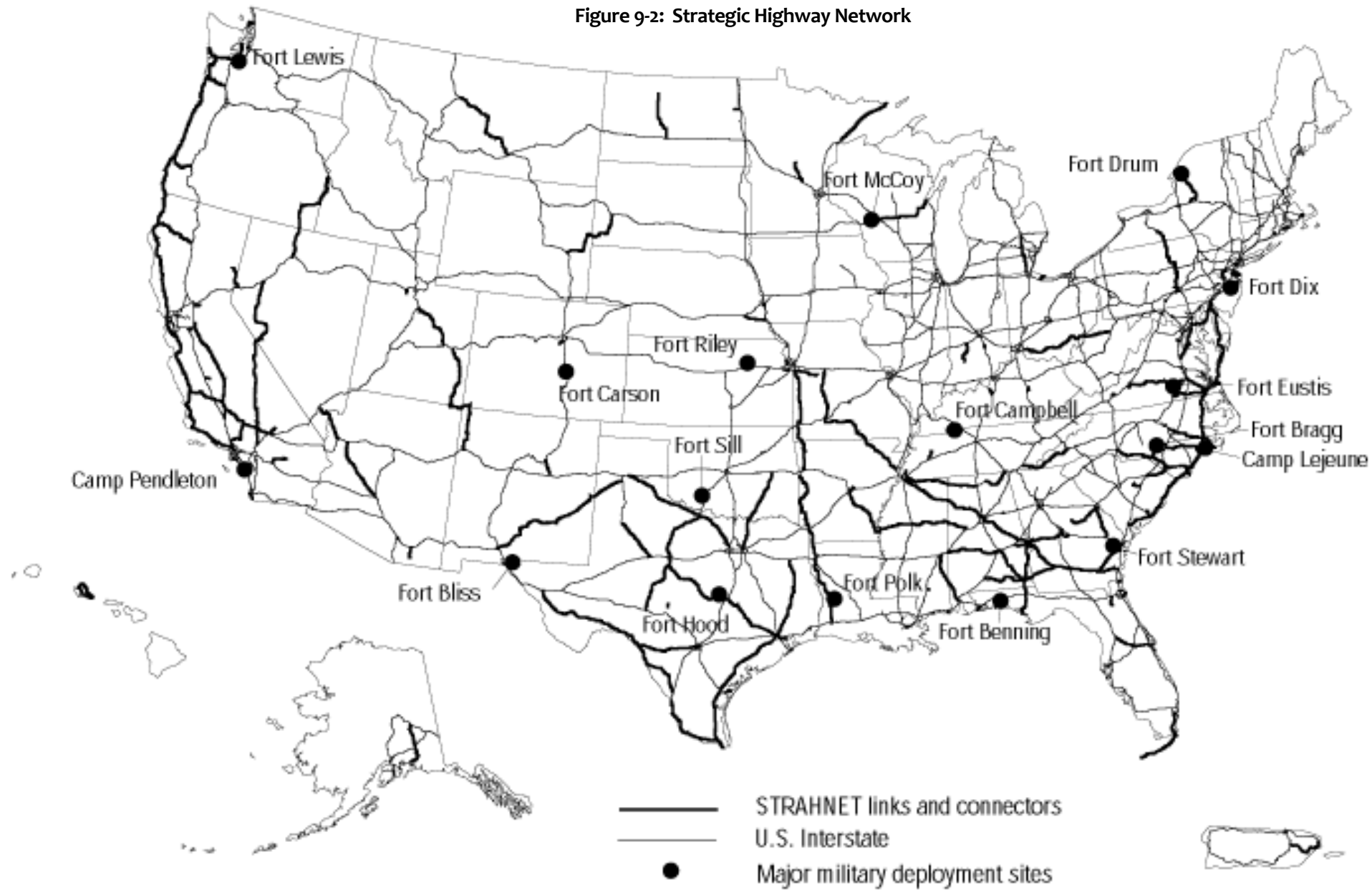


Source: State of North Carolina DOT, Esri, DeLorme, HERE, TomTom, USGS, NGA, USDA, EPA, NPS

Congestion is a major contributor to crashes and also impedes the ability to effectively respond to and manage safety and security issues. Even with excellent enforcement and safety planning, accidents will happen. Quick emergency medical service can mean the difference between life and death and can reduce injury severity when crashes occur. Travel efficiency and level of service are directly related to congestion. Engineering new roads and improvements to reduce congestion on existing roads will effectively provide a safer transportation network. Intelligent Transportation Systems tools can also manage the safe flow of traffic if an accident occurs. The Metrolina and Western Region Regional ITS Strategic Deployment Plans identify and prioritize ITS transportation needs in Gaston, Cleveland, and Lincoln counties.



Figure 9-2: Strategic Highway Network



The Strategic Highway Network (STRAHNET) is an important element in the security of the region, state and nation. STRAHNET provides the military with access, continuity and emergency transportation of personnel and equipment. The system totals over 62,000 miles of public highways designated by the Federal Highway Administration in partnership with the Department of Defense. Approximately 45,400 miles of Interstate and defense highways and about 15,600 miles of other highways make up the STRAHNET system. Additional highway routes link more than 200 military installations and ports to the STRAHNET system. The roads in the STRAHNET system are designed to support large military convoys and rapid mobilization and deployment of armed forces.

Source: U.S. Department of Transportation, Federal Highway Administration, 1999



## Bicycle and Pedestrian

The National Highway Traffic Safety Administration has determined that pedestrian crashes are more likely to occur during peak travel periods in the morning and afternoon. Most crashes with pedestrians will occur in urban areas where the volume of pedestrian and vehicle traffic is high; however, rural areas can also be dangerous for pedestrians due to the lack of sidewalks, paths, wide shoulders and cross walks. Driver behavior is a factor as well; speed and alcohol involvement have an impact on many crashes with pedestrians.

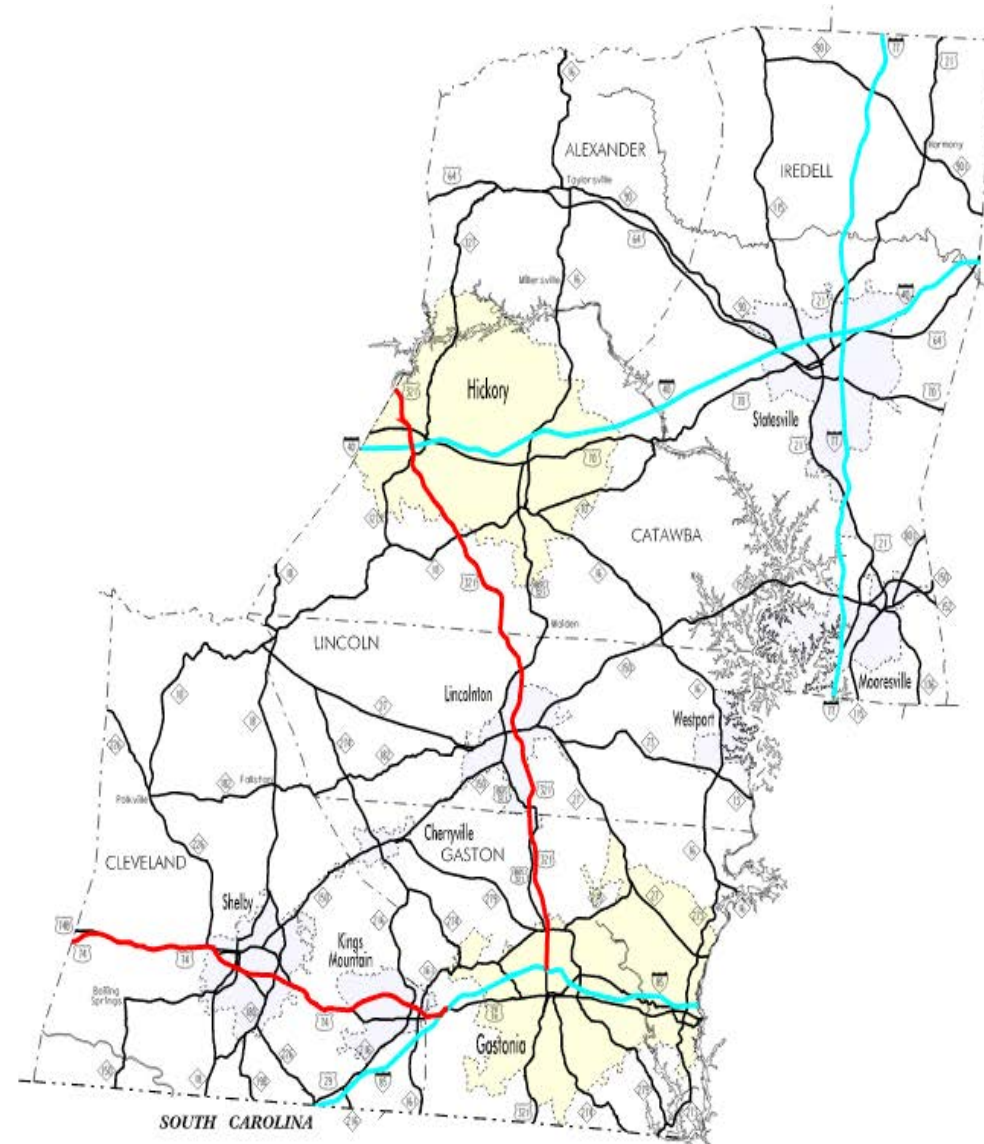
The NCDOT Division of Bicycle and Pedestrian Transportation maintains and shares with the GCLMPO a database of bicycle and pedestrian crashes and relevant attributes for each crash. This data is useful for local agencies within the MPO and for NCDOT when identifying areas of safety concern for bicyclists and pedestrians. Safety countermeasures utilized within the GCLMPO include installation of buffers or planting strips, crosswalks, traffic calming devices, pedestrian refuge islands, etc.

Many municipalities within the GCLMPO have adopted bicycle and pedestrian plans that address the “Four-Es” (i.e. education, engineering, enforcement, and encouragement) of bicycle and pedestrian planning, with a strong emphasis on the importance of safety. Historically, the GCLMPO and NCDOT have promoted the Safe Routes to Schools (SRTS) program, a federal program that encourages and enables children to walk and bike to school by making these activities safe. This program supports the planning, development and implementation of projects that improve safety and reduce traffic, air pollution and fuel usage in the vicinity of schools.

## Security and Emergency Management

The National Guard maintains a database of state and local emergency responders called the Regional and State Online Resource for Emergency Management. The National Guard has located every fire, police, hospital, and local EMS provider across the country and has created a searchable database and mapping system. The four National Guard bases in the region, located in Belmont, Gastonia, Kings Mountain, and Lincolnton, serve to supplement the regular armed forces and assist during national emergencies and declared states of emergency.

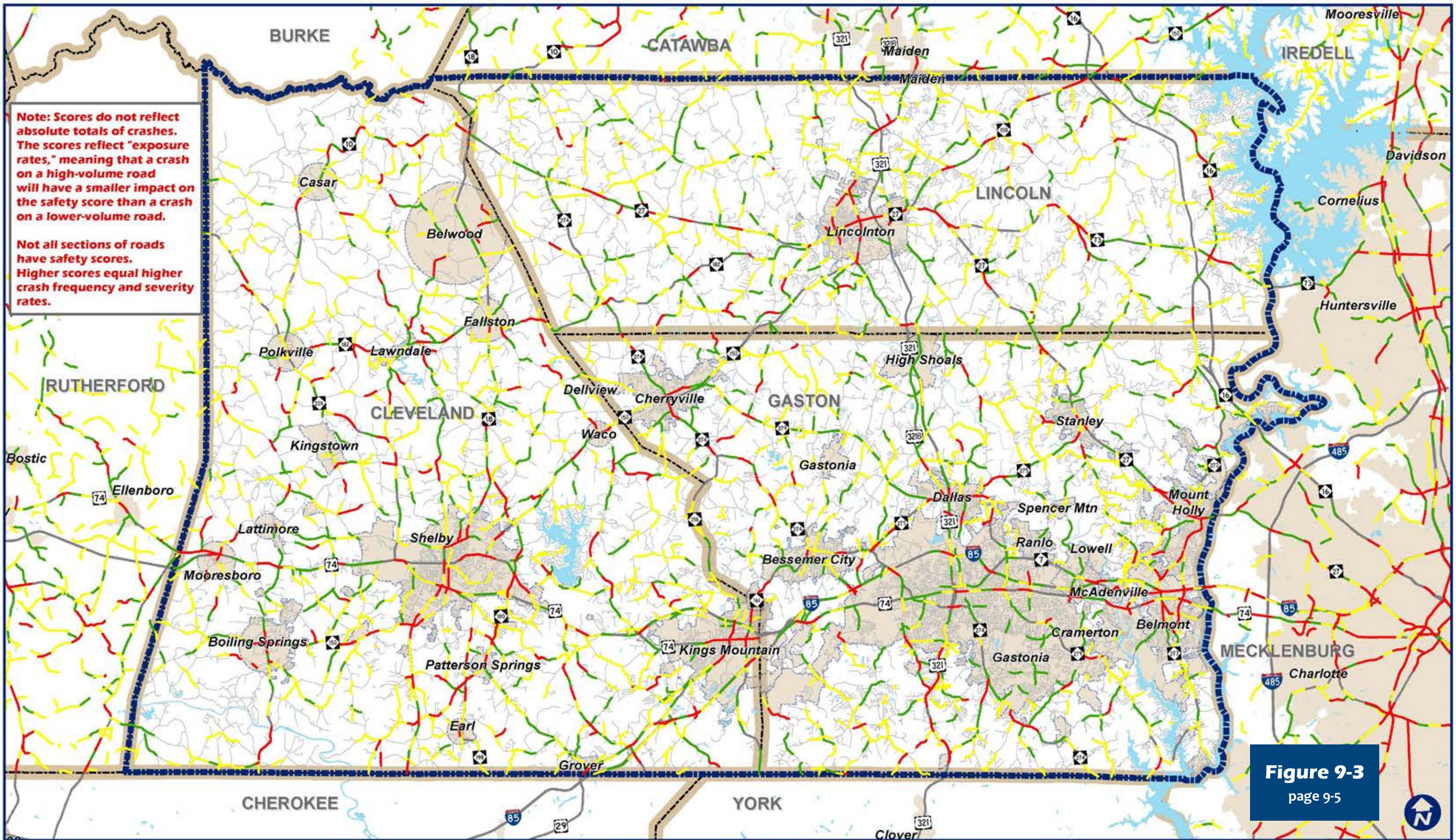
Gaston, Cleveland, and Lincoln counties are currently in the process of updating a Regional Hazard Mitigation Plan, which provides guidelines for evacuations, containment and first responder actions for both natural and man-made hazards. These plans are written through coordination with transportation, law enforcement, planning and operational agencies. All three counties also operate 9-1-1 systems to serve the communities and local government agencies with effective communication services and facilitate communications for public safety agencies.



DIVISION 12	
NORTH CAROLINA NATIONAL HIGHWAY SYSTEM	
	INTERSTATE HIGHWAYS
	STATE HIGHWAYS
	CONGRESSIONAL HIGH PRIORITY CORRIDORS
	OTHER PRINCIPAL ARTERIALS
	INTERMODAL TERMINAL CONNECTORS
	AIRPORT
	PORT TERMINAL
	TRUCK / RAIL FACILITY
	AMTRAK STATION
	INTERCITY BUS TERMINAL
	PUBLIC TRANSIT STATION
	TRUCK / PIPELINE TERMINAL
	FERRY
	MAJOR INTERNATIONAL BORDER CROSSINGS
	MILITARY INSTALLATIONS
	LARGE URBANIZED AREA
	SMALL URBANIZED AREA

System Approved: November 13, 1995      Revised: December 1, 2008





**Note: Scores do not reflect absolute totals of crashes. The scores reflect "exposure rates," meaning that a crash on a high-volume road will have a smaller impact on the safety score than a crash on a lower-volume road.**

**Not all sections of roads have safety scores. Higher scores equal higher crash frequency and severity rates.**

**Figure 9-3**  
page 9-5

**GASTON-CLEVELAND-LINCOLN MPO  
2013 COMPOSITE SAFETY SCORES**

<b>LEGEND</b>	Highways	Counties	<b>Safety Score</b>
	Major Roads		33 points
	Minor Roads		67 points
			100 points

0 1 2 4  
Miles

Date created: 1/24/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



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# 10 Bicycle & Pedestrian

## OVERVIEW

In our automobile-centered society, people frequently consider only one modal option – the personal automobile. One of the best ways to reduce automobile trips is to make other modes more viable. Making the area transportation network truly multi-modal is a priority for the Gaston- Cleveland-Lincoln MPO.

## Benefits of Biking and Walking

Demographic trends in North Carolina (and across the nation) indicate a growing demand for walking and bicycling as alternate modes of transportation. In addition, there has been increasing recognition in recent years of the many benefits of walking and bicycling, including health benefits, environmental benefits and personal financial benefits.

## Demographic Trends

According to *WalkBikeNC* (described later in this chapter), the proportion of North Carolina’s population residing in urban areas is expected to reach over 75% by 2040. That’s an increase of 50% from 1990 (50% to 75%). This trend is expected to occur in the MPO’s Metropolitan Study Area as well. This increased density in our urban areas offers opportunities for shorter trips to work, school, shopping and other destinations, many of which could be made by walking or bicycling rather than driving. In addition, our population is aging. It is projected that by 2032, 20% of

North Carolinians will be over 65. Older adults often begin to drive less. In fact, more than one in five Americans age 65 or older do not drive. And it’s not just the older population who are driving less. Recent studies have shown that car ownership among Millennials (those born between 1981 and 2001) is declining as well. As a result, our communities need to be pedestrian and biker friendly in order to serve the needs of both the older and younger population. Finally, from 1995 to 2010, the instance of obesity in North Carolinians increased from 16.9% to 28.6%. Physical inactivity has contributed to this dramatic increase in obesity, and safe environments where walking and cycling can be incorporated in daily activity could help to alleviate the problem.

## Health Benefits

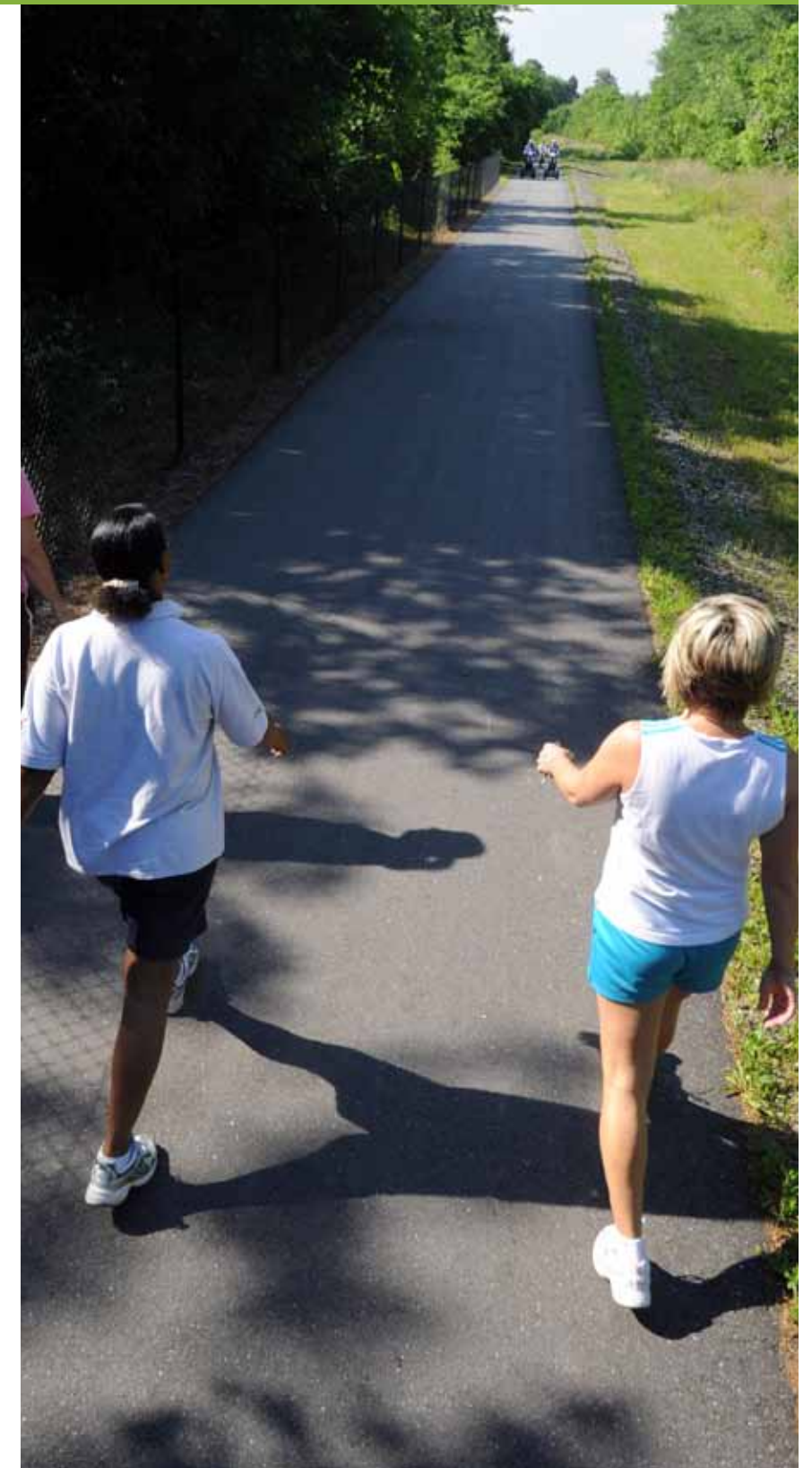
As noted above, the incidence of obesity in North Carolina is on the rise. The Centers for Disease Control recommends 30 minutes of moderate exercise on most days. That’s the equivalent of about one and a half miles of walking or five miles of bicycling. Physical activity is not only about maintaining a healthy weight. It can also be important in the prevention of cardiovascular disease, osteoporosis, arthritis and mental disorders like anxiety and depression. Active people are likely to be healthier and happier, and investing in bicycling and walking offers a way to reintegrate physical activity back into our daily routines.

## Environmental Benefits

Any type of nonmotorized transportation reduces the demand for petroleum products and decreases the production of greenhouse gases. Even a modest increase in walking and bicycling trips (in place of motor vehicle trips) can have significant positive impacts. According to *WalkBike NC*, replacing two miles of driving each day with walking or bicycling will, in one year, prevent 730 pounds of carbon dioxide from entering the atmosphere.

## Personal Financial Benefits

According to the Federal Highway Administration, transportation is second to housing as a percentage of household budgets, and it is the top expense for many low-income families. Households in auto-dependent locations spend 25% of income on transportation costs. According to the Automobile Association of America, the average sedan owner spends \$10,000 per year on car ownership. This cost includes maintenance, fuel, tires, insurance and depreciation. Many people cannot afford to own a car and are dependent on walking and biking for transportation. Even those who do own a car could save vehicle-related expenses by walking or biking for the estimated 40% of trips that are within two miles of home. Analysis by the Sierra Club shows that if American drivers were to make just one four-mile round trip each week with a







bicycle instead of a car, they would save nearly 2 billion gallons of gas. At \$4 per gallon, total savings would be \$7.3 billion per year.

## Statewide

In North Carolina, just 2.4% of commuters bicycle or walk to work, compared to 3.36% nationwide. (See Figure 10-1) In May of 2013, NCDOT adopted *WalkBike NC*, the first statewide master plan to define a vision, goals and strategies for improving walking and bicycling in North Carolina. *WalkBike NC* was completed over a twelve month period during which NCDOT and its consultants hosted 15 focus group meetings and three regional workshops and attended 16 festivals and events. The plan recognizes that biking and walking are not often safe, convenient, or efficient and that infrastructure is underfunded and incomplete. Currently, only 0.2% of NCDOT transportation independent project funding goes towards pedestrian and bicycle infrastructure, although the total percentage is higher due to facilities installed as a part of overall corridor improvement projects. *WalkBike NC* serves as a policy guide for state agencies, local governments and private sector interests to develop a transportation system that safely and efficiently accommodates walking and bicycling.

There are five main pillars of the plan, along with 2020 goals for each of the pillars:

- Improving mobility by doubling state pedestrian and bicycle mode share.
- Promoting safety and reducing per capita pedestrian and bicycle crash rates by 10%.
- Contributing to improved public health and reducing inactivity rates by 10%.
- Maximizing economic competitiveness by increasing investment in pedestrian and bicycle projects and programs by 25%.
- Being good stewards of the environment by increasing mileage of greenways by 10% and reducing automobile dependence.

## REGIONAL

### Connect Our Future

In 2005-2008, the 14-county bi-state region came together and developed a vision for the region's future, called CONNECT. That vision has been adopted by local governments representing more than 70 percent of the population within the region. Its six core values are:

- A strong, diverse economy;
- Sustainable, well-managed growth;
- A safe and healthy environment;
- High quality educational opportunities;
- Increased collaboration among jurisdictions; and
- Enhanced social equity.

Percent of Workers who Biked or Walked to Work (ACS 2006-2011 5-year)	US	NC	Cleveland	Gaston	Lincoln
	3.36%	2.4%	1.8%	0.9%	0.8%

Percent of Households without Access to a Vehicle (ACS 2006-2011 5-year)	Cleveland	Gaston	Lincoln
	7.3%	5.9%	4.2%

Building upon this vision, in 2011 the Centralina and Catawba Regional Councils of Governments successfully applied for a Housing and Urban Development (HUD) sustainability grant to help implement the these core values. "CONNECT Our Future" is a process in which communities, counties, businesses, educators, non-profits and other organizations work together to create a regional growth framework. This framework will be developed through extensive community engagement and built on what communities identify as existing conditions, future plans and needs, and potential strategies.

As a part of this process, a series of Open Houses and small group meetings were held throughout the region between November 2012 and February 2013. Eighteen of these meetings were held in the GCLMPO Metropolitan Planning Area. Attendees answered a series of questions to identify qualities and characteristics valued by the communities. Support for walking, biking and greenways was strong among respondents. In all three counties, parks and greenways topped the list of "features that you feel are most important for the future of your community and our region." Support for walking and biking was also evident in the response to "what is the one transportation feature that is most important to you?"

What is the one transportation feature that is most important to you?		
	More sidewalks, trails, other safe places to walk	More bike lanes, paths, other safe places to bike
Gaston	26%	9%
Cleveland	24%	10%
Lincoln	26%	7%



# the way forward: 2040 Metropolitan Transportation Plan

County-level greenway plans have been adopted for Gaston, Lincoln and Cleveland Counties. These plans include recommendations for on-road walkways and bikeways, in addition to off-road facilities. The Carolina Thread Trail is a regional trail network that will ultimately encompass 15 counties and more than 2.3 million people.

## Carolina Thread Trail

As of 2013, 132 miles of trail are open for use, including the following found in Figure 10-4:

Figure 10-4: Carolina Thread Trail

Figure 10-4: Carolina Thread Trail	
Cleveland	Broad River Greenway
	Broad River Greenway Off-Road Trail
	Kings Mtn. Gateway to Downtown Kings Mtn. Sidewalk Connector
	Kings Mountain Gateway Trail
	Ridgeline Trail at Crowders Mtn. State Park (Cleveland & Gaston)
Gaston	Belmont to Cramerton Sidewalk Connector Trail
	Bessemer City Park Trail
	Bessemer City Sidewalk Connector to City Park Trail
	Catawba Creek Greenway
	Catawba River Greenway
	Downtown Connector Trail
	Goat Island Greenway
	Highland Rail Trail
	Mount Holly Linear Park Trail
	Mountain Island Park Trail
	Riverside Greenway
	South Fork Trail
	Stuart Cramer High School Trail
	Lincoln
Highland Park Trail	
Marcia Cloninger Rail Trail	
Ramsour's Mill/Park Trail	
Sally's YMCA Trail	
South Fork Rail Trail	

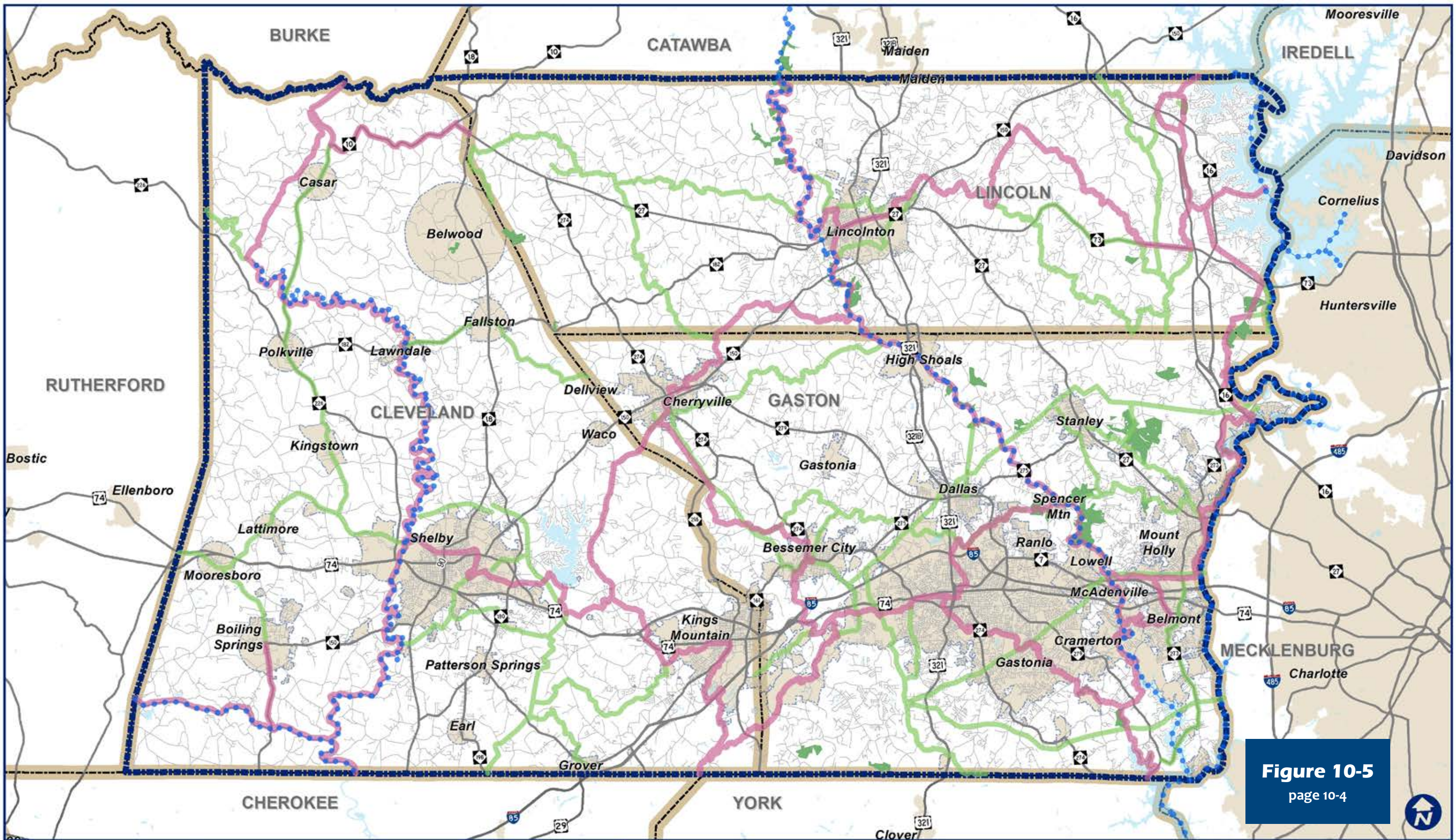
## Lake Norman Bicycle Route

The Lake Norman Bicycle Route (LNBR) is the first regional bicycle plan approved by the NCDOT. The planning process for the LNBR brought together the four counties surrounding Lake Norman (including Lincoln County), as well as a number of their municipalities. The route chosen to circumnavigate Lake Norman was split into the Initial and Ultimate routes. The Initial route is primarily comprised of segments that are already appropriate for bicyclists, or will be with limited improvements. The Ultimate route includes future segments of the Carolina Thread Trail and improved roads, such as NC 73 and NC 150, that together create the ideal route around the Lake. A Lake Norman Regional Bicycle Route Task Force was created to provide a forum to coordinate efforts on the route.

The LNBR does not include Lincoln County in its initial route, but it included 26.7 miles of both on-road and off-road facilities in its Ultimate alignment. A direct ride from the northern to southern end of the county is 13 miles long. This direct route includes segments along Slanting Bridge Road from Catawba County, Campground Road, Old NC 16, Hagers Ferry Road, Club Drive and NC 73 into Mecklenburg County.







**Figure 10-5**  
page 10-4

# CAROLINA THREAD TRAIL ADOPTED CONNECTIONS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties
- Carolina Thread Trail Adopted Connections
- Other Connection Opportunities
- Blueways
- Catawba Land Conservancy Protected Properties
- MPO Area

0 1 2 4 Miles

Date created: 2/7/14

GASTON-CLEVELAND-LINCOLN

Metropolitan Planning Organization





# the way forward: 2040 Metropolitan Transportation Plan

Figure 10-7: Residential Subdivision Requirements		Notes
Gaston County	Sidewalks are required for subdivisions and developments located in the USO (Urban Standards Overlay District) as well as in Traditional Neighborhood Developments and Planned Residential Developments.	
Belmont	Sidewalks are required on both sides of all streets, except alleys and lanes.	Also requires that bike lanes be installed by all development (except single-family homes) along designated streets.
Bessemer City	Sidewalks are required for subdivisions and developments located in the USO (Urban Standards Overlay District) as well as in Traditional Neighborhood Developments and Planned Residential Developments and PUDs.	
Cherryville	“Sidewalks shall be constructed on such streets that the City Council considers sidewalks to be necessary in order to promote the free flow of vehicular traffic and to provide safety to pedestrian.”	
Cramerton	Generally required along both sides of the street	
Dallas	“shall be placed on both sides of major and minor thoroughfares. On streets other than thoroughfares, the construction of sidewalks on both sides of the street is encouraged, however at a minimum sidewalks are required along one side of internal streets.”	
Gastonia	Generally required along both sides of the street	
High Shoals	Required on one side of the street	
Mt. Holly	In subdivisions, the Town requires sidewalks of 5’ in width on both sides of the street.	The Town requires new commercial construction projects, located along a portion of adopted greenway, to build that section of greenway on their property.
Stanley	The ordinance allows the Planning Board or Town Board to determine the necessity of building sidewalks in subdivisions. They may be required on either or both sides of the street “in order to promote the free flow of vehicular traffic and to provide safety to pedestrians.”	
Lincoln County	Sidewalks are required on one side of all streets in residential subdivisions with the exception of some developments where lots are greater than one acre and where a residential street serves 10 or fewer dwelling units.	
Lincolnton	Sidewalks are required on both sides of the street in all major subdivisions.	
Kings Mountain	The City generally requires sidewalks along one side of the street in new residential subdivisions.	
Shelby	“The city engineer may require the construction of sidewalks adjacent to one side of new streets in subdivisions in which pedestrian traffic is projected to be heavy due to the proximity of schools, parks, open space, playgrounds, or other community or private facilities that generate substantial amounts of pedestrian traffic. Within any subdivision located adjacent to a major thoroughfare, minor thoroughfare, or collector street, the city engineer may require the construction of sidewalks adjacent to both sides of the street.”	

Figure 10-6: MPO Bicycle & Pedestrian Plans			
Community	Type	Status	Consultant
Belmont	Pedestrian	Adopted 2009	Greenways, Inc.
Belmont	Bicycle	Adopted 2013	Alta Greenways
Bessemer City	Pedestrian	Adopted 2010	Centralina COG
Boiling Springs	Pedestrian	Adopted 2006	Centralina COG
Cherryville	Pedestrian	Adopted 2009	Centralina COG
Cleveland County	Carolina Thread Trail	Adopted 2010	LandDesign
Cramerton	Pedestrian	Adopted 2008	HSMM of NC, Inc.
Gaston County	Carolina Thread Trail	Amended 2011	Alta Planning + Design
Gastonia	Pedestrian	In process	Toole Design Group
Kings Mountain	Bicycle	Adopted 2011	Centralina COG
Kings Mountain	Pedestrian	Draft in review	Centralina COG
Lincoln County	Greenway Master Plan	Adopted 2009	Greenways, Inc.
Lincoln County	Carolina Thread Trail	Amended 2011	Greenways, Inc.
Mount Holly	Pedestrian	Adopted 2013	Alta Planning + Design
Shelby	Pedestrian	Adopted 2007	URS

## LOCAL : Existing Local Plans

A number of communities within the region have adopted or are in the process of creating bicycle, pedestrian and/or greenway plans. There are many benefits to adopting such plans, including:

- Acting as a clear blueprint for revising local ordinances and supporting policies that guide development in accordance with goals.
- Laying out a comprehensive and prioritized guide for building or improving local routes and amenities.
- Providing a firm basis for seeking financial assistance in the form of grants and other support from various outside sources in order to implement the plan.
- Serving as an educational tool for conveying the values and methods of creating and maintaining a pedestrian-friendly community with decision makers and general public.





## Pedestrian Facilities

Sidewalks are necessary to provide a safe environment for integrating walking into daily routines. A number of communities in the MPO Metropolitan Study Area have implemented sidewalk policies related to new development. Figure 10-7 on the previous page shows the general requirements of the communities. For more detailed information, please see the individual ordinances.

## OBJECTIVES AND POLICIES

### Objective

The objective of bicycle and pedestrian transportation in the GCLMPO is to create a safe, effective bikeway/sidewalk/greenway network that is integrated to the transportation system, links together resources and destinations, provides an alternative to automobile travel, increases recreational opportunities, advances healthy lifestyles, and enhances the quality of life in the region.

### Policies

The recommended policies to achieve the stated objective are to:

- Provide a pedestrian and bicycle system that is an alternative means of transportation, allows greater access to public transit, supports recreational opportunities and includes off-road trails and greenways.
- Improve the safety of the system (See Figures 10-8 & 10-9) for pedestrian and bicycle crash data).
- Develop a transportation system that integrates pedestrian and bicycle modes of transportation with motor vehicle transportation and encourages the use of walking and bicycling as alternative modes.

- Develop a continuous, direct, safe and coordinated system of regional bicycle facilities in the GCLMPO Metropolitan Study Area.
- Provide a pedestrian and bicycle system that is connected inter-regionally, for example the Carolina Thread Trail.
- Promote, through public education, the environmental, health, and economic benefits of walking and bicycling as practical modes of transportation.
- Develop a regional bicycle and pedestrian system that establishes links between activity centers, public transit, schools, parks, and other major destinations.
- Recommend that when new roads are proposed or when existing roads are widened, design plans include land on each side of the road of sufficient width to safely accommodate bicycle and pedestrian facilities consistent with adopted plans.
- Encourage the delineation of safe pedestrian ways and bicycle routes, emphasizing separation from vehicular areas.
- Recommend the installation of signage when bicycle routes or pedestrian ways are integrated with roads, so that bicyclists, pedestrians, and motorists will be made aware of each other.
- Encourage all communities within the MPO to adopt pedestrian and bicycle plans.

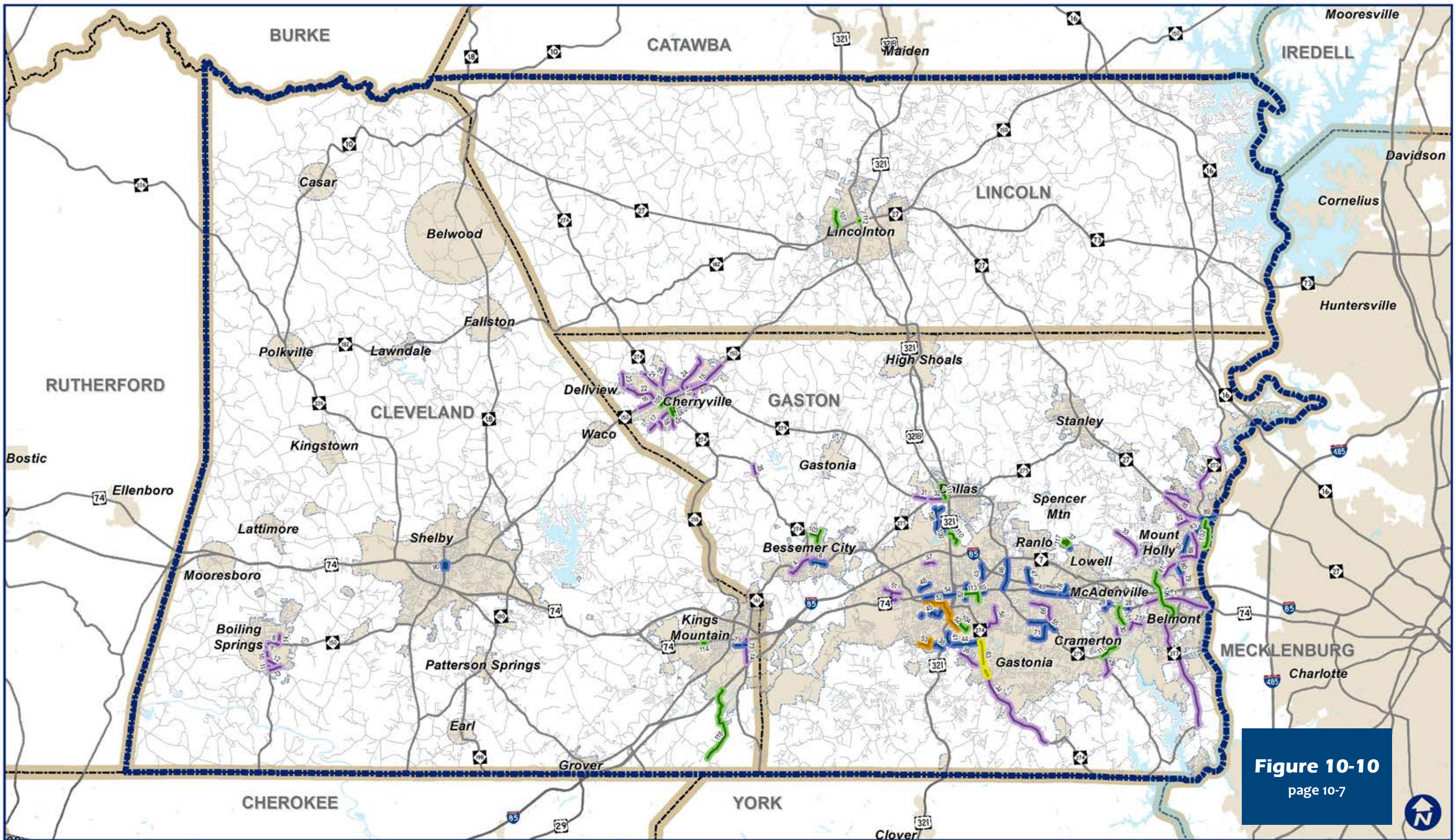
Figure 10-8: Pedestrian Crashes

County	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Cleveland	28	23	31	20	23	22	25	32	23	31	34	33	25	24	374
Gaston	33	22	33	59	66	75	59	68	66	68	82	63	62	60	816
Lincoln	17	3	3	8	5	7	6	3	7	2	11	8	10	7	97

Figure 10-9: Bicycle Crashes

County	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Cleveland	9	12	13	9	8	8	5	4	11	5	6	8	11	5	114
Gaston	13	12	28	24	28	21	17	35	22	27	23	26	15	13	304
Lincoln	3	5	4	1	1	3	1	1	1	1	4	1	1	3	30





**Figure 10-10**  
page 10-7

# 2040 MTP BIKE/PED PROJECTS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties



**Horizon Year**

- 2013 - 2015
- 2016 - 2025
- 2026 - 2030
- 2031 - 2040
- Unfunded

0 1 2 4 Miles  
Date created: 3/27/14







Figure 10-11:  
**2040 Metropolitan Transportation Plan (MTP)**  
**BICYCLE AND PEDESTRIAN PROJECTS**

Unfunded
2015 Horizon Year (Funded)
2025 Horizon Year
2030 Horizon Year
2040 Horizon Year
CMAQ Funded Projects in Red

Rank	Map ID	Submitting Agency	Mode	Facility Type	On Street	Side	From/Cross Street	To Street	In Adopted Plan?	Safety Points (20)	Accessibility Points (20)	Density Points (20)	Benefit Cost Points (20)	Social Equity Points (10)	Constructability Points (10)	Total Points (100)	2015 Cost	2025 Cost	2030 Cost	2040 Cost
NA	105	Cherryville	Pedestrian	Sidewalk	Mountain St Area	Varies	Varies	Varies	Partial	NA	NA	NA	NA	NA	NA	NA	455,000 (FY 2013)	NA	NA	NA
NA	107	Lincolnton	Multiuse	Greenway	Cloninger Rail Trail Extension	NA	NA	NA	No	NA	NA	NA	NA	NA	NA	NA	\$287,000 (under construction)	NA	NA	NA
NA	106	Belmont	Multiuse	Greenway	Belmont Rail Trail	NA	Woodlawn Ave	Downtown Belmont	Yes	NA	NA	NA	NA	NA	NA	NA	\$1,330,000 (FY 2013)	NA	NA	NA
NA	111	Dallas	Pedestrian	Sidewalk	Dallas High Shoals Rd	NA	Dallas Cherryville Hwy; Park Rd	Park Rd; Sam Rhyme Ct	No	NA	NA	NA	NA	NA	NA	NA	\$237,000 (FY 2013)	NA	NA	NA
NA	112	Lincolnton	Pedestrian	Pedestrian Intersection Improvements	General Blvd/Main St	Both	NA	NA	No	NA	NA	NA	NA	NA	NA	NA	\$582,000 (FY 2014)	NA	NA	NA
NA	113	Gastonia	Multiuse	Sidewalk and Bicycle Facilities	Chestnut St; Second Ave	Both	Lineberger Park; Chestnut St	Second Ave; Marietta St	Yes	NA	NA	NA	NA	NA	NA	NA	\$345,000 (FY 2014-15)	NA	NA	NA
NA	114	Kings Mountain	Pedestrian	Sidewalk	US 74 Business (Shelby Rd/W King St)	NA	Shopping Center of West Side of Town	Kings Mountain Hospital	Ped	NA	NA	NA	NA	NA	NA	NA	\$49,000 (under construction)	NA	NA	NA
NA	102	Mount Holly	Multiuse	Greenway	Mount Holly Riverfront Greenway	NA	Tuckaseege Park	Catawba Ave	Ped	NA	NA	NA	NA	NA	NA	NA	\$800,000 (FY 2014)	NA	NA	NA
NA	103	Bessemer City	Pedestrian	Sidewalk	12th St; Yellow Jacket Ln/Bess Town Rd	One	Chadwick Ct; 12th St	M L Kiser Rd; 14th St	Ped	NA	NA	NA	NA	NA	NA	NA	\$300,000 (FY 2015)	NA	NA	NA
NA	117	Gaston County	Multiuse	Greenway	Carolina Thread Trail	NA	Poston Park	South Fork River	No	NA	NA	NA	NA	NA	NA	NA	\$875,000 (FY 2015)	NA	NA	NA
NA	104	Gastonia	Multiuse	Greenway	Catawba Creek Greenway Extension	NA	Ferguson Park	Marietta St	Ped	NA	NA	NA	NA	NA	NA	NA	\$410,000 (FY 2015)	NA	NA	NA
NA	101	Cramerton	Multiuse	Greenway	Lakewood Park Trail	NA	Lakewood Park	US 29/US 74	Ped	NA	NA	NA	NA	NA	NA	NA	\$760,000 (FY 2015)	NA	NA	NA
NA	115	Cramerton	Pedestrian	Sidewalk	Cramer Mountain Rd	One	Baltimore Dr	New Hope Rd	Ped	NA	NA	NA	NA	NA	NA	NA	\$427,000 (FY 2015)	NA	NA	NA
NA	110	Gastonia	Multiuse	Greenway	Highland Branch Greenway	NA	Rankin Lake Park	Bulb Ave	Ped	NA	NA	NA	NA	NA	NA	NA	\$400,000 (FY 2015)	NA	NA	NA
NA	56	Gastonia	Pedestrian	Sidewalk	Churchill Dr; Laurel Ln; Timberlane St; Holly Dr	One	Garrison Blvd; Timberlane St; Holly Dr; Catawba Creek Greenway	Laurel Ln; Churchill Dr; Laurel Ln; Timberlane St	Ped	NA	NA	NA	NA	NA	NA	NA	\$205,000 (FY 2015)	NA	NA	NA
NA	118	Cleveland County	Multiuse	Greenway	Kings Mountain Gateway Trail	NA	Existing trail terminus	Kings Mountain National Military Park	Carolina Thread Trail	NA	NA	NA	NA	NA	NA	NA	\$620,000 (FY 2014)	NA	NA	NA
NA	109	Gaston County	Multiuse	Greenway	Long Creek Greenway (Phase I)	NA	Rankin Lake Park	Gaston Tech. Pkwy	No	NA	NA	NA	NA	NA	NA	NA	NA	\$477,000	NA	NA



# the way forward: 2040 Metropolitan Transportation Plan

Figure 10-11: cont'd

Rank	Map ID	Submitting Agency	Mode	Facility Type	On Street	Side	From/Cross Street	To Street	In Adopted Plan?	Safety Points (20)	Accessibility Points (20)	Density Points (20)	Benefit Cost Points (20)	Social Equity Points (10)	Constructability Points (10)	Total Points (100)	2015 Cost	2025 Cost	2030 Cost	2040 Cost
NA	116	Gaston County	Pedestrian	Sidewalk	Main St/Lowell Spencer Mountain Rd; Tower Rd	One	Lowell City Limit; Main St/Lowell Spencer Mountain Rd	Tower Rd; Poston Park Parking Lot	No	NA	NA	NA	NA	NA	NA	NA	NA	\$300,000	NA	NA
NA	108	Gaston County	Multiuse	Greenway	Long Creek Greenway (Phase II)	NA	Gaston Tech. Pkwy	Dallas Park and Gaston College	No	NA	NA	NA	NA	NA	NA	NA	NA	\$300,000	NA	NA
1	46	Gastonia	Pedestrian	Sidewalk	New Hope Road	One	Franklin Blvd	Ozark Ave	Ped	11.0	20.0	15.0	20.0	6.0	7.5	79.5	NA	\$460,789	\$534,180	\$717,894
2	62	Gastonia	Multiuse	Sidewalk, Bike Facilities, and Pedestrian Intersections Improvements	Broad St	Both	Long Ave	Fourth Ave	Ped	10.5	20.0	11.0	15.0	9.0	7.5	73.0	NA	\$692,117	\$802,353	\$1,078,296
4	90	Shelby	Pedestrian	Pedestrian Signalization Improvements	E Marion St; W Marion St; E Warren St; W Warren St; E Graham St; W Graham St	NA	N Washington St; N Lafayette St; S Washington St; S Lafayette St; S Washington St; S Lafayette St	NA	Ped	4.5	20.0	14.0	20.0	5.0	7.5	71.0	NA	\$483,810	\$560,868	\$753,760
5	54	Gastonia	Multiuse	Sidewalk and Bike Facilities	Second Ave	Both	Marietta St	Linwood	Ped	2.5	20.0	10.0	20.0	9.0	7.5	69.0	NA	\$491,201	\$569,437	\$765,276
5	65	Gastonia	Multiuse	Sidewalk and Bike Facilities	Second Ave	Both	Chestnut St	S Belvedere Ave	Ped	2.5	18.0	13.0	20.0	8.0	7.5	69.0	NA	\$220,402	\$255,507	\$343,380
6	38	Gastonia	Pedestrian	Sidewalk	Henderson St; McArver St; Mountain View St	One	McArver St; Mountain View St; McArver St	Gail Ave; Henderson St; S York Rd	Ped	2.5	18.0	10.0	20.0	10.0	7.5	68.0	NA	\$441,429	\$511,738	\$687,733
7	48	Gastonia	Pedestrian	Sidewalk	Walnut Av	North	Airline Av	Vance St	Ped	4.5	19.0	9.0	20.0	9.0	5.0	66.5	NA	\$275,706	\$319,619	\$429,541
7	49	Gastonia	Pedestrian	Sidewalk	Franklin Blvd	North	Cox Rd	City Limits	Ped	5.0	19.0	11.0	20.0	4.0	7.5	66.5	NA	\$403,689	\$467,986	\$628,934
8	45	Gastonia	Pedestrian	Sidewalk	Athenian Dr; Hillcrest; Adams; Elm St; Linwood Rd	One	Hillcrest Ave; Miller St; Spencer Ave; W Tenth Ave; East Dr	Garrison Blvd; Athenian Dr; Miller St; Adams Dr; Cloninger Ave	Ped	2.5	20.0	11.0	15.0	10.0	7.5	66.0	NA	\$537,342	\$622,927	\$837,161
9	41	Gastonia	Pedestrian	Sidewalk	Marietta St/Hilltop Dr; Gardner Dr	Varies	Dixon Cir	W Hudson Blvd	Ped	2.5	20.0	8.0	20.0	10.0	5.0	65.5	NA	\$371,676	\$430,874	\$579,059
9	71	Gastonia	Multiuse	Sidewalk and Multiuse Path	Hudson Blvd; Redbud Dr	One	Armstrong Park Rd; Hudson Blvd	Redbud Dr; BiLo Shopping Center	Ped	5.0	20.0	7.0	20.0	6.0	7.5	65.5	NA	\$373,467	\$432,951	\$581,850
10	80	Mount Holly	Pedestrian	Sidewalk	Beaty Rd	N	Smith St	Ferstl Ave	Ped	2.5	20.0	6.0	20.0	7.0	7.5	63.0	NA	\$372,130	\$431,401	\$579,767
10	47	Gastonia	Pedestrian	Sidewalk	Cox Rd	Both	Medical Center Pharmacy	Court Dr	Ped	4.5	16.0	12.0	20.0	3.0	7.5	63.0	NA	\$336,315	\$389,881	\$523,968
11	89	Mount Holly	Bicycle	Bicycle Lanes	NC 27	Both	Highland St	Mecklenburg County	Ped	2.5	20.0	5.0	20.0	5.0	10.0	62.5	NA	\$268,783	\$311,593	\$418,756



Figure 10-11: cont'd

Rank	Map ID	Submitting Agency	Mode	Facility Type	On Street	Side	From/Cross Street	To Street	In Adopted Plan?	Safety Points (20)	Accessibility Points (20)	Density Points (20)	Benefit Cost Points (20)	Social Equity Points (10)	Constructability Points (10)	Total Points (100)	2015 Cost	2025 Cost	2030 Cost	2040 Cost
11	55	Gastonia	Pedestrian	Sidewalk and Pedestrian Intersection Improvements	S New Hope Rd	One	Armstrong Park Rd	Hudson Blvd	Ped	5.0	20.0	8.0	15.0	7.0	7.5	62.5	NA	\$555,709	\$644,220	\$865,777
12	87	Mount Holly	Pedestrian	Sidewalk	S Main St	Both	Tuckaseege Rd	Rose St	Ped	7.0	20.0	8.0	10.0	7.0	10.0	62.0	NA	\$819,130	\$949,597	\$1,276,179
13	28	Cramerton	Pedestrian	Pedestrian Intersection Improvements	Lakewood Rd; Market St; Market St	NA	Wilkinson Blvd; Wilkinson Blvd; Eighth Ave	NA	Ped	7.0	20.0	5.0	20.0	2.0	7.5	61.5	NA	\$186,804	\$216,557	\$291,035
14	40	Gastonia	Pedestrian	Sidewalk	Modena St		Park Av	Spring St.	Ped	2.5	20.0	7.0	15.0	9.0	7.5	61.0	NA	\$582,185	\$674,911	\$907,025
14	7	Bessemer City	Pedestrian	Sidewalk and Crosswalks	Alabama Ave	NA	12th St	8th St	Ped	2.5	20.0	6.0	20.0	5.0	7.5	61.0	NA	\$356,084	\$412,799	\$554,767
15	83	Mount Holly	Pedestrian	Sidewalk	NC 273	Both	Summit Ave	Tuckaseege Rd	Ped	2.5	20.0	8.0	15.0	5.0	10.0	60.5	NA	\$575,532	\$667,200	\$896,660
16	75	Kings Mountain	Pedestrian	Sidewalk	Gold St	S	Gaston St	York Rd	Ped	2.5	20.0	4.0	20.0	6.0	7.5	60.0	NA	\$285,100	\$330,509	\$444,176
17	44	Gastonia	Pedestrian	Sidewalk	Hudson Blvd	All of North side; South side from Windsor Woods to Union Rd	York Rd (US321)	Union Rd	Ped	5.0	20.0	9.0	10.0	10.0	5.0	59.0	NA	\$724,700	\$840,126	\$1,129,059
18	78	Lowell	Pedestrian	Sidewalk	Church St	W	Lynn St	Movies Driveway	No	2.5	20.0	11.0	15.0	2.0	7.5	58.0	NA	\$524,477	\$608,012	\$817,118
18	63	Gastonia	Pedestrian	Sidewalk and Pedestrian Intersection Improvements	Union Rd		Hudson Blvd	Robinson Elementary	Ped	5.0	20.0	8.0	10.0	10.0	5.0	58.0	NA	\$694,659	\$805,300	\$1,082,256
19	52	Gastonia	Multiuse	Greenway, sidewalk, and bike facilities	Catawba Creek Greenway - Downtown Extension	NA	Marietta St	Linwood	Ped	15.0	19.3	10.0	2.5	9.0	2.5	58.3	NA	\$2,772,338	\$3,213,900	\$4,319,213
20	53	Gastonia	Multiuse	Greenway and sidewalk	Southwest/Phillips Center Greenway; Lyon St		Phillips Center Parking Lot; Southside Ave	Lyon St; Hudson Blvd	Ped	5.0	20.0	7.0	10.0	7.0	7.5	56.5	NA	\$724,506	\$839,901	\$1,128,756
21	11	Boiling Springs	Pedestrian	Sidewalk	S Main St	One	Flint Hill Church	Patrick Ave		9.0	17.0	3.0	20.0	2.0	5.0	56.0	NA	\$268,783	\$311,593	\$418,756
21	66	Gastonia	Pedestrian	Sidewalk	Gardner Park Dr; Pamela St	One	Downey Pl; Gardner Park Dr	Pamela St; Redbud Dr	Ped	2.5	17.0	8.0	15.0	6.0	7.5	56.0	NA	\$478,648	\$554,884	\$745,718
21	6	Bessemer City	Pedestrian	Sidewalk	Virginia Ave	S	12th St	8th St	Ped	2.5	20.0	6.0	15.0	5.0	7.5	56.0	NA	\$471,715	\$546,847	\$734,916
22	9	Boiling Springs	Pedestrian	Sidewalk	E College Ave	One	117 East College Ave	Hillcrest St		2.5	20.0	5.0	20.0	3.0	5.0	55.5	NA	\$290,286	\$336,521	\$452,256
22	8	Boiling Springs	Pedestrian	Sidewalk	E College Ave	One	117 East College Ave	Hillcrest St		2.5	20.0	5.0	20.0	3.0	5.0	55.5	NA	\$290,286	\$336,521	\$452,256
23	79	Mount Holly	Pedestrian	Sidewalk	NC 273	Both	S Main St	City Limits	Ped	9.0	20.0	6.0	5.0	7.0	7.5	54.5	NA	\$1,239,561	\$1,436,991	\$1,931,196
24	10	Boiling Springs	Pedestrian	Sidewalk	S Main St	One	Oak Ave	Flint Hill Church		2.5	18.0	5.0	20.0	3.0	5.0	53.5	NA	\$241,905	\$280,434	\$376,880
25	57	Gastonia	Multiuse	Sidewalk and Greenway	Hargrove Ave; Oakwood St; new greenway		Trexlar Ave; Hargrove Ave; Oakwood St	Oakwood St; Hillwood Dr; Ransom St	Ped	6.5	20.0	6.0	10.0	7.0	2.5	52.0	NA	\$590,329	\$684,353	\$919,713



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Figure 10-11: cont'd

Rank	Map ID	Submitting Agency	Mode	Facility Type	On Street	Side	From/Cross Street	To Street	In Adopted Plan?	Safety Points (20)	Accessibility Points (20)	Density Points (20)	Benefit Cost Points (20)	Social Equity Points (10)	Constructability Points (10)	Total Points (100)	2015 Cost	2025 Cost	2030 Cost	2040 Cost
25	30	Cramerton	Multiuse	Sidewalk	Mayflower Ave	W	end of sidewalks of 10th Ave	Cramer Mountain Rd	No	1.0	20.0	4.0	20.0	2.0	5.0	52.0	NA	\$389,655	\$451,717	\$607,070
26	81	Mount Holly	Pedestrian	Sidewalk	Belmont-Mt Holly Rd	Both	Margaret Ave	Forney Ave	Ped	5.0	20.0	6.0	5.0	7.0	7.5	50.5	NA	\$1,415,144	\$1,640,540	\$2,204,748
27	36	Gaston County	Pedestrian	Sidewalk	Neal Hawkins Rd	W	Hawks Ridge Dr	Martha Rivers Park	No	5.0	20.0	7.0	5.0	8.0	5.0	50.0	NA	\$1,099,324	\$1,274,417	\$1,712,710
28	32	Dallas	Pedestrian	Sidewalk	Dallas-Cherryville Hwy	N	existing sidewalk near Dallas High Shoals Hwy	Eden Glen Dr	No	2.5	20.0	4.0	15.0	2.0	5.0	48.5	NA	\$489,454	\$567,412	\$762,554
29	82	Mount Holly	Pedestrian	Sidewalk	Catawba Ave	One	Hawthorne St	Rankin Ave	Ped	2.5	14.0	5.0	15.0	4.0	7.5	48.0	NA	\$392,612	\$455,145	\$611,676
30	51	Gastonia	Multiuse	Greenway, Sidewalk, and Pedestrian Intersection Improvements	T Jeffers Greenway; Trakas Blvd; Franklin Blvd		Hartman St; T Jeffers Greenway; Trakas Blvd	Crescent Ln; Franklin Blvd; Walmart	Ped	9.0	20.0	6.0	2.5	5.0	5.0	47.5	NA	\$1,803,719	\$2,091,005	\$2,810,136
30	85	Mount Holly	Pedestrian	Sidewalk	NC 27	One	Hoover St	Main St	Ped	5.0	20.0	5.0	5.0	5.0	7.5	47.5	NA	\$1,596,371	\$1,850,632	\$2,487,094
30	88	Mount Holly	Pedestrian	Sidewalk	Tuckasee Rd	Both	S Main St	S Main St	Ped	2.5	20.0	8.0	2.5	7.0	7.5	47.5	NA	\$2,866,977	\$3,323,612	\$4,466,656
31	16	Cherryville	Pedestrian	Sidewalk	NC 150	N	.1 mi W of Brown	.1 mi E of Weaver	Ped	4.5	19.0	3.0	10.0	5.0	5.0	46.5	NA	\$620,889	\$719,781	\$967,325
32	86	Mount Holly	Pedestrian	Sidewalk	Noles Dr	One	Hoover St	Hawthorne St	Ped	2.5	19.0	6.0	5.0	6.0	7.5	46.0	NA	\$1,004,309	\$1,164,269	\$1,564,680
32	1	Belmont	Multiuse	Sidewalk	Wilkinson Blvd	Both	Entire City	Entire City	Ped and Bike	13.0	20.0	4.0	2.5	4.0	2.5	46.0	NA	\$2,687,833	\$3,115,935	\$4,187,556
33	34	Gaston County	Multiuse	Sidewalk and Bike Lanes	Union Rd	N	Robinson Rd	Forest Pointe Ln	No	13.0	20.0	3.0	0.0	2.0	7.5	45.5	NA	\$7,122,757	\$8,257,227	\$11,097,023
34	2	Belmont	Bicycle	Bicycle Lanes	NC 273	Both	S Main St	South City Limits	Bike	11.0	20.0	3.0	2.5	1.0	7.5	45.0	NA	\$1,548,192	\$1,794,778	\$2,412,032
35	13	Boiling Springs	Pedestrian	Sidewalk	Patrick Ave	One	Flint Hill Church	South Main		5.0	14.0	2.0	15.0	3.0	5.0	44.0	NA	\$315,820	\$366,122	\$492,038
36	27	Cramerton	Pedestrian	Sidewalk	Eagle Rd; Lakewood Rd	One	City Limits; C C Dawson Bridge	Lakewood Rd; Eagle Rd	Ped	2.5	20.0	4.0	10.0	2.0	5.0	43.5	NA	\$713,821	\$827,514	\$1,112,110
36	31	Dallas	Pedestrian	Sidewalk	Dallas-Cherryville Hwy	S	existing sidewalk near College Rd	Hoke Dr	No	5.0	20.0	4.0	5.0	2.0	7.5	43.5	NA	\$1,576,414	\$1,827,496	\$2,456,002
37	4	Bessemer City	Pedestrian	Sidewalk and Crosswalks	NC 161; Skyland Ave; W Rice St	SE; W; W	13th St; NC 161; Skyland Ave	Skyland Dr; W Rice St; S Pinchback Ave	Ped	2.5	20.0	4.0	5.0	4.0	7.5	43.0	NA	\$1,141,254	\$1,323,026	\$1,778,036
38	12	Boiling Springs	Pedestrian	Sidewalk	Flint Hill Church Rd	One	South Main	Patrick Ave		2.5	13.0	4.0	15.0	3.0	5.0	42.5	NA	\$369,577	\$428,441	\$575,789
39	22	Cherryville	Pedestrian	Sidewalk	Delview Rd	S	NC 150	Black Rock School Rd	Ped	8.5	17.5	3.0	2.5	4.0	5.0	40.5	NA	\$1,458,149	\$1,690,395	\$2,271,749
39	35	Gaston County	Pedestrian	Sidewalk	Tryon Courthouse Rd	W	Tryon Elementary School	Creekside Mobile Home Park	No	5.0	13.5	1.0	15.0	1.0	5.0	40.5	NA	\$247,281	\$286,666	\$385,255
40	74	Kings Mountain	Pedestrian	Sidewalk	York Rd	E	King St	Broadview Dr	Ped	2.5	20.0	3.0	5.0	4.0	5.0	39.5	NA	\$846,667	\$981,519	\$1,319,080
41	15	Cherryville	Pedestrian	Sidewalk	NC 150	N	Mountain St	Bud Black Rd	Ped	4.5	20.0	3.0	2.5	3.0	5.0	38.0	NA	\$2,530,595	\$2,933,653	\$3,942,584
42	84	Mount Holly	Pedestrian	Sidewalk	N Main St	W	Sandy Ford Rd	Lanier Ave	Ped	5.0	17.5	2.0	2.5	3.0	7.5	37.5	NA	\$2,159,203	\$2,503,108	\$3,363,968
43	73	Kings Mountain	Pedestrian	Sidewalk	York Rd	W	King St	Holiday Inn Dr	Ped	2.5	20.0	3.0	5.0	4.0	2.5	37.0	NA	\$846,667	\$981,519	\$1,319,080



# the way forward: 2040 Metropolitan Transportation Plan

Rank	Map ID	Submitting Agency	Mode	Facility Type	On Street	Side	From/Cross Street	To Street	In Adopted Plan?	Safety Points (20)	Accessibility Points (20)	Density Points (20)	Benefit Cost Points (20)	Social Equity Points (10)	Constructability Points (10)	Total Points (100)	2015 Cost	2025 Cost	2030 Cost	2040 Cost
44	33	Gaston County	Pedestrian	Sidewalk	Hickory Grove Rd	N	North Belmont Park	Perfection Ave	No	4.5	17.0	3.0	2.5	4.0	5.0	36.0	NA	\$1,962,118	\$2,274,632	\$3,056,916
45	19	Cherryville	Pedestrian	Sidewalk	Rudisill Ave	E	NC 150	Spinners St	Ped	2.5	11.0	4.0	10.0	3.0	5.0	35.5	NA	\$432,741	\$501,666	\$674,196
46	21	Cherryville	Pedestrian	Sidewalk	Mountain St; Harrilson Rd	W	Ridge Ave; Mountain St	Harrilson Rd; Montgomery St	Ped	2.5	16.0	2.0	5.0	4.0	5.0	34.5	NA	\$696,149	\$807,027	\$1,084,577
47	25	Cherryville	Pedestrian	Sidewalk	J C Dellinger Rd	Both	S Mulberry St	517 JC Dellinger Rd	No	2.5	15.0	2.0	5.0	3.0	5.0	32.5	NA	\$1,020,436	\$1,182,965	\$1,589,806
48	26	Cherryville	Pedestrian	Sidewalk	Requa Rd	Both	Sixth St	City Limits	No	2.5	16.0	2.0	2.5	4.0	5.0	32.0	NA	\$1,447,398	\$1,677,931	\$2,254,999
49	29	Cramerton	Pedestrian	Sidewalk	S. New Hope Rd; Stowe Rd	E	Cramer Mountain Rd; S. New Hope Rd	Stowe Rd; New Hope Elementary School	Ped	5.0	11.0	3.0	2.5	1.0	7.5	30.0	NA	\$953,912	\$1,105,845	\$1,486,164
50	24	Cherryville	Pedestrian	Sidewalk	Cherry St/Roy Eaker Rd	Both	NC 150	City Limits	No	2.5	17.0	2.0	0.0	3.0	5.0	29.5	NA	\$2,938,661	\$3,406,714	\$4,578,339
51	17	Cherryville	Pedestrian	Sidewalk	W Old Post Rd	N	Mountain St	Crown Creek Dr	Ped	2.5	14.0	2.0	2.5	3.0	5.0	29.0	NA	\$1,100,668	\$1,275,975	\$1,714,804
51	18	Cherryville	Pedestrian	Sidewalk	Mary's Grove Rd	Both	Stonewood Estates Dr	Old Post Rd	No	2.5	11.5	2.0	5.0	3.0	5.0	29.0	NA	\$596,296	\$691,270	\$929,009
52	14	Boiling Springs	Pedestrian	Sidewalk	Hillcrest St	One	East College	Wall Ave		2.5	6.5	4.0	10.0	3.0	2.5	28.5	NA	\$266,095	\$308,478	\$414,568
53	20	Cherryville	Pedestrian	Sidewalk	NC 279	Both	N Rudisill St	Dick Beam Rd	No	2.5	10.0	2.0	2.5	3.0	5.0	25.0	NA	\$1,184,125	\$1,372,725	\$1,844,828
54	37	Gaston County	Pedestrian	Pedestrian Tunnel	New Facility	NA	Poston Park	Carolina Thread Trail	No	5.0	7.0	2.0	0.0	2.0	5.0	21.0	NA	\$1,548,192	\$1,794,778	\$2,412,032
55	23	Cherryville	Multiuse	Sidepath	Black Rock School Rd	Both	Delview Rd	City Limits	No	2.5	9.7	1.0	2.5	0.0	5.0	20.7	NA	\$1,027,290	\$1,190,910	\$1,600,484



# 11 Public Transportation

The Gaston-Cleveland-Lincoln MPO Metropolitan Planning Area is served by a variety of public transit systems. These services range from demand response “dial-a-ride” service to van pools, fixed-route scheduled service, inter-city rail service, and inter-city bus service.

### Carpooling and Vanpooling

Vanpools are a flexible, comfortable, cost-effective way for groups of 5 to 15 commuters to share their ride to work. A vanpool consists of a group of people who live and work near each other and share similar commuting schedules. Each service tailors its schedule around the group’s needs, with all members deciding on the pick-up and drop-off locations and times. The Charlotte Area Transit System (CATS) currently operates a van pool program to assist groups of workers reduce commuting costs and congestion by sharing a vehicle to their destination in Mecklenburg County. As of January 2014 there are 15 van pools originating from the MPO’s Planning Area and terminating in Mecklenburg County. Nine of these van pools originate in Lincoln County, three in Gaston County, and three in Cleveland County.

### Demand Response Service

Each of the three Gaston-Cleveland-Lincoln MPO counties has its own Community Transportation System. These systems typically serve a transit-dependent population, especially for their medical-related trips. However, these services are open to the public and do carry “general population” riders. Each of the systems coordinates with employment centers to provide services, but like other Community Transportation Systems in North Carolina, they do not carry a significant number of commuters.

Gastonia Transit also provides demand response service within the City of Gastonia during the same hours as its fixed-route service. This curb-to-curb van service is intended for passengers that cannot utilize the fixed-route bus system due to a physical or mental disability.

### Local and Regional Fixed-Route Service

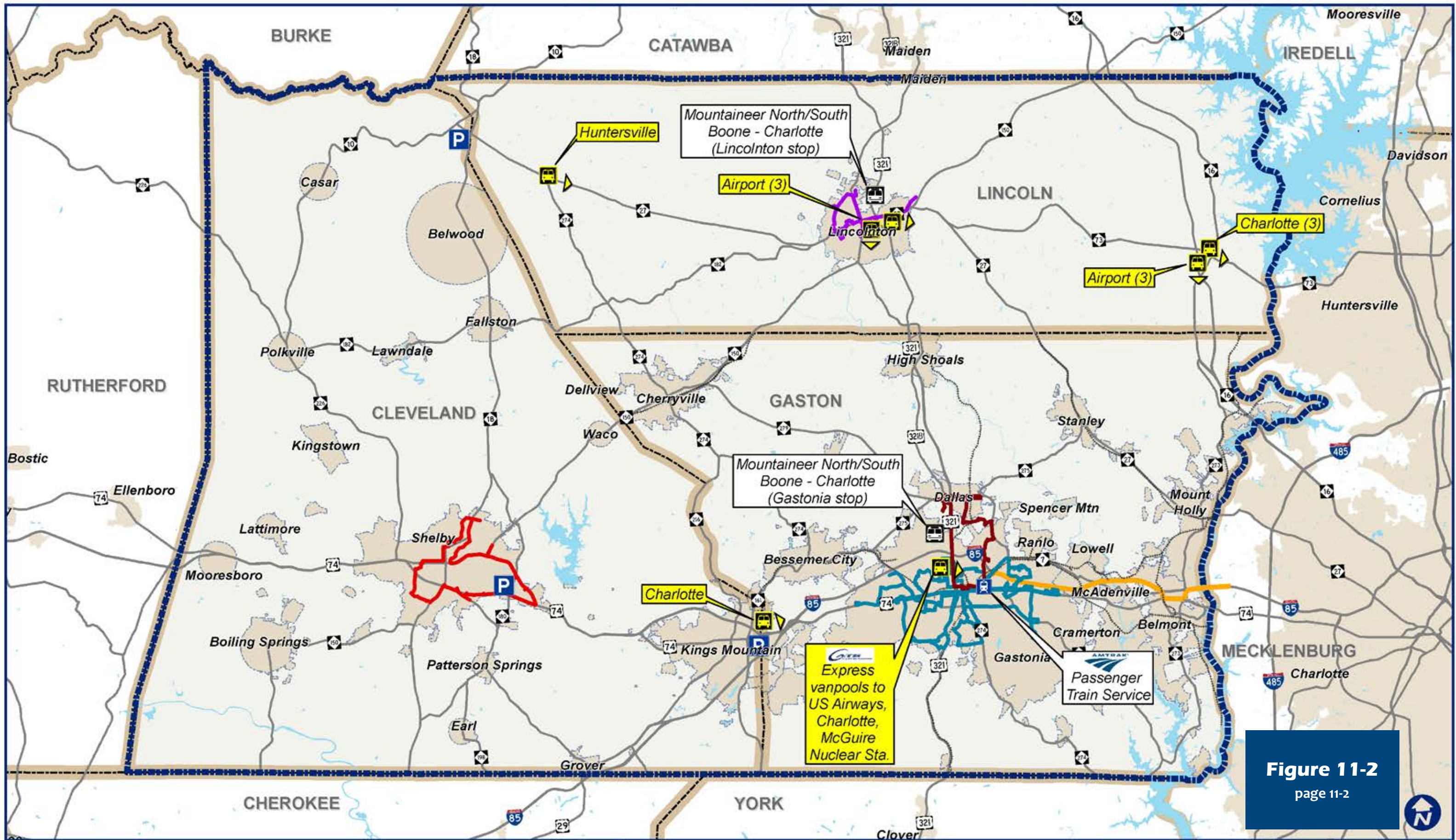
The urban centers of the three counties, where residential and employment densities are higher, are home to the fixed-route public transit service within the GCLMPO. These routes are illustrated in Figure 11-2

**Figure 11-1: Existing Community Transportation Service Characteristics**

System	Number of Vehicles	Average Trips Served per Day (2011)	Days of Service	Hours of Service	Cost per Trip
Transportation Lincoln County	17	275	Monday- Friday	5 AM- 6 PM	\$1.00
Gaston County ACCESS	29	650	Monday- Friday	4 AM- 7PM	\$1.00
Transportation Administration of Cleveland County	26	405	Monday- Friday	6 AM- 6 PM	\$1.25







**Figure 11-2**  
page 11-2

# GASTON-CLEVELAND-LINCOLN MPO EXISTING TRANSIT SERVICES

<b>LEGEND</b>	<b>Highways</b>	<b>Vanpool (&amp; destination)</b>	<b>TACC Route</b>
	<b>Major Roads</b>	<b>Regional Bus</b>	<b>Gaston ACCESS Route</b>
	<b>Counties</b>	<b>Park &amp; Ride</b>	<b>Gastonia Transit Routes</b>
			<b>CATS 85X Route</b>

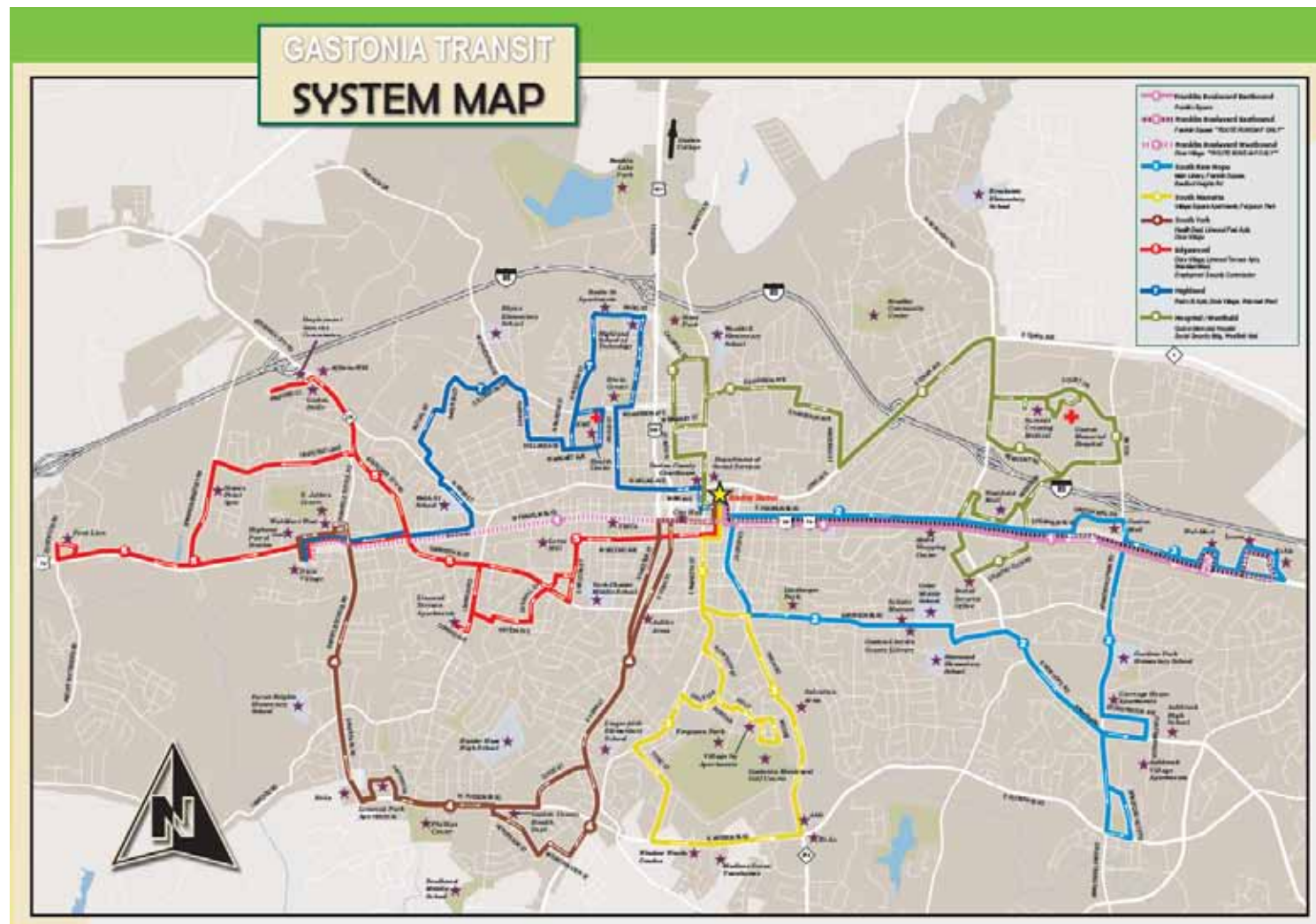
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GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



Figure 11-3: Gastonia Transit System Map



Gastonia Transit operates eight fixed-routes within the City of Gastonia. The system is characterized as a “pulse” system with all buses coming to a central location, in this case Bradley Station, at regular time intervals to facilitate easy transfers for riders. A map of these routes can be seen above. Route frequencies, or headways between buses, vary from one hour to an hour and a half. Gastonia Transit operates 5:30 AM-6:30 PM Monday-Friday and 8:00 AM-6:00 PM on Saturdays. The agency provides nearly 300,000 miles and 21,000 hours of service to carry nearly 300,000 trips per day. Fixed-route ridership and system performance measures

for Gastonia Transit are illustrated in Figures 11-4 and 11-5. After a fare increase and reduction in service, bus ridership dropped significantly in the early 2000’s. But since that time existing routes have been restructured, coverage has been extended to new areas, and ridership has remained relatively stable since 2005. Still, the efficiency of Gastonia Transit, measured by passengers per revenue hour and passengers per revenue mile, remains well below the efficiency of the system in the early 2000’s.

Figure 11-4: Gastonia Transit Bus Ridership Table

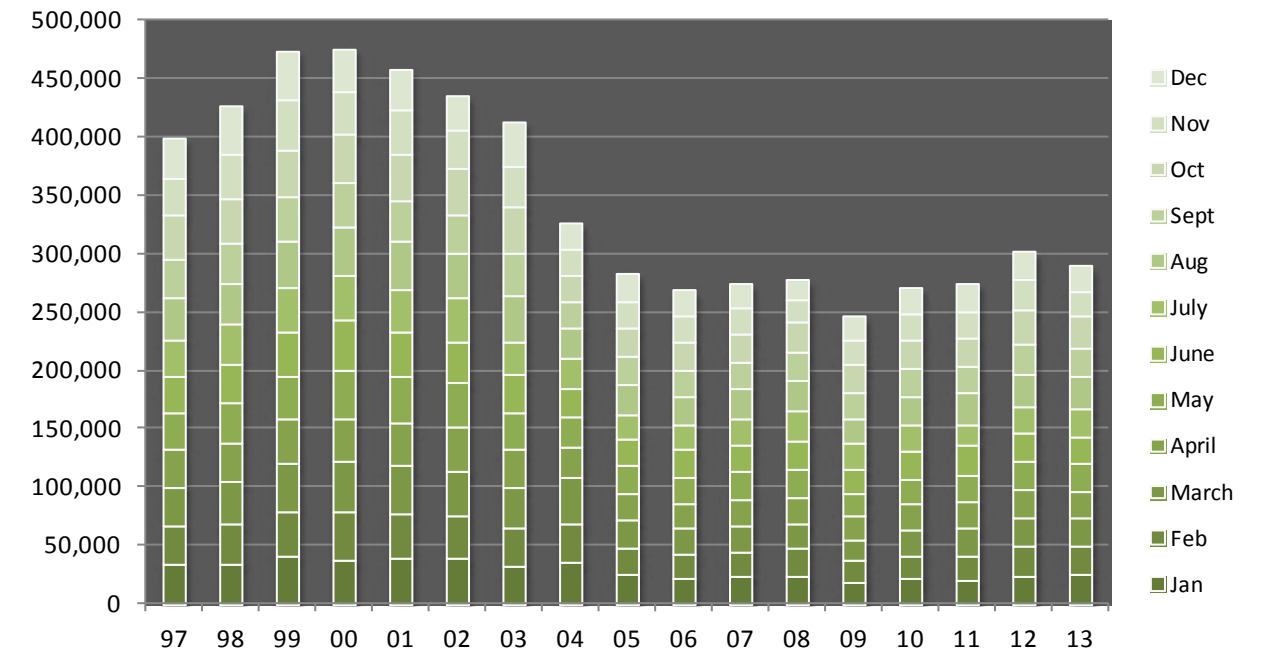
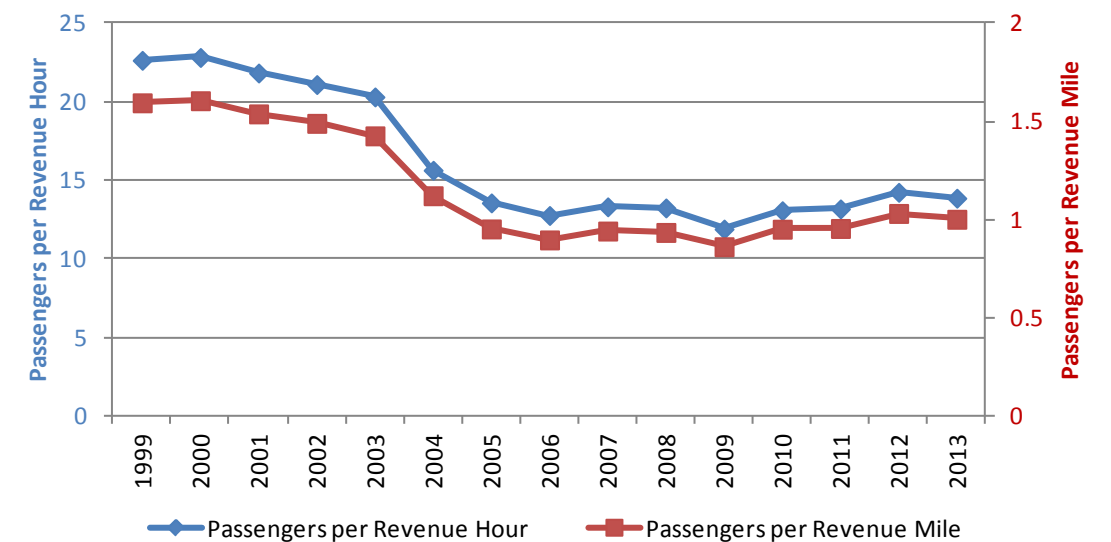


Figure 11-5: Gastonia Transit System Performance Measures







Though more limited in scope, the Community Transit Systems in each county also operate fixed-route and deviated fixed-route services in Gastonia, Dallas, Shelby, and Lincoln. Gaston ACCESS operates a route between Downtown Gastonia and Gaston College, serving Gaston College students and riders with origins and destinations in the Town of Dallas. Transportation Administration of Cleveland County (TACC) and Transportation Lincoln County (TLC) both operate circulator routes that are mostly limited to the city limits of Shelby and Lincoln respectively.

Charlotte Area Transit System (CATS) operates several regional express bus routes in the counties surrounding Mecklenburg County. The 85x - Gastonia Express is currently the only remaining express route in the GCLMPO Planning Area. It provides weekday service between Downtown Gastonia and Uptown Charlotte, including a stop in Belmont. GCLMPO staff surveyed riders of the 85X - Gastonia Express in June 2013 to collect information about rider demographics, destinations, and motivation for using transit. Highlights of this survey include:

- 89% of respondents indicated a work-related trip purpose.
- Uptown Charlotte was the origin or destination for 64% of riders.
- 64% of respondents indicated that they would drive alone if the service did not exist while 16% indicated that they simply would not make the trip.
- The residential origin of riders is diverse, though most respondents indicated residence in Gastonia (56%), Belmont (11%), and Charlotte (9%).
- 25% of respondents indicated that they did not have regular access to a vehicle.
- The household income of riders varied, though most were below the median household income of the metropolitan statistical area. 21% had household incomes above \$100,000.

Gastonia and Belmont share the operating costs of the route with CATS, although CATS pays for all capital and administrative costs associated with the route. These peak-hour services are operated Monday-Friday and are successful in attracting commuters out of their vehicles and into buses. Though it is no longer active, the 88X - Lincoln County Express served a role similar to the Gastonia Express. The 88X - Lincoln County Express service was terminated in 2010 due to continuing concern over the low farebox recovery ratio for the service.

Figure 11-6: Express Bus Statistics

Route	2010 Average Daily Ridership	Years Service Operated	Location of Stops	Scheduled Service
85X - Gastonia Express	200-260	2001-current	Bradley Station and Abbey Plaza (Belmont)	AM and PM peak-hour service
88X - Lincoln County Express	150	2004-2010	NC 16 and NC 73	AM and PM peak-hour service



# the way forward: 2040 Metropolitan Transportation Plan

## Inter-City Service

Inter-city bus service provides transit service between distant cities, with stops spaced further apart than commuter-oriented services like the 85X - Gastonia Express. In the GCLMPO there are two providers of inter-city transit service, Greyhound Bus Lines and Coach America.

Greyhound Bus Lines has a station in Kings Mountain that allows travelers to head either north towards Charlotte or south towards Atlanta.

In 2010 the NCDOT contracted with Coach America to provide inter-city bus service between Charlotte and Boone. This route is called the N-S Mountaineer. Ridership has steadily increased since inception. Ridership for FY 10-11 averaged 300 passengers per month. Ridership for FY 11-12 nearly doubled to approximately 600 passengers per month. The majority of trips originate or terminate in Charlotte, but there is some utilization of the stops in Lincolnton and Gastonia. This service operates seven days a week, with two round trips made each day.

Figure 11-7: Intercity Bus Routes with Population and Transit Dependent Density and Institutions

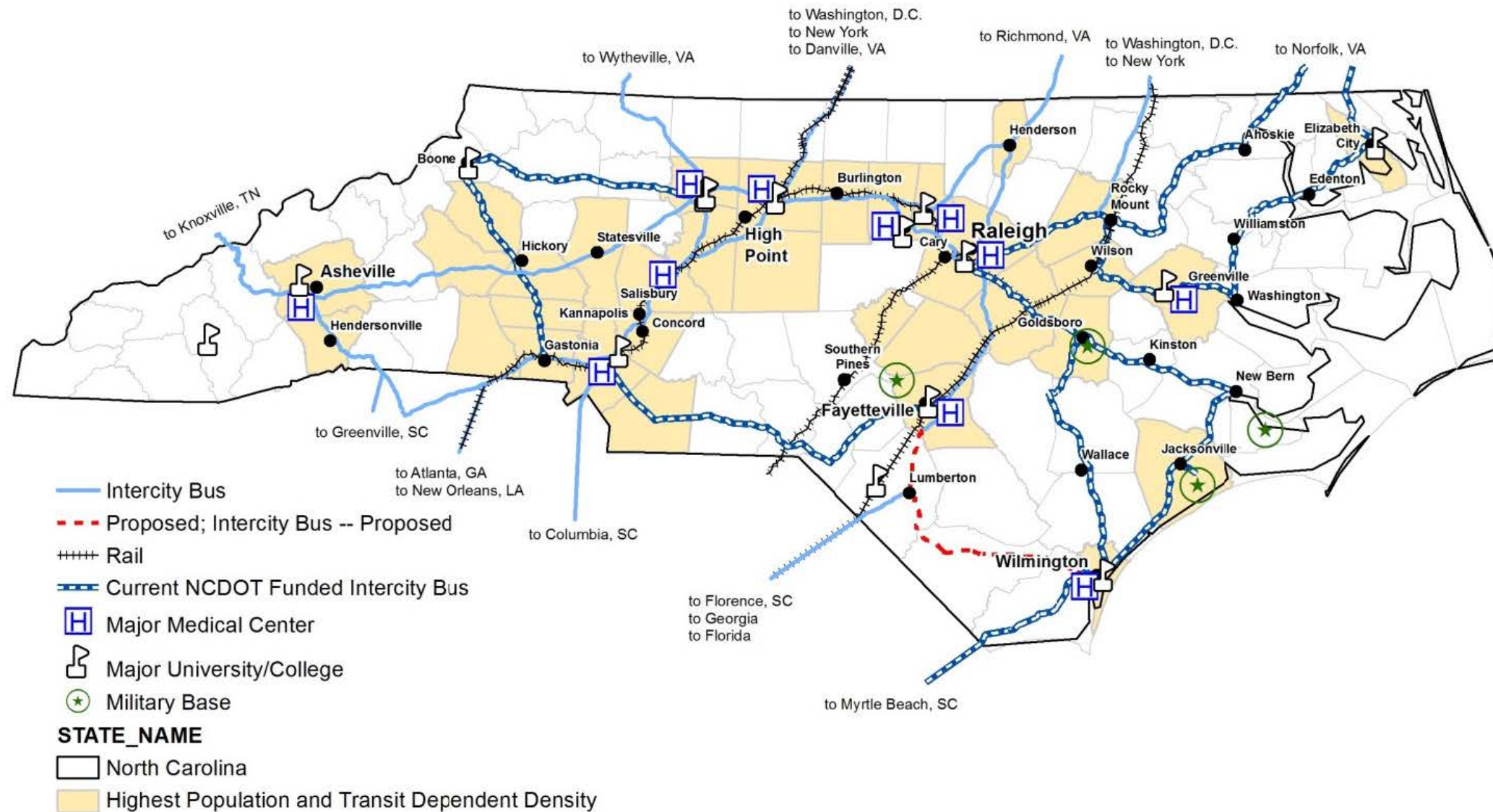
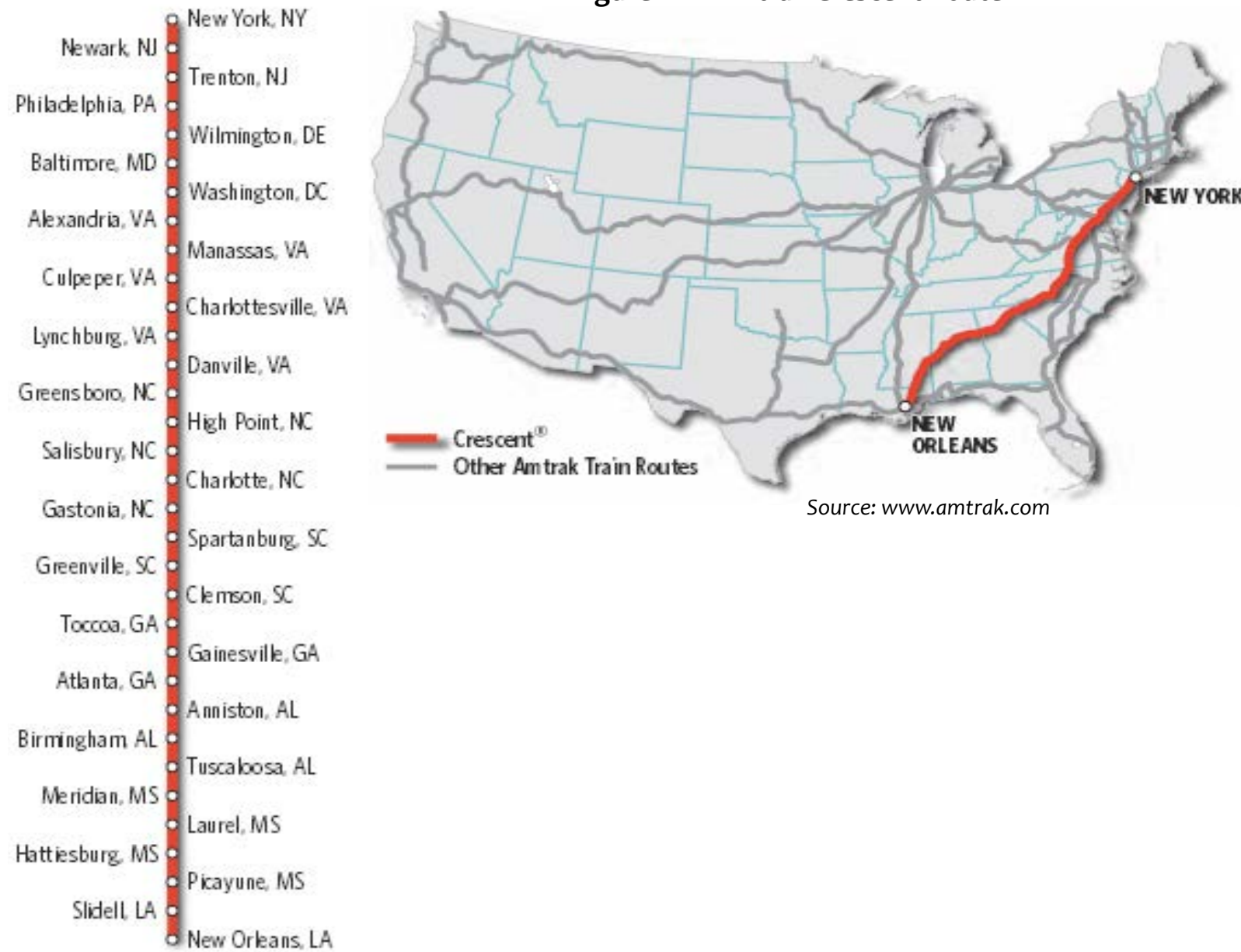




Figure 11-8: Amtrak Crescent Route



Amtrak also operates one daily route, the Crescent, through Gastonia. This route allows passengers to travel to the Northeast, as well as southwest towards New Orleans. In Fiscal Year 2013, boardings and alightings at the Gastonia station were by far the lowest of all Amtrak stations in North Carolina. This is likely explained by many reasons, including: only being served by one Amtrak route; early AM arrival/departure times of the trains; the isolated location of the station; and proximity to the Charlotte Amtrak station where more frequent and greater service is provided.

Figure 11-9: 2013 Ridership for North Carolina Amtrak Stations

City	Boardings + Alightings
Burlington	25,452
Cary	88,669
Charlotte	201,481
Durham	83,232
Fayetteville	53,590
Gastonia	1,741
Greensboro	139,869
Hamlet	4,882
High Point	40,302
Kannapolis	19,205
Raleigh	159,584
Rocky Mount	52,631
Salisbury	31,539
Selma-Smithfield	13,222
Southern Pines	7,554
Wilson	52,692
<b>All NC Stations</b>	<b>975,645</b>

Source: Amtrak Fact Sheet, Fiscal Year 2013, State of North Carolina



# the way forward: 2040 Metropolitan Transportation Plan

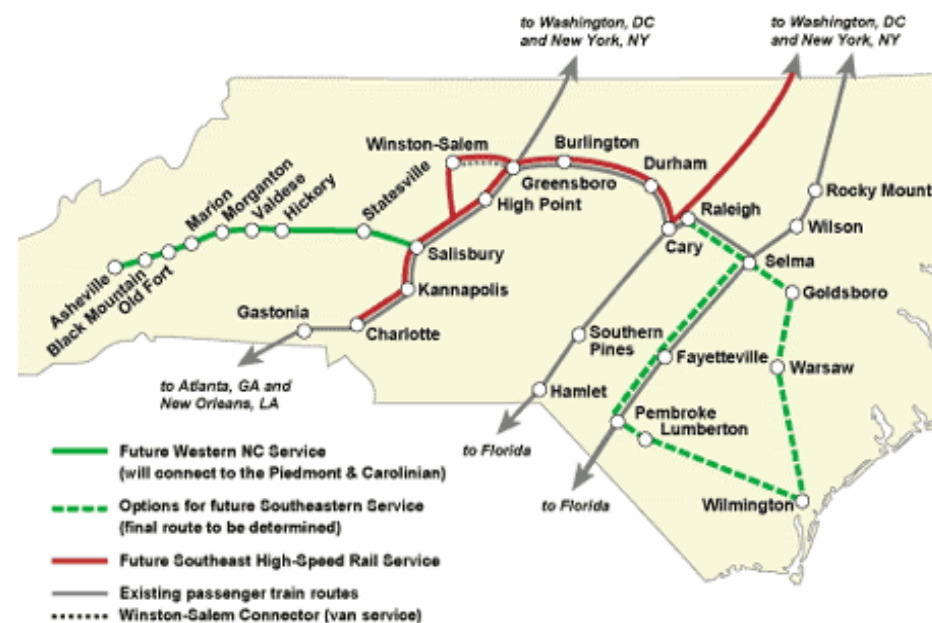
## Transit Planning

The GCLMPO and the City of Gastonia have conducted a number of transportation studies that focus on the improvement and expansion of public transportation in Gaston County. Each of these studies are noted here as they present various research perspectives and provide many valid recommendations. Previous plans, reports and studies are listed below:

1. Gaston Rapid Transit Alternatives Study Corridor and Modal Options
2. Gastonia Transit Expansion Study
3. Gastonia Multimodal Transportation Center and Conceptual Design Study
4. GCLMPO Coordinated Comprehensive Public Transportation Plan

### 1. Gaston Rapid Transit Alternatives Study Corridor and Modal Options

The Gaston Rapid Transit Alternatives Study (GRTAS) researched alternative public transportation options for service improvements in the Gastonia-Charlotte corridor, in consideration with the extension of transit improvements by the Charlotte Area Transit System (CATS) in Mecklenburg County's West Corridor. Establishing the nature of the public transportation



needs in the Gaston County extension of the CATS corridor also enables the establishment of goals and objectives for public transportation service. The goals and objectives in turn lead to criteria, which can be applied to evaluate the relative merits of various public transportation alternatives. The range of modes studied includes Bus Rapid Transit, Light Rail Transit, Streetcar or “trolley”, and Commuter Rail. Alignments considered include I-85, US-29 / US-74 (Franklin / Wilkinson Boulevard), the Piedmont & Northern railroad right-of-way, and the Norfolk Southern main line to Atlanta.

The CSX railroad operates two lines within the study area. The former Piedmont and Northern (P&N) line starts in the center of Gastonia, runs parallel to NC-7 at first, then turns northeast towards Lowell and Mount Holly and crosses the Catawba River into Mecklenburg County. P&N also operated the “Belmont Spur” which branched out and turned south from the main line, west of Mount Holly, and extended into the town of Belmont. Within Gaston County, only that portion of the former P&N from a point approximately 500 feet west of the old Mount Holly depot to the Catawba River is owned and operated by CSX. The remainder of the route is owned by NCDOT and is out of service. The CSX-owned portion of the line serves various shippers in Mecklenburg County, where the right-of-way is relatively close to the former Seaboard Coast Line (SCL) tracks also owned and operated by CSX. The portion of the former P&N owned by CSX functions as a secondary track between Mt. Holly, Pinoca, and the end of CSX ownership approximately one mile west of Cedar Yard in Charlotte. The SCL alignment is operated as a main line by CSX. Thru traffic on the SCL today is estimated at about 15 trains per day, primarily unit coal trains. In 2001, gross tonnage through Mount Holly was 26 million tons. It is believed to have remained fairly stable since then.

### Findings

Trolley, Bus Rapid Transit (BRT) and Light Rail Transit (LRT), the three modes being carried forward in the CATS West Corridor, are considered for the Gaston County Rapid Transit service as well. Commuter rail is not considered as an alternative for connecting to CATS' West Corridor, for reasons presented in Section 2.6.1. However, Section 2.6.1 describes a commuter rail service concept which has been developed by the North Carolina Department of Transportation (NCDOT) and may prove helpful to

Gaston County even though it does not serve the West Corridor. Wilkinson Boulevard, I-85 for BRT but not for LRT, and the Piedmont and Northern (P&N) route in Gaston County are considered as potential alignments. The Norfolk Southern main line is rejected.

The BRT mode lends itself to several types of operation:

- Type 1, “Busway All Stops” operates entirely on the guideway and stops at all stations.
- Type 2, “Busway Limited” service operates on local streets for collection and distribution functions at one or both ends of the guideway and uses the guideway making no stops or only a few selected stops en route.
- Type 3 is limited-stop or express (“closed door” or nonstop between points in different communities) service using existing arterials or expressways but not an exclusive guideway.

All three service types may operate in Gaston County. It is anticipated that many of the BRT trips would be through-routed to provide a one-seat ride between points in Gaston and Mecklenburg Counties. Depending on the alignment, six or seven stations would be located on the guideway in Gaston County.

LRT is confined to guideway operation and most likely would be in the all-stops mode, with feeder bus service providing access to the stations. The existing Gastonia Transit service would be the basis of the feeder service, with short diversions to LRT stations as appropriate.

Details of the possible station locations are mapped, and the operating concept is described in more detail in the rest of this chapter. Some design challenges are identified. The major capital items associated with each alternative are identified as well.

The three modes considered were Bus Rapid Transit (BRT), Trolley/Streetcar, and Light Rail Transit (LRT) which the CATS West Corridor Major Investment Study had recommended to be carried forward for further analysis along various corridor alignments.



## RECOMMENDATIONS

Ultimately, the Gaston urban area will have to select a mode and an alignment for its link to CATS' West Corridor service. Although it would be premature to attempt to do so on the basis of the sketch-level analysis in this study, some observations may help focus the energy and thinking of those concerned individuals attempting to envision rapid transit's future role in the area.

In light of projected ridership, BRT appears as the most appropriate choice of mode for the Gaston urban area's link to the CATS West Corridor service. Projected travel demands are relatively low for a rapid transit corridor, and an expensive rail system extension is not likely to fare well in anything like the New Starts competition for financial assistance from the Federal Transit Administration. As indicated in the Consultant's Recommendation, the LRT alternatives are at least three times as costly as the BRT alternatives, but do not appear to have anything like three times the payoff.

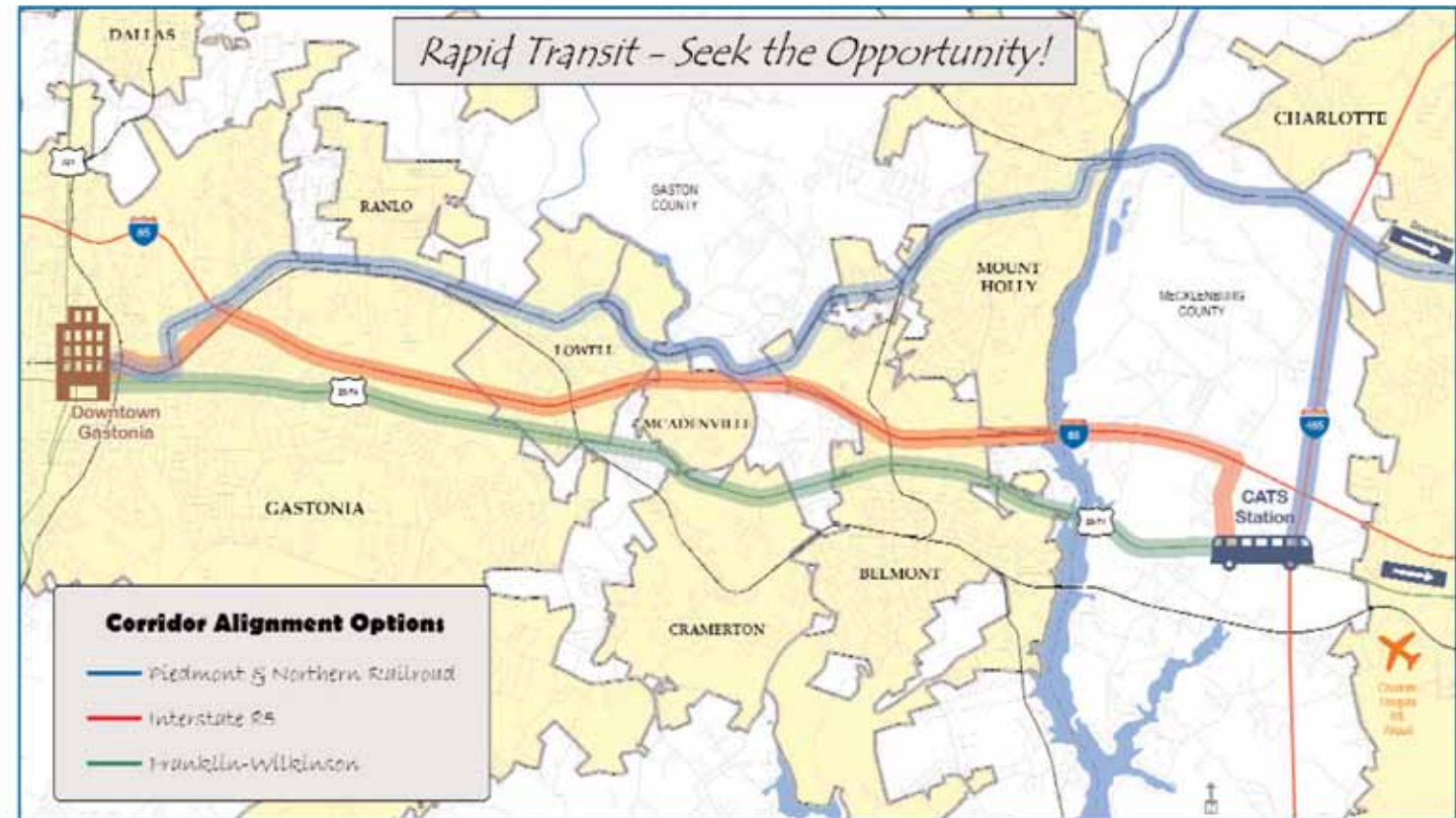
Overall, a Wilkinson alignment has potential for slightly greater ridership and lower costs, though differences are well within the standard margin of uncertainty for a feasibility analysis.

A decision on alignment should be made only after careful analysis of alternatives for development and how likely they are to be achieved. Fortunately, BRT-like service can be started on existing streets and highways (in effect, the existing 85X service has some aspects of BRT already) and modified as opportunities arise. At earliest, an Alternatives Analysis for the Gaston urban area is likely to begin in 2006, but expanded bus service could start earlier if funding becomes available. In this way, demand for the BRT service could be stimulated even without exclusive guideways.

- The Gaston urban area's strategy at this point should be to plan for BRT, but keep modal and alignment options open. LRT in Gaston County without LRT in the West Corridor in Mecklenburg makes no sense. If CATS does commit to LRT in the West Corridor, the Gaston urban area will have to decide if the added investment and annual operating cost increase over BRT are worthwhile. On the basis of this study's analysis, the outcome is virtually the same in terms of ridership, running time, and area

served. However, the LRT capital cost is over three times the most expensive BRT alternative, and LRT annual operating cost is some 60 to 70 percent more than BRT. In effect, Gaston County would be paying a very high price for little more than image; the transit impacts are virtually neutral in other aspects.

- The Gaston urban area should continue its efforts to identify what its residents and businesses would prefer the future shape of its land uses to be, and make the legislative and administrative changes necessary to enable that future to be realized. Because of the linkage between transportation planning and land use planning and regulation, a key factor in alignment selection should be planned land uses in station areas and elsewhere along the alignment. The desired land use could be a major influence on the choice of alignment. Conversely, timely action to encourage transit-oriented development along a selected alignment can serve to stimulate development and redevelopment along desired lines as well as provide more ridership for the rapid transit service, thereby decreasing congestion in the corridor.
- Major capital facility design and construction in Gaston County's extension of the West Corridor should only follow firm commitments to those activities in Mecklenburg County, but some intermediate steps can be taken earlier to establish the area's commitment to rapid transit. Gastonia's best alternative depends to a large extent on CATS' decision



as to mode and alignment in the West Corridor. However, at least one other element of BRT could be implemented without selecting an alignment. The multi-modal center serving downtown Gastonia could be built before an alignment is selected, since the recommended site is convenient to all of them. It can be built modularly with the intent to expand as modes are added.

### Multimodal Transportation Site Selection Analysis

The Rapid Transit Alternatives Study also included an evaluation of sites and recommendation for the location for a new multimodal transportation station. The modes served at the station would be local bus, intercity bus, bus rapid transit, vehicles, pedestrians, bicycles, and possibly light rail or commuter rail transit. The existing bus terminal, the Bradley Station, serves as the existing Gastonia transit facility. It has a bus loop, a pavilion for waiting passengers, and park/ride spaces.



Figure 11-10: Gastonia Multimodal Station Site Alternatives



Legend	
1 = Existing Bradley Station	3 = Abandoned Sears Building
2 = East Main Avenue & Broad Street	4 = Old Firestone Mill

The City is planning for a new transit center, which will be a multimodal center. The City has identified potential sites for a new multimodal station. This task includes the recommendation of one of these sites, along with a conceptual site design. This technical memo provides a preliminary analysis of four sites selected by the City.

1. East Main Avenue and Oakland Street (existing Bradley Station)
2. East Main Avenue and Broad Street (between the concrete ready-mix plant and the restaurant)
3. West Main Avenue between Highland and Trenton Streets (Abandoned Sears Building)
4. West Second Avenue and Firestone Street (Old Firestone Mill)

## SITE EVALUATIONS

### Site 1: Bradley Station

The Bradley Station is the existing bus terminal facility in the City. Located in the Historic Downtown, it currently serves buses and park / ride. Though the retaining wall is deteriorating, plans are being made to make repairs.

### Site 2: East Main Avenue and Broad Street

This site was the location of the City’s original transit station. It is at the edge of downtown Gastonia at East Main Avenue and Broad Street, approximately three blocks from the Greyhound Station and one block from the existing Bradley Station. Portions of this site are currently occupied by a popular restaurant’s parking lot. To the east of the site is a concrete ready-mix plant. The City has indicated that this plant could be relocated in the future.

### Evaluation Criteria

The following criteria have been developed to evaluate and compare the four sites. We have applied the same criteria in other cities and found that they effectively capture key issues without being unduly onerous or constraining.

- 1) Program Compatibility
  - a) Site accommodates required bus, BRT, and rail service. Space is adequate for pavilion, benches, park / ride, and concessions. Expansion capabilities for additional buses.
- 2) Site Characteristics
  - a) Proximity to downtown
  - b) Compatibility with adjacent land uses
  - c) Pedestrian and bicyclist access; community access
  - d) Development potential on and adjacent to site
  - e) Site modifications required
- 3) Operations
  - a) Impacts to existing bus routes and services
  - b) Traffic flow impacts
  - c) Personal safety
  - d) Site Availability
  - e) Land acquisition needed

The Norfolk Southern railroad is at grade at this location. The Broad Street rail spur travels down Broad Street, to the west of this site. Though it is not currently in operation, there may be future plans for the rail line’s use. NCDOT’s Rail Division urges maintaining availability for potential future freight service.

This site provides excellent proximity to downtown, acceptable adjacent land uses (if the concrete ready-mix plant were relocated), acceptable access, and no significant impact to traffic operations. Constructing a station at this site would require upgrades to pedestrian and bicycle facilities; access to and from downtown would require crossing Broad Street, a wide street with no crosswalks or pedestrian signals.

Because the Norfolk Southern rail line is at grade at this location, making a connection to rail service would not require significant reconfiguration. The eastern boundary of the site is the Piedmont and Northern (P&N) right-of-way, now owned by NCDOT. Their Rail Division has identified this site as a potential rail station location.

### Site 3: Abandoned Sears Building

This site is on West Main Avenue approximately four blocks west of historic downtown Gastonia. The site includes an abandoned Sears Building and its parking lot. The Norfolk Southern rail line is at grade in this location.

This site provides excellent access to the Norfolk Southern rail line, no significant impact to traffic operation, and adequate space for a multimodal station. However, it provides poor proximity to downtown; acceptable adjacent land uses, and requires land acquisition.

### Site 4: Old Firestone Mill

This site is the farthest of the four from downtown Gastonia. The City has discussed eventually constructing a new civic center at this site to encourage more activity. The funding and location of the civic center is uncertain and thus the facility presence will not be considered in this evaluation.



It would not be convenient for pedestrians to travel from this site to downtown Gastonia. The trip would require walking several blocks and crossing wide and heavily traveled roadways. In addition, this site does not provide access to the Norfolk Southern rail line.

### Selected Site Recommendation

Taking all things cited into consideration, Site 2 is recommended as first choice. It fits best and most easily with multi-modal access, being able to support both commuter rail (or LRT) and intercity rail from a single, at-grade access point. Site development would be relatively straightforward, and redevelopment of adjacent parcels using TOD principles could completely change the character of the vicinity.

## 2. Gastonia Transit Expansion Study

Based on the array of baseline system and expansion strategies discussed, a series of recommendations has been established. These recommendations address concerns regarding the efficiency of the current system, as well as opportunities for future expansion. Eight primary action items are defined based on public and stakeholder input, demographic analyses, and examinations of current services. These action items include a variety of improvements, including restructuring of existing services, initiation of new services, and extended hours of operation.

The implementation plan was designed to develop responsive strategies to transit needs, using public input to prioritize the recommended improvements. Additionally, the plan provides a realistic program that can be implemented in a phased approach, based on funding availability.

A variety of funding sources could be tapped to implement the recommended projects, and each strategy is linked to the most appropriate funding sources. It is important to note that the projects contained in the implementation plan are presented in the recommended order of priority, but funding availability may dictate adjustments to the order of implementation. For example, if Bessemer City elects to fully fund the Bessemer City Flexroute (Priority #5) immediately, there is no reason to wait on other jurisdictions to participate in funding Priorities #2-4 first.

It is important to ensure that the existing system is operating as efficiently as possible, before taking on expansion projects. Based on the significant decrease in ridership since the last service changes in 2004, a top priority for Gastonia Transit is to restructure the current system to reduce the travel times for customers to the extent possible. After the system restructuring is complete, a series of expansion projects can further enhance mobility options for current and future customers. An overview of the prioritized implementation plan is shown and each of the proposed projects is discussed in the plan which may be accessed at [www.gclmpo.org](http://www.gclmpo.org).

It is anticipated that the proposed implementation plan may take several years to implement, based on funding availability, or may be implemented one recommendation at a time. However, continuing to progress toward implementing the recommendations will result in a much improved transit system.

## PROJECT RECOMMENDATIONS

### #1: Implement Baseline Alternative #1

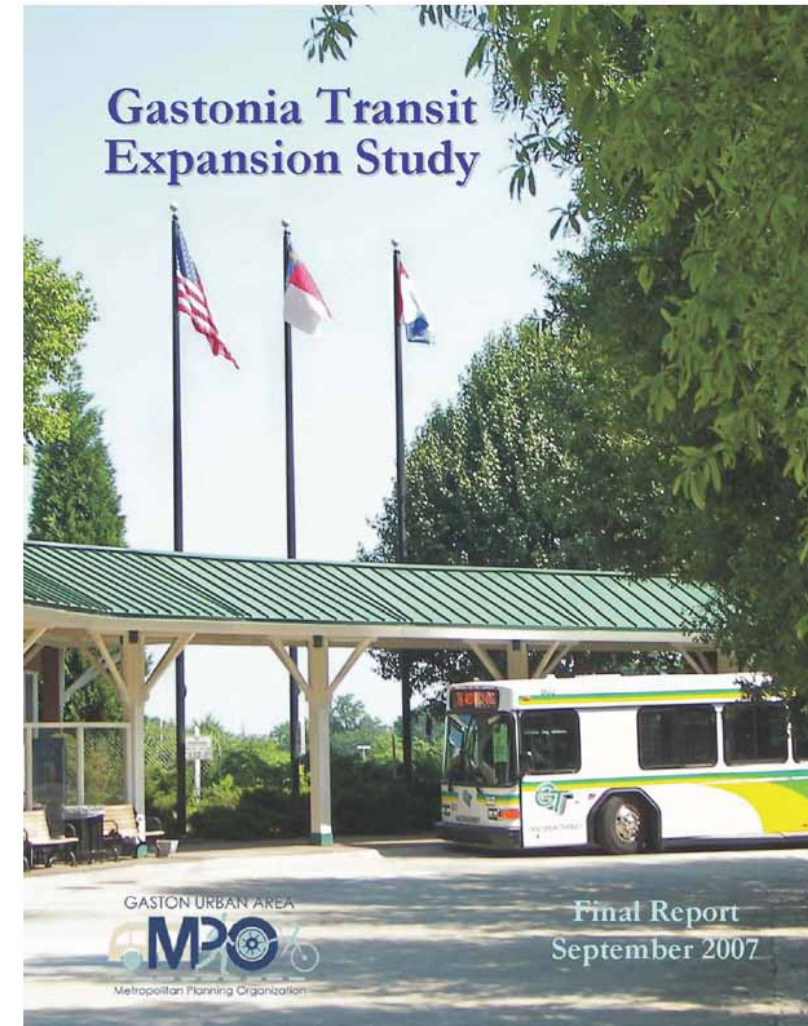
An action item under this plan for Gastonia Transit is to begin the process of restructuring the current system to operate according to the concept described as Baseline Alternative #1. This concept is described in detail in Section 4, but is focused on providing a more effective service design within the constraints of the existing operating budget (same hours of service and same number of vehicles in operation). Please refer to Section 4 for details regarding Baseline Alternative #1, including the proposed route network.

### #2: Extend Weekday Service to 9 PM

The most requested improvement by the public is for extended evening service. This project would extend weekday service on all routes to approximately 9 PM. No additional changes to the route structure or frequency of service would occur in association with this project. For more information, please see Section 5.4.

### #3: Initiate East Gaston Flexroute

New service would be provided between Franklin Square in Gastonia and Little Rock Road in Charlotte via US 74, with demand-response deviations



to serve portions of Belmont, Mount Holly, McAdenville, Cramerton, and Lowell. Connections to GT fixed routes would be provided at Franklin Square, and connections with CATS Route 5 would be enabled at Little Rock Road. Weekday service would be provided between 5:30 AM and 9:30 PM, and Saturday service would be provided between 7:30 AM and 6:30 PM. Gaston County ACCESS is the recommended operator of this route. For more information, please see Section 5.2.

### #4: Expand Fixed Route Service to Baseline Alternative 2

This project would modify the service design from that of Baseline Alternative 1 to that of Baseline Alternative 2. One additional bus would be added on weekdays (total of seven buses in operation), and one additional bus would



Figure 11-11: Implementation Plan

Recommendations	Project	Annual Operating Costs	Capital Costs
1	Implement Baseline Alternative 1	\$1,513,000	\$0
2	Extend service until 9 PM (weekdays only)	\$295,000	\$0
3	Initiate East Gaston Flexroute (weekdays until 9:30 PM; Saturdays until 6:30 PM)	\$95,000	\$60,000
4	Modify fixed-route service to that of Baseline Alternative 2 (extended service on New Hope Road, more frequent service on Shannon Bradley route, more Saturday service)	\$284,000	\$0
5	Initiate Bessemer City Flexroute (weekdays until 9:30 PM; Saturdays until 6:30 PM)	\$95,000	\$60,000
6	Extend Saturday service until 9 PM (maintain existing frequency and routes)	\$66,000	\$0
7	Add South Union Road route	\$325,000	\$60,000
8	Add Downtown Trolley route	\$203,000	\$75,000 - \$300,000
<b>TOTAL</b>		<b>\$2,876,000</b>	<b>\$255,000- \$480,000</b>

Based on 2007 dollars

be added on Saturdays (total of four buses in operation). The majority of the route structure would remain the same as in Baseline Alternative 1, but Route 2 would be extended to serve the Ashbrook High School area, and more frequent service would be available on Route 5. For more details, please refer to Section 4.3.

#### #5: Initiate Bessemer City Flexroute

Demand-response service would be provided within a designated zone in and around Bessemer City. Passengers could travel to destinations within the designated zone, or connections could be made to GT fixed routes at Dixie Village. Weekday service would be provided between 5:30 AM and

9:30 PM, and Saturday service would be provided between 7:30 AM and 6:30 PM. Gaston County ACCESS is the recommended operator of this service. For more information, please see Section 5.2.

#### #6: Extend Saturday Service to 9 PM

Building upon the earlier project to extend the hours of weekday service, this project would extend Saturday service on all Saturday routes (including newly-initiated flexroutes) to approximately 9 PM. No additional changes to the route structure or frequency of service would occur in association with this project. For more information, please see Section 5.4.

#### #7: Add South Union Road Route

This project would create a new fixed route on Union Road extending from Bradley Station south to the Robinwood Road area. The route would operate on weekdays and Saturdays until 9 PM (consistent with the other routes). It is recommended that a minibus be used for operations on this route, in recognition of the potential for lighter ridership loads in comparison to other fixed routes. For further details, please see Section 5.2.

#### #8: Add Downtown Trolley Route

A downtown circulator route would be provided using a replica trolley vehicle. The intent of this route is to connect downtown businesses and law offices with the County Court House and other facilities. It is noted that additional downtown development would need to occur to give such a route a higher potential for success. The service would operate on weekdays between 7 AM and 6 PM. For more information, please refer to Section 5.2.

#### ADDITIONAL RECOMMENDATIONS

In addition to the eight major recommendations described above, two additional projects are suggested based on public and stakeholder input:

- Study the feasibility of vanpool service; and
- Add bike racks to GT buses.

Vanpool service is used in a number of different areas in North Carolina and around the country to connect workers to job sites in areas where there may not be sufficient demand for dedicated transit services, but commuting workers have common destinations. As discussed in Section 5, CATS has a well-developed vanpool program, including several vanpools that originate in Gaston County. It is recommended that the Gaston Urban Area MPO conduct a more detailed study of the potential need for vanpool service specifically targeting major employment sites in Gaston County. Such a study would include an in-depth analysis of commuting patterns to major industrial plants and other employment centers, and would gauge the interest of employers in supporting vanpool services. Presentations from companies that organize and operate vanpools could also be made.

The addition of bicycle racks on buses is another low-cost enhancement that would enhance the area's network of bicycle infrastructure. Racks holding two or three bicycles can easily be added to the existing bus fleet, and would be beneficial for bicyclists looking to use transit for a portion of their trip. Direct access to the Greenway starting at Lineberger Park would be available through transit, as well as access to numerous other destinations.

#### 3. Gastonia Multimodal Center Site Suitability and Conceptual Design Study

In the fall of 2012, the Gastonia City Council hired HDR, Engineering, Inc. to draft a Multimodal Site Suitability and Conceptual Design Study. Enclosed, please find the Study's Presentation slides and Executive Summary. Council is being asked to adopt the Study's Master Plan Recommendations.

The proposed Multimodal facility is to be located on the best site east of the core downtown area that will accommodate Gastonia Transit buses, Gaston County Access Transit Shuttles, CATS 85X - Gastonia Express Commuter buses, a Greyhound bus station, an Amtrak station, and possibly a future commuter rail station. With these uses in mind, close proximity to



existing rail corridors is critical. The Center will also provide connections for various forms of pedestrian transportation modes such as greenway trails, sidewalks, bicycles, etc. that connect with the public transportation system. The proposed development will incorporate mixed land uses, consider various land use needs, space requirements for each Transportation mode, overall traffic impacts of the site, parking demand and needs, and other public facilities.

This project has been a major recommendation in the following recent transportation studies: the Gastonia Rapid Transit Alternatives Study, the Gastonia Transit Expansion Study, and the Franklin Boulevard Corridor Study. The facility's site selection study was completed before July 1, 2009 and a detailed benefit costs analysis and environmental assessment will be conducted at a later date.

***The proposed Master Plan is a comprehensive plan that describes and maps the overall development concept for a defined area, including present and future land use, urban design and landscaping, infrastructure and service provisions. The Master Plan will identify specific parcels for specific portions of the facility, based on a variety of considerations:***

- Rail design constraints and needs;
- Parking needs;
- Roadway connections / bus access;
- Bicycle / pedestrian connections;
- Existing uses on site;
- Property acquisition needs;
- Relationship to surrounding area and urban context; and
- Desire for street frontage.

Future funding requirements include:

- An Environmental Analysis (EA)
- Land or Right-Of-Way Acquisition
- Architectural Design and Costs
- Engineering Design and Costs
- Construction Costs
- Operational Costs

Three Technical Committee meetings were convened to review the input received thus far (from the public, through the guiding principles and conceptual program), as well as the resulting draft Master Plan. Based on the direction obtained from the Technical Committee, the Master Plan was refined as necessary, and the conceptual floor plan(s) and associated visualizations of the transportation facility were developed.

Two public workshops were held: to solicit comments and ideas at the first and obtain feedback on study recommendations at the second. The HDR Team also developed conceptual cost estimates based on the site Master Plan and the established program. In recognition of the focus of the programming effort, the conceptual cost estimate will be based on the transportation-related portion of the overall project, including buildings, platforms, parking areas, and other facilities needed for multimodal transportation functionality. Because the complementary (i.e. non-transportation) spaces will not be fully programmed for this first-phase effort, no conceptual cost will be developed for these elements of the overall site.

Following the City Council's adoption, any necessary edits will be made to the Executive Summary and the PowerPoint presentation, and final versions will be delivered to the City. Fifty hard copies of the Executive Summary will be submitted, along with an electronic .pdf formatted file. Electronic versions of the PowerPoint presentation in .ppt and .pdf format will also be delivered.

#### **4. GCLMPO Coordinated Comprehensive Public Transportation Plan**

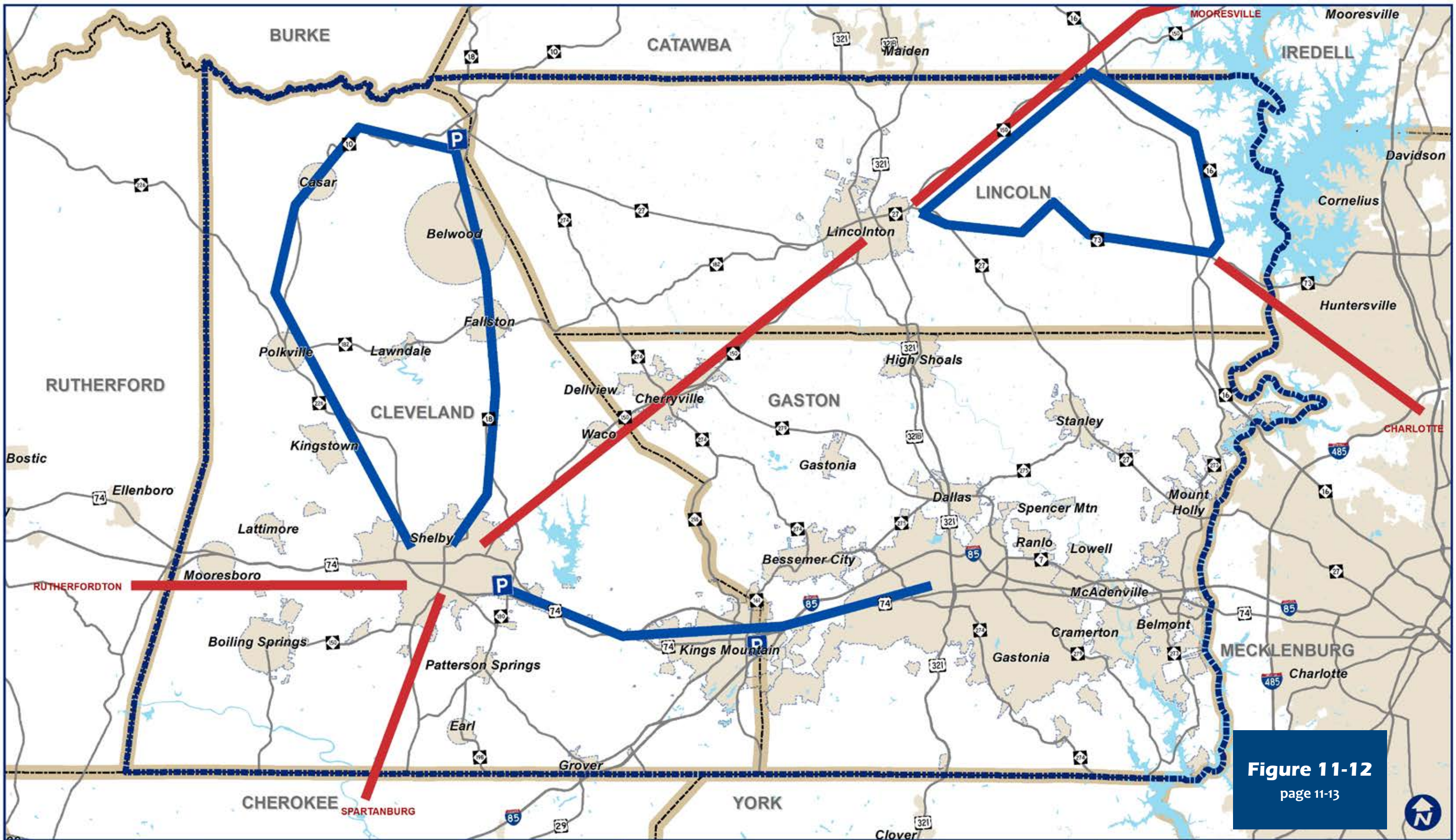
The North Carolina Department of Transportation (NCDOT) and the Federal Transit Administration (FTA) have both made a commitment to tying eligibility for various Federal transit funds and programs to approved coordinated comprehensive transit plans created by local transit agencies. In 2013, following the consolidation of the Gaston Urban Area MPO and Lake Norman Rural Planning Organization, transit providers in Gaston, Cleveland, Lincoln, and Iredell counties began updating and consolidating their locally coordinated public transportation plans. The planning process identified

opportunities for efficiencies through coordination, as well as improved marketing to increase utilization of existing services. This was especially apparent in car and van pooling, as well as the development of park and ride lots throughout the Study Area. It also identified logical linkages with existing transit services to help create a truly regional system.

The previous recommendations for new services include both commuter and traditional demand-response services. The US 321 corridor between Gastonia and Hickory was seen as appropriate for fixed-route service, particularly to the Lincoln County Industrial Park. This recommendation was addressed in 2010 with the initiation of the North-South Mountaineer, a daily route that travels between Boone and Charlotte, with stops in Hickory, Lincolnton and Gastonia. The US 74 Corridor between Shelby and Gastonia should carry fixed-route bus service as an extension of Gastonia and Charlotte Area Transit System fixed-route services. Cleveland County also needs expanded service to meet the needs of residents requiring dialysis, and other medical and human services.

This plan makes reasonable recommendations for new services to meet the identified needs of a variety of populations. When implemented, it will provide a range of options to help residents and workers in the Study Area travel for their daily needs. An illustration of some of the recommendations can be found in Figure 11-12.





**Figure 11-12**  
page 11-13

# GASTON-CLEVELAND-LINCOLN MPO RECOMMENDED TRANSIT SERVICES

**LEGEND**

- Highways
- Major Roads
- Counties
- Deviated Service
- Van Pool
- Park & Ride

0 1 2 4 Miles

Date created: 2/19/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





Figure 11-13:  
**2040 Metropolitan Transportation Plan (MTP)**  
**PUBLIC TRANSIT PROJECTS (EXPANSION AND FACILITIES)**

Unfunded			
2015 Horizon Year (Funded)			
2025 Horizon Year			
2030 Horizon Year			
2040 Horizon Year			
CMAQ Funded Projects in Red			

PT ID	Submitting Agency	Mode	Project Type	Description	Quantity	2015 Cost	2025 Cost	2030 Cost	2040 Cost
TA-4926	Gastonia Transit	Public Transit	Expansion Vehicle	Expansion Bus	3	\$1,242,000 (FY 2015)	NA	NA	NA
TD-5253	Gastonia Transit	Public Transit	New Facility	Park & Ride - Location TBD in Gastonia	1	\$750,000	NA	NA	NA
TD-5254	City of Belmont	Public Transit	New Facility	Park & Ride - Location TBD in Belmont	1	\$750,000	NA	NA	NA
PT0	Transportation Lincoln County	Public Transit	Expansion Vehicle	Lift Van	1	\$46,000	NA	NA	NA
PT1	Transportation Administration of Cleveland County	Public Transit	Expansion Vehicle	Demand Response Van	6	NA	\$331,917	NA	NA
PT4	Transportation Lincoln County	Public Transit	Expansion Vehicle	Demand Response Van	4	NA	\$220,214	NA	NA
PT7	Transportation Lincoln County	Public Transit	New Facility	Design, ROW Acquisition, and Construction of new Facility	1	NA	\$3,500,000	NA	NA
PT8	Gastonia Transit	Public Transit	Expansion Vehicle	35-foot Bus	1	NA	\$487,598	NA	NA
PT11	Gastonia Transit	Public Transit	Expansion Vehicle	Trolley replica bus	1	NA	\$402,268	NA	NA
PT12	Gastonia Transit	Public Transit	Expansion Vehicle	Demand Response Van	1	NA	\$63,412	NA	NA
PT15	Gastonia Transit	Public Transit	New Facility	Multimodal Transportation Center	1	NA	\$7,000,000	NA	NA
PT17	Gaston ACCESS	Public Transit	Expansion Vehicle	Demand Response Van	2	NA	\$113,876	NA	NA
PT2	Transportation Administration of Cleveland County	Public Transit	Expansion Vehicle	Demand Response Van	2	NA	NA	\$129,361	NA
PT5	Transportation Lincoln County	Public Transit	Expansion Vehicle	Demand Response Van	1	NA	NA	\$67,293	NA
PT9	Gastonia Transit	Public Transit	Expansion Vehicle	35-foot Bus	1	NA	NA	\$538,347	NA
PT13	Gastonia Transit	Public Transit	Expansion Vehicle	Demand Response Van	1	NA	NA	\$70,012	NA
PT16	Gastonia Transit	Public Transit	New Facility	Dixie Village Transit Center	1	NA	NA	\$2,800,000	NA
PT18	Gaston ACCESS	Public Transit	Expansion Vehicle	Demand Response Van	1	NA	NA	\$65,974	NA
PT3	Transportation Administration of Cleveland County	Public Transit	Expansion Vehicle	Demand Response Van	4	NA	NA	NA	\$291,591
PT6	Transportation Lincoln County	Public Transit	Expansion Vehicle	Demand Response Van	2	NA	NA	NA	\$156,328
PT10	Gastonia Transit	Public Transit	Expansion Vehicle	35-foot Bus	1	NA	NA	NA	\$656,242
PT14	Gastonia Transit	Public Transit	Expansion Vehicle	Demand Response Van	1	NA	NA	NA	\$85,344
PT19	Gaston ACCESS	Public Transit	Expansion Vehicle	Demand Response Van	2	NA	NA	NA	\$153,262
PT20	City of Belmont	Public Transit	Fixed Guideway Service	Upgrade Belmont Spur of former P&N Railroad between Belmont Abbey College and Downtown Belmont to accommodate trolley service.	1	\$700,000	\$853,296	\$942,108	\$1,148,424

Assumptions

2% annual inflation in project costs

New vehicle costs (2013 dollars):

35-foot buses - \$400,000

trolley replica bus - \$330,000

demand response vans - \$50,000



# 12 Aviation

The region's aviation facilities serve a vital role in the overall transportation system. They aid in corporate recruitment and economic development, provide the ability to engage in business activities related to aviation and movement of cargo, provide military support, provide recreational and tourism opportunities, and enable emergency response for medical, fire, or police teams.

There are three publicly-owned General Aviation Airports in the Gaston-Cleveland-Lincoln MPO, one in each county. These include: Gastonia Municipal Airport; Shelby-Cleveland County Regional Airport; and Lincolnton-Lincoln County Regional Airport. Though none of these airports offer scheduled, passenger air service, Charlotte-Douglas International Airport serves this purpose in adjacent Mecklenburg County. Recently, Concord Regional Airport in nearby Cabarrus County has also begun offering scheduled, passenger air service. Other nearby Commercial Service Airports include the Hickory Regional Airport and Greenville Spartanburg International Airport.

## Aviation Facts and Figures

In North Carolina, 65% of all General Aviation flights, or non-commercial flights, are business-related (Danieley, 2012). As illustrated in Figure 12-1, these type of flights make up the majority

of operations in the GCLMPO Planning Area. General Aviation airports also serve as Reliever Airports to larger airports, such as Charlotte Douglas International Airport, thereby reducing congestion at these larger airports. Military operations are relatively insignificant at the GCLMPO airports, with the largest number of operations (900) and percentage of all operations (3%) occurring at the Lincolnton-Lincoln County Regional Airport.

The number of based aircraft and number of total operations (arrivals and departures) for all GCLMPO airports can be seen in Figure 12-1. Each of the three airports has only one runway, though they vary somewhat in length. Lincolnton-Lincoln County Regional Airport has approximately double the number of based aircraft as the other two airports, while Gastonia Municipal Airport has by far the most total operations. Gastonia's high number of total operations, however, is mostly due to its high number of local operations, which are defined as those operations performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and the operations to or from the airport and a designated practice area within a 20-mile radius of the tower. When looking only at Itinerant operations, or operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area,

Lincolnton-Lincoln County Regional Airport has approximately double the number of the other two airports. This is likely explained by the fact that it also has approximately double the number of based aircraft.

Gastonia Municipal Airport is the only GCLMPO airport to record commercial operations, though these are limited to Air Taxi operations, which are for-profit planes with a maximum seating capacity of 60 or a maximum payload capacity of 18,000 pounds.

An NCDOT study of the economic impacts of airports in North Carolina found that the airports in the GCLMPO have some of the smallest economic impacts in the Charlotte region. These findings are summarized in Figure 12-3.

## Airport Planning Process

There are various levels of planning needed in order to meet the demands of our airport systems. The following explains system planning efforts at all levels of government and the role they play in maintaining our airports.

At the federal level, the National Plan of Integrated Airport Systems (NPIAS) provides an overview of national aviation capacity needs and funding requirements. The NPIAS identifies more than





# the way forward: 2040 Metropolitan Transportation Plan



3,300 airports that are of national significance and thus are eligible for federal funding under the Airport Improvement Program. All three of the publicly-owned, General Aviation airports in the GCLMPO are included in the National Plan of Integrated Airport Systems.

The national Airport Capital Improvement Plan (ACIP) serves as the primary planning tool for the FAA to systematically identify, prioritize and assign funds to critical airport development and associated capital needs for the National Airspace System (NAS). The ACIP also serves as the basis for the distribution of grant funds under the Airport Improvement Program (AIP). By identifying and investing in airport development and capital needs, the Federal Aviation Administration can ensure the American public that the NAS is a safe, secure and efficient environment for air travel nationwide.

At the regional level, each FAA Region maintains a regional Airport Capital Improvement Plan (ACIP) which represent the needs of the airports in their region. This plan is used to inform the national ACIP and in turn the federal funding in the annual AIP.

Aviation projects in North Carolina are funded by the North Carolina Division of Aviation (NCDVA) which administers the FAA Block Grant Program along with the State Aid to Airports Program. The Grant

**Figure 12-1: Based Aircraft and Operations Records, G-C-L MPO Airports**

	Total Based Aircraft	Operations					Military
		Total Operations	Commercial		General Aviation		
			Air Carrier	Air Taxi	Local	Itinerant	
Gastonia Municipal	32	50,040	0	1,000	40,000	9,000	40
Shelby - Cleveland County Regional	31	18,200	0	0	10,000	8,000	200
Lincolnton-Lincoln County Regional	75	34,100	0	0	15,300	17,900	900

Source: USDOT, FAA Airport Master Records, 2011 and 2012

**Figure 12-2: Runway Characteristics, G-C-L MPO Airports**

	Length	Width
Gastonia Municipal	3770'	100'
Shelby - Cleveland County Regional	5001'	100'
Lincolnton-Lincoln County Regional	5504'	100'

Source: USDOT, FAA Airport Master Records, 2011 and 2012

**Figure 12-3: Estimated Annual Economic Impact of Charlotte Area Airports**

Airport ID and Name	City/Town	Total Output (dollars)*	Total Employment (jobs)*	Total Estimated Payroll Income (dollars)*	Total State and Local Taxes (dollars)
Charlotte Douglas International	Charlotte	\$12,465,270,000	60,320	\$2,449,390,000	\$474,097,000
Concord Regional	Concord	\$175,790,000	1,980	\$73,650,000	\$7,865,000
Stanly County	Albemarle	\$109,700,000	710	\$26,920,000	\$2,398,000
Rowan County	Salisbury	\$103,350,000	670	\$20,580,000	\$2,132,000
Statesville Regional	Statesville	\$21,090,000	200	\$5,480,000	\$1,294,000
Hickory Regional	Hickory	\$16,740,000	70	\$2,060,000	\$553,000
Shelby - Cleveland County Regional	Shelby	\$15,130,000	160	\$4,620,000	\$1,158,000
Anson County - Jeff Cloud Field	Wadesboro	\$10,690,000	30	\$1,180,000	\$170,000
Lincolnton-Lincoln County Regional	Lincolnton	\$10,090,000	60	\$1,730,000	\$261,000
Gastonia Municipal	Gastonia	\$6,340,000	30	\$1,050,000	\$162,000

\*Total includes direct, indirect, and induced

Source: NCDOT, Economic Contribution of North Carolina Airports, 2012



# the way forward: 2040 Metropolitan Transportation Plan

administration function ensures state and federal grant funds are transferred in a timely manner between the various parties. States that participate in the State Block Grant Program assume responsibility for administering AIP grants at airports classified as “other than primary” airports — that is, non-primary commercial service, reliever, and general aviation airports. Each State is responsible for determining which locations will receive funds for ongoing project administration.

State Aid to Airports is the basic airport aid program of the North Carolina Department of Transportation. Under the terms of North Carolina General Statutes Chapter 63, “the Department of Transportation is hereby authorized to provide State aid in the forms of loans and grants to cities, counties, and public airport authorities for the purpose of planning, acquiring, constructing, or improving municipal, county and other publicly owned or controlled airport facilities, and to authorize related programs of aviation safety, promotions, and long-range planning”.

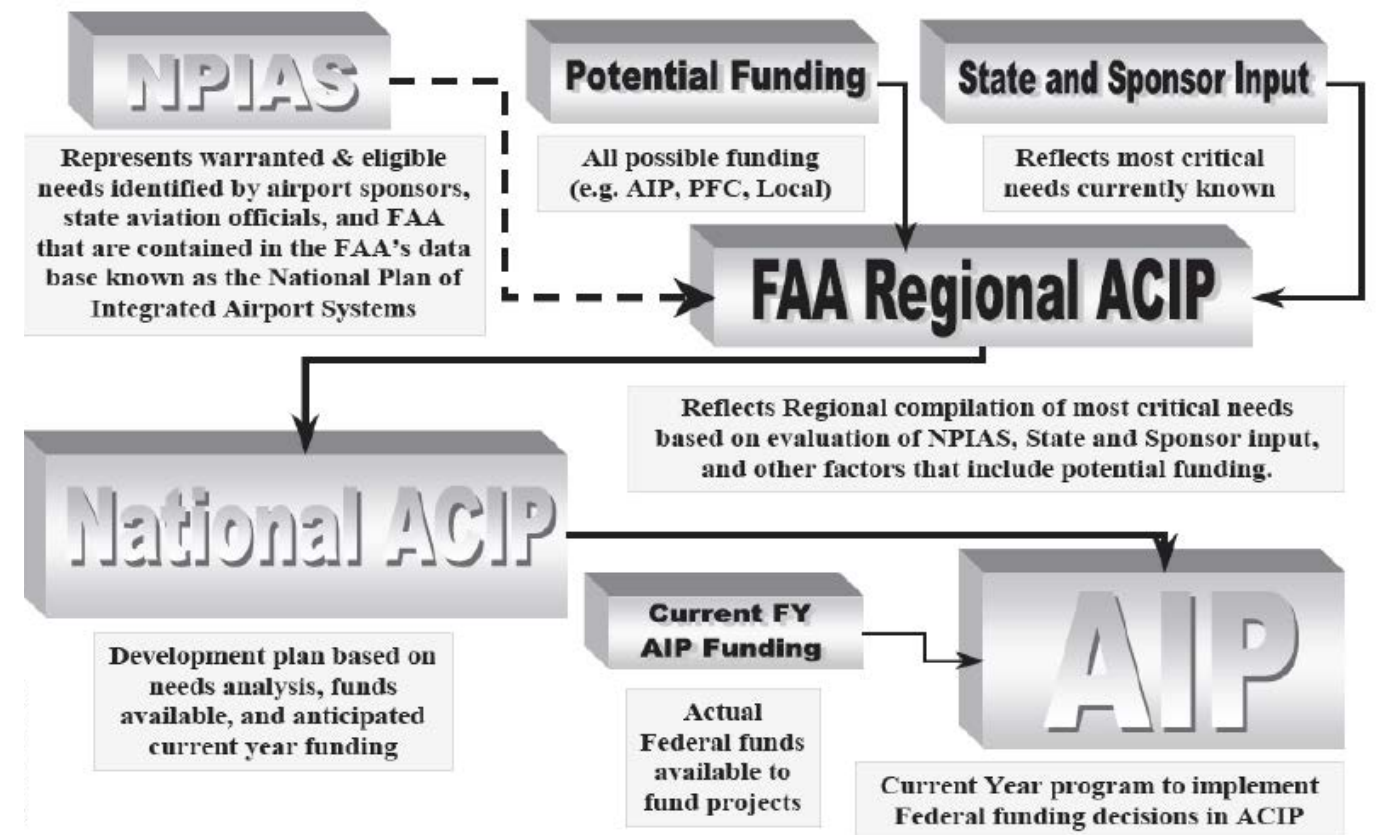
The North Carolina General Aviation Airport Development Plan identifies the deficiencies that North Carolina General Aviation airports need to address and then provides a systematic and strategic approach for the Division of Aviation to address these needs. For each Airport Grouping, the Division of Aviation established Minimum and Recommended standards for every Airport Development Category eligible for grant funds. For example, blue group airports, such as all three of the General Aviation airports in the GCLMPO, have a minimum runway length of 4,200 paved feet and a recommended length of 5,500 paved feet. This plan is intended to serve as a guide

Figure 12-4: Federal Aviation Administration Regions



Source: FAA Website

Figure 12-5: The Airports Capital Improvement Planning (ACIP) Process



Source: FAA Order

to local airport sponsors when developing their Airport Layout Plan (ALP) and Transportation Improvement Program (TIP) for their airport.

At the local level, Airport Layout Plans are required by the Federal Aviation Administration for airports receiving federal assistance. The Airport Layout Plan (ALP) serves as a critical planning tool that depicts both existing facilities and planned development for an airport. By definition, the ALP is a plan for a specific airport that shows:

- Boundaries and proposed additions to all areas owned or controlled by the sponsor for airport purposes;
- The location and nature of existing and proposed airport facilities and structures;
- The location on the airport of existing and proposed non-aviation areas and improvements thereon.

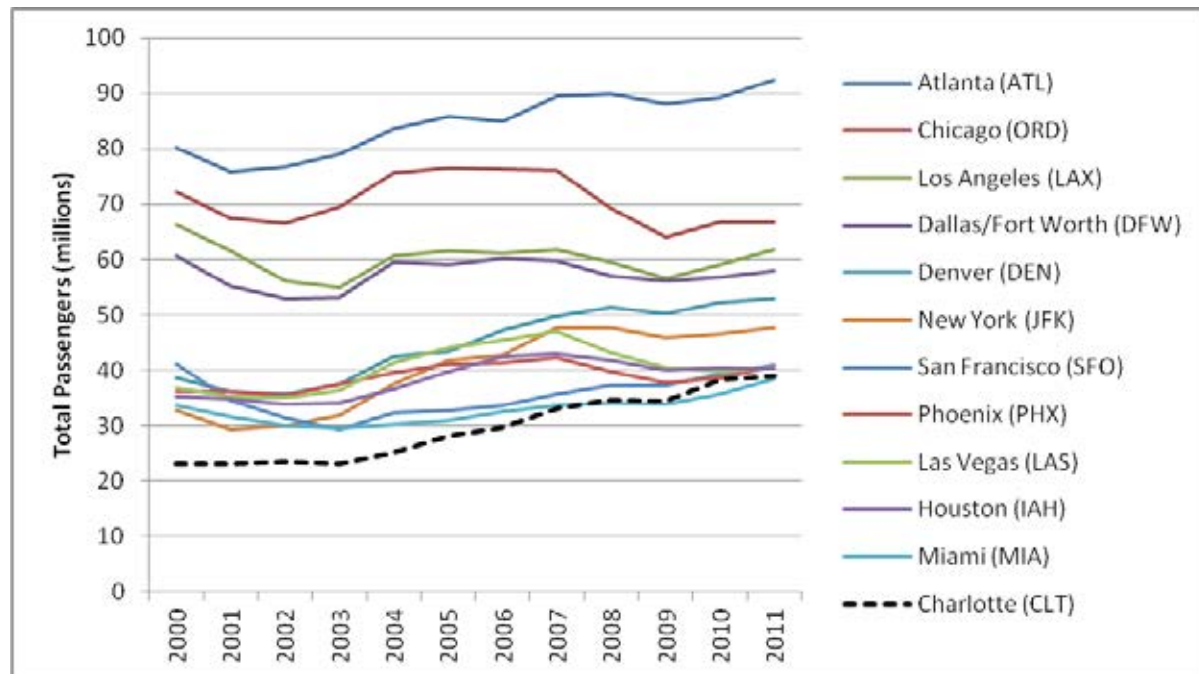
Another important aspect of airport planning at the local level is coordination of airport planning and local land use planning in order to ensure that surrounding land uses are compatible with airport activities and vice versa. On one hand, the noise associated with airports often makes them locally undesirable land uses for residents





Source: City of Charlotte – Corporate Communications & Marketing

Figure 12-6: Annual Passengers at large U.S. Airports



Source: Airports Council International

and on the other hand, the growth of airports can be limited by the surrounding land uses, especially in developed areas.

**Regional Issues**

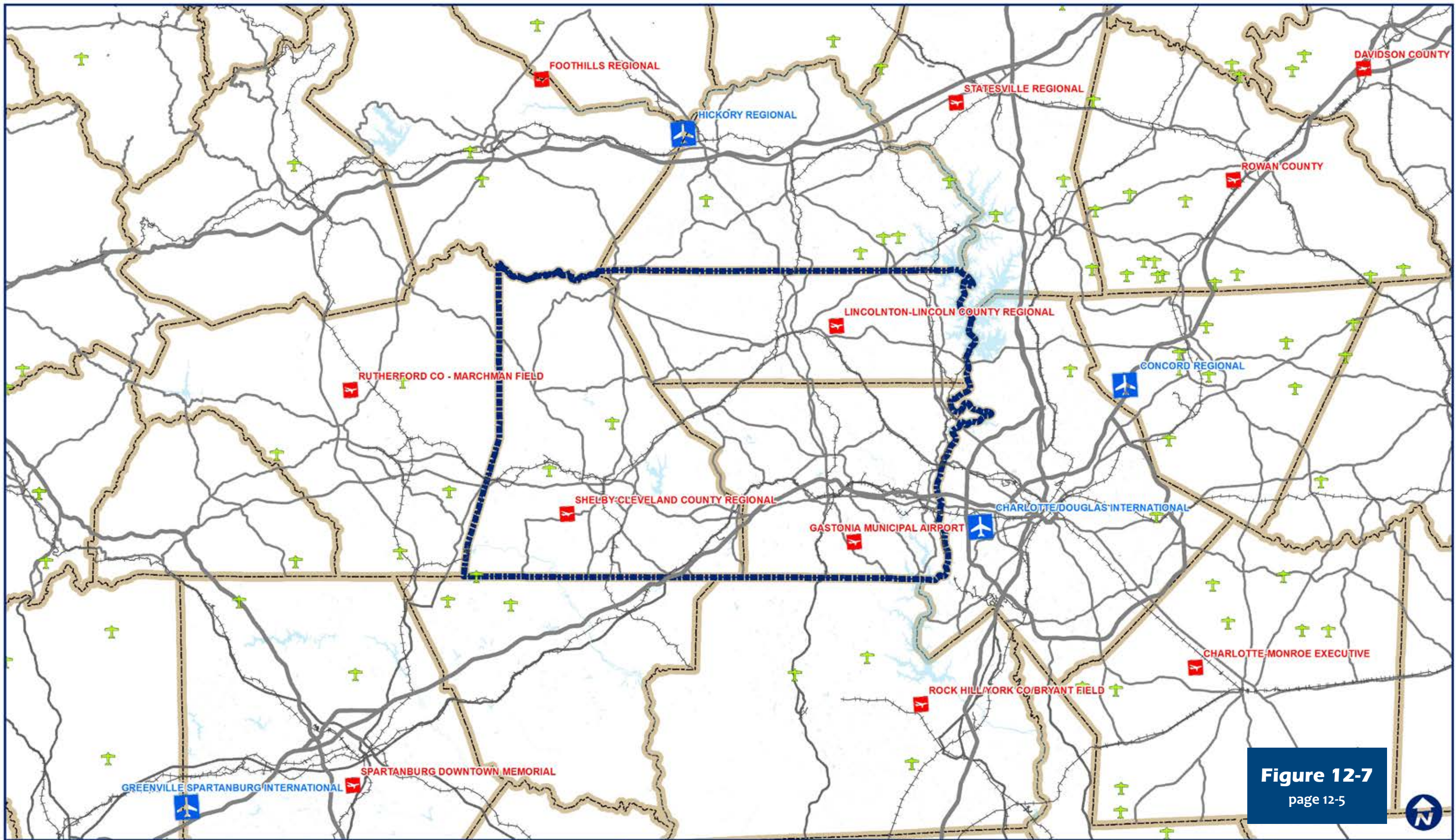
Situated less than five miles east of Gaston County and the GCLMPO Boundary, the Charlotte Douglas International Airport (CLT) is the most impactful airport in the region. It has experienced rapid growth over the last few decades and in 2012 ranked 8th nationally in annual number of passengers. CLT is the second largest airport hub on the East Coast and provides nonstop service to over 140 destinations. Formerly the largest hub for US Airways, CLT will become the second largest hub for the new American Airlines Group following the merger between American Airlines and US Airways to become the world’s largest airline.

Though CLT ranked only 33rd in 2012 in terms of cargo operations, a new intermodal facility has been constructed between two runways that will facilitate the direct transfer of cargo between trains and trucks. The relocation of this facility from just outside Uptown Charlotte to the airport is intended to spur development of logistics and manufacturing industries around the airport that may eventually be a boon for air cargo shipping as well. **Please refer to the freight chapter for more information.**

Projects planned for CLT in the immediate future include concourse expansions, an additional food court, additional parking decks, the construction of a fourth parallel runway, and improvements to surface transportation access.

The merger of US Airways and American Airlines also coincided with the introduction and passage of state legislation that sought to create a regional airport authority to govern decision-making for CLT. This issue has yet to be resolved as state lawmakers, City officials, and surrounding local officials continue to work towards reaching an agreement on the appropriate governance.





**Figure 12-7**  
page 12-5

# REGIONAL AIRPORTS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties
- Commercial Service Airports
- General Aviation Airports
- Private Airports
- MPO Area

0 2.5 5 10 Miles  
Date created: 1/30/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





Figure 12-8  
**2040 Metropolitan Transportation Plan (MTP)**  
**AVIATION PROJECTS**

Unfunded			
2015 Horizon Year (Pre-STI)			
2025 Horizon Year			
2030 Horizon Year			
2040 Horizon Year			
CMAQ Funded Projects in Red			

AV ID	Submitting Agency	Mode	Project Source	Project	Description	2015 Cost	2025 Cost	2030 Cost	2040 Cost
AV1	Gastonia Municipal Airport	Aviation	Division of Aviation Minimums	Runway Approach Obstruction Removal	Additional obstruction removal has been identified for FAA Category C approach minimum surfaces. Tree clearing and trimming will be performed in the approach to Runway 3. Also included is additional surveying to verify the additional obstructions before clearing commences, as well as verifying that all trees have been cleared at the completion of construction. Additional survey will be performed to identify obstructions in the Runway 21 approach.	NA	\$257,600	NA	NA
AV2	Gastonia Municipal Airport	Aviation	Division of Aviation Minimums	Rehabilitate Fuel Farm Drive, Construct Loading Pad and Rehabilitate Taxilane	Rehabilitation of Existing Fuel Farm Drive and Taxilane Poor and Failing Pavements, Construct New Fuel Farm Loading / Offloading Pad for EPA Compliance, and Rehabilitation of Existing Taxilane Poor and Failing Pavement	NA	\$383,400	NA	NA
AV3	Gastonia Municipal Airport	Aviation	Division of Aviation Recommended	Taxiway Lighting and Signage	MITL and Airfield Guidance Signs for Taxiway System	NA	\$487,300	NA	NA
AV4	Gastonia Municipal Airport	Aviation	Division of Aviation Recommended	Corporate Hangar Taxiway	Rehabilitation of Existing Corporate Hangar Taxilane	NA	\$339,100	NA	NA
AV5	Gastonia Municipal Airport	Aviation	Airport Requested Projects	Terminal Area Development Plan	A plan is needed to identify efficient development of the terminal area portion of the airport.	NA	\$65,000	NA	NA
AV6	Gastonia Municipal Airport	Aviation	Airport Requested Projects	Hangar Development Area	Site preparation for expansion of Hangar Area (5 hangars, 2 corporate)	NA	\$415,000	NA	NA
AV7	Gastonia Municipal Airport	Aviation	Airport Requested Projects	Terminal Building Site Preparation	Site preparation , new water and sanitar sewer extension to serve new terminal building, and relocate/re-furbish rotating beacon	NA	\$386,100		
AV8	Gastonia Municipal Airport	Aviation	Airport Requested Projects	New Terminal Building	Construct 3,000 SF terminal building and parking lot	NA	\$600,000	NA	NA
AV9	Gastonia Municipal Airport	Aviation	Airport Requested Projects	Security Fencing	Install Security Fence Around Perimeter of Airport	NA	\$356,000	NA	NA
AV10	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Minimums	Update Airport Layout Plan	Update Airport Layout Plan and Airport Layout Drawings to reflect forecasts and future improvements.	NA	\$90,000	NA	NA
AV11	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Apron Rehabilitation	The northeast apron near the fuel farm and maintenance hangar has significant pavement damage and is need of repair. This damage includes severe alligator cracking which has created a FOD issue. This area of the apron has not been included in the pavement management inspection report, but would likely be rated in fair condition at best. This project will include a milling and replacement of the existing pavement.	NA	\$241,000	NA	NA
AV12	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Environmental Assessment	An environmental assessment must be performed requesting a FONSI for a runway extension prior to the construction of the runway, extended runway safety area and parallel taxiway extension. Preliminary engineering of the runway extension, runway safety area and parallel taxiway extension will coincide with the study to properly asses all impacts. This will greatly benefit the airport users who routinely file and fly instrument procedures.	NA	\$400,000	NA	NA
AV13	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Perimeter Fence	Perimeter Fencing will be constructed on the northern side of the airport property and tie to existing fencing to encompass all the airport property.	NA	\$241,000	NA	NA
AV14	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Land Easements for Runway Extension	Approximately 55.3 acres of aviation easement needs to be acquired for the future runway extension that are not currently under control by the City of Shelby. Obstruction clearing will also be included in this project.	NA	\$863,000	NA	NA
AV15	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Runway Overlay	The existing runway pavement is showing signs of wear and large longitudinal cracks are present. The current and potential increased usage by heavier aircraft will continue to deteriorate the runway pavement. This project will address the existing cracking/aging and prolong the life of the pavement.	NA	\$2,003,000	NA	NA
AV16	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Land Acquisition & Easement Runway 5 & 23 RPZ	Efforts are underway to secure the properties with funding already in place. Should this not be successful a supplement will be required.	NA	\$200,000	NA	NA



# the way forward: 2040 Metropolitan Transportation Plan

Figure 12-8 continued

AV ID	Submitting Agency	Mode	Project Source	Project	Description	2015 Cost	2025 Cost	2030 Cost	2040 Cost
AV17	Shelby-Cleveland County Regional Airport	Aviation	Division of Aviation Recommended	Extend Runway to 5,500 Feet	The existing runway length is 5,000 feet and the recommended runway length for "blue" group airports is 5,500 feet. This project includes extending the runway 5 end a distance of 500 feet, along with a corresponding extension of the parallel taxiway to the new runway end. Also included is a 150 foot wide by 300 foot long extended runway safety area beyond the new runway end.	NA	\$3,500,000	NA	NA
AV18	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	T-Hangar Taxiways South - Phase I Site Preparation, Paving & Hangar Building	This project includes site preparation of a one proposed and one future T-Hangar building and associated taxiways and paving and construction for one new 10 Unit T-Hangar building. The development will connect to the existing apron area. An existing Federal Vision grant is being used for the design and bidding.	NA	\$1,841,000	NA	NA
AV19	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	Airfield Maintenance Equipment	Airfield Maintenance Equipment including Tractor, mowers and a Storage Building.	NA	\$120,600	NA	NA
AV20	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	North Taxiway and Hangar Development - Phase I	This project includes site preparation and paving of a taxiway and hangar development on the northern side of the terminal area. Future construction will allow for 2 box hangars.	NA	\$1,200,000	NA	NA
AV21	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	T-Hangar Taxiways South - Phase IA Paving & Hangar Building	This project includes construction of one new 10 Unit T-Hangar building and paving of associated taxiways.	NA	\$856,000	NA	NA
AV22	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	North Taxiway and Hangar Development - Phase II	This project includes site preparation and paving of the hangar development on the northern side of the terminal area. Future construction will allow for 2 box hangars.	NA	\$250,000	NA	NA
AV23	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	Airport Entrance Road	This project includes the demolition and reconstruction of the airport entrance and portions of highway 150. The improvements will eliminate the existing unsafe skewed intersection replacing it with a 90 degree intersection while maintaining the appropriate sight distances.	NA	\$648,000	NA	NA
AV24	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	CAP Hangar Relocation and Parking Improvements	This project includes relocation of the existing CAP Hangar and construction of parking improvements in this area.	NA	\$416,000	NA	NA
AV25	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	Localizer Antenna & MALSR	Install a Localizer Antenna and MALSR for runway 5 approach. This will be constructed concurrently with the Runway Extension.	NA	\$1,560,000	NA	NA
AV26	Shelby-Cleveland County Regional Airport	Aviation	Airport Requested Projects	T-Hangar Taxiways South - Phase II Site Preparation & Paving	This project includes site preparation and paving for additional Hangar development and access. Development will consist of box Hangars or T-Hangars as demand dictates.	NA	\$1,645,000	NA	NA
AV27	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Common Transient Hangar	Build a new hangar to house transient aircraft and another tenant.	NA	\$640,000	NA	NA
AV28	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Self Serve AV-Gas Facility	A new 10,000 Gallon Self Serve AV-Gas Facility is proposed to provide 24-hour self-service for AV-Gas customers.	NA	\$425,000	NA	NA
AV29	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Obstruction Survey - Runway 5 Approach - 30:1 Surface	Perform a survey for the approach to Runway 5 to locate obstructions in the 30:1 approach surface.	NA	\$20,000	NA	NA
AV30	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Land Acquisition - Runway 5 Approach - 30:1 Surface	Acquire land/aviation easements needed to remove obstructions observed in the obstruction survey.	NA	\$156,000	NA	NA
AV31	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Terminal Area Expansion - Phase 1 (Site Prep)	In order for the Airport to be able to attract and accommodate additional based aircraft with new corporate hangars, the existing terminal area must be expanded to the west. With the new Terminal Building completed, the expansion of the terminal area will be critical for further growth. The area designated in this phase consists of the site preparation for additional corporate hangar taxiways on the south side of the future corporate hangar sites (see below for paving of corporate taxiway). This project is considered by the Airport Authority to be of significant economic impact to the airport and favorable funding consideration is respectfully requested.	NA	\$1,375,000	NA	NA
AV32	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Terminal Area Expansion - Phase 1 (Paving)	A new corporate taxiway is needed to provide access to new corporate hangar sites made available by the terminal area expansion described in the previous item above. This project includes paving the taxiways made available by the terminal area expansion site preparation described in the previous item. This will provide significant positive economic impact to the airport.	NA	\$1,153,000	NA	NA
AV33	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Obstruction Removal - Runway 5 Approach - 30:1 Surface	Remove obstructions in the 30:1 approach surface of Runway 5.	NA	\$315,000	NA	NA
AV34	Lincolnton-Lincoln County Regional Airport	Aviation	NA	New Fuel Farm	The existing fuel farm is over 15 years old. The typical life expectancy of aviation fuel tanks is approximately 15 years. Additionally, special tanker trucks are required to deliver fuel due to restricted piping for delivery. New EPA regulations require secondary containment for the loading and offloading pad where the tanker truck parks to deliver fuel and the Airport re-fueler trucks park to pick up fuel. A new fuel farm is proposed to address these issues.	NA	\$750,000	NA	NA



Figure 12-8 continued

AV ID	Submitting Agency	Mode	Project Source	Project	Description	2015 Cost	2025 Cost	2030 Cost	2040 Cost
AV35	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Terminal Area Expansion - Phase 2 (Site Prep)	This is a continuation of the Terminal Area Expansion Site Preparation-Phase 1 work proposed above. The work proposed for Phase 2 includes the area north of Phase 1.	NA	\$1,563,000	NA	NA
AV36	Lincolnton-Lincoln County Regional Airport	Aviation	NA	Terminal Area Expansion - Phase 2 (Paving)	A new corporate taxiway is needed to provide access to new corporate hangar sites made available by the terminal area expansion described in the previous item above. This project includes paving the taxiway made available by the terminal area expansion site preparation described in the previous item. This will provide significant positive economic impact to the airport.	NA	\$1,486,000	NA	NA
AV37	Lincolnton-Lincoln County Regional Airport	Aviation	NA	South Development Area	This project will extend the taxiway off of the south end of the apron and add an additional corporate/transient hangar.	NA	\$650,000	NA	NA
AV38	Lincolnton-Lincoln County Regional Airport	Aviation	NA	New Helicopter Parking Areas	Due to increased demands from helicopter traffic at the airport, two helicopter parking areas are proposed north of the existing aircraft parking apron. The parking areas will each consist of a 50-foot by 50-foot concrete pad, with elevated edge lighting and a paved access drive to the aircraft parking apron.	NA	\$195,000	NA	NA



# 13 Freight

## INTRODUCTION

This chapter examines aspects of freight, the movement of goods, the challenges facing the industry and its importance to the families, companies, and economic future of the GCLMPO region. To do this, the MPO looked at:

- Previous work and outreach highlighting issues, trends, challenges and opportunities in the GCLMPO region.
- Potential policies to improve freight systems in the region.
- Partnerships and coordination with transportation agencies, other government organizations, private industry and the public, and
- Impact of federal legislation on transportation planning.

The federal government, through Moving Ahead for Progress in the 21st Century (MAP-21), has dramatically increased the visibility of freight movement in metropolitan areas throughout the United States. The guidelines, recommendations, and requirements set forth under MAP-21 are to be used by state departments of transportation and Metropolitan Planning Organizations (MPOs) to guide the development of an overall baseline assessment and a set of recommendations for improving the transportation network and its

performance for freight movement. GCLMPO's 2040 Metropolitan Transportation Plan will be completed before the details for several of these newly-required plans and reports are promulgated, meaning GCLMPO must continue to monitor these initiatives and ensure the region's perspective is communicated to NCDOT and FHWA representatives charged with developing such policies, goals, and standards.

## Existing Conditions

Below are some freight facts about the Greater Charlotte Region:

- **Largest industrial hub in Southeast US** and 6th largest wholesale center nationwide
- **Two major rail systems** linking to 27,000 miles of track
- **311 trucking companies**, making Charlotte 11th largest in U.S.
- **57% of Fortune 500 companies** have facilities in the area
- **64 million tons of cargo** created in the Charlotte MSA and shipped to destinations throughout the United States (2011)

Source: Charlotte Chamber of Commerce ([http://charlottechamber.com/clientuploads/Economic\\_pdfs/Logistics-Ports.pdf](http://charlottechamber.com/clientuploads/Economic_pdfs/Logistics-Ports.pdf))

With the increasing globalization of the economy and the increasing importance of the global supply chain, freight handling and transportation capacity has become an important platform for

regional economic growth. Continuing growth and prosperity in the GCLMPO region will require increasing the capacity of local infrastructure to efficiently and effectively handle the forecasted growth of freight, both in tonnage and value. As shown by the maps at the back of the chapter, the general origins and destinations of freight for North Carolina are not expected to change between now and 2040, but the absolute amount of freight moving on those corridors will increase. In addition, trucks are expected to remain the overwhelmingly dominant mode for freight movement in the region.

As illustrated in Figure 13-1, the amount of freight carried to and from the Charlotte Combined Statistical Area (CSA) is overwhelmingly carried on trucks. Of this amount, 72% stays within North Carolina. Much of the remaining trade between the Charlotte CSA and other states is with adjacent states in the southeastern United States. Little trade occurs outside of the southeast, although rail and air freight does reach many parts of the country.

By 2040 the freight flows are projected to increase to 81.2 million tons of freight, 16.2 billion ton-miles, and \$131 billion in value. This represents a 25 percent increase in the amount of freight carried for trucks, but a 72 percent increase in





**Figure 13-1**

2011 Charlotte CSA Freight Flows (NC only)	Truck	Rail	Air	Total
Tons (in thousands)	63,691	1,026	4	64,721
Ton-Miles (in millions)	9,683	527	7	10,217
Value (in millions of dollars)	\$93,615	\$463	\$265	\$94,343

**Figure 13-2**

2040 Charlotte CSA Freight Flows (NC only)	Truck	Rail	Air	Total
Tons (in thousands)	79,472	1,766	7	81,246
Ton-Miles (in millions)	14,907	1,271	9	16,187
Value (in millions of dollars)	\$130,114	\$1,069	\$546	\$131,730

**Figure 13-3**  
Charlotte Region Top 10 Freight Flows Between Other Regions By Any Mode

From	To	Ktons of Freight in 2011	Percent of Total
Charlotte Region	Charlotte Region (NC Only)	34,016	53%
Charlotte Region	NC Excluding Triad and Triangle	6,787	11%
Charlotte Region	SC Excluding Greenville and Charleston	4,681	7%
Charlotte Region	Greensboro-High Point- Winston Salem	3,925	6%
Charlotte Region	Virginia excluding Norfolk, Richmond, and DC	1,485	2%
Charlotte Region	Raleigh-Durham	1,411	2%
Charlotte Region	Atlanta	1,212	2%
Charlotte Region	Greenville, SC	1,022	2%
Charlotte Region	Tennessee excluding Memphis and Nashville	1,008	2%
Charlotte Region	Charleston	811	1%
Total Between All Regions		64,619	

**Figure 13-4**  
Charlotte Region Top 10 Freight Flows Between Other Regions By Truck

From	To	Ktons of Freight in 2011	Percent of Total
Charlotte Region	Charlotte Region (NC Only)	33,668	53%
Charlotte Region	NC Excluding Triad and Triangle	6,900	11%
Charlotte Region	SC Excluding Greenville and Charleston	4,599	7%
Charlotte Region	Greensboro-High Point- Winston Salem	3,995	6%
Charlotte Region	Raleigh-Durham	1,490	2%
Charlotte Region	Virginia excluding Norfolk, Richmond, and DC	1,458	2%
Charlotte Region	Atlanta	1,119	2%
Charlotte Region	Tennessee excluding Memphis and Nashville	994	2%
Charlotte Region	Greenville, SC	940	1%
Charlotte Region	Charleston	792	1%
Total Between All Regions		63,686	

freight moved by rail. Despite this increase, nearly 98 percent of all freight will still be moved by truck in 2040, and over 92 percent of ton-miles. This information comes from the FHWA Freight Analysis Framework at <http://faf.ornl.gov/fafweb/Extraction1.aspx>.

Transportation of commodities has evolved, becoming increasingly important to companies and regional economies, as noted by the Bureau of Transportation Statistics. According to transportation analyst, Professor Michael Walton in his presentation, "Transportation Trends 2025", major global trends will affect the volume of freight traffic in the Charlotte area.

#### Trends in the United States that will impact freight traffic

- Expanding supply chains,
- Changes in advanced manufacturing trending toward higher value products,
- Increased international trade, and
- Changes in the population and rate of growth in the US economy.

#### Trends that could affect regional freight traffic

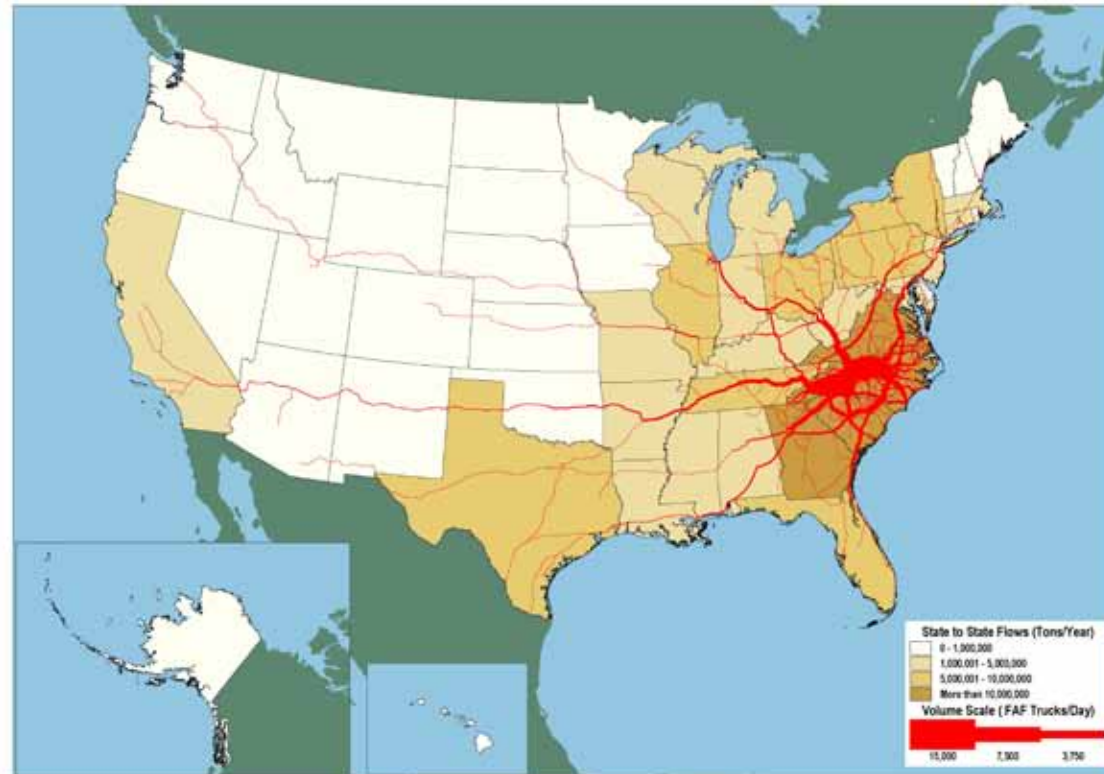
- Increasing shift of tonnage away from West coast ports to the East coast,
- Opening of the new, larger Panama Canal that will allow for much larger freight vessels,
- Potential change to "feeder" system of ships and ports reflecting adaption to larger vessels,
- Increasing use of warehouses closer to ports and less reliance on scattered warehouses,
- Unknown impact from the increases in fuel costs and efficiencies,
- Availability of reliable workers and a large logistics workforce, and
- Freight traffic at east coast ports is expected to grow by 100% by 2020.

The projected increases noted in Figures 13-1 and 13-2 needs careful consideration and a re-examination of how freight is handled in the region, from policies to challenges facing the industry. In April 2013 NCDOT concluded the state has not been adequately investing in its statewide tier of highways, which is affecting freight movement, and as a result was overhauling the state's funding formula to emphasize improvements on higher volume roads and freight corridors. These changes, called the Strategic Transportation Investments (STI) program has already begun to change how GCLMPO and other organizations evaluate and prioritize projects.



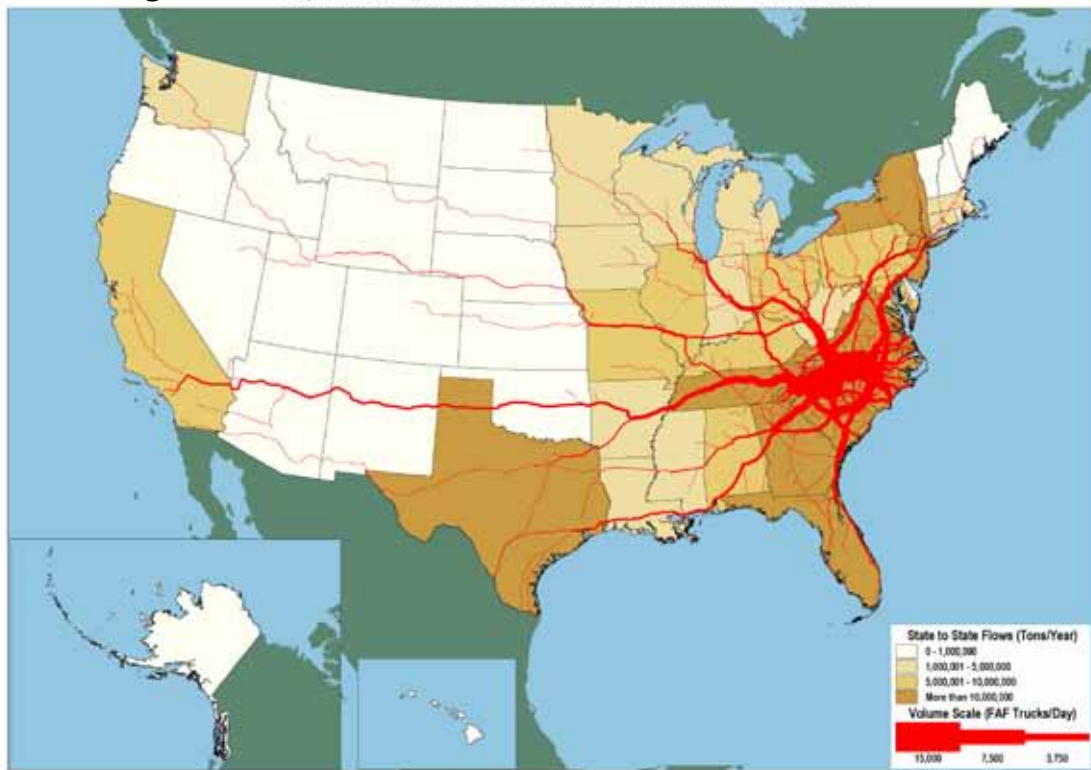
# the way forward: 2040 Metropolitan Transportation Plan

**Figure 13-5: Major Flows by Truck To, From, and Within North Carolina: 2007**



Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty five FAF trucks per day and between places typically more than fifty miles apart.  
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1.2, 2011.

**Figure 13-6: Major Flows by Truck To, From, and Within North Carolina: 2040**



Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty five FAF trucks per day and between places typically more than fifty miles apart.  
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1.2, 2011.

## Trends in Intermodal

The prospects for future rail intermodal business are bright, with national tonnage volumes rising 213 percent by 2035 (Source: 2009 NCDOT Rail Plan) and Panama Canal expansion moving more imports to the east coast ports. Many transportation experts expect the \$5.25 billion expansion of the Panama Canal to fundamentally alter global shipping patterns, allowing larger ships to pass through its locks. With larger cargo shipments on the move, goods can reach the East Coast both easily and economically. This will spark competition amongst emerging ports on the East Coast as they vie for a permanent share of waterborne transpacific container traffic.

As a part of this MTP process, GCLMPO solicited input from private sector freight industries on transportation needs in the Charlotte region. They cautioned against constructing any project that is justified based on serving one specific port or route due to a projected shift in freight movement. They stated that even they do not fully understand the implications of the shift in freight movement brought about by the widened Panama Canal, and that improvements should be made that will increase system flexibility and reliability in the region.

## Overview of Freight Movements and Modes

Overall freight tonnage is expected to double nationwide by 2020. Figures from the Federal Highway Administration show an 80% increase in tonnage by 2020 in the Southeastern US. The projected increase needs careful consideration and a re-examination of how freight is handled in the region, from policies to challenges facing the industry. Officials have repeatedly stated that road construction cannot keep pace with the forecasted increase in freight traffic. Regional stakeholders must agree on goals and strategies to support the movement of freight around and through the region.

The growth in regional population coupled with the increasing number of businesses require the region to carefully consider and plan for the projected increased in freight traffic. Regional businesses depend on the transportation infrastructure to deliver

economic competitiveness. However, major challenges must be addressed to ensure that the GCLMPO region can remain competitive.

## Highways

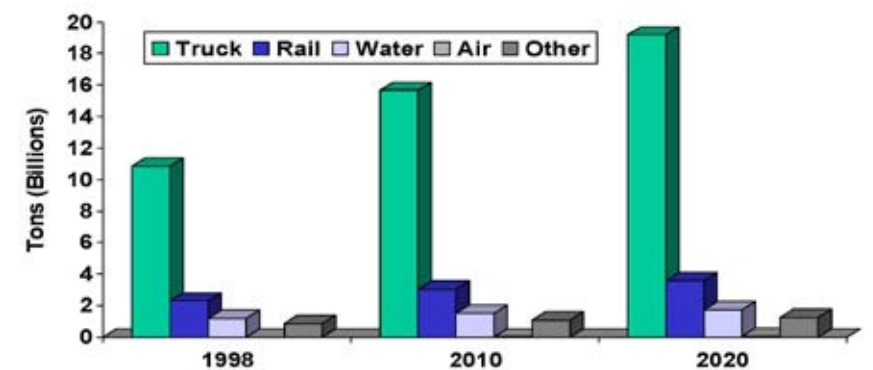
Network performance for freight-related traffic focuses on congestion, pavement condition, and reliability, similar to passenger-related traffic. The difference is in the value of time. The value of time for trucks can be five to ten times as high as for passenger vehicles. This means that addressing recurring and intermittent congestion is of particular concern to freight-related firms. MAP-21 includes several mandates for establishing baseline and ongoing performance metrics for both the network and individual projects, and the GCLMPO must communicate the impacts of recurring congestion to NCDOT for consideration in establishing metrics.

The most important freight-related roads within the GCLMPO Metropolitan Planning Area are found on NCDOT Strategic Highway Corridor network, and also include the highest truck volume routes. Several sections of NC, US, and Interstate routes score among the most

**Figure 13-7:**

## Freight Tonnage Forecasts by Mode, 2020

Domestic tonnage to grow 65 percent; international tonnage to double; trucks to carry 75 percent of tonnage





congested sections of road in North Carolina, specifically I-85 through Gaston County, US 74 through Cleveland County, and the US 321 and I-85 interchange. Each carries significant truck volumes and has high congestion scores from NCDOT's SPOT process. Each of these corridors is also targeted for upcoming capital improvements in the form of widenings, geometric improvements, and constructing bypasses in GCLMPO's 2040 fiscally-constrained project list.

## Air Cargo

Although air freight makes up a small fraction of the weight of cargo shipments in the State, it makes up a much higher percent of the value of North Carolina cargo shipments (NC Logistics Plan p 118). As of 2006 the Charlotte-Douglas International Airport carries approximately 42 percent of North Carolina's 336 million pounds of air cargo carried each year.

Charlotte-Douglas International Airport is less than two miles east of the GCLMPO Metropolitan Planning Area, adjacent to a Foreign Trade Zone, and immediately accessible to major interstates. Charlotte Air Cargo Center consists of approximately 500,000 sq. ft. of facilities and over 50 acres of aircraft ramp space. The airport's three runways can accommodate all types of aircraft and measure 10,000 feet, 8,845 feet, and 7,500 feet. To support air cargo operations, Charlotte Douglas has a full complement of international service support organizations including U.S. Customs, U.S. Department of Immigration and Naturalization and U.S. Department of Agriculture. The Charlotte Air Cargo Center has more than 70 freight forwarders, custom house brokers and professional international service providers.

Norfolk-Southern is currently relocating their intermodal facility from downtown Charlotte to the Airport. Doing so improves synergies between the modes of transportation

and helps the local road network by consolidating the three modes of cargo transportation on one site. The new intermodal facility is located between the second and third runways, and is now under construction. The project is expected to be completed by 2014.

The development of the new Norfolk-Southern intermodal facility will create proximity for potential air cargo intermodal movements between train, truck, and airplane, although the Airport and Norfolk-Southern both state this is unlikely to occur, and the location is simply making use of excess land between runways at the airport. The intermodal facility will allow the Airport to potentially interface with truck and railroad movements.

## Railroads

The Norfolk Southern Railroad (NS) and CSX Transportation (CSXT) are the two major rail lines serving the tri-county area. These rail lines link the region to the rest of the nation. These railroads bring more than 500 trains through the Greater Charlotte region per week. As of 2013 NS is constructing a new intermodal facility at the Charlotte Douglas International Airport to significantly expand its intermodal capacity in the region, as well as access interstates more easily. Railroads consider trucking firms as partners in providing logistics solutions and offer piggyback facilities, and this intermodal facility will greatly facilitate this partnership.

Twenty-five freight railroad companies operate North Carolina's 3,379-mile rail system. Two freight railroad companies operate over 70 percent of the state system via major/mainline routes and service the tri-county Metropolitan Planning Area. CSXT operates 34 percent of the system. CSXT's east-west route connects Wilmington and Charlotte to Atlanta and New Orleans. NS operates 43 percent of North Carolina's rail system. NS' north-south

route connects the Northeast and Midwest to Atlanta via Danville, Virginia; Greensboro; and Charlotte.

2,800 of the 3,300 miles of rail lines throughout North Carolina are owned by private freight railroads. There are a total of 22 active freight railroad companies operating in North Carolina today: two active Class I railroads, 12 active short line railroads, and eight active shoreline railroads that specialize in switching and terminal services. In addition, there are two freight companies, the Red Springs and Northern Railroad and the Virginia and Southern Railroad that own track in North Carolina but are not currently operating in the state.

NC and CSXT together provide 128 train trips per day, as of 2013, to the GCLMPO region. NS alone runs 78 trains a day on the line roughly paralleling I-85 from both the east and west. CSXT provides 39 train trips per day along the US 74 corridor. North-South trips roughly paralleling I-77 and east west along NC 24-27 are only 13 trips per day. This information was provided by NCDOT Rail Division in June 2013.

## Freight Rail Needs

The following information comes from the May 2008 NC Statewide Logistics Plan. Its recommendations apply to the GCLMPO Metropolitan Planning Area, as well as the state as a whole. Historically, private investment has funded rail infrastructure enhancements. However, as described in the "Rail" appendix of the Statewide Logistics Plan, railroads have struggled to earn sufficient profits to afford such investments for much of the last half-century. While this situation has somewhat improved for Class I railroads, it is highly unlikely that the NC short-line railroads will earn sufficient profits to self-fund needed infrastructure investments anytime in the foreseeable future. Even Class I railroads will only be motivated to





# the way forward: 2040 Metropolitan Transportation Plan

invest in those areas where volume is sufficient to make such investment financially viable. It is unlikely that either Class I railroads or short-lines will be motivated to install/expand any significant amount of new rail to expand service without some form of public assistance (in the form of direct infrastructure investment, low cost loans, or other financial incentives).

Figure 13-8: Freight Rail Lines

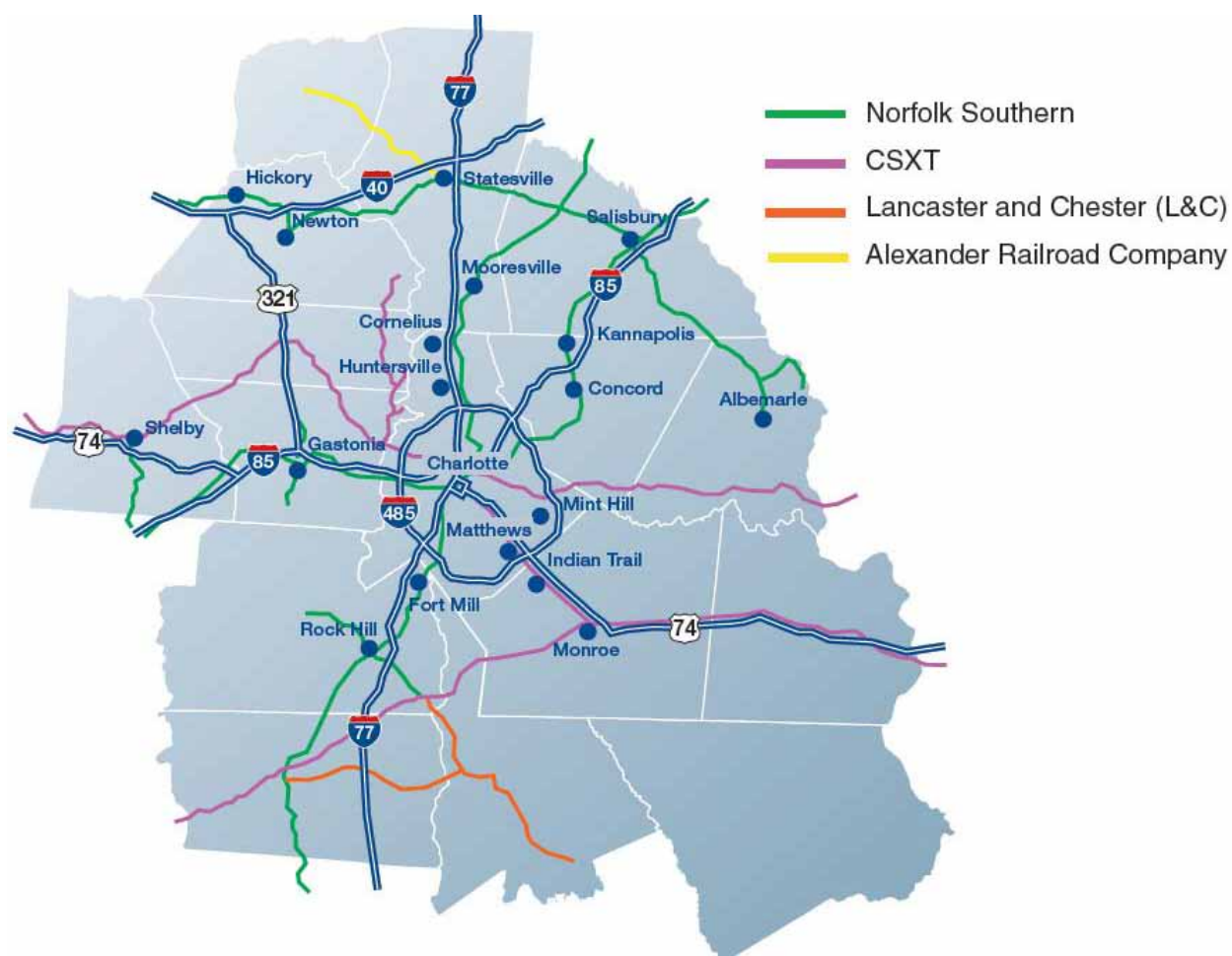
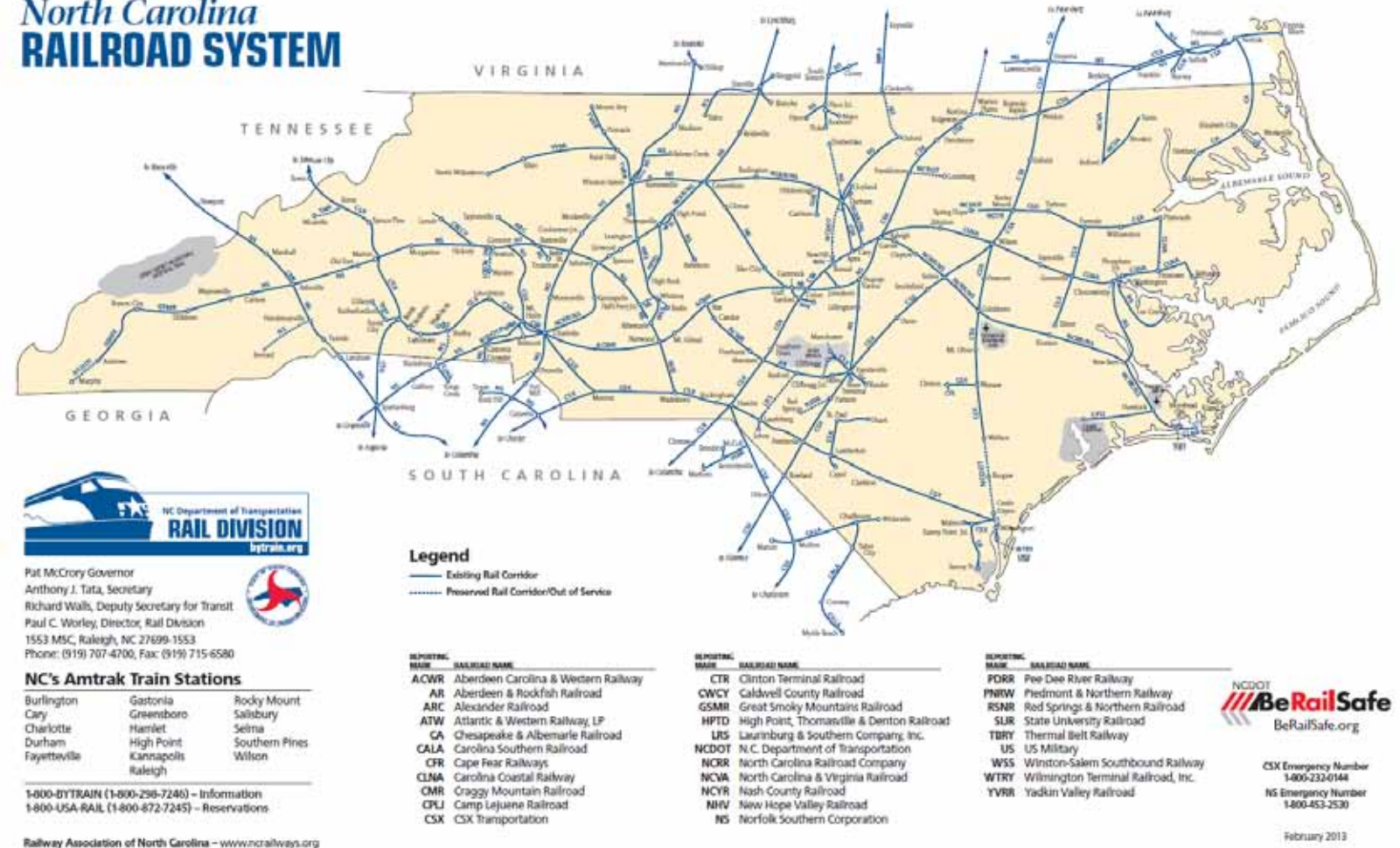


Figure 13-9: North Carolina RAILROAD SYSTEM



Accordingly, the following are some of the rail issues/areas that North Carolina must consider within the framework of enhancing its transportation infrastructure:

- Retain existing rail corridors and halting track removal;
- Continue direct support for short-line railroad infrastructure improvements;
- Expand capacity in high-use rail corridors, including the expansion into double/triple track configurations;
- Enhance/improve scheduling and coordination with passenger rail service;
- Explore routing options for hazardous materials shipments to avoid highly populated areas;
- Reduce at-grade rail/highway crossings;
- Provide rail access to North Carolina Port Authority inland terminals (currently located in Greensboro and Charlotte).





The abandonment of rail lines in North Carolina continues to be primary challenge for the freight rail industry, rural communities, and shippers. In the past decade, the rate of abandonment in North Carolina slowed, but the 700 miles of track abandoned since 1971 has recently resulted in a preservation strategy within NCDOT Rail Division to ensure these corridors are available for potential future operations. In addition, only 30 percent of the State's short lines can accommodate heavier (286,000-pound) rail cars. This lack of capacity, along with deferred maintenance on lines and bridges, is a barrier to long-term growth and operations on some of these lines. At the same time, greater investment in short lines is key to spurring economic growth in the State's rural and small urban areas.

## Intermodal Facilities

Intermodal facilities allow for the easy transfer of freight between railroads, planes, ships, and trucks. With five freight terminals, greater Charlotte boasts 28 percent of all freight intermodal terminals in North Carolina, although none of these facilities are located within the GCLMPO Metropolitan Planning Area. These terminals include:

- Charlotte Douglas International Airport
- Norfolk Southern Intermodal Freight Terminal
- CSX Intermodal Freight Terminal
- North Carolina State Ports Authority
- Pipeline Tank Farms (Paw Creek, Mecklenburg County)

The two major CSX and N-S intermodal facilities at the Airport and on Rozzeles Ferry Road are the primary intermodal yards in the region, and are key to the two Class I railroads' goal of providing speed and reliability comparable to trucks. The railroads therefore are focusing improvements to these facilities and the lines leading to

them to ensure quality service. This has anecdotally hurt short-line railroads, as the Class I railroads' preferences are for truck delivery transfers to and from rail at these strategic facilities, rather than train to train transfers.

## Regional Planning Initiatives: CONNECT

"CONNECT Our Future" is a process in which communities, counties, businesses, educators, non-profits and other organizations work together to grow jobs and the economy, improve quality of life and control the cost of government. This project, administered by the Centralina Council of Governments, will create a regional growth framework developed through extensive community engagement and built on what communities identify as existing conditions, future plans and needs, and potential strategies. The CONNECT Our Future three-year process, from 2012 through 2014, is engaging public, private and non-profit organizations across the 14-county region, which includes the entire GCLMPO Metropolitan Planning Area.

CONNECT Our Future is guided by the following core values. These values were generated by extensive community input and adopted by the majority of jurisdictions within the 14-county region.

- A Strong, Diverse Economy...that supports a wide variety of businesses and enterprises
- Sustainable, Well-Managed Growth...that maintains quality of life, protects open space and environmental quality, retains the natural character of the region, and maximizes the efficiency of infrastructure investments
- A Safe and Healthy Environment...with good air and water quality
- Increased Collaboration among Jurisdictions...on issues that transcend boundaries, including

growth management, transportation, and environmental concerns, in a manner that recognizes both regional and local needs

- Enhanced Social Equity...through community leadership and cooperative volunteerism
- High Quality Educational Opportunities...that are available to all residents

Many of these core values will inform economic development and land planning initiatives throughout the area, particularly on supporting current and future employment centers, establishing transportation priorities, and minimizing the negative effects of such activities. Siting and supporting manufacturing and associated land uses is an output of this process that will affect the transportation demands and projections used in generating candidate projects and priorities for the GCLMPO into the future.

## Regional Freight Mobility Plan Scoping Process

In 2009 and 2010 the Centralina Council of Governments led a regional governance study to evaluate the region's current arrangement for conducting transportation planning and compare it to several comparably-sized regions throughout the country. The result of the study was a regional preference for maintaining the current arrangement of one region with multiple metropolitan and rural planning organizations, with recognition that some transportation issues were of importance to everyone and justified action at a regional level. The first issue identified for study and action at the regional level was freight movement. This was identified in the spring of 2011 at a meeting of area business and community leaders studying how to act upon the conclusions of the governance study.



## the way forward: 2040 Metropolitan Transportation Plan

Centralina staff met with representatives of NCDOT in August 2011 to discuss how to proceed with such a study, and received feedback that NCDOT would be interested in participating in such a plan for the greater Charlotte region. They were willing to consider participating if it included all four of the area Metropolitan Planning Organizations (MPOs) and did not replicate work done through the State's Seven Portals Study (see page 13-8 for details on the Study). Centralina staff took the recommendations from this meeting and determined that a significant amount of input from private and public sector representatives would be necessary to determine what specific freight issues to study. This was because regional freight movement studies elsewhere in the nation have cost upwards of two million dollars, although most were in the several hundred thousand dollar range.

Centralina, in cooperation with the Catawba Regional Council of Governments in Rock Hill, invited private sector and government representatives to meet bi-weekly for several months to explore the issues affecting freight movement in the region, and held two open houses to gather input and confirm a scope of work for a forthcoming freight mobility plan. This work was conducted between December 2011 and April 2012. At that time the Mecklenburg-Union Metropolitan Planning Organization (MUMPO) committed \$50,000 to help pay to develop a plan. In May 2012 Centralina then sent a letter to NCDOT detailing a proposed scope of work and the process used to develop it. Centralina requested \$100,000 from NCDOT to assist the region develop a plan. In July 2012 NCDOT responded that they saw value in such a plan, but required that all four MPOs in the region financially participate in the cost of such a plan. The two councils of governments decided to delay initiation of this plan until late 2014 at the earliest due to a lack of funding, uncertainty regarding future freight-related performance measures mandated by MAP-21, and recommendations

of CONNECT. The process would restart in late 2014, and be informed by the results of MAP-21 implementation and CONNECT. When implemented, the Freight Mobility Plan will identify ways to effectively and consistently address congestion, economic development, project prioritization, land use, and environmental impacts across the region.

To capitalize on the prior work in the scoping process, Centralina relied on the established group of stakeholders from throughout the region to help inform and review this portion of the GCLMPO's MTP, as well as the MTPs from the other area MPOs. This occurred at two freight input sessions, held in November 2012 and October 2013.

### Statewide Freight Initiatives and Related Activities

#### Strategic Planning Office of Transportation (SPOT)

NCDOT, at the direction of the General Assembly, has developed an objective and defensible project solicitation and ranking process for considering candidate projects for inclusion in the Statewide Transportation Improvement Program (STIP). While not a specifically freight-oriented organization, the results of the SPOT office's work help to garner funding for all major transportation projects in the state, meaning its impact on freight movement cannot be dismissed. This process is housed in the SPOT, a dedicated department within NCDOT. The ranking process is also commonly referred to as the "SPOT Process". As of 2013 there have been two iterations of SPOT used for development of the STIP for North Carolina, with a third expected available by early 2014. Under SPOT, Metropolitan and Rural Planning Organizations are required to solicit, evaluate, and score projects before inputting into a common database, where input from NCDOT Divisions and SPOT office are combined to develop an overall score for individual projects. MPOs are not required to use the SPOT scoring

process to evaluate MTP candidate projects, but GCLMPO has elected to model its ranking process on the SPOT methodology in order to ensure consistency between the project rankings.

#### Logistics Task Force

In response to House Bill 1005, Session Law 2007-551, the North Carolina Office of State Budget and Management coordinated the development of a statewide logistics plan that addresses the state's long-term economic, mobility and infrastructure needs. The plan would evaluate the following components:

- Identification of priority commerce needs.
- Enumeration of transportation infrastructure actions, including multimodal solutions that will support key industries vital to the State's long term economic growth.
- Endorsement of the plan based on input from State agencies and the private sector regarding these needs and actions.
- A timetable to meet any identified needs.

The Logistics Task Force reviewed transportation systems in North Carolina including roads and highways, airports, ports, multimodal transportation and railroads. This task force developed two statewide reports: *the Seven Portals Study* and *the Statewide Logistics Plan*.

#### Statewide Logistics Plan

In the Statewide Logistics Plan, the Department of Commerce identifies agriculture (related to biotechnology and winemaking), textiles (as an emerging high-tech sector), and defense-related industries as key features of the future North Carolina economy. Other key sectors include information and communications technology, motor vehicles and heavy equipment, business and financial services, and chemicals, plastics, and rubber.







Adding to this mix is growth in sports development, basic science and technology research, the film industry, and North Carolina's traditionally strong and growing tourism, marine and seafood industries.

The statewide logistics plan made two important recommendations that affect NCDOT, GCLMPO, and its members through emphasizing system reliability and alternative road finance mechanisms such as tolling or vehicle-miles traveled (VMT) fees.

- **Transform NCDOT into an operations-based agency:** concerned with the quality of service it provides to its customers, especially highly reliable travel times, levels of safety, and degrees of security. This means minimizing non-recurring congestion, minimizing clearance times for incidents and accidents, providing one-stop-shopping for permits and other clearances, being pro-active at decision-focused meetings among private interests and public agencies, bringing to the table the value added that NCDOT provides to the supply-chain equation for all forms of commerce.
- **Facilitate Pass-Through Traffic:** support the needs of the traffic traveling north south, particularly on I-95, I-85, and I-77. Use tolls, mileage taxes, or other use-based mechanisms to recover the costs. Provide high value-added services, including expedient incident response to minimize delays, high-quality plazas, and ubiquitous high-bandwidth internet access. It might also mean constructing dedicated use facilities, like truckways that make it possible for such trips to traverse the state without interfering with local travel patterns.

Together these recommendations recognize the role of transportation in the economy and the need to consider non-traditional funding strategies and specific

performance metrics to meet the needs of private industry.

## Seven Portals Study

The goal of this study was to investigate potential “logistics villages” within each of the seven economic development regions across the state. The term “logistics villages” refers to freight-oriented business parks and intermodal centers. The initial focus for identifying such sites was proximity for air, rail, and highway connectivity, but the study discovered other possibilities for successful villages. Each village is evaluated for strengths, weaknesses, and needs, with emphasis on identifying what infrastructure improvements are needed to support such a village at that location. The study does not recommend specific sites above others. The major findings from this study are incorporated into a master report covering the entire state titled *Seven Portals Study – An Investigation of How Economic Development Can be Encouraged in North Carolina Through Infrastructure Investment*.

This report presents a summary of the current status of logistical infrastructure in place and planned for future development in the Charlotte region of North Carolina. It responds to the needs of the State and Region to integrate the functions of economic development, transportation planning, and logistics system/ business environment enhancement. Both government agencies (e.g., the NC Department of Transportation, NC Department of Commerce, Gaston County, etc.) and the private sector were instrumental in providing input and review for this study. The Charlotte region's portion of the *Seven Portals Study* did not include an exhaustive list of suitable sites among a larger number of sites that can be developed to improve the overall logistics operational capacity in the Charlotte region and North Carolina, but it did provide specific improvements that would assist in the development of the identified inter-modal sites.

There were no sites identified through this process within the GCLMPO Metropolitan Planning Area, but there were three sites immediately east of the study area in southwest Mecklenburg County that would affect the MPO and transportation planning:

- a. Charlotte-Douglas International Airport
- b. Steele Creek-Arrowood-Westinghouse Industrial Center
- c. Dixie-Berryhill Area

The Study makes recommendations for infrastructure and policy improvements to help increase economic activity and transportation efficiency at these sites, such as access between intermodal and private distribution centers, rest and parking areas for drivers, and fixing choke points and bottlenecks. GCLMPO should work with its member governments and stakeholders to incorporate these recommendations into their planning and prioritization efforts.

## Federal Initiatives and Legislation

As specified in the 2012 MAP-21 enabling legislation, the USDOT Secretary shall encourage each MPO to consult with officials responsible for other types of planning activities that are affected by transportation in the area (including state and local planned growth, economic development, environmental protection, airport operations, and freight movement). The MPO planning process shall provide for a consideration of projects and strategies that will:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency,
2. Increase the safety of the transportation system for motorized and non-motorized users,
3. Increase the security of the transportation system for motorized and non-motorized
4. Increase the accessibility and mobility of people and for freight



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5. Protect and enhance the environment, promote energy conservation, improve the quality of life and promote consistency between transportation improvements and state and local planned growth and economic development patterns,
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight,
7. Promote efficient system management and operation, and
8. Emphasize the preservation of the existing transportation system.

MAP-21 established a national freight policy with the following objectives:

1. Strengthen the contribution of the national freight network to the economic competitiveness of the US,
2. Reduce congestion,
3. Increase productivity, particularly for domestic industries and businesses that create high-value jobs
4. Improve safety, security, and resilience of freight transportation,
5. Improve the state of good repair of the national freight network,
6. To use advanced technology to improve the safety and efficiency of the national freight network,
7. To incorporate concepts of performance, innovation, competition, and accountability into the operation and maintenance of the national freight network, and
8. To improve the economic efficiency of the national freight network.

To help achieve the above objectives, MAP-21 stipulates that the US Secretary of Transportation shall establish

performance targets that address:

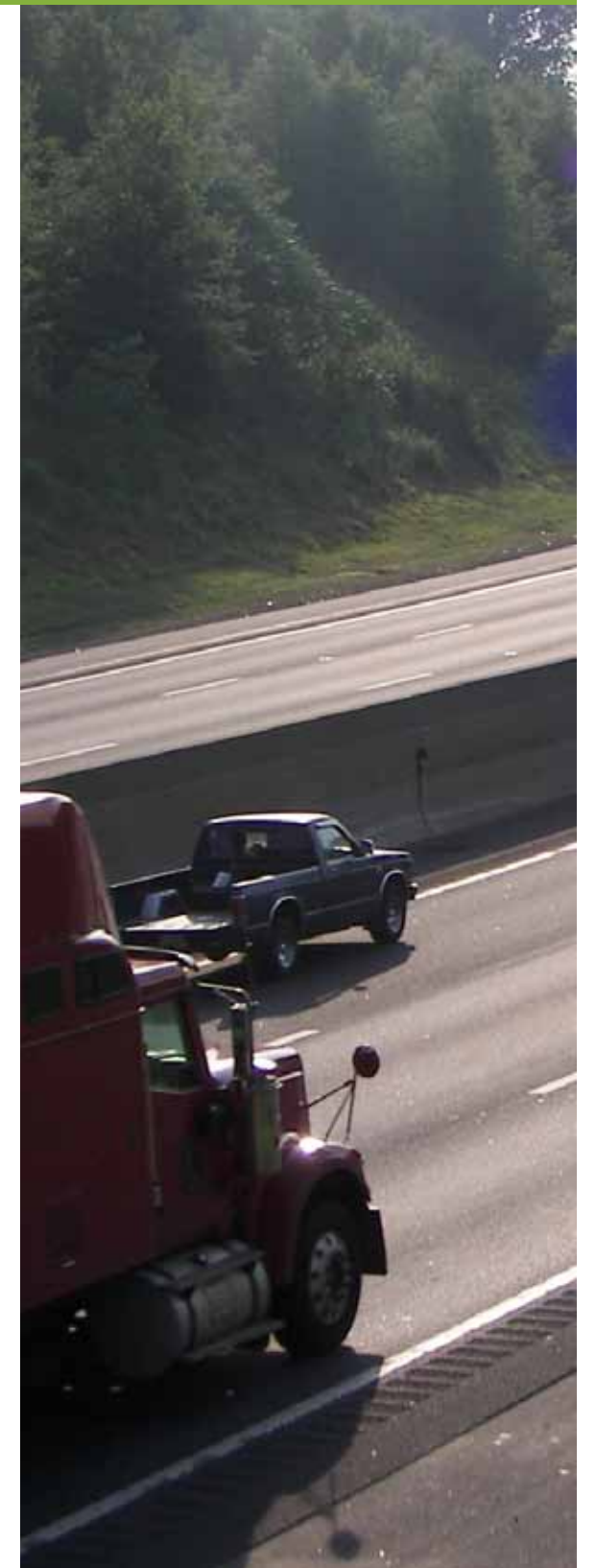
1. Condition of pavement and bridges on the Interstate system and NHS,
2. Performance of the Interstate System and NHS,
3. Serious injuries and fatalities by rate and absolute numbers, and
4. Traffic congestion and on-road mobility source emissions.

MAP-21 further requires that a National Freight Strategic Plan will be implemented by October 1, 2015 in consultation with state DOTs and public and private stakeholders. It shall include an assessment of the condition and performance of the national freight network, and identification of highway bottlenecks, forecast of freight volumes for 20 years out, identifying major trade gateways and national freight corridors, an assessment of statutory, regulatory, technological, institutional, financial and other barriers to improved freight transportation performance; best practices to mitigate the impacts of freight movement on communities; process for addressing multistate projects and encouraging jurisdictions to collaborate; and strategies to improve freight intermodal connectivity.

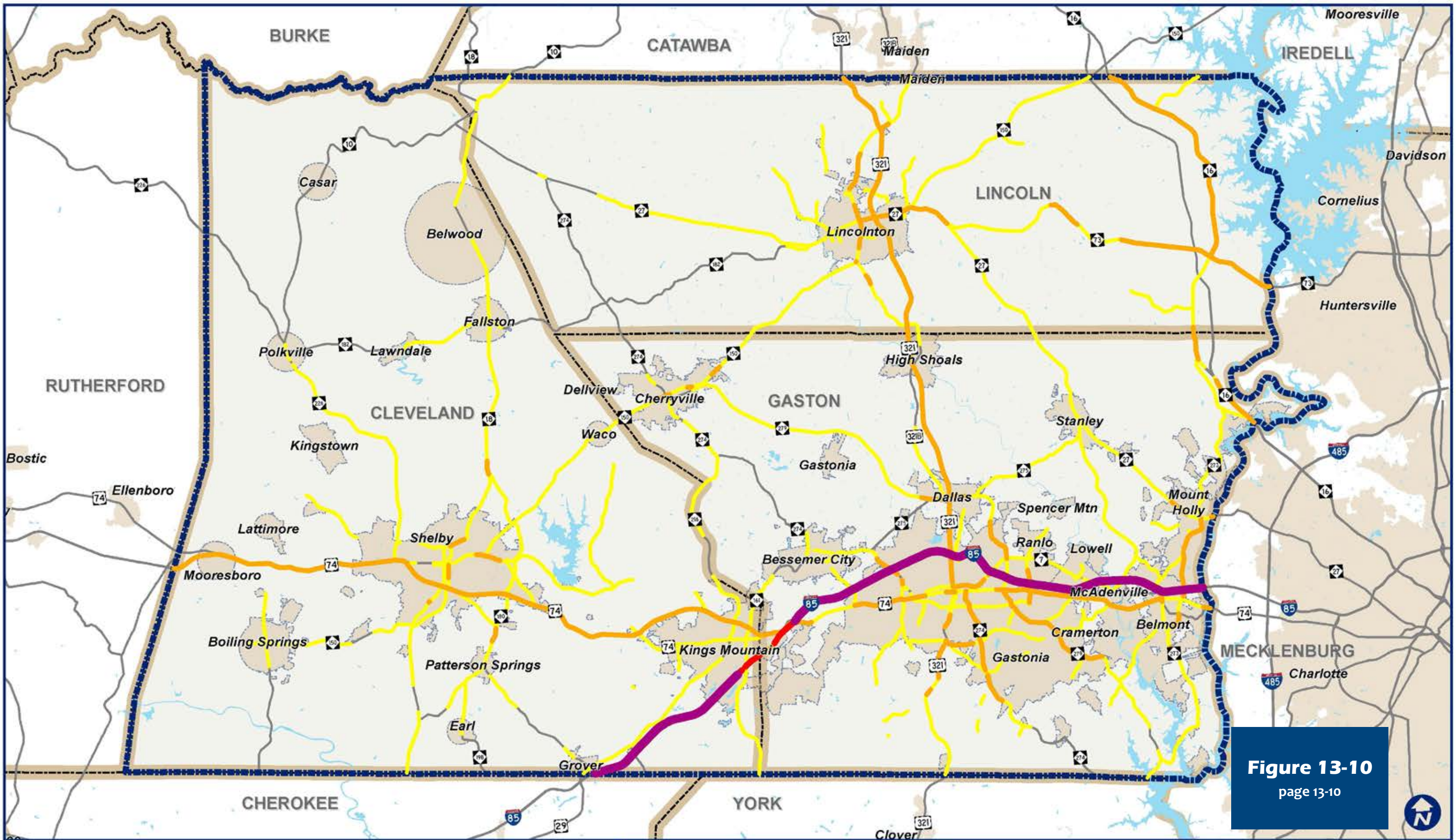
To begin this data-driven performance-based process, MAP-21 mandates that Freight Transportation Conditions and Performance Reports be implemented by October 1, 2014, and updated every two years, describing the conditions and performance of the national freight network in the US. This will be initiated by the USDOT by October 1, 2013. It will support an outcome-oriented, performance-based approach to evaluate proposed freight related and other transportation projects. This will allow systematic analysis of benefits and costs, and tools for ensuring that the evaluation of freight-related and other transportation projects could consider safety, economic competitiveness, environmental sustainability,

and system condition in the project selection process.

Many of the issues listed in the MAP-21 freight guidance affect freight movement and therefore are important to not only general transportation planning issues, but to freight planning issues in particular. To ensure consistency, MAP-21 language stipulated that the USDOT Secretary shall establish measures for states to use to assess the above issues. Each MPO shall coordinate with the State DOT to the maximum extent practicable and establish performance targets to track progress towards attainment of critical outcomes for the region. Each MPO shall establish performance targets no later than 180 days after the date on which the state DOT establishes performance targets. GCLMPO should therefore work closely with adjacent MPOs and NCDOT in the development of these performance targets to ensure consistency, applicability, availability of data, and dissemination to stakeholders in the transportation planning process.







**Figure 13-10**  
page 13-10

# GASTON CLEVELAND LINCOLN MPO 2010 DAILY TRUCK VOLUMES

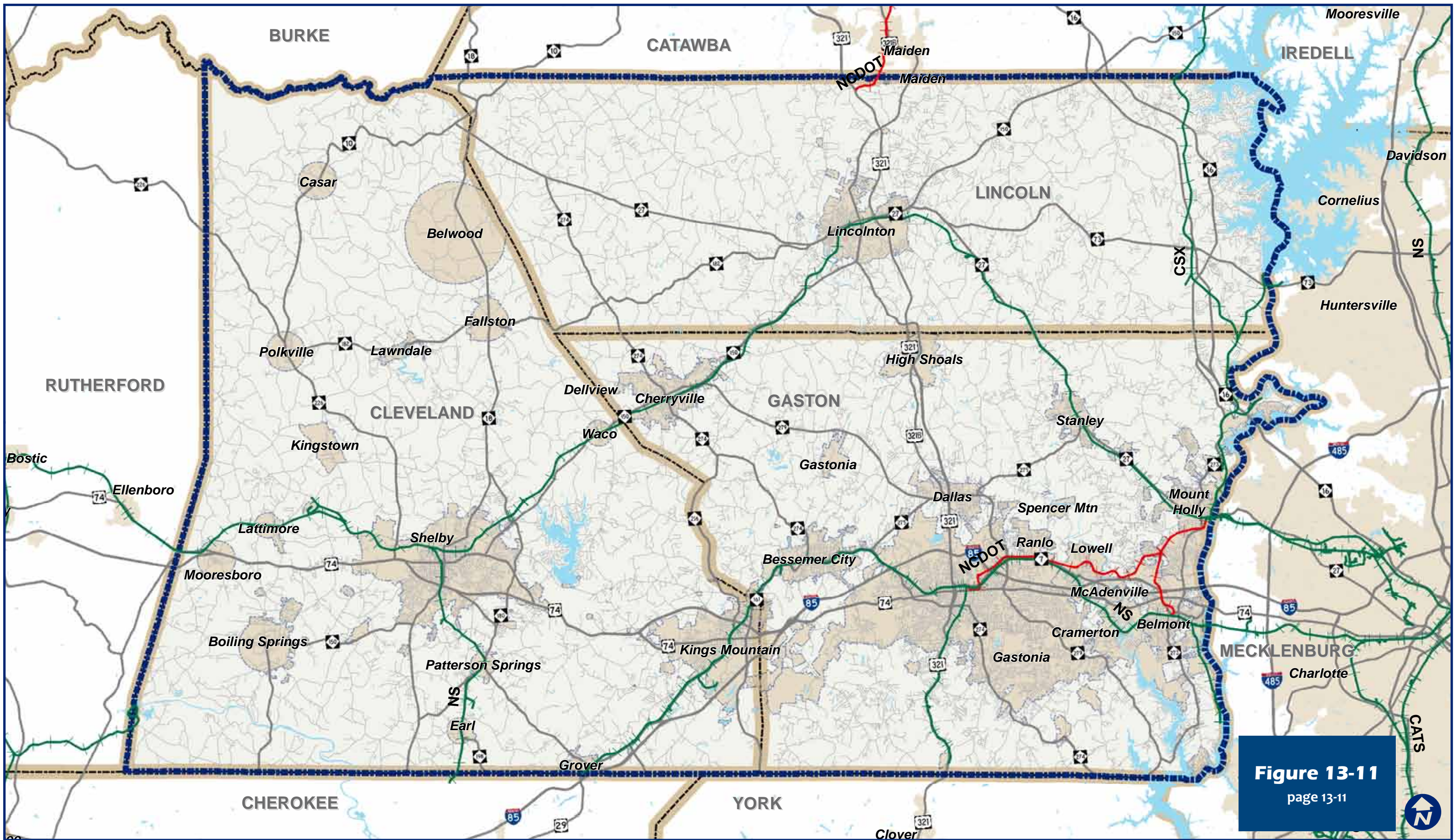
Legend	
	Highways
	Major Roads
	MPO Area
	Municipalities
	Counties
	251 - 1,000 trucks per day
	1,001 - 5,000 trucks per day
	5,001 - 10,000 trucks per day
	10,001 - 28,800 trucks per day

0 1 2 4  
Miles

January 2014

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 13-11**  
page 13-11



# GASTON-CLEVELAND-LINCOLN MPO RAIL CORRIDORS AND STATUS

<b>LEGEND</b>	Highways	Counties	<b>NC Rail Track In Service</b>
	Major Roads		In Service
	Minor Roads		Not In Service

0 1 2 4  
Miles  
January 2014

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





Figure 13-12:

### 2040 Metropolitan Transportation Plan (MTP) ALL OTHER PROJECTS

Unfunded			
2015 Horizon Year (Pre-STI)			
2025 Horizon Year			
2030 Horizon Year			
2040 Horizon Year			
CMAQ Funded Projects in Red			

OP ID	Submitting Agency	Mode	Description	2015 Cost	2025 Cost	2030 Cost	2040 Cost
I-4928	NCDOT	Freight	Construct New Weigh Station along I-85.	\$12,000,000	NA	NA	NA
C-5186	Gastonia	Intelligent Transportation Systems	Gastonia CCTV Cameras. Install 6 CCTV cameras to the existing computerized traffic signal system on I-85 at NC 7 (Ozark Avenue); US 29/US 74 at Franklin Square II; NC 279 (New Hope Road) at Ozark Avenue; US 321 (Chester Street) at Tulip Drive/Bulb Ave; NC 274 (Bessemer City Road) at NC 275 (Dallas/Bessemer City Road); and NC 274 (Union Road) at SR 1255 (Hudson Boulevard)	\$123,000	NA	NA	NA
C-5510	GCLMPO	Vehicle Retrofits	Mecklenburg County Air Quality - GRADE (Grants to Replace Aging Diesel Engines). Replace, Repower, or Retrofit Aging Diesel Vehicles and Equipment.	\$171,000	NA	NA	NA
C-5563	Cramerton	Vehicle Retrofits	Fleet Vehicle Conversions (Retrofit) to LPG Bi-Fuel.	\$150,000	NA	NA	NA



# 14 Other Transportation Modes

## A. TAXI SERVICE

With the cost of owning personal transportation rising, more residents of the GCLMPO Metropolitan Planning Area may turn to taxi service as a major means of transportation. The GCLMPO Metropolitan Planning Area has multiple taxi cab service companies. Rates are regulated by the City of Gastonia and the three County governments. These companies offer local and long distance service. A number of the taxi companies also run shuttle service to the Charlotte Douglas Airport.

### Gaston County

**Yellow Cab Co of Gastonia** 913 W Franklin Blvd, Gastonia (704) 867-6391

**Metro Cab** 1104 E Ozark Ave, Gastonia (704) 852-4147

**BLUE CABS OF NC** 543 Cox Rd, Gastonia (704) 674-4457

**AAA Taxi** 707 Grover St, Gastonia (704) 861-0855

**AAA Taxi** 815 E Park Ave, Gastonia (704) 861-0855

**Cook's Cab Company** 217 Allison Ave, Gastonia (704) 868-8181

**City Cab Company** Gastonia (704) 867-4620

**City Cab Company** 720 W Airline Ave, Gastonia (704) 867-4620

### Cleveland County

**Weaver's Taxi** (704) 487-9193 521 Carolina Ave, Shelby, NC

**Your City Taxi Company** (704) 487-9158 518

Carolina Ave, Shelby, NC

**AA United Cab** (704) 482-7000 220 S Washington St, Shelby, NC

**East Marion Cab Company** (704) 487-6200 211 E Marion St, Shelby, NC

### Lincoln County

**Yellow Cab of Lincolnton** 2380 Industrial Park Rd, Lincolnton (704) 748-1313

**Specialized Transport** 2380 Industrial Park Rd, Lincolnton (704) 735-5676

Residents in Gastonia who chose taxi service as a means of transportation are protected under municipal codes which state:

*a) No person owning or operating a taxi cab within the city limits may charge fares in excess of those prescribed in the schedule of taxicab fares adopted by resolution of the council, a copy of which shall be on file in the clerk's office and shall also be available from the administrator.*

In order to better prepare for future growth projections, providing additional access for residents to taxi service will need to be addressed. Providing taxi cab vouchers for qualifying residents may be an option looked into for the future.

## B. WATERWAYS & BLUEWAYS

A **blueway** or water trail is a water path or trail that is developed with launch points, camping locations and points of interest for canoeists, paddle boarders and kayakers. Blueways are typically developed by state, county or local municipalities to encourage recreation, ecological education and preservation of wildlife resources.

Developed as a Carolina Thread Trail project in Gaston County, the South Fork River Blueway has a number of boat launches located along its course. The northern most put-in is located in Spencer Mountain and is maintained by Catawba Lands Conservancy. This access is by permit only. A permit can be requested by contacting the Catawba Lands Conservancy. The access is located at 200 Stanley-Spencer Mountain Road in Spencer Mountain, NC.

Other available launch locations include:

**South Fork River Park** (Gaston County Parks and Recreation)

4185 Mountain View Street, Gastonia, NC

**R. Y. McAden Take-out in McAdenville** (Catawba Lands Conservancy)

**Goat Island Park** (Town of Cramerton)

Greenplace Road, Cramerton, NC

**Riverside Park (Town of Cramerton)**

Riverside Drive, Cramerton, NC

**Mountain Island Park** (City of Mount Holly Parks & Recreation)







**River Street Park** (City of Mount Holly Parks & Recreation)  
N River St, Mt Holly, NC

**Tuckaseege Park** (City of Mount Holly Parks & Recreation)  
Sports Lane, Mt Holly, NC

### Catawba River

The Catawba River is a tributary of the Wateree River in North Carolina and South Carolina. The river is approximately 220 miles (350km) long. It rises in the Appalachian Mountains and drains into the Piedmont and is impounded through a series of reservoirs for flood control and hydroelectricity. The river is named after the Catawba tribe of Native Americans. They were known in their own language as the Kawahcatawbas, “the people of the river”.

It rises in the Blue Ridge Mountains in western McDowell County, North Carolina, approximately 20 miles (30 km) east of Asheville. It flows ENE, forming, along with the Linville River, Lake James. It then passes north of Morganton, then southeast through the Lake Norman reservoir. From Lake Norman it flows south, passing east of **Gaston County** and west of Charlotte, then flowing through the Mountain Island Lake and Lake Wylie reservoirs, where it forms approximately 10 miles (15km) of the border between North Carolina and South Carolina. It flows into northern South Carolina, passing Rock Hill, then through Fishing Creek Reservoir near Great Falls, and then into the Lake Wateree reservoir, approximately 30 miles (50 km) northeast of Columbia, where it becomes the Wateree River.

### South Fork Catawba River

The South Fork Catawba River is west of the Catawba River and merges with the Catawba at Lake Wylie near the South Carolina boarder. The river offers miles of natural landscapes, with great fishing and paddling opportunities. Catawba Lands Conservancy opened a canoe and kayak access point on the South Fork Catawba River in May

2009 called the Spencer Mountain River Access. The trip down to the R.Y. McAden River Access take out point is approximately 2 hours, 5.5 miles.

River stream features vary from slow moving water with a few Class I/II rapids where rock ledges have been carved from the river bottom to concentrated rapids at approximate mile 3.5. There is a dam approximately 5.5 miles down the river - users must exit the river on the right (river right) before the dam. Those continuing downstream can use the Adam Springs Portage on the left. Downstream from the dam, paddlers will encounter the headwaters of Lake Wylie which is slower moving water and a number of rich wetlands along the stream banks.

The South Fork Catawba River is home to a variety of wildlife, including great blue herons, osprey, bald eagles, and deer. Users who access the river from the Spencer Mountain River Access will paddle through some of the most ecologically diverse lands in our region, many of which are permanently protected by the Conservancy.

### The Broad River and First Broad River in Cleveland County

The Broad River originates in the Blue Ridge Mountains of eastern Buncombe County, North Carolina and flows generally south-southeastwardly, through

or along the boundaries of Rutherford, Polk and **Cleveland** Counties in North Carolina; and Cherokee, York, Union, Chester, Fairfield, Newberry and Richland Counties in South Carolina. In North Carolina, the river is dammed to form Lake Lure; Principal tributaries of the Broad River include the Green, Second Broad and **First Broad** (Cleveland County) Rivers in North Carolina.

The GCLMPO will promote and support other blueway projects along the Broad, First Broad, Catawba and South Fork Catawba Rivers in Gaston and Cleveland Counties.

Figure 14-1: Catawba River Chain





# 15 Financial Plan

Federal regulations require all Metropolitan Transportation Plans (MTP) comprise a financial plan as an element. The purpose of the financial plan is to demonstrate that proposed investments are reasonable in the context of anticipated future revenues over the life of the plan and for future horizon years (2025, 2030, and 2040). Meeting this requirement is called “fiscal constraint.” The 2040 GCLMPO MTP is fiscally constrained based on an in-depth analysis of future revenues and project costs. Proposed transportation project investments and needs are consistent with revenue forecasts. This chapter provides an overview of the forecasted cost and revenue assumptions, along with the detailed research results used to derive these values. Anticipated revenues include funding from federal, state and local sources. The following sections provide more detailed assumptions regarding revenue, capital costs, maintenance costs, and future revenue needs.

## A. REVENUE FORECASTS

Revenue forecasts are based on NCDOT’s forecasts for the years 2016 thru 2025. The Strategic Transportation Investments (STI) bill (HB817), which was signed into law on June 26, 2013, changed the way that the State of North Carolina, through NCDOT, allocates transportation funding. STI categorizes all projects, regardless of mode into the following three functional categories or tiers.

- Statewide Mobility
- Regional Impact
- Division Needs

### ● Statewide Mobility

Projects of statewide significance will receive 40% of the total available revenue, totaling approximately \$6.75 billion over 10 years.

Note: The project selection process will be 100% data-driven, meaning NCDOT will base its decisions on hard data and information such as cost effectiveness, crash statistics and traffic volumes. Factors such as economic competitiveness and freight movement will also be taken into consideration to help support and enhance logistics and economic development opportunities throughout the state.

## How STI Works

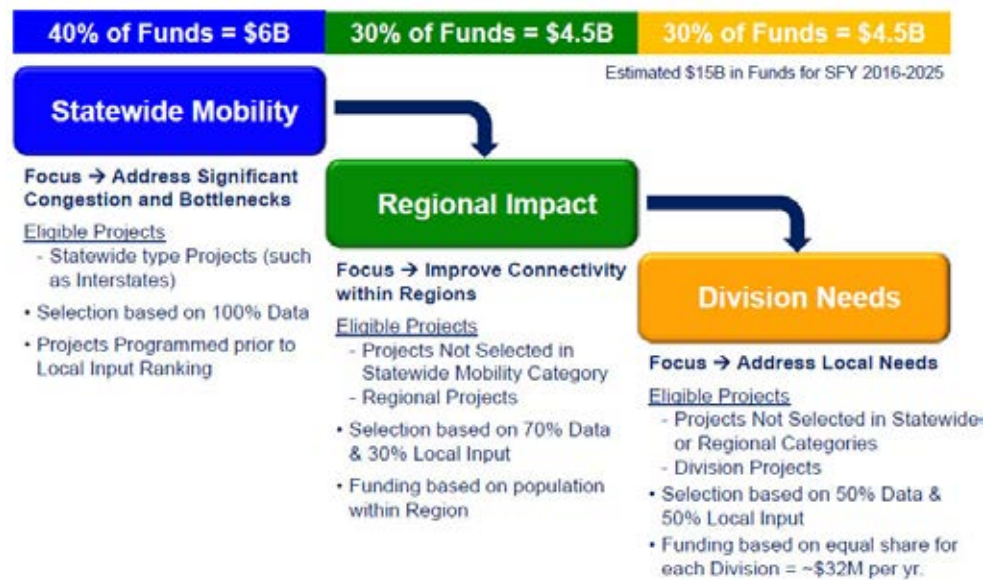
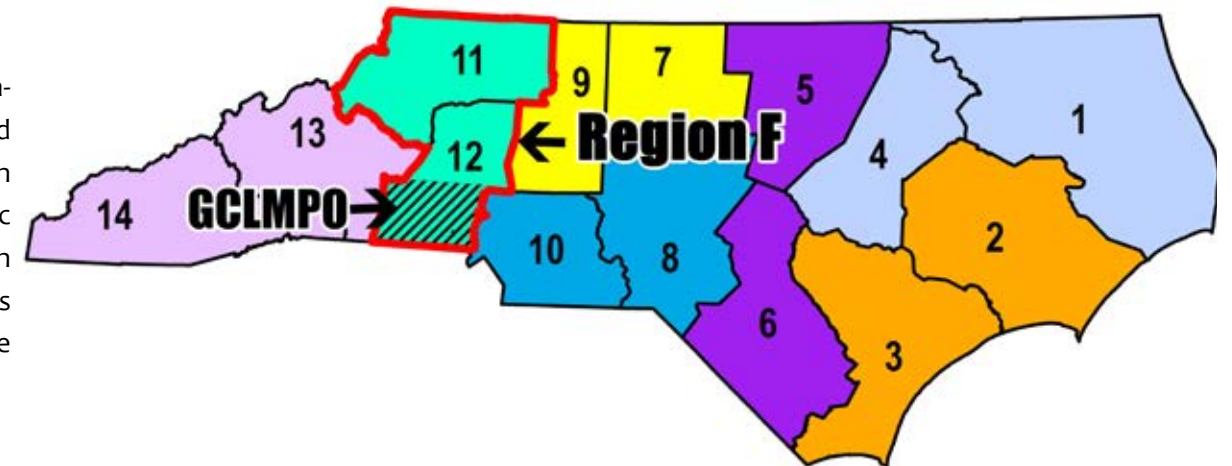


Figure 15-1: NCDOT Divisions & Region F



### ● Regional Impact

Projects of regional significance (all US routes not on the statewide tier, and all NC routes including regional transit, rail, etc.) will receive 30% of the total available revenue, equaling \$4.5 billion over a decade. GCLMPO assumes that the amount a region receives is based on regional population. Projects in this tier compete within their respective STI regions.

The GCLMPO is located solely within Division 12, but must compete for Regional tier funding with the remainder of Division 12 and all of Division 11 (see Figure 15-1)

Note: NCDOT will select applicable projects for funding using two weighted factors. Data will comprise 70% of the decision-making process, and local rankings by local transportation planning organizations and NCDOT Transportation Divisions will comprise the remaining 30% through their prioritization processes.



## ● Division Needs

Transportation projects that are funded through the Division level will receive 30% of the total available revenue or \$4.5 billion shared equally over NCDOT's 14 Transportation Divisions.

Projects that address safety, congestion, and connectivity will be prioritized at this level, and statewide and regional-tier projects that did not receive funding at their respective levels will be considered at this level.

The department will choose projects based 50% on data and 50% on local prioritization.

A more thorough explanation of the Strategic Transportation Investments legislation can be found at: <http://www.ncdot.gov/strategictransportationinvestments>.

Based on the formulas described above, the following amounts were assumed for total potential annual revenues for each category.

Total revenues for all other transportation modes is equal to approximately 13% of divisional funds.

## Future Revenue Forecasts

Future state revenue forecasts from 2025 thru 2040 were based on the existing revenue forecasts developed by NCDOT thru 2025. Beginning in the year 2026 a 2 percent annual revenue inflation rate was applied to year 2040.

## B. REVENUE PROJECTIONS

For the 2040 MTP, revenue and costs for projects are divided into horizon years. Horizon years are based on the Environmental Protection Agency regulations for forecasting air quality conformity based on when projects will be constructed. For this plan, the Base Year is 2015 and the Horizon Years are 2025, 2030, and 2040. All revenue projections and cost projections for projects are categorized on horizon years.

After identifying the overall State, Regional and Division funding expectations, the next step was to estimate the total dollar amount that the GCLMPO could reasonably expect from each of these funding categories.

Staff reviewed several potential methods to determine GCLMPO potential share of the funding. Among the methods discussed included percentage of population, percentage of lane-miles, and percentage of Vehicle Miles Traveled (VMT). The inconsistency of data made it difficult to calculate the percentage of lane-miles and VMT across the three different funding categories.

## Statewide Revenue

The Statewide Revenue assumptions were based on the provisions in the North Carolina House Bill (HB) 812. According to HB 812 **“No more than ten percent (10%) of the funds projected to be allocated to the Statewide Strategic Mobility category over any five-year period may be assigned to any contiguous project or group of projects in the same corridor within a Highway Division or within adjoining Highway Divisions.”** According to the NCDOT financial projections for the 2015 thru the 2025 FY NCDOT can expect to raise between \$6.0 to \$6.75 billion for Statewide projects.

Based on these projections there will be \$600 to \$675 million available **annually** for statewide projects for the first Horizon Year of 2016 thru 2025. Therefore, based on HB 812, the GCLMPO can assume that the maximum statewide funds available for each of our statewide projects would be \$300 million every five years. The GCLMPO has three statewide projects in the 2040 MTP.

For the 2016- thru 2025 Horizon Year the three projects are:

1. I-85 Widening from Belmont to US 29/74
2. Garden Parkway
3. Shelby Bypass (Unfunded Phases)

GCLMPO based their statewide forecast for the first horizon year (2016 thru 2025) on the maximum amount of funding for statewide projects under HB 812 that was allowed and required for the above three statewide projects.

Therefore, the total amount of expected funding from 2016 thru 2025 is \$1,708,278,180. In this horizon year the Shelby Bypass should be completed, the first two phases of the I-85 widening project from NC 273 to US 74 should be completed, and the Garden Parkway project will be constructed from I-85 to NC 274.

For the 2030 horizon year the GCLMPO expects to receive \$297,512,574 for the only statewide project forecast to be constructed in that time frame. The I-85 widening project will be completed from US 74 to the South Carolina State line for a total cost of \$297,512,574.

In the 2031 to 2040 horizon year, the final phase of the Garden Parkway will be completed for a cost of \$357,909,941. For the 2031 to 2040 horizon year the GCLMPO may be eligible for up to \$600,000,000 dollars. However, the final phase of the Garden Parkway from NC 279 to the middle of the Catawba River is forecast to cost no more than \$357,909,941. Part of this funding will most likely consist of at least some Bond money.

A summary of the total funding available for the statewide tier can be found in Figure 15-2.

Horizon Year	State Tier		
	Total Highway Funding Possible	Highway (Includes Bond Money) Needed	Non-Highway (0%)
2016-2025	\$1,800,000,000	\$1,708,278,180	\$0
2026-2030	\$300,000,000	\$297,512,574	\$0
2031-2040	\$600,000,000	\$357,909,941	\$0
2016-2040	\$2,700,000,000	\$2,363,700,694	\$0

Source: NCDOT

Tier	Statewide Population	Region F Population	Percentage of Statewide Population	2016-2025 Projected Revenues	2016-2025 Projected Annual Revenues	MPO Population Share	Projected Annual MPO Share of Revenues
Region F (11 & 12)	9,765,229	1,114,917	0.114	\$4,500,000,000	\$51,377,459	34.6%	\$17,776,601

Population Source: 2012 Certified Estimates OSBM



# the way forward: 2040 Metropolitan Transportation Plan

Figure 15-4: STI Eligible Projects

Mode	Statewide	Regional	Division
Highway	Interstates and Future Interstates, Routes on NHS, Routes on Department of Defense Strategic Highway Network (STRAHNET), Appalachian Development Highway System Routes, Uncompleted Intrastate Projects, and Designated Toll Facilities	Remaining US routes, and all NC routes	All SR routes
Aviation	Large Commercial Service Airports. Funding to to exceed \$500K per airport project per year	Other Commercial Service Airports not in Statewide Funding not to exceed \$300k per airport project per year	All Airports without Commercial Service. Funding not to exceed \$18.5M for airports within this category
Bicycle-Pedestrian	NA	NA	All routes (using non-State Funds)
Public Transportation	NA	Service Spanning two or more counties and serving more than one municipality. Funding amounts not to exceed 10% of regional allocation	Service is not included on Regional Multimodal terminals and stations serving passenger transit systems
Ferry	NA	State maintained routes, excluding replacement vessels	Replacement of vessels
Rail	Freight Capacity Service on Class I Railroad Corridors	Pass. & Freight Rail Service spanning two or more counties not included on Statewide	Pass. & Freight Rail service not included on Statewide or Regional levels

Figure 15-5: Regional Revenue Projections by Horizon Year

Horizon Year	Regional Impact	
	Highway	Non-Highway (0%)
2016-2025	\$177,766,007	\$0
2026-2030	\$94,360,347	\$0
2030-2040	\$219,206,184	\$0
2016-2040	\$491,332,538	\$0

## Regional Revenue

Population proved to be the most consistent data source for the regional projections. HB 817 allocates regional tier funding according to regional population and is also thought to be a good representation of where the transportation needs are located. The bill also assumes statewide project funding may be taken from regional funding after statewide tier funding is depleted. The GCLMPO Board decided not to fund projects out of their respective tiers. Therefore, population was chosen as the method for determining anticipated revenues across the Regional Category. NCDOT projected \$4.5 billion of available statewide revenues for the projects in the Regional Tier from 2016 through 2025. The annual allocation would therefore be \$450 million for Regional projects in the whole state. The STI Formula designates fourteen regions in North Carolina composed of two divisions within each region.

The GCLMPO is part of Region F, which consists of Divisions 11 and 12, as shown in Figure 15-1. To determine the amount of expected revenue for the GCLMPO, it first required determining the amount of funding that region F would be eligible for. In Figure 15-3 the current population of Region F is 1,114,917 people and the current population of North Carolina is 9,765,229 people. Therefore, Region F equals 11.4 percent of North Carolina's total population. Using this calculation, Region F can expect to receive approximately

\$51 million annually thru the first horizon year (2016-2025). The GCLMPO population consists of 34.6 percent of Region F. Therefore, it would be reasonable to assume the annual share for regional projects for the GCLMPO would be approximately 34.6 percent of the annual allocation for Region F, which amounts to approximately \$18 million annually thru the 2025 horizon year (2016-2025). Figure 15-3 illustrates the methodology for the regional funding assumptions.

Figure 15-3 illustrates the amount of funding available by population for the GCLMPO area based on the population assumptions described above and on an annual 2% revenue inflation rate from 2026 thru 2040.

## Division Revenue

The state of North Carolina contains 100 counties. NCDOT is forecasting a total of \$4.5 billion thru the year 2025. According to the HB 817 each Division will receive an equal share of the forecasted revenues. The GCLMPO is in NCDOT Division 12 and there are 14 Divisions in the State. Therefore, for the first horizon year Division 12 would receive approximately \$32 million annually. Since the GCLMPO constitutes 52 percent of the population it is reasonable that the GCLMPO would receive 52 percent of the \$32 million annual allocation. Therefore, the GCLMPO can reasonably expect to receive approximately \$17 million annually beginning in 2016 and continuing through 2025 from this pot of money. See Figure 15-3.

For the final two horizons at the divisional level, the same 2% inflation rate was applied to revenues for the 2030 and 2040 horizon years.

At the divisional level of funding, all non-highway projects can be funded with Division monies. 13% of the available division funding for projects is dedicated to non-highway



**Figure 15-6: NCDOT Projections 2016-2025**

Tier	2016-2025 Statewide Annual Projected Revenues	2016-2025 Statewide Divisional Annual Projected Revenues	2016-2025 Division 12 Projected Annual Revenues	MPO Population Share	Projected Annual MPO Share of Revenues
Division 12	\$4.5 Billion	\$321,428,571	\$32,142,857	52.1%	\$16,740,838

Source: NCDOT, based on 2016-2025 Projections

**Figure 15-7: Division Needs**

Horizon Year	Highway	Non-Highway (13%)
2016-2025	\$167,408,384	\$50,106,042
2026-2030	\$94,360,347	\$4,476,287
2031-2040	\$219,206,184	\$7,607,854
2016-2040	\$480,974,915	\$62,190,183

projects submitted to GCLMPO by member agencies in the 2040 MTP. These include bike/ped, transit and aviation projects. No non-highway projects submitted were eligible in the Regional Tier. To sum up the expected revenue at the divisional level during the 2040 plan see Figure 15-6.

### Bond Revenues

In certain situations, local municipalities with the GCLMPO Metropolitan Planning Area elect to provide funding for priority projects. This funding can be set aside as the result of voter approved bond referendum. Several projects on the fiscally constrained project list for the 2040 MTP are proposed to be funded by local means.

There are two types of Bond revenues available; local and state. The City of Gastonia has dedicated Bond funding towards local road projects within their jurisdiction. At the time of the writing of the 2040 MTP, revenues from statewide Bonds for constructing the Garden Parkway were not available. However, since the Garden Parkway's first three phases of construction are funded in the 2016-2025 horizon year. Since the final phase is not slated for

construction until the 2031-2040 horizon year it is possible that the remaining costs may be financed through statewide funds.

### Congestion Mitigation and Air Quality (CMAQ) Funding

CMAQ funding is used by the local unit member governments of the GCLMPO for projects that enhance the areas air quality. For the years 2013 thru the year 2017 the GCLMPO was awarded \$6,660,000. The GCLMPO used this number as a base for determining future CMAQ funding. Added to the base was a 3 percent annual increase. Therefore, for the remaining years of the first horizon year (2025) the GCLMPO can expect an additional \$11,844,592 dollars for CMAQ projects. From the year 2026 to the year 2030 the GCLMPO can expect approximately \$8,958,305. From 2031 to the year 2040 the GCLMPO estimates that the MPO would be eligible for \$22,424,344.

### State Roadway Maintenance Revenues

State roadway maintenance revenues are financed by the Highway Trust Fund, which is not included in the STI legislation and comes from a different source of funding. Future state roadway maintenance funds were assumed to equal previous and current NCDOT maintenance funding dedicated to this purpose, which includes resurfacing. In FY 2009 thru FY 2015, NCDOT budgeted \$208.2 million for the counties in the GCLMPO. Therefore, the annual revenue dedication is approximately \$31 million annually for the current road network of 2,964 miles. The 2040 MTP proposes adding approximately 119 miles to the current road network. The additional miles represent about a 4 percent increase in the total road network for the GCLMPO. The GCLMPO factored the 4 percent increase for the additional miles plus a 1 percent increase for the inflation adjustment to determine the maintenance revenues needed to maintain the system. The GCLMPO anticipates approximately \$349 million in maintenance funding from 2016

through 2025, \$203 million from 2016 thru 2030, and \$470 million in funding from 2030 thru 2040, for a total of approximately \$1 billion throughout the life of the 2040 plan.

### C. BALANCING REVENUES WITH PROJECT COSTS

The goal of having a fiscally constrained plan is to balance revenues with project costs. The forecasted revenues for projects include a 2% inflation adjusted annual increase while the construction cost for building the projects includes a 3% inflation adjusted annual increase.

Figure 15-8 illustrates the projected revenue funding by category and source by horizon year through the life of the plan. Capital revenues are funds devoted specifically for the construction of new projects while maintenance funding is devoted to maintaining the current and future transportation network. Sources for the revenue include State as well as Federal dollars which are allocated directly to projects or are allocated based on legislation. State legislation determines the amount of Powell Bill funds dedicated towards municipalities. Congestion Mitigation and Air Quality (CMAQ) funds are Federal funds allocated to the North Carolina Department of Transportation (NCDOT) for use only in designated areas of the state.

The projects were ranked on an accepted methodology and funding costs associated with them were developed using the standard NCDOT project cost calculation template. Once all project costs were calculated and ranked, the costs of the top ranked projects were subtracted from the financial projections until the project costs equaled the financial projections.

### Project Ranking

The state of transportation planning in North Carolina has changed dramatically since the last time (2010) a long-range plan was developed for the MPO. The projections for growth in the region have been reduced and focused on Mecklenburg County and areas immediately surrounding it. In addition, NCDOT and the state legislature overhauled the funding

**Figure 15-8: Projected Transportation Revenue by Source**

Horizon Year	Capital Revenue		Maintenance Revenue		Federal Suballocations	Total Funding
	State	Federal	State	Powell Bill	CMAQ	
2016-2025	\$472,740,139	\$1,890,960,555	\$348,513,155	\$74,543,393	\$11,844,592	\$2,798,601,834
2026-2030	\$98,266,508	\$393,066,030	\$202,438,531.45	\$39,758,975	\$8,958,305	\$742,488,350
2031-2040	\$96,194,983	\$384,779,932	\$470,279,936.64	\$99,524,287	\$22,424,344	\$1,073,203,483



# the way forward: 2040 Metropolitan Transportation Plan

Figure 15-9: Highway Projects Ranking Process

Criteria	0 points	5 points	10 points	15 points	20 points	25 points
Existing Congestion (25 max)	Volume to capacity less than 0.5	Volume to capacity btw 0.5 and 0.75	Volume to capacity btw 0.75 and 0.9	Volume to capacity btw 0.9 and 1.0	Volume to capacity btw 1.0 and 1.1	Volume to capacity over 1.1
Existing Safety (25 max)	SPOT Safety points less than 30	SPOT safety points btw 31 and 50	SPOT safety points btw 51 and 60	SPOT safety points btw 61 and 70	SPOT safety points btw 71 and 80	SPOT safety points over 80
Cost-Effectiveness (20 max)	Cost per vehicle per mile greater than \$2,000	Cost per vehicle per mile btw \$1,500-2,000	Cost per vehicle per mile btw \$1,000-\$1,500	Cost per vehicle per mile btw \$500-\$1,000	Cost per vehicle per mile less than \$500	
Freight Volume (15 max)	Less than 500 trucks per day	Btw 500-1,000 trucks per day	Btw 1,000-2,000 trucks per day	More than 2,000 trucks per day		
Transportation Plan Consistency (10 max)	Project is not in CTP or TP		Project in CTP or TP			
Multimodal Accommodations (5 max)	Project does not include bike/ped facilities	Project includes bike/ped facilities				

formulas for distributing funds throughout the state, as well as the process by which projects are chosen. The new process, called Strategic Transportation Investments (STI), replaced the 1989 Equity Formula and Loop Fund. The STI program strives to be more data-driven and transparent about how projects are selected and funded, regardless of mode (<http://www.ncdot.gov/strategictransportationinvestments/default.html>). Since this new process would drive funding decisions, the MPO chose to model its project ranking process on how the STI program is evaluated.

## D. HIGHWAY PROJECTS

The MPO Board adopted the highway ranking process shown in Figure 15-9 at its September 2013 TAC meeting. The ranking process focuses on existing issues; primarily congestion, safety, and freight volume. The process also rewards projects that are referenced in existing transportation plans, have a low cost per user, and include multi-modal provisions. This process was used to evaluate all highway projects submitted for consideration in the 2040 fiscally-constrained plan. The ultimate ranking was used to assign projects to fiscal horizons (2025, 2030, and 2040), although the individual phases of the Shelby Bypass (R-2707), Garden Parkway, and I-85 widening projects were assigned to horizons based on funding limits of \$300 million maximum per corridor project for every five year period. This had the effect of spreading out these three expensive, statewide tier projects through the 2040 time horizon. The results of the ranking process were positive, with overall project scores ranging from 20 to 70 points.

Figure 15-10: I-85 Corridor Improvements in Gaston and Cleveland Counties

Section	Statewide Ranking (out of 459 projects)	Regional Ranking (out of 151 projects)	Division Ranking (out of 141 projects)	Cost Estimates
Belmont to US 321	36	14	20	\$197,507,000
US 321 to US 74	95	30	43	\$124,485,000
US 74 to State Line	194	59	67	\$113,404,000

## I-85 Widening

The I-85 Corridor Improvement Project in Gaston and Cleveland Counties was added as a new project to the Strategic Planning Office for Transportation (SPOT) 3.0 project list as a new three (3) phased project. At present Gaston Cleveland and Lincoln county residents experience extremely high traffic congestion levels for their daily commuting into and out of Mecklenburg County daily. This widening project will relieve much of that congestion for a while. Truck freight interstate commerce enters the State of North Carolina in Cleveland County. I-85 carries both freight and vehicular traffic from the all across southeast including Atlanta, Georgia and the Greenville/Spartanburg region of South Carolina.

The proposed widening will bring comprehensive upgrades to the highway, bridge and rail infrastructure located along a vital stretch of I-85 in Gaston and Cleveland counties. The \$435.4 million project plays a critical role in not only addressing current transportation needs, but also in meeting the travel demands for the future.

These improvements to I-85 will bolster regional, statewide and interstate commerce and economic development.



## The Garden Parkway

The Garden Parkway, also known as the Gaston East-West Connector, is a planned toll road approximately 21.9 miles from I-85 west of Gastonia in Gaston County to I-485 near the Charlotte-Douglas International Airport in Mecklenburg County with new crossings over the South Fork and Catawba Rivers (see Figure 15-10 at left). The new toll road is estimated to cost about .15 cents per mile and save drivers up to 28 minutes each trip.

Project planning and implementation of the Garden Parkway Project is currently on hold while NCDOT reviews the state, regional, and local transportation improvement funding priorities using a new Strategic Mobility Formula. The Strategic Transportation Investments bill was signed into law in June 2013. It created a new Strategic Mobility Formula to help North Carolina better prioritize transportation investments. The Garden Parkway Project is being ranked under this new funding formula. The objective of this new formula is to appropriately align transportation policy and priorities at the statewide, regional, and local levels based on available funding. For more information on the Strategic Mobility Formula, go to <http://www.ncdot.gov/strategictransportationinvestments/default.html>.

The law requires that NCDOT release a draft revised State Transportation Improvement Program (STIP) by January 1, 2015 that reflects the effect of the new formula. The STIP allocates anticipated transportation revenues among projects statewide for a seven-year period.

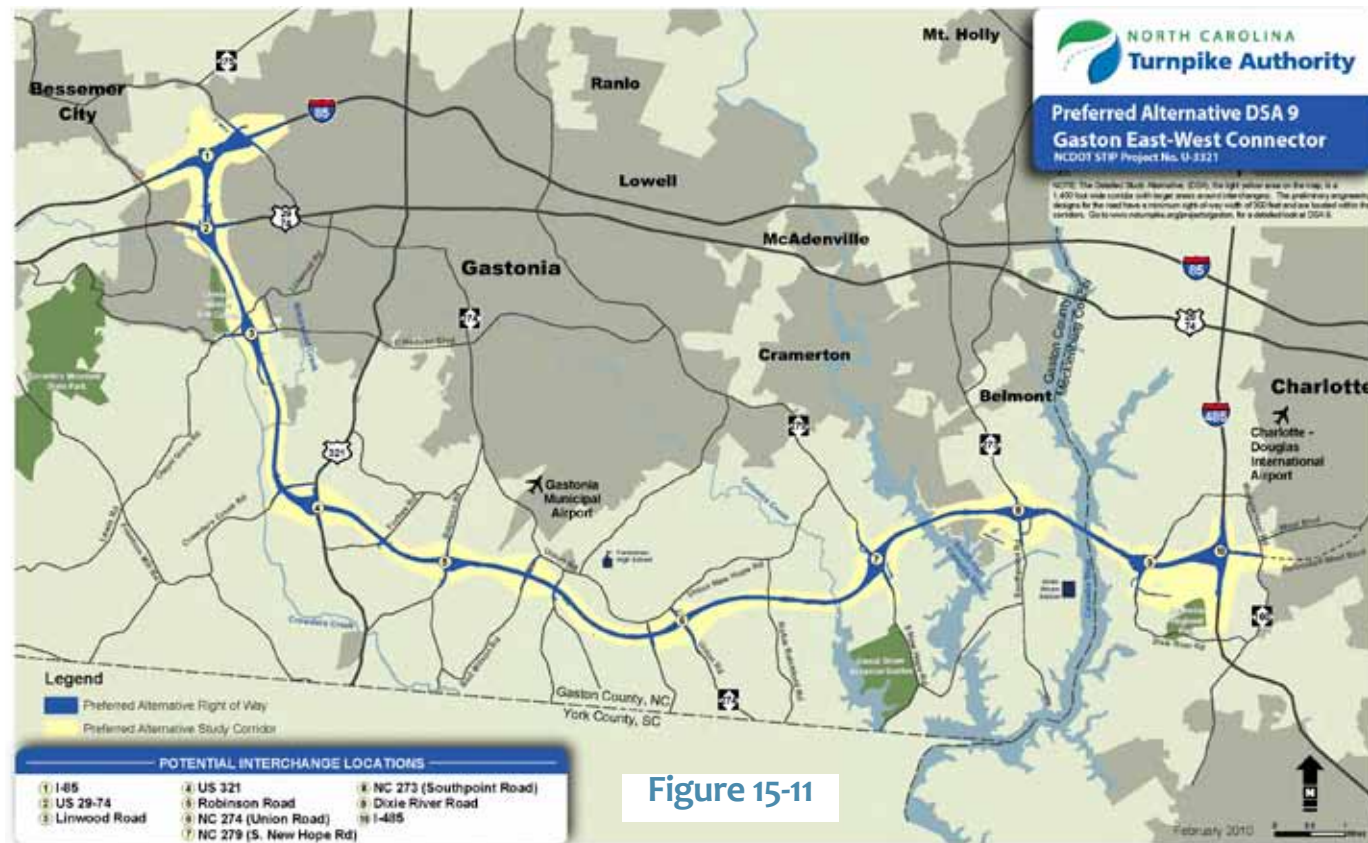


Figure 15-11

In addition, the Strategic Transportation Investments bill repealed the state revenue bond funding authorization or gap funding for the Garden Parkway Project that would have paid bridge construction, operation, and maintenance costs not covered by tolls. If the Garden Parkway Project ranking is such that inclusion in the new STIP is appropriate, funding could be restored to the project.

## Design-Build Procurement

In December 2010, Alternative 9 was identified as the preferred alternative for the Garden Parkway in the project's Final Environmental Impact Statement, and was approved in the Federal Highway's Record of Decision issued on February 29, 2012. On August 28, 2012, the Southern Environmental Law Center (SELC), on behalf of Clean Air Carolina and the Catawba Riverkeeper Foundation, filed a suit in Federal District Court in Charlotte challenging the project's environmental documentation. This litigation is still pending.

## Project Schedule (subject to change)

Draft Environmental Impact Statement	Completed
Final Environmental Impact Statement	Completed
Record of Decision	Approved
Obtain Environmental Permits	TBD
Final Plan of Finance	TBD
Award Design Build Contracts	TBD
Begin Right-of-Way Acquisition	TBD
Begin Construction	TBD
Project Open to Traffic	TBD

## Estimated Cost

These costs have been inflated annually from estimates in 2011 dollars to the anticipated year of expenditure. The project will be financed using a variety of sources which could include toll revenue bonds, federal loans, and state funding, including an annual state appropriation of \$35 million. To date, approximately \$20 million has been spent on preliminary engineering and planning studies.

Construction	578.5 M
Right-of-Way	152.8 M
Utilities	21.1 M
Other Agency Costs	90.7 M
<b>TOTAL</b>	<b>843.1 M</b>

For additional information of the Garden Parkway see: <http://www.ncdot.gov/projects/gardenparkway/>



## Shelby Bypass

The U.S. 74 Bypass, also known as the Shelby Bypass, includes constructing a four-lane divided highway built to interstate standards. The 18.5-mile bypass would extend west of Peachtree Road near Mooresboro to Stony Point Road at U.S. 74 Business route near Kings Mountain.

This project is a top priority for Cleveland County officials, who feel it will help improve traffic flow, provide better access to the area and generate new economic development to fit Governor McCrory’s priorities. Currently, travel through Shelby requires motorists to use U.S. 74, which has several traffic signals and residential driveways. The bypass will improve traffic flow through and around Shelby by providing a limited access route without traffic signals.

The bypass will improve vehicle capacity of the U.S. 74 Corridor, reduce future traffic congestion, increase safety and improve roadway continuity between I-26 and I-85. Future traffic projections indicate that without the proposed improvements to U.S. 74, traffic conditions would become too congested and increasingly unsafe. Traffic delays on the existing highway would continue to grow, as would the accident rates. Some of the accident rates already exceed the statewide rates for similar highways.

## Bicycle and Pedestrian Projects:

The MPO adopted the bicycle and pedestrian project ranking process shown in Figure 15-11 at its December 2013 TAC meeting. The process was also designed to mirror NCDOT’s STI process.

Measure	Points Possible
Safety	20
Accessibility	20
Residential and Employment Density	20
Benefit/Cost	20
Social Equity	10
Constructability	10
<b>Total</b>	<b>100</b>

The ranking criteria and weighting for bicycle/pedestrian projects included in the 2040 MTP are illustrated in Figure 15-11. The MPO stipulated that all future bicycle and pedestrian projects submitted to the MPO for State funding must be specifically identified in a locally-adopted bicycle plan, pedestrian plan, greenway/multi-use plan, or Safe Routes to School action plan.

The methodology for assigning points to the measures above is described below and was approved by the MPO Board on December 4, 2013. In general, the process favors projects that:

- Are along roads with a history of crashes,
- Are along roads with higher speed limits,
- Connect higher density origins and destinations
- Are cost-effective and feasible
- Help populations more likely to depend on non-motorized modes to travel

For more details about the process, please refer to the appendix of this plan. To review the results of this process, please refer to the fiscally-constrained project list.

## Other Non-Highway Modes

All public transit and aviation projects are included in the fiscally-constrained plan. Detailed project lists and cost projections for both public transit and aviation projects are included in their respective chapters. No rail or ferry projects were submitted.



Figure 15-13: GCLMPO Ongoing (Annual) Maintenance & Preservation Projects

Rank	ID	Submitting Jurisdiction	Description	Tier	Safety (25)	Safety Points	Volume / Capacity Ratio	Congestion Points	Cost (1000s)	Cost per User per Mile	Cost Effectiveness Points	Freight Volume	Freight Points	Consistent with CTP/TP	Minor Variation from CTP/TP	Plan Consistency Points	Multi-modal	Multimodal Points	Total Points / 100	SPOT Status	2015 Year Cost	2025 Year Cost	2030 Year Cost	2040 Year Cost	
	I-5212	DIVISION 12	INTERSTATE MAINTENANCE PRESERVATION FOR DIVISION 12.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$886,000				
	R-2707	SHELBY	US 74 SHELBY BYPASS. FOUR LANE DIVIDED FREEWAY ON NEW LOCATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$31,200,000			
	I-5007	CLEVELAND	I-85, SOUTH FORK RIVER BRIDGE TO EXIT 27. PAVEMENT REHABILITATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$334,000			
	W-5517	STATEWIDE	VARIOUS, SAFETY MANAGEMENT PROGRAM PROJECT IDENTIFICATION, ANALYSIS AND PRELIMINARY ENGINEERING	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$220,000	\$2,598,186	\$416,326	\$1,042,147
	BD-5112	IREDELL, LINCOLN, ALEXANDER, CATAWBA, CLEVELAND, GASTON	DIVISION 12 PURCHASE ORDER CONTRACT BRIDGE REPLACEMENT PROJECTS AT SELECTED LOCATIONS.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$2,000,000	\$23,817,840	\$16,542,922	\$41,410,089
	BF-5312	LINCOLN, GASTON, CLEVELAND, CATAWBA, ALEXANDER, IREDELL	SCREEN AND EVALUATE POTENTIAL FEDERAL FUNDED BRIDGE PROJECTS DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$20,000	\$2,917,111	\$146,984	\$367,934
	BL-5512	GASTON, LINCOLN, ALEXANDER, CATAWBA, CLEVELAND, IREDELL	BRIDGE IMPROVEMENTS IN DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$4,000,000	\$27,039,953	\$29,396,340	\$73,584,635
	BS-5412	GASTON, LINCOLN, IREDELL, CATAWBA, ALEXANDER, CLEVELAND	SCREEN AND EVALUATE POTENTIAL STATE FUNDED BRIDGE PROJECTS DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$20,000	\$229,278	\$146,984	\$367,934



# the way forward: 2040 Metropolitan Transportation Plan

Figure 15-14: GCLMPO Existing MTIP Projects

ID	Submitting Jurisdiction	NC or US Route	Route Name	From Cross Street	To	Description	Tier	Safety (25)	Safety Points	Volume / Capacity Ratio	Congestion Points	Cost (1000s)	Cost per User per Mile	Cost Effectiveness Points	Freight Volume	Freight Points	Consistent with CTP/TP	Minor Variation from CTP/TP	Plan Consistency Points	Multimodal	Multimodal Points	Total Points 100	SPOT Status	2013 Year Cost	2014 Year Cost	2015 Year Cost	
B-1135	CLEVELAND					BEAVERDAM CREEK. REPLACE BRIDGE NO. 139	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$295,000			
BP-5500	STATEWIDE					VARIOUS, BRIDGE PRESERVATION ISSUES AT SELECTED SITES.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$5,000,000	\$5,000,000	
C-4934	GASTONIA	NC 279	NEW HOPE ROAD	BURTONWOOD DR	GARRISON BLVD	WIDEN FROM FOUR LANES TO FIVE LANES	City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		\$2,802,000	\$3,044,000	
CF	GASTONIA	SR 2478	Titman Rd	NC 279 (South New Hope Rd)	Lowell Bethesda Road	Widen Two Lane Road to Three Lane Road	City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			\$5,581,000	
SF-4912H	GASTONIA	NC 279	SR 1602 (ASHEBROOK PARK ROAD)	TO SR 1630 (DICK BEAM ROAD) AND NC 274, NORTH OF SR 1443 (DAMERON ROAD) TO SOUTH OF SR 1405		INSTALL RUMBLE STRIPS AND PAVEMENT MARKINGS	Region	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$250,000		
Z-5400	STATEWIDE					VARIOUS, HIGHWAY-RAIL GRADE CROSSING SAFETY IMPROVEMENTS	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,000,000	\$1,000,000	
C-5186	GASTONIA					CCTV CAMERAS TO THE EXISTING COMPUTERIZED TRAFFIC SIGNAL SYSTEM ON I-85 AT NC 7 (OZARK AVENUE); US 29/US 74 AT FRANKLIN SQUARE II; NC 279 (NEW HOPE ROAD) AT OZARK AVENUE; US 321 (CHESTER STREET) AT TULIP DRIVE-BULB AVENUE; NC 274 (BESSEMER CITY ROAD) AT NC 275 (DALLASBESSEMER CITY ROAD AND US 274 (UNION ROAD) AT SR 1255 (HUDSON BOULEVARD).	Region	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			\$123,000
BS-5412	DIVISION 12					SCREEN AND EVALUATE POTENTIAL STATE FUNDED BRIDGE PROJECTS DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$20,000	\$20,000	
I-5212	DIVISION 12					INTERSTATE MAINTENANCE PRESERVATION FOR DIVISION 12.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$886,000	\$886,000	\$886,000
R-2707	SHELBY					US 74 SHELBY BYPASS. FOUR LANE DIVIDED FREEWAY ON NEW LOCATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$13,900,000	\$30,400,000	\$31,200,000
I-5007	CLEVELAND					I-85, SOUTH FORK RIVER BRIDGE TO EXIT 27. PAVEMENT REHABILITATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$334,000	\$334,000	\$334,000
I-4928	DIVISION 12					CONSTRUCT NEW WEIGH STATION ALONG I-85.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		\$12,000,000	
C-5185	GASTONIA					GASTON MALL-FRANKLIN SQUARE AREA AND BELMONT AREA. CONSTRUCT PARK AND RIDE LOTS.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$650,000	\$350,000	
C-5510	GASTON					MECKLENBURG COUNTY AIR QUALITY - GRADE (GRANTS TO REPLACE AGING DIESEL ENGINES), REPLACE, REPOWER OR RETROFIT AGING DIESEL VEHICLES AND EQUIPMENT.	Region	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$125,000		
P-5200	GASTON					RAIL CORRIDOR BETWEEN GASTONIA AND MT. HOLLY INCLUDING THE BELMONT SPUR. REACTIVATION OF RAIL CORRIDOR.	Region	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,900,000		
C-5532	LINCOLNTON					GENERAL BOULEVARD-MAIN STREET PEDESTRIAN IMPROVEMENTS IN LINCOLNTON. CONSTRUCT HIGH VISIBILITY CROSSWALKS, PEDESTRIAN REFUGE ISLANDS AND INSTALL COUNTDOWN TIMERS.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		\$582,000	
B-4118	GASTON					STANLEY CREEK. REPLACE BRIDGE NO. 200	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction
B-4176	LINCOLN					CLARK CREEK. REPLACE BRIDGE NO. 118	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction
B-4575	GASTON					MICKLEY AVENUE OVER NORFOLK SOUTHERN RAILROAD. REPLACE BRIDGE NO. 165	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction	
B-4752	GASTON					SOUTH FORK CATAWBA RIVER. REPLACE BRIDGE NO. 6	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction	
B-4753	GASTON					DUHART'S CREEK. REPLACE BRIDGE NO. 15	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction	
B-5155	LINCOLN					HOYLE CREEK. REPLACE BRIDGE NO. 37	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$750,000		
BK-5120	GASTON					CREEK. REPLACE BRIDGE NO. 170	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			\$550,000
B-4075	CLEVELAND					GROG CREEK. REPLACE BRIDGE NO. 129	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction
I-5503	CLEVELAND, GASTON					MILEPOST 8.4 TO MILEPOST 13.9. MILL, PATCH AND RESURFACE.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction
W-5212	IREDELL, LINCOLN, ALEXANDER, CATAWBA, CLEVELAND, GASTON					DIVISION 12 RUMBLE STRIPS, GUARDRAIL, SAFETY AND LIGHTING IMPROVEMENTS AT SELECTED LOCATIONS.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$700,000	\$700,000	\$700,000
W-5320	CLEVELAND					US 74 BYPASS AT US 74 BUSINESS (WESTERN INTERSECTION). REALIGN US 74 BUSINESS APPROACH AND IMPROVE CURVE SUPERELEVATION.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			under construction
W-5517	STATEWIDE					VARIOUS, SAFETY MANAGEMENT PROGRAM PROJECT IDENTIFICATION, ANALYSIS AND PRELIMINARY ENGINEERING	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$11,000,000		\$220,000
Y-5500	STATEWIDE					VARIOUS, TRAFFIC SEPARATION STUDY IMPLEMENTATION AND CLOSURES	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$3,000,000		
BD-5112	IREDELL, LINCOLN, ALEXANDER, CATAWBA, CLEVELAND, GASTON					DIVISION 12 PURCHASE ORDER CONTRACT BRIDGE REPLACEMENT PROJECTS AT SELECTED LOCATIONS.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$2,000,000	\$2,000,000	\$2,000,000
BF-5312	LINCOLN, GASTON, CLEVELAND, CATAWBA, ALEXANDER, IREDELL					SCREEN AND EVALUATE POTENTIAL FEDERAL FUNDED BRIDGE PROJECTS DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$20,000	\$20,000	\$20,000
BL-5512	GASTON, LINCOLN, ALEXANDER, CATAWBA, CLEVELAND, IREDELL					BRIDGE IMPROVEMENTS IN DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			\$4,000,000
BS-5412	GASTON, LINCOLN, IREDELL, CATAWBA, ALEXANDER, CLEVELAND					SCREEN AND EVALUATE POTENTIAL STATE FUNDED BRIDGE PROJECTS DIVISION 12.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$20,000	\$20,000	\$20,000



# the way forward: 2040 Metropolitan Transportation Plan

Figure 15-15: GCLMPO Highway Projects Completed in Horizon Year Period 2016-2025

Rank	ID	Submitting Jurisdiction	NC or US Route	Route Name	From Cross Street	To	Description	Tier	Safety (25)	Safety Points	Volume / Capacity Ratio	Congestion Points	Cost (1000s)	Cost per User per Mile	Cost Effectiveness Points	Freight Volume	Freight Points	Consistent with CTP/TP	Minor Variation from CTP/TP	Plan Consistency Points	Multimodal Points	Total Points / 100	SPOT Status	2025 Year Cost		
	U-3633	MOUNT HOLLY	NC 273	TUCKASEEGE ROAD	BEATTY DRIVE	HIGHLAND STREET	WIDEN FROM TWO LANES TO FOUR LANES	Region	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$14,744,000		
	I-5374	GASTON					I-85, CLEVELAND COUNTY LINE TO MILE MARKER 12. PAVEMENT REHABILITATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$2,740,023.69		
	I-5387	GASTON					I-85, MILE MARKER 17 TO MILE MARKER 24. PAVEMENT REHABILITATION.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$7,437,207.15		
	B-4571	LINCOLN					INDIAN CREEK. REPLACE BRIDGE NO. 7	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$3,850,000		
	B-4751	GASTON					STANLEY CREEK. REPLACE BRIDGE NO. 203	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,150,000		
	B-4981	GASTON					HOYLE'S CREEK. REPLACE BRIDGE NO. 172	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,430,000		
	B-5390	CLEVELAND					MUDDY FORK CREEK. REPLACE BRIDGE NO. 31	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$2,175,000		
	B-5392	CLEVELAND					KNOB CREEK. REPLACE BRIDGE NO. 201	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$2,640,000		
	B-5393	CLEVELAND					MAPLE CREEK. REPLACE BRIDGE NO. 192	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,430,000		
	B-5531	CLEVELAND					BUFFALO CREEK. REPLACE BRIDGE NO. 76	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$5,170,000		
	B-5535	GASTON					JOHNSTON CREEK. REPLACE BRIDGE NO. 198	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,370,000		
	NA						SAFETY PROJECTS	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$5,219,092.74		
	U-5103	GASTONIA			SR 2478 (TITMAN ROAD) AND SR 2209	TO US 29/US 74 (WILKINSON BOULEVARD)	NEW THREE LANE ROAD ON NEW LOCATION	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$11,312,055		
	W-5311	GASTON					AT SR 2416 (ROBINSON RD), AND US 321 JUST N. OF SR 2416. REPLACE OVERHEAD RR BRIDGE TO CONSTRUCT TWO-LANE, TWO-WAY ROAD FOR SR 2416, CONSTRUCT RIGHT TURN LANE FOR US 321 N BOUND APPROACH AND CONSTRUCT TWO LIMITED MOVEMENT CROSSEOVERS AND REVISE FLASHERS.	Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$1,900,000		
	CF	GASTONIA		Myrtle School Rd	Franklin Blvd	Hudson Blvd	Widen Two Lane Road to Three Lane Road	City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$9,200,000		
	CF	GASTONIA	NC 274	Union Rd	Osceola St	Niblick Dr	Widen Two Lane Road to Three Lane Road	City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$8,325,039		
	I-5000	GASTON					I-85/US 321. GEOMETRIC SAFETY IMPROVEMENTS TO INTERCHANGE.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$24,600,000		
	NA	101	Shelby	New	Shelby Bypass / US 74	West of NC 226	West of NC 150	Section C. Utilities, ROW, Grading. Four Lane Divided Freeway on New Location.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$98,520,077	
	NA	102	Shelby	New	Shelby Bypass / US 74	West of NC 150	To existing US 74 west of SR 2238.	Section D. Four Lane Divided Freeway on New Location.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$64,872,120	
	NA	103	Shelby	New	Shelby Bypass / US 74	US 74	To west of SR 1001 (Stony Point Rd)	New four lane road on New Location	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$131,027,426	
	NA	104	Gaston	Widening	I-85	NC 273	US 321	Widen six lanes to eight lanes	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$335,053,808	
	NA	105	Gaston	Widening	I-85	US 321	US 74	Widen six lanes to eight lanes	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$235,250,546	
	106	U-3321	Gaston	New	Garden Parkway	I-85	US 321	New two lane road on New Location	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$379,965,276	
	107	U-3321	Gaston	New	Garden Parkway	US 321	NC 274	New four lane road on New Location	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$211,012,611	
	108	U-3321	Gaston	New	Garden Parkway	NC 274	NC 279	Construct new four lane road on New Location	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$185,348,915	
	109	U-3321	Gaston	New	Garden Parkway	I-85	NC 274	Garden Parkway ITS, Toll Integration and Landscaping.	Statewide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$42,627,399	
	1	14	Cherryville/Shelby	NC 150	Cherryville Rd	SR 1651 (Delview Rd)	NC 180 (N Post Rd)	NC150 Widen two-lane facility to four-lane facility from Cherryville to US 74 bypass	Region	88.9	25	0.5	5	\$31,627	\$497	20	800	5	Yes	No	10	Yes	5	70.0	Included	\$45,092,540
	1	22	Dallas	NC 279	Lower Dallas Hwy	West of SR 2275 (Robinson-Clemmer Rd)	West of NC 275 in Dallas (Dallas Stanley Hwy)	NC 7 to West of NC 275 in Dallas. Widen to four-lane facility. Section B: North of SR 2275 (Robinson-Clemmer Road) to West of NC 275 in Dallas.	Region	88.9	25	0.9	10	\$12,737	\$737	15	750	5	Yes	No	10	Yes	5	70.0	Included	\$18,159,916
	1	63	Shelby	US 74	Dixon Blvd	US 74 Bus	NC 226	Placement of directional crossovers and management of access roads to increase safety and efficiency	Region	66.7	15	0.8	10	\$13,048	\$74	20	2100	15	Yes	No	10	No	0	70.0	Included	\$18,603,328
	2	61	Shelby	NC 180	N Post Rd	SR 2052 (Elizabeth Ave)	NC 150 (Cherryville Rd)	NC 226 to NC 150. Widen to four-lane facility. Section C: SR 2052 to NC 150.	Region	88.9	25	0.7	5	\$11,598	\$589	15	750	5	Yes	No	10	Yes	5	65.0	Included	\$16,535,975
	2	12	Cherryville	NC 279	Dallas Cherryville Hwy	NC 275 (Dallas Bessemer City Hwy)	Bess Town Road	Widen two lane facility to four-lane facility	Region	77.8	20	0.7	5	\$44,049	\$562	15	1000	10	Yes	No	10	Yes	5	65.0	Included	\$62,817,777
	2	62	Shelby	US 74	Dixon Blvd	NC 150 (Dekalb St)	NA	US 74-NC 150 (Dekalb Street). Construct interchange.	Region	66.7	15	1.2	25	\$11,700	\$1,444	10	500	5	Yes	No	10	No	0	65.0	Included	\$16,681,402
	3	17	Cleveland County	US 74	W Dixon Blvd	Mooreboro	Proposed Shelby Bypass	Mooreboro to Proposed Shelby Bypass (R-2707) Upgrade to Full Control of Access.	Region	100.0	25	0.4	0	\$16,300	\$963	15	1700	10	Yes	No	10	No	0	60.0	Included	\$23,239,902
	3	60	Shelby	NC 180	S Post Rd	NC 226 (Earl Rd)	SR 2200 (Taylor Rd)	NC 226 to NC 150. Widen to four lane facility. Section A: NC 226 to SR 2200	Region	100.0	25	0.5	5	\$9,554	\$1,357	10	750	5	Yes	No	10	Yes	5	60.0	Included	\$13,621,720
	4	1	Belmont	NC 7	N Main St	I-85	US 29/74 (Wilkinson Blvd)	I-85 to US 29/74. Road ranges from two-lanes to a four - lane facility along project length. Widen to Five Lanes the entire length of the project.	Region	66.7	15	0.3	0	\$3,600	\$572	15	1280	10	Yes	No	10	Yes	5	55.0	Included	\$5,132,739
	4	34	Gastonia	US 29/US 74	Franklin Blvd	SR 2200 (Cox Rd)	SR 2339 (Church St)	Currently three lane facility to add fourth lane in the Westbound Direction.	Division	44.4	5	0.6	5	\$5,736	\$196	20	1600	10	Yes	No	10	Yes	5	55.0	Included	\$8,178,164



# the way forward: 2040 Metropolitan Transportation Plan

Figure 15-16: GCLMPO Highway Projects Completed in Horizon Year Period 2026-2030

Rank	ID	Submitting Jurisdiction	NC or US Route	Route Name	From Cross Street	To	Description	Tier	Safety (25)	Safety Points	Volume / Capacity Ratio	Congestion Points	Cost (1000s)	Cost per User per Mile	Cost Effectiveness Points	Freight Volume	Freight Points	Consistent with CTP/TP	Minor Variation from CTP/TP	Plan Consistency Points	Multi-modal	Multimodal Points	Total Points 100	SPOT Status	2030 Year Cost
1	45	Lincoln County	NC 73	NC 73	Cowans Ford Dam Bridge	NC 16 Business	Widen two lane facility to four-lane facility.	Region	55.6	10	1.1	20	\$17,399	\$522	15	1600	10	Yes	No	10	Yes	5	70.0	Included	\$28,757,896
2	12	Cherryville	NC 279	Dallas Cherryville Hwy	Bess Town Road	SR 1630 (Dick Beam Rd)	Widen two lane facility to four-lane facility	Region	77.8	20	0.7	5	\$44,059	\$562	15	1000	10	Yes	No	10	Yes	5	65.0	Included	\$72,823,020
4	37	Gastonia	US 29/US 74	Franklin Blvd	NC 274 (Broad St)	(WILKINSON BOULEVARD).	Intersection Improvements. Crosswalks, pedheads, turn lanes on every approach, and signalization if justified	Region	66.7	15	0.7	5	\$142	\$9	20	1000	10	No	No	0	Yes	5	55.0	Not Included	\$234,283
5	65	Dallas	NC 279	Lower Dallas Hwy	NC 275 (Dallas Stanley Hwy)	NA	Intersection improvements at intersection of NC 279 and Dallas-Stanley Highway. Crosswalks, pedheads, turn lanes on every approach, and signalization if justified	Region	66.7	15	0.7	5	\$90	\$7	20	750	5	No	No	0	Yes	5	50.0	Not Included	\$148,591
NA	110	Gaston	Widening	I-85	US 74	State Line	Widen four lanes to six lanes	Statewide					\$180,000												\$297,512,574
9	43	Kings Mountain	NC 161	York Rd	US 74 Business (King St)	I-85	Widen from 3-lanes to 4-lanes on existing ROW.	Division	22.2	0	0.6	5	\$6,428	\$6,912	0	800	5	Yes	No	10	Yes	5	25.0	Not Included	\$10,624,769

Figure 15-17: GCLMPO Highway Projects Completed in Horizon Year Period 2031-2040

Rank	ID	Submitting Jurisdiction	NC or US Route	Route Name	From Cross Street	To	Description	Tier	Safety (25)	Safety Points	Volume / Capacity Ratio	Congestion Points	Cost (1000s)	Cost per User per Mile	Cost Effectiveness Points	Freight Volume	Freight Points	Consistent with CTP/TP	Minor Variation from CTP/TP	Plan Consistency Points	Multi-modal	Multimodal Points	Total Points 100	SPOT Status	2040 Year Cost	
3	23	Dallas	SR 1804	Ratchford Rd	US 321	NC 279 (Lower Dallas Rd)	North Dallas Bypass East - Widen existing two lane road to three lanes; One-half mile of road on new location.	Region	80.9	25	0.8	10	\$20,552	\$1,428	5	600	5	Yes	No	10	Yes	5	60.0	Included	\$47,244,596	
3	26	Gastonia	NC 279	S. New Hope Rd	SR 2478 (Titman Rd)	SR 2435 (Union-New Hope Rd)	Widen existing two-lane facility to three-lane facility with bicycle facilities and sidewalks on both sides. Reconfigure intersection at Armstrong Ford Rd with new alignment extending from Twin Tops Rd to Union-New Hope Rd.	Region	66.7	15	0.7	5	\$22,848	\$544	15	1100	10	Yes	No	10	Yes	5	60.0	Included	\$50,751,742	
3	27	Gastonia	NC 274	Union Rd	Gaston Day School Rd	SR 2439 (Beaty Rd)	Widen existing two lane facility to three-lanes with a portion on a new alignment. Add sidewalks and bike facilities on both sides.	Region	77.8	20	0.7	5	\$12,867	\$987	15	800	5	Yes	No	10	Yes	5	60.0	Included	\$28,581,881	
3	50	Mount Holly	NC 273	Highland St/N Main St	A&E Dr	SR 1939 (Lanier Ave)	Widen two-lane facility to four-lane, divided facility with sidewalks and bike lanes on both sides.	Region	66.7	15	0.8	10	\$11,684	\$535	15	500	5	Yes	No	10	Yes	5	60.0	Not Included	\$25,954,413	
4	48	Lincoln County	No	SR 1379 (Webbs Rd)	NC 16 Business	SR 1376 (Burton Ln)	Widen existing lanes to include wide shoulders. No additional lanes will be added.	Region	66.7	15	0.7	5	\$1,273	\$85	20	285	0	Yes	No	10	Yes	5	55.0	Not Included	\$2,827,046	
4	20	Cramerton	US 29/US 74	Wilkinson Blvd	Market St	SR 2015 (Alberta Ave)	Widen existing four-lane bridge and cross section to six-lanes. Widen road on both sides of bridge to six-lanes.	Region	33.3	5	0.9	15	\$21,920	\$1,032	10	1600	10	Yes	No	10	Yes	5	55.0	Not Included	\$48,690,738	
5	11	Bessemer City	SR 1307	Edgewood Rd	SR 1395 (Southridge Pkwy)	I-85	Widen existing two-lane road to a three-lane facility.	Region	100.0	25	0.4	0	\$4,663	\$1,635	5	400	0	Yes	No	10	Yes	5	45.0	Not Included	\$10,358,948	
7	56	Ranlo	SR 2200	Spencer Mountain Rd	NC 7 (East Ozark Ave/Lowell Rd)	Central Ave	Widen two-lane road to a three-lane cross section from NC 7 (East Ozark Avenue) to Central Avenue	Division	10.0	0	0.5	0	\$4,642	\$515	15	800	5	Yes	No	10	Yes	5	35.0	Included	\$10,311,168	
8	3	Belmont	NC 273	South Point Rd	SR 2534 (Nixon Rd)	NC 273 (Lower Armstrong Rd)	Intersection Improvements on South Point Rd include Crosswalks, pedheads, turn lanes on every approach, and signalization if justified	Division	11.1	0	0.4	0	\$799	\$200	20	850	5	No	No	0	Yes	5	30.0	Included	\$1,774,144	
8	6	Bessemer City	SR 1448	Puetts Chapel Rd	SR 1484 (Maine Ave)	Proposed NC 274 Bypass	Widen existing two-lane road to a three-lane facility.	Division	44.4	5	0.2	0	\$7,429	\$1,285	10	250	0	Yes	No	10	Yes	5	30.0	Included	\$16,502,145	
9	9	Bessemer City	NC 161	13th St	W. Virginia Ave	NA	Intersection Improvements. Crosswalks, pedheads, turn lanes on every approach, and signalization if justified	Division	0.0	0	0.3	0	\$190	\$32	20	300	0	No	No	0	Yes	5	25.0	Not Included	\$421,823	
NA	111	Gaston	New	Garden Parkway	NC 279 (South New Hope Rd)	Middle of the Catawba River	New four lane divided Freeway on New Location	Statewide																		\$357,909,941



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Figure 15-18: GCLMPO Unfunded Highway Projects

Rank	ID	Submitting Jurisdiction	NC or US Route	Road Name	From (Start Street)	To (End Street)	Description	Year	Safety (10)	Volume / Capacity Ratio	Congestion Points	Cost (\$100k)	Est. per Mile per Mile	Est. Effective Date	Freight Points	Freight Points	Overlapped with CTP/TP	Other Variations from CTP/TP	Plan Consistency Points	Multi-modal	Multi-modal Points	Total Points (10)	SPOT Status	
3	29	Dartmouth	US 321	York Rd	Beam St	Caroline Ave	Add center median with turning lane and high-visibility pedestrian accommodations as needed. Address access management.	Region	88.7	10	0.0	0	35,357	1040	10	1000	0	Yes	Yes	10	Yes	0	88.7	Included
4	30	Dartmouth	SR 1439	Beary Rd	2200 N 3 of South New Hope Rd	Harwell Rd	Widen Beary Rd to three-lane facility from S. New Hope Rd to Union Rd with sidewalks on west side and multi-use path on east side.	Region	77.8	10	0.0	0	115,796	1000	10	900	0	Yes	No	10	Yes	0	77.8	Included
4	402	Dartmouth	Various	Various	Various	Various	Extend Gaston Mill Drive from Cox Rd to Franklin Blvd.	Region	88.7	10	0.0	0	123,497	1000	10	1000	10	No	Yes	0	Yes	0	88.7	Included
5	31	Dartmouth	SR 1135	Hobart Blvd	SR 1135 (Myrtle School Rd)	US 29/74 (Franklin Blvd)	Hobart Blvd Extension. Three-lane with sidewalks and bike facilities.	Region	88.7	10	0.0	0	120,101	1000	10	1000	0	Yes	No	10	Yes	0	88.7	Not included
5	32	Mount Holly	NC 27	W Charlotte Ave	SR 2348 (Hawthorne St)	NA	Intersection improvements and signalization. Crosswalks, sidewalks, turn lanes on every approach, and signalization if justified.	Region	83.0	0	0.1	0	2000	200	10	1000	10	No	No	0	Yes	0	83.0	Not included
5	25	Dartmouth	SR 1801	Garland St	NC 175/179 (Traffic St)	SR 1801 (Cox Rd)	Widen subdivided two-lane road to provide standard lane width of 12 feet. No additional lanes will be added.	Region	86.7	10	0.1	0	54,411	1018	10	100	0	Yes	No	10	Yes	0	86.7	Not included
5	27	Lincoln County	No	SR 1439 (Unity Church Rd)	NC 16 Business	End of Facility	Widen existing lanes to include side shoulders. No additional lanes will be added.	Region	86.7	10	0.0	0	8800	1100	10	100	0	No	No	0	Yes	0	86.7	Not included
5	34	Mount Holly	New Route	Lamar Ave/Selle Ridge Dr/New Alignment/Wisconsin Ln/New Alignment	NC 273 (N Main St)	SR 1312 (Woodburn Ave)	Upgrade and connect existing two-lane ROW sections of Lamar Ave and Woodburn Ave to cross Dutchman's Creek to Hawthorne Street with sidewalk.	Region	65.0	10	0.0	0	12,884	940	10	100	0	No	No	0	Yes	0	65.0	Not included
5	36	Dartmouth	New	Stemmy Brothers Connection	NC 273 (Dobson Stanley Way)	NC 27 (Charles Roper James Hwy)	Construct new, four-lane divided facility.	Region	71.0	10	0.4	0	118,204	11,384	10	100	0	Yes	No	10	Yes	0	71.0	Included
5	38	Cramerton	New	Bethune Mount Holly Central Lane	US 29/74 (Wilkinson Blvd)	SR 2000 (Hickory Grove Rd)	Construct four-lane divided facility including bridge over I-85 from US 29/74 (Wilkinson Boulevard) to Hickory Grove Road.	Region	80.8	10	0.0	0	181,123	11,740	0	100	0	Yes	No	10	Yes	0	80.8	Included
5	28	Dartmouth	SR 1439	Lowell Bellhalla Rd	NC 179 (South New Hope Rd)	US 29/74 (Franklin Blvd)	Widen Lowell Bellhalla Road to three-lane facility from New Hope Rd to Franklin Blvd with new alignment over SR crossing providing a direct connection to Groves St. Include bike and pedestrian facilities. Remove signalization at Webster St/Franklin Blvd.	Region	83.0	0	0.0	0	118,820	1000	10	400	0	Yes	No	10	Yes	0	83.0	Included
5	31	Mount Holly	NC 273	Beary Dr	Farell Ave	NA	Intersection improvements. Crosswalks, sidewalks, turn lanes on every approach, and signalization if justified.	Region	5.0	0	0.0	0	1271	121	10	1000	10	No	No	0	Yes	0	5.0	Not included
6	4	Bethune/Cramerton	New	Bethune Mount Holly Southern Lane	NC 273 (South Point Rd)	US 29/74 (Wilkinson Blvd)	Construct new, four-lane divided facility from South Point Road to US 29/74 (Wilkinson Boulevard).	Region	90.2	0	0.4	0	146,021	1044	10	100	0	Yes	No	10	Yes	0	90.2	Included
6	16	Cherryville/Union	NC 150	NC 150	West of Indian Creek	US 321 at Uniontown	Two-lane road wider to four-lane. Part D: New location. Section 9B. West of Indian Creek to US 321 at Uniontown.	Region	89.0	0	0.0	0	131,617	11,260	10	100	0	Yes	No	10	Yes	0	89.0	Included
7	41	King Mountain	NC 218	1 Bettingwood Ave	Mountain St/600 St	NA	Mountain St and Gold St Railroad Intersection Crossing Changes. Crosswalks, sidewalks, turn lanes on every approach, and signalization if justified. Safety improvements.	Region	10.0	0	0.0	0	1000	100	10	100	0	No	No	0	Yes	0	10.0	Not included
7	15	Dartmouth	SR 1445	Harlock Rd	SR 1447 (Hydrowood Rd)	SR 1448 (Harlock Rd)	Add turning lanes on Harlock Road at selected intersections. include pedestrian and bicycle accommodations.	Region	11.1	0	0.0	0	12,729	1020	10	100	0	Yes	No	10	Yes	0	11.1	Included
7	18	Cramerton	SR 1220	Companion Rd	5th Ave	SR 1410 (Taman Rd)	Widen existing two-lane road to a three-lane facility and extend a new alignment to provide direct connection to Taman Rd.	Region	65.0	0	1.0	10	138,400	10,917	0	100	0	Yes	No	10	Yes	0	65.0	Included
7	33	Dartmouth	SR 1131	Unwood Rd	Crowder's Creek	US 29/74 (Franklin Blvd)	Crowder's Creek to US 29/74/NC 274 (Franklin Boulevard). Widen to three-lanes, some reduction. include sidewalks and bike facilities.	Region	65.0	0	0.4	0	112,111	1000	10	100	0	Yes	No	10	Yes	0	65.0	Included
7	2	Bethune	US 29/US 74	Wilkinson Blvd	NC 7 (Catawba St)	East Bank of Catawba River	Widen existing four-lane bridge and cross section to six-lanes. The road on both sides of the bridge will be widened to six lanes.	Region	11.2	0	0.8	10	118,940	10,250	0	1300	10	Yes	No	10	Yes	0	11.2	Not included
8	10	Beeswater City	SR 1807	Madame Ave	5th St	NA	Install Traffic Circle	Region	50.0	0	0.0	0	1700	140	10	100	0	No	No	0	Yes	0	50.0	Not included
8	46	Lincoln County	No	SR 1390 (Dixie Club Rd)	SR 1387 (Triangle Circle)	SR 1380 (N. Little Egypt Rd)	Widen to four-lane facility.	Region	55.8	10	0.1	0	111,107	1000	10	100	0	No	No	0	Yes	0	55.8	Not included
8	23	Mount Holly	New Route	New Route	Richyard Road	W. Catawba River/Franklin Ave	Construct new 2-lane alignment with sidewalks.	Region	56.3	10	0.0	10	35,285	11,100	0	100	0	No	Yes	0	Yes	0	56.3	Not included
8	34	Cherryville/Union	NC 150	NC 150	US 321 at Uniontown	US 321 Bypass Bypass	Widen two lanes to four-lane, part on new location. Section C: US 321 at Uniontown to US 321 Bypass.	Region	88.5	0	0.0	0	100,864	11,200	0	100	0	Yes	No	10	No	0	88.5	Included
8	2	Beeswater City	SR 1444	E Maple Ave	21st St	NA	Intersection improvements. Crosswalks, sidewalks, turn lanes on every approach, and signalization if justified.	Region	10.7	0	0.0	0	1200	100	10	100	0	No	No	0	Yes	0	10.7	Not included
8	36	Dartmouth	New	Getson Day School Rd Extension	Simmons Dr	NC 274 (Cox Rd)	Construct new 3-lane facility with sidewalks and bike facilities.	Region	10.7	0	0.4	0	123,413	11,890	0	100	0	Yes	No	10	Yes	0	10.7	Included
8	31	Dartmouth	I-85/New	I-85/New	Devotion Ave/Tulip Drive	Fairview Dr/NA	New interchange at I-85/Devotion Ave. New 2-lane alignment connecting Tulip Dr to Fairview Dr. include sidewalks and bike facilities.	Region	64.8	10	0.1	0	117,101	10,600	0	100	0	No	No	0	Yes	0	64.8	Not included
8	44	King Mountain	No	King Mountain Blvd extension	Sheffy Rd (US 74 Business)	NC 218	Extend King Mountain Boulevard from Sheffy Road to NC 218.	Region	58.2	0	0.0	0	143,000	11,840	0	100	0	Yes	No	10	Yes	0	58.2	Not included
10	7	Beeswater City	New	Southridge Parkway West Extension	SR 1382 (Edgewood Mountain Rd)	SR 1307 (Edgewood Rd)	Construct new three-lane facility from Crowder Mountain Road to Edgewood Road.	Region	84.0	0	0.1	0	114,444	10,210	0	100	0	Yes	No	10	Yes	0	84.0	Not included
10	32	Dartmouth	NC 274	Union Rd	Bradley Trail	South Carolina State Line	Widen Union Rd to 3-lane facility from Beary Rd to South Carolina State Line. include sidewalks and bike facilities along both sides.	Region	11.0	0	0.1	0	117,761	1040	10	100	0	No	No	0	Yes	0	11.0	Not included
12	55	Mount Holly	New Route	New Route	NC 273 (Luna Boulevard Hwy)	NC 28	Construct new 2-lane alignment with sidewalks on both sides.	Region	10.8	10	0.0	0	12,480	10,070	0	100	0	No	No	0	Yes	0	10.8	Included
40		Dartmouth	Various	Various	Various	Various	Extend four-lane divided Aberdeen Blvd from Cox Road to Main St to Lowell. Extend Unalanga as a three-lane facility from Franklin Square to Aberdeen Blvd Extension.																	Included



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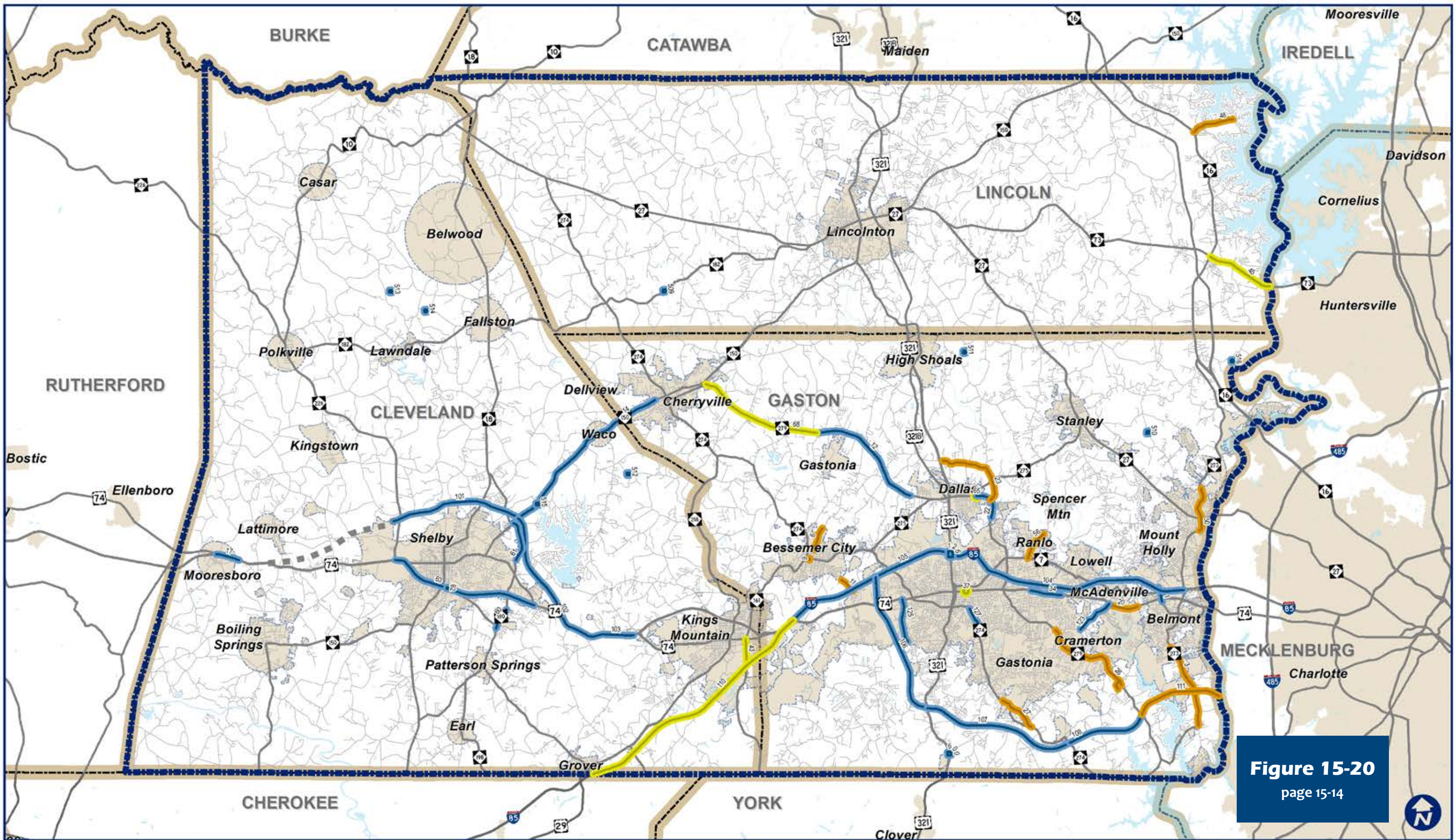


Figure 15-19:  
2040 Metropolitan Transportation Plan Other Highway Related Projects

Unfunded			
2015 Horizon Year (Pre-STI)			
2025 Horizon Year			
2030 Horizon Year			
2040 Horizon Year			
CMAQ Funded Projects in Red			

OP ID	Submitting Agency	Mode	Description	2015 Cost	2025 Cost	2030 Cost	2040 Cost
I-4928	NCDOT	Freight	Construct New Weigh Station along I-85.	\$12,000,000	NA	NA	NA
C-5186	Gastonia	Intelligent Transportation Systems	Gastonia CCTV Cameras. Install 6 CCTV cameras to the existing computerized traffic signal system on I-85 at NC 7 (Ozark Avenue); US 29/US 74 at Franklin Square II; NC 279 (New Hope Road) at Ozark Avenue; US 321 (Chester Street) at Tulip Drive/Bulb Ave; NC 274 (Bessemer City Road) at NC 275 (Dallas/Bessemer City Road); and NC 274 (Union Road) at SR 1255 (Hudson Boulevard)	\$123,000	NA	NA	NA
C-5510	GCLMPO	Vehicle Retrofits	Mecklenburg County Air Quality - GRADE (Grants to Replace Aging Diesel Engines). Replace, Repower, or Retrofit Aging Diesel Vehicles and Equipment.	\$171,000	NA	NA	NA
C-5563	Cramerton	Vehicle Retrofits	Fleet Vehicle Conversions (Retrofit) to LPG Bi-Fuel.	\$150,000	NA	NA	NA





**Figure 15-20**  
page 15-14

# GASTON-CLEVELAND-LINCOLN MPO MTP HORIZON YEAR PROJECTS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties
- Shelby Bypass
- MPO Area

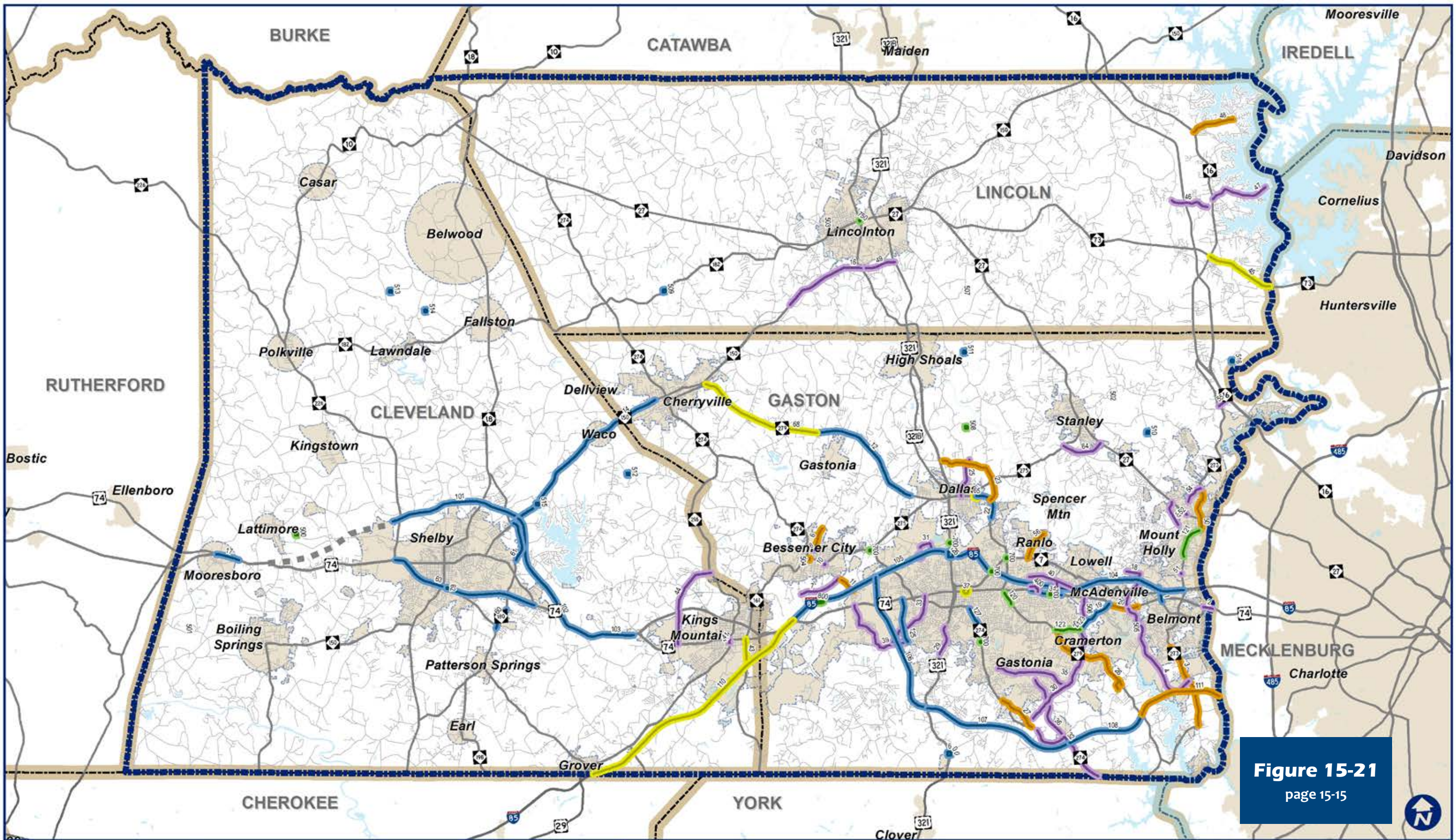
**HORIZON YEAR**

- 2016 - 2025
- 2026 - 2030
- 2031 - 2040

0 1 2 4 Miles  
Date created: 2/21/14







**Figure 15-21**  
page 15-15

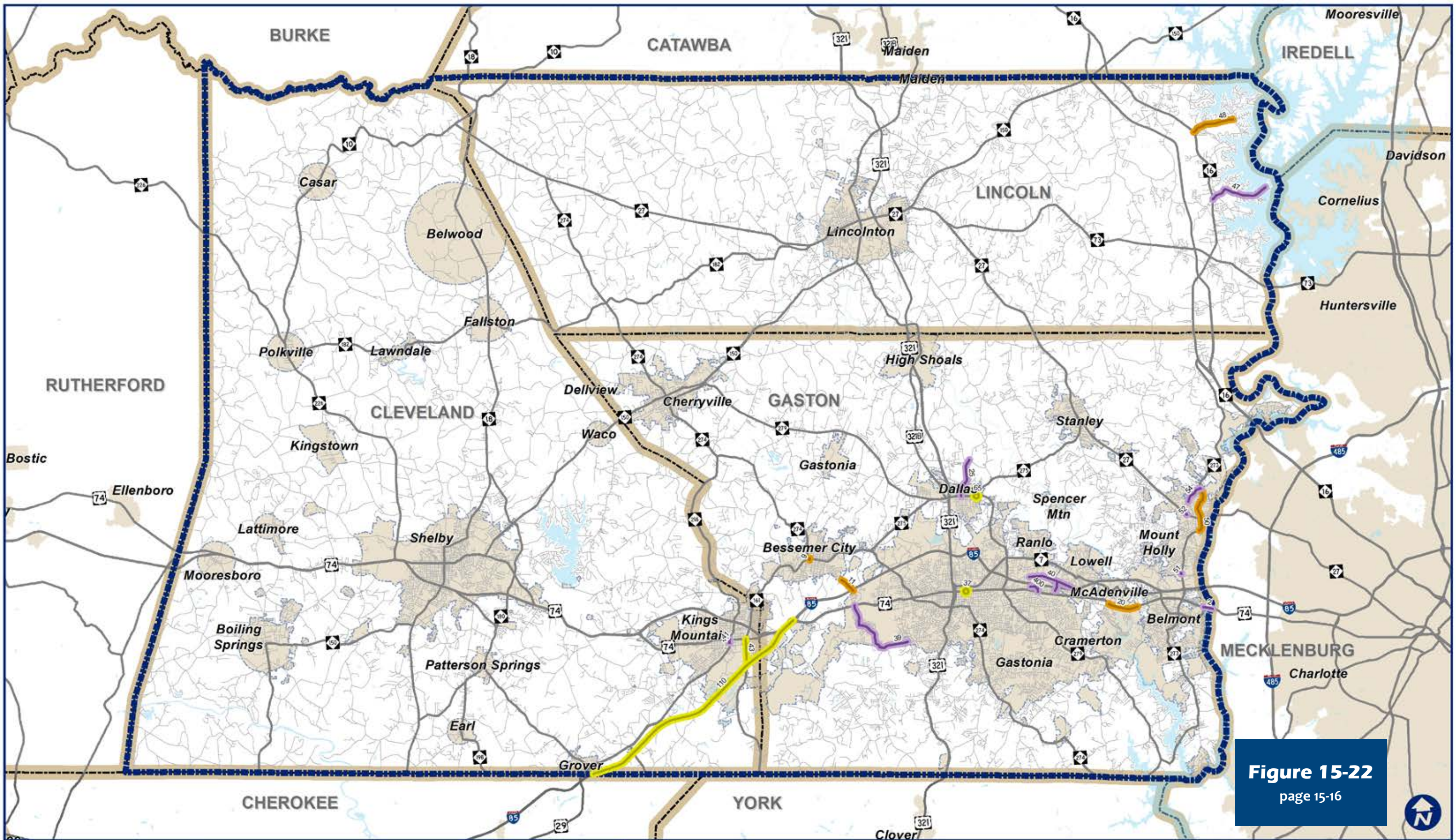
# 2040 MTP HIGHWAY PROJECTS

<b>LEGEND</b>	Highways	Shelby Bypass	<b>Horizon Year</b>	2026 - 2030
	Major Roads	MPO Area	2013 - 2015	2031 - 2040
	Minor Roads		2016 - 2025	Unfunded
	Counties			

0 1 2 4 Miles  
Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization





**Figure 15-22**  
page 15-16

**GASTON-CLEVELAND-LINCOLN MPO  
19 NEW CANDIDATE  
HIGHWAY PROJECTS SUBMITTED TO NCDOT**

<b>LEGEND</b>	Highways	MPO Area	<b>Horizon Year</b>	2026 - 2030
	Major Roads		2013 - 2015	2031 - 2040
	Minor Roads		2016 - 2025	Unfunded
	Counties			

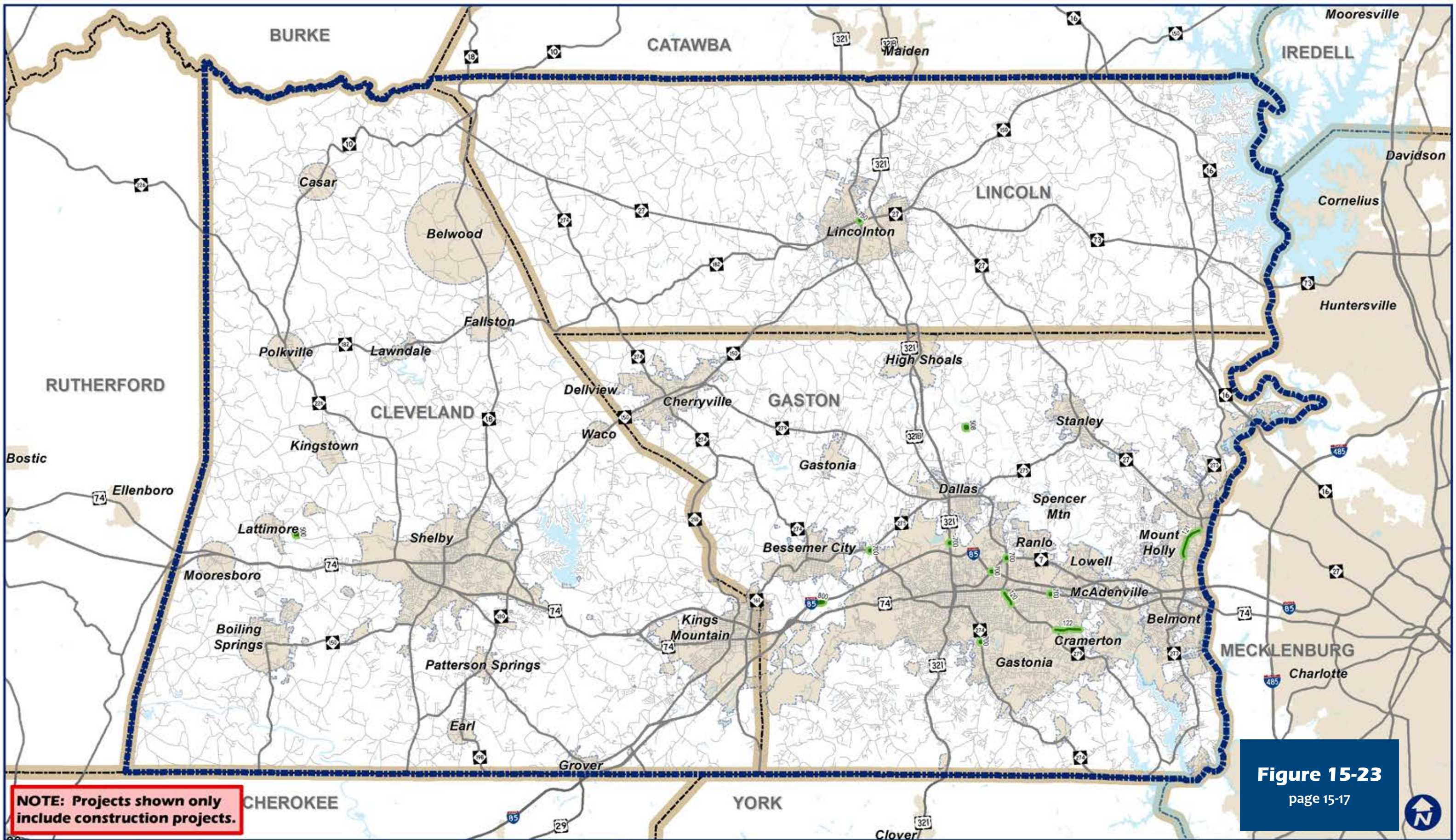
0 1 2 4 Miles

Date created: 2/18/14

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**NOTE: Projects shown only include construction projects.**

**Figure 15-23**  
page 15-17

# GASTON-CLEVELAND-LINCOLN MPO STIP/MTIP PROJECTS

**LEGEND**

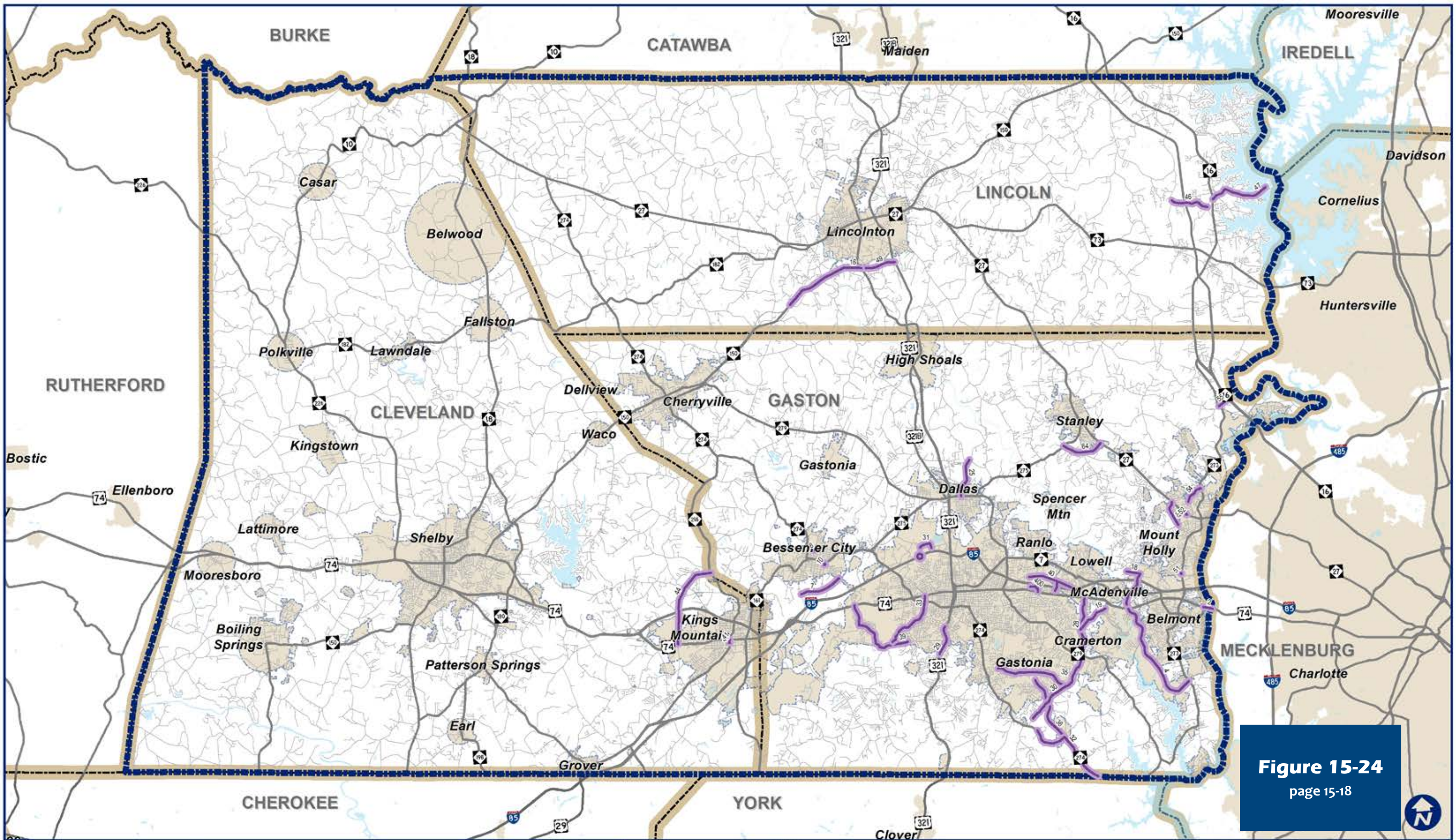
- Highways
- Major Roads
- Minor Roads
- Counties
- MPO Area
- Horizon Year
- 2013 - 2015

0 1 2 4 Miles  
Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization







**Figure 15-24**  
page 15-18



# GASTON-CLEVELAND-LINCOLN MPO UNFUNDED PROJECTS

**LEGEND**

- Highways
- Major Roads
- Minor Roads
- Counties
- MPO Area
- Unfunded Projects

0 1 2 4 Miles

Date created: 2/21/14

GASTON-CLEVELAND-LINCOLN  
**MPO**  
Metropolitan Planning Organization



# Appendices



PUBLIC COMMENTS & RESPONSES

Name	Organization	Address	E-Mail	Date Received	Comment	Response	Document
Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p>We appreciate the opportunity to submit these comments on the Gaston-Cleveland Lincoln Metropolitan Planning Organization's ("GCLMPO") draft 2040 Metropolitan Transportation Plan ("MTP") and draft Air Quality Conformity Determination Report on behalf of the Southern Environmental Law Center ("SELC") and Clean Air Carolina.</p> <p>We applaud much of the MTP. We greatly appreciate GCLMPO's goals and objectives in the planning process, particularly its focus on sustainability, expanding multi modal transportation options, evaluating public health, and involving historically unrepresented communities. As noted in the draft MTP, GCLMPO is on the brink of challenging times, with significant population growth expected in the planning region. GCLMPO's list of goals and objectives does well to outline planning for an efficient, sustainable, dynamic transportation system that would serve all users through 2040.</p> <p>Despite these admirable goals, we are disappointed to see that the specific programming outlined in the MTP does not seem to match these guiding principles. We remain concerned about GCLMPO's continued commitment to outdated highway projects like the Garden Parkway and a continued build-out of the highway system. Instead, we encourage a critical shift toward maintenance and upgrades to existing facilities, in addition to a greater resource allocation to non-highway modes that will better serve the GCLMPO region's transportation needs.</p>	Comment noted	Plan / Conformity



# the way forward: 2040 Metropolitan Transportation Plan

Name	Organization	Address	Email	Date Received	Comment	Response	Document
Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>I. Goals, Policies, and Objectives</b></p> <p>GCLMPO presents a laudable list of goals, which does well to outline planning for an integrated and sustainable transportation system for the region. Many of the policies and objectives do an excellent job of further articulating these goals. For example, we appreciate GCLMPO's goal to provide for a transportation system that affords the public with mobility choices, expressly including walking, bicycling, and transit options.<sup>1</sup> As detailed below, we agree that North Carolina must rethink our practice of relying almost exclusively on highways and automobiles for our transportation needs, and should instead increase investment in expanded transportation options.</p> <p>Similarly, we appreciate GCLMPO's commitment to develop and support programs that enhance the integration and connectivity of a multimodal transportation system.<sup>2</sup> Such linkages are fundamental to ensuring a dynamic system that provides mobility options for users and goods. For example, GCLMPO does an admirable job of listing specific ways in which it plans to expand mobility choices, such as through promoting an integrated local and regional public transit system, as well as integrating pedestrian and bicycle transportation into project planning.<sup>3</sup> GCLMPO's objective to promote future opportunities for inter-regional mobility with enhancements to inter-city rail service and the provision of high-speed rail service is also commendable.<sup>4</sup> We appreciate that GCLMPO recognizes the impacts such an expanded system can have in helping to develop healthy, affordable, and equitable communities, and we commend its acknowledgment that the expansion of such systems should also include expansions in rural areas.<sup>5</sup> We are also pleased to see GCLMPO's commitment to increasing safety for all users, including cyclist and pedestrian safety.<sup>6</sup></p> <p>We are disappointed, however, that the goals and objectives do not match the specific programming outlined throughout the rest of the draft MTP. For example, as outlined below, it is unclear from the draft which specific projects will accomplish these multimodal goals. GCLMPO's Financial Plans chapter demonstrates that it intends to dedicate 100% of both its Statewide Mobility and Regional Impact funding categories toward highway projects, leaving funding for any non-highway projects to the Division Needs category.<sup>7</sup> Even more, the funds allocated to non-highway projects under GCLMPO's Division Needs category appear to be dedicated to only bicycle and pedestrian projects, ignoring a large swatch of important transportation needs.<sup>8</sup></p> <p><sup>1</sup> Draft MTP at 2-1.  <sup>2</sup> Draft MTP at 2-2.  <sup>3</sup> Draft MTP at 2-2.  <sup>4</sup> Draft MTP at 2-2.  <sup>5</sup> Draft MTP at 2-3.  <sup>6</sup> Draft MTP at 2-3.  <sup>7</sup> Draft MTP at 15-3.  <sup>8</sup> Draft MTP at 15-4.</p>	Although the STI law allows both highway and non-highway project funding at the Regional and Divisional Level, the GCLMPO only designated regional funding for highway projects and divisional funding towards both highway and non-highway projects.	Plan / Conformity



Name	Organization	Address	E-Mail	Date Received	Comment	Response	Document
Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p>GCLMPO's goal to provide a transportation system that is sensitive to significant features of the natural and human environment is also praiseworthy; however, the draft MTP does little to demonstrate how exactly GCLMPO has evaluated past and future impacts on natural resources, nor does it articulate how GCLMPO intends to implement this goal through any discussion of specific projects and policies.<sup>9</sup> Continuing to pursue environmentally destructive projects like the Garden Parkway, as described fuller below, is also in direct opposition to this goal.<sup>10</sup></p> <p>We support GCLMPO's goal to engage the public and stakeholders; however, the objective to promote additional bridge crossings, specifically referencing the locally unpopular Garden Parkway, seems contrary to this goal. Surely this engagement goal includes within it a commitment to listen and respond to what the public and stakeholders have to say. And yet, despite the fact that the greater majority of GCLMPO region residents have long opposed the Garden Parkway,<sup>11</sup> GCLMPO remains committed to the project.</p> <p>We also appreciate GCLMPO's intent to actively engage minority and disadvantaged communities in all phases of transportation planning and its intent to develop and fund programs that will expand equitable transportation options for disadvantaged populations.<sup>13</sup> But, as outlined below, it is unclear from the draft how GCLMPO has sought to maximize its outreach efforts and specifically target these communities. Similarly, GCLMPO's strong focus on funding highway projects and resultant minimal funding for non-highway projects belies GCLMPO's efforts to expand equitable transportation options for disadvantaged populations.<sup>14</sup></p> <p><sup>9</sup> Draft MTP at 2-1, 2-3.  <sup>10</sup> Draft MTP at 2-1.  <sup>11</sup> See, e.g., Civitas Institute, <i>Results of SurveyUSA Election Poll #16515 (5/07/2010)</i>, on file with SELC.  <sup>12</sup> Draft MTP at 2-4.  <sup>13</sup> Draft MTP at 2-1, 2-3, 15-4 -15-5  <sup>14</sup> Draft MTP at 2-1, 2-3.</p>	We currently use State Programs and Policies/ Will expand on this issue in the next plan. We satisfy Federal and State Policies and regulations with regard to this issue.	Plan / Conformity



# the way forward: 2040 Metropolitan Transportation Plan

Name	Organization	Address	E-Mail	Date Received	Comment	Response	Document
Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>II. Public Involvement</b></p> <p>Because the MTP defines the transportation policies, programs, and projects to be implemented throughout the GCLMPO region over the next twenty years, strong public involvement is key to understanding the needs and preferences of the community. As such, we encourage GCLMPO in future planning efforts to strive to expand public involvement efforts to be more in line with its goals to fully engage the public and stakeholders. <sup>15</sup> We appreciate that GCLMPO has hosted several public workshops throughout the region during the current comment period. <sup>16</sup> However, we believe that GCLMPO may achieve greater levels of higher quality participation if it were to seek to engage the public more fully during the development of the MTP.</p> <p>For example, rather than relying on public input at only MPO meetings, <sup>17</sup> GCLMPO should seek to wider public engagement and education throughout the MTP development process. The Charlotte Regional Transportation Planning Organization ("CRTPO"), which is also in the process of developing its MTP, did not limit its outreach activities to a few public meetings during the comment period. Instead, CRTPO implemented significant additional efforts to engage and inform the public in the months leading up to the comment period, helping to prepare the community to understand the MTP process long before the short comment period. <sup>18</sup> Even during the comment period, CRTPO engaged in supplemental public outreach activities beyond traditional public meetings, specifically designed to target a wide variety of geographies and demographics throughout the CRTPO planning area. <sup>19</sup> As such, we encourage GCLMPO to review its MTP public engagement methods.</p> <p><i>Continued on next page...</i></p>	This issue will be addressed in the next plan update. There was limited time to address this issue in the current plan due to the new GCLMPO boundary expansion discussion.	Plan / Conformity



				<p><b>(II. Public Involvement Continued.)</b></p> <p>Similarly, we encourage GCLMPO to invest more energy in examining its efforts to involve minority and low-income populations, particularly in light of its objective to actively engage minority and disadvantaged communities in all phases of transportation planning<sup>20</sup> and its intent to develop and fund programs that will expand transportation options for disadvantaged populations.<sup>21</sup> Though historically the negative impacts of transportation projects and regulations have disproportionately affected minority and low-income communities, these communities have often been excluded from transportation policy-setting and decision-making processes. As such, strong efforts to ensure their participation is vital to developing a comprehensive transportation system that addresses all users' needs.</p> <p>The Draft MTP mentions that GCLMPO sought to increase participation by these groups by translating documents into Spanish, holding public meetings outside of traditional meeting places, and by holding multiple meetings.<sup>22</sup> But the draft does not articulate these efforts any further, nor does it analyze the effectiveness of these efforts. We look forward to seeing the specific activities, outcomes, and overall success of these efforts detailed in the final document. We also suggest that GCLMPO connect with CRTPO to evaluate the comparative effectiveness of each MPO's efforts to engage these traditionally disadvantaged communities. CRTPO has recently engaged in a significant overhaul of its public involvement activities aimed at environmental justice communities and may be able to inform GCLMPO's future outreach.<sup>23</sup></p> <p><sup>15</sup> Draft MTP at 2-1.  <sup>16</sup> Draft MTP at 4-1.  <sup>17</sup> Draft MTP at 4-1.  <sup>18</sup> CRTPO, <i>Draft 2040 Metropolitan Transportation Plan</i> (Feb. 2014), at 4-4 -4-8.  <sup>19</sup> CRTPO Draft MTP, at Chapters 4 &amp; 5.  <sup>20</sup> Draft MTP at 2-4.  <sup>21</sup> Draft MTP at 2-3.  <sup>22</sup> Draft MTP at 4-2.  <sup>23</sup> CRTPO Draft MTP, at Chapter 5.</p>	
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# the way forward: 2040 Metropolitan Transportation Plan

Name	Organization	Address	E-Mail	Date Received	Comment	Response	Document
Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>III. Physical Environment</b></p> <p>The short chapter on the physical environment is limited to minimal discussion of the draft conformity determination report.<sup>24</sup> This discussion falls significantly short of explaining how GCLMPO intends to fulfill its environmentally focused goal and objectives, or its federally required environmental considerations. We encourage GCLMPO to greatly expand this section in the final MTP and as such, we make the following specific suggestions.</p> <p><sup>24</sup> Draft MTP Chapter 5.</p>	This issue will be addressed in the next plan update.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>A. Air Quality</b></p> <p><b>a. Ozone and MSATs</b></p> <p>GCLMPO should first greatly expand its discussion of air quality beyond a short description of the Draft Air Quality Conformity Report. As a plan for the future, the MTP should examine past air quality data on pollutants such as ozone, particulate matter, and Mobile Source Air Toxics ("MSATs"), as well as how future growth and transportation projects in the GCLMPO region may effect emissions of these pollutants in the future. GCLMPO should also consider developing a quantitative assessment of greenhouse gas ("GHG") emissions in future planning efforts. Climate change is the result of increased GHG emissions, including carbon dioxide, chlorofluorocarbons, methane, and nitrous oxide;<sup>25</sup> as such, it is appropriately considered an air quality concern for the GCLMPO region. Even in the absence of a legislative or federal mandate, the Metrolina region's poor air quality provides good cause to seek to quantify expected GHG emissions. GCLMPO should also articulate how it plans to address these pollutants in the planning process, as they can be particularly harmful to certain at-risk populations, including children and older adults, and therefore it is an important issue to consider when planning where to site highway projects.</p> <p><sup>25</sup> Draft MTP at 7-14. <sup>26</sup> Draft MTP at 2-3.</p>

Response	Document
<p>GCLMPO is committed to doing its part to help the region meet or do better than the ozone air quality standard, now and in the future. In spite of increases in regional population, and even greater increases in VMT, measured ozone concentrations have trended downward since 2004. The region is on track to meet or better the 2008 ozone standard of 75 ppb by the end of 2015, as scheduled. NOx (the precursor most responsible for ozone in our region) emitted from tailpipes is projected to continue to decrease until at least 2030, given the current state of emissions control technology. In addition, efforts to make the region more multimodal and better connected should enhance air quality improvement. For these reasons, we believe GCLMPO is well positioned to do its part to address future revisions to the ozone standard if and when implemented by the U.S. EPA. GCLMPO agrees that MSAT emissions have been declining due to improvements in vehicle design. The trend of MSAT emissions follows that of VOCs. Based on the 2040 MTP Conformity Document, it is safe to conclude that through at least 2030, region-wide VOC -- and thus MSAT-- emissions will decrease in spite of VMT increasing in that same period, and then leveling off through 2040. With regard to planning the site of individual roadway projects intended to carry larger traffic volume, GCLMPO may encourage project design to mitigate the potential impacts of MACTS to nearby populations by siding toward larger setbacks and/or barriers.</p>	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>h. Clean Construction</b></p> <p>We also recommend GCLMPO commit to a program encouraging the use of "clean construction" techniques throughout the region in order to further reduce the negative air quality impacts of projects included in the MTP. Diesel equipment provides the power needed for most construction activities; however, emissions from this equipment can negatively impact the health of people on and near construction sites. Committing to diesel emissions reduction practices, such as enforcing a no-idle policy on construction sites, using lower emission construction equipment, and prohibiting equipment from operating near air intake sources could play a key role in improving area air quality. In addition, many of these practices can be implemented with little to no increase in overall project cost. As such, clean construction policies represent an innovative solution that can result in cleaner air in an area of North Carolina that continues to have trouble meeting federal air quality standards.</p>	The GCLMPO addresses this issue thru our CMAQ program by dedicating funding to the Grants to Replace Aging Diesel Engines (GRADE) program.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>B. Water Quality</b></p> <p>We were surprised that water quality mitigation and avoidance policies are not addressed in the body of the draft MTP. GCLMPO should also articulate exactly how it will seek to address water quality impacts, as noted in its laudable goals and objectives. <sup>26</sup> For example, CRTPO has sought to better address water quality impacts by including a natural resources impact criterion in the MTP roadway project ranking methodology, and by assessing water quality impacts using a GIS tool to locate natural resources. <sup>27</sup> We suggest GCLMPO may consider similar avenues to identify and avoid potential water quality impacts.</p> <p>We appreciate that many of these impacts are likely project specific, and may be addressed by local water quality programs and policies, or project-specific planning. We note, however, that these local and project-specific measures can be ineffective if the overall regional commitment is focused on expanding the highway system. As such, we strongly encourage GCLMPO to pursue and articulate region-level water quality measures in the final version of the MTP. Such impacts can also be avoided if GCLMPO were to pursue an overall shift toward expanding its non-highway infrastructure and maintaining and improving existing infrastructure.</p> <p><sup>26</sup> Draft MTP at 2-3.  <sup>27</sup> CRTPO Draft MTP, at 7-6.</p>	This issue is usually address through a host of other government bodies including NC Department of Environment and Natural Resources, EPA, USACE, etc. This issue will be addressed in more detail in the next plan update.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>C. Consultation</b></p> <p>We also encourage GCLMPO to articulate its efforts to fulfill its federal duty to consult with the appropriate federal, state, and local environmental and conservation agencies in developing this draft plan.<sup>28</sup> These efforts should have included, at minimum, a comparison of transportation plans with available State conservation plans and maps, as well as a comparison of transposition plans to available inventories of natural or historic resources.<sup>29</sup> For example, NCDOT has developed a GIS tool that will allow GCLMPO to easily compare transportation plans with conservation plans and inventories of natural resources. This process could also include a comparison of MTP project maps with maps of identified important natural resources, including publicly and privately owned lands managed for conservation, such as those generated by NCDENR using the One NC Naturally conservation planning tool. If it has not already, we urge GCLMPO to actively use these resources to guide the MTP and avoid serious conflicts between transportation and conservation planning goals.<sup>30</sup> Identified potential conflicts between transportation and conservation plans should then be vetted by appropriate agencies to determine appropriate mitigation.<sup>31</sup> In future planning efforts, we encourage that GCLMPO institute a policy discouraging new-location highway projects in high-priority natural resource areas identified using these and other similar tools.</p> <p>We hope these efforts were in fact made, as such efforts to implement this important provision of SAFETEA-LU are likely to result in a more robust understanding of the various land use management, natural resource, environmental, conservation, and historic preservation concerns implicated by the MTP. We suggest that in future planning efforts, GCLMPO also consider similar early engagement with local, non-government environmental stakeholders such as Clean Air Carolina, the Catawba Riverkeeper Foundation, the North Carolina Wildlife Federation, the Sierra Club, and SELC.</p> <p>These efforts should also be well informed through strong integration of transportation and land use planning suggested in the Draft MTP document.<sup>32</sup> This integration will be important to meet many of GCLMPO's stated goals, and is a federally required aspect of transportation planning.<sup>33</sup> The past disconnect between transportation and local land use planning across North Carolina, and the Charlotte region in particular, has encouraged pervasive low-density, auto-dependent development. As such, we appreciate GCLMPO's recognition of the importance of consulting and coordinating with local agencies to ensure that scarce transportation dollars are spent on projects that support land use outcomes that are consistent with local needs, rather than on those projects that may undermine local planning.</p> <p><sup>28</sup> 23 C.F.R. 450.322(g). <sup>29</sup> <i>Id.</i> <sup>30</sup> <i>Id.</i> <sup>31</sup> <i>Id.</i> <sup>32</sup> Draft MTP at 6-3. <sup>33</sup> 23 C.F.R. 450.306(a)(5) (“The metropolitan transportation planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following factors, [including] promot[ing] consistency between transportation improvements and State and local planned growth and economic development patterns.”).</p>	In the next plan update these organizations will be contacted in the early stages of the plan.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>D. Mitigation</b>                      GCLMPO must also address region-wide mitigation efforts in the final draft.<sup>34</sup> We appreciate that much of mitigation is project specific; however, GCLMPO's federal duty in developing the MTP requires that, at minimum, the document discuss mitigation, such as by articulating policies, programs, or strategies.<sup>35</sup> Even more, GCLMPO should consider implementing region-level policies to ensure the efficacy of mitigation efforts throughout the GCLMPO planning area. For example, we encourage GCLMPO to commit to mitigation programs that replace the losses occurring as a result of projects on the MTP, such as by requiring a project's mitigation credits come from within the same watershed as is impacted by the project. Similarly, GCLMPO should consider advancing a commitment to linear wetland design to address storm water runoff impacts throughout the region, as such projects have been found quite effective at pollution removal.<sup>36</sup> Such efforts can help to ensure stronger mitigation region-wide.</p> <p><sup>34</sup> 23 C.F.R. 450.322(f)(7).  <sup>35</sup> <i>Id.</i>  <sup>36</sup> See, e.g., Ryan J. Winston, et al, <i>Field Evaluation of Stormwater Control Measures for Treatment of Highway Stormwater in North Carolina</i>, submitted for publication to the <i>Journal of Environmental Engineering</i>, on file with SELC.</p>	The GCLMPO believes that the State and Federal agencies responsible for mitigation activities are best suited to address mitigation-related matters.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>E. Wildlife and Habitat</b></p> <p>We are concerned that the Draft MTP includes little discussion of minimization and mitigation efforts with regard to habitat and wildlife concerns. For example, the draft does not include a list of endangered species or any discussion of critical habitat present in the GCLMPO area. Such information is easily available and should properly have been a part of the consultation discussions noted above. Further, the draft document does not appear to consider the impacts of habitat fragmentation or decreased connectivity between natural areas. Nor is there any discussion of how roadway design may be used to help mitigate such concerns.</p> <p>We encourage GCLMPO to explore how wildlife and habitat will be impacted by the MTP, and make that information available to the public. Finally, we urge that the MTP articulate what mitigation efforts can be made to address these impacts.</p>	The GCLMPO will consider listing endangered species in future MTPs, but believes that the State and Federal agencies responsible for wildlife and habitat-related matters are best suited to the address the detailed issues noted in the comment.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>IV. Human Environment</b></p> <p>We praise GCLMPO's strong focus on public health and equity in this draft.<sup>37</sup> We agree that public health is a community concern requiring a collaborative approach integrating policy-making and programming across numerous disciplines, including transportation planning. GCLMPO's recognition of this concept will be integral to addressing public health concerns throughout the GCLMPO region.</p> <p>Even more, GCLMPO is right to explore the use of health impact assessments ("HIA") for specific projects.<sup>38</sup> In an HIA, transportation planners draw from a range of data sources, analytic methods, and stakeholder input to determine the potential effects of a proposed policy, plan, program, or project on a population's health and the distribution of those effects within the population. Such an assessment provides highly specific information that can be critical to fully understanding a project's full public health impacts. North Carolina is poised to become an HIA leader in the Southeast, as several HIAs have been completed or are currently underway across the state.<sup>39</sup> We note that CRTPO is also exploring the inclusion of HIAs as part of its MTP<sup>40</sup> process. GCLMPO is wise to capitalize on this growing trend in transportation planning as a tool to develop a transportation system that promotes healthy living and quality of life throughout the region.</p> <p>We also applaud GCLMPO's efforts to obtain and implement the North Carolina Department of Health and Human Services ("DHHS") grant to develop a process for identifying barriers to physical activity in the built environment.<sup>41</sup> We especially appreciate GCLMPO's efforts to build a broad stakeholder group, involving representation from not only government agencies but also a variety of community sectors.<sup>42</sup> We agree that connecting with such a wide range of stakeholders is likely to provide for a much stronger, more comprehensive understanding of policy barriers to physical activity in the built environment. We look forward to seeing the results of this working group's effort.</p> <p><i>Continued on next page...</i></p>	The GCLMPO will give this issue greater consideration in the next plan update.	Plan / Conformity



				<p><b>(IV. Human Environment Continued)</b></p> <p>We strongly suggest that one policy barrier to explore is the STI’s treatment of bicycle and pedestrian funding. As you know, there is no longer any state funding available for stand-alone bicycle or pedestrian projects under the STI,<sup>43</sup> even if those projects could have otherwise proven meritorious under a new ranking system. This provision will likely have a significant effect on whether such projects continue to be implemented across the state. We hope the working groups’ effort provide an opportunity to publically address this significant funding shortfall.</p> <p><sup>37</sup> Draft MTP at 6-1.  <sup>38</sup> Draft MTP at 6-1.  <sup>39</sup> Letter from Kym Hunter and Kate Asquith, SELC, to Nick Landa, MUMPO, 2040 Long Range Transportation Plan -Draft Goals and Objectives (Jan. 11,2013).  <sup>40</sup> CRTPO Draft MTP at Chapter 8.  <sup>41</sup> Draft MTP at 6-2.  <sup>42</sup> Draft MTP at 6-2.  <sup>43</sup> See N.C.G.S. § 136-189.10(3)(g); § 136-189.11 (d)(3)(c).</p>		
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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>V. Safety and Security</b></p> <p>We commend GCLMPO for concentrating not only on the safety issues confronting vehicle-based users, but also including the safety concerns of all users such as transit riders, pedestrians, and bicyclists.<sup>44</sup> We agree that implementing land use and transportation policies such as the Complete Streets policy, the "Four Es" program, and the Safe Routes to Schools program will serve well to support expanded mobility options, as ensuring the safety of such users is integral to their success. <sup>45</sup></p> <p>We also note that a focus on safety and system security should include maintaining and improving the condition of the existing highway system. As such, we encourage GCLMPO to expand this chapter to include a greater emphasis on maintenance of the current deteriorating highway system rather than continuing to expand that system even further. One of the greatest challenges facing North Carolina's transportation system is the massive backlog of unmet maintenance and repair needs for our roads and bridges. For example, the American Society of Civil Engineers found that 45% of North Carolinas roads are in poor or mediocre condition, and 30.2% of North Carolina's bridges are structurally deficient or functionally obsolete. <sup>46</sup> The Federal Highway Administration estimates that inadequate maintenance and repair of bridges and roads factors into 30% of all fatal highway accidents, and the ASCE found that North Carolina experiences 10% more fatalities than the US average.<sup>47</sup></p> <p>As such, we encourage GCLMPO to support a "Fix-It-First" approach to highway spending. This strategy has been employed by at least seventeen other states to date which have reprioritized transportation dollars to ensure allocation of sufficient funds over time to protect transportation infrastructure investments.<sup>48</sup> Notably, a "Fix-It-First" policy does not prohibit constructing any new capacity until the region's entire maintenance backlog is eliminated; instead, it simply calls for a reprioritization of transportation dollars such that GCLMPO can provide for the adequate maintenance and repair of its existing transportation framework.</p> <p><i>Continued on next page...</i></p>	The FWHA is scheduled to release information on performance measures this year, and GCLMPO will be actively participating in North Carolina's efforts to implement the PMs. In addition, NCDOT is scheduled to begin a statewide asset management plan soon, and GCLMPO hopes to fully participate in that process as well. Lastly, it should be noted that the Strategic Transportation Initiatives legislation resulted in reprioritizing funds from maintenance efforts to road construction projects.	Plan / Conformity



				<p><b>(V. Safety and Security Continued)</b></p> <p>Nor does “Fix-It-First” mean sacrificing local economic benefits that flow from transportation spending. Dollar for dollar, maintenance and repair fuels more job creation than new road construction.<sup>49</sup> Maintaining and repairing existing roads and bridges creates 16% more jobs per dollar spent than building new highways, in part because less money is spent on right-of-way purchases and impact studies. In addition, a Fix-It-First approach creates local jobs faster because less money has to be spent upfront on equipment and planning.<sup>50</sup> And a Fix-It-First policy would provide considerable savings for future generations; the American Association of State Highway and Transportation Officials estimates that every dollar spent on road maintenance saves \$6 to \$14 that would be spent to rebuild the road if it were allowed to deteriorate.<sup>51</sup></p> <p><sup>44</sup> Draft MTP at 9-4.  <sup>45</sup> Draft MTP at 9-4.  <sup>46</sup> <i>Id.</i>  <sup>47</sup> American Society of Civil Engineers, <i>North Carolina Infrastructure Report Card 2009</i>.  <sup>48</sup> These states include: California, Delaware, Illinois, Maine, Maryland, Massachusetts; Michigan, New Jersey, Oregon, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wisconsin.  <sup>49</sup> See Surface Transportation Policy Partnership, <i>An Analysis of the Federal Highway Administration JOBMOD Computer Model</i>, developed in conjunction with Boston University and Battelle Memorial Institute (2004).  <sup>50</sup> Arthur C. Nelson et al., <i>The Best Stimulus for the Money: Briefing Papers on the Economics of Transportation Spending</i>, University of Utah’s Metropolitan Research Center and Smart Growth America (2009).  <sup>51</sup> The American Association of State Highway and Transportation Officials, <i>Rough Roads Ahead, Fix Them Now or Pay for It Later</i> (2009), available at <a href="http://bit.ly/AASHTO-roughroads">http://bit.ly/AASHTO-roughroads</a>.</p>		
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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>VI. Bike &amp; Pedestrian</b></p> <p>We agree with GCLMPO that there is a growing demand for bicycle and pedestrian alternatives.<sup>52</sup> As the draft recognizes, expanded transportation options will be necessary to serve the region’s shifting demographics. For example, we appreciate that the draft recognizes the availability of mobility choices is increasingly critical to the growing population of older adults who are simply unable to drive due to deteriorating eyesight or personal mobility.<sup>53</sup> We also agree that biking and walking have significant health benefits to all individuals, not just older adults, from helping maintain healthy weight, prevention of cardio-vascular disease, osteoporosis, arthritis, and mental disorders like anxiety or depression.<sup>54</sup></p> <p>As the draft recognizes, the availability of low-cost alternative mobility options is also of critical importance to many low-income families.<sup>55</sup> These families can be highly affected by limited access to reliable automotive transportation and the high cost of automobile ownership, gasoline, and automobile insurance.<sup>56</sup> Such transportation barriers can serve to limit access to employment opportunities, health care, schools, and other needed services.<sup>57</sup></p> <p>The draft’s acknowledgment that expanded non-highway options will also be necessary to serve the GCLMPO region’s increasingly urbanized population is also commendable.<sup>58</sup> We agree that this growing population density offers opportunities for shorter trips to work, school, shopping and other destinations, such that walking and biking may be preferable options to driving.<sup>59</sup> GCLMPO must also continue to expand its non-highway spending to remain attractive to potential new residents and businesses. The newest generation of younger adults favors expanded pedestrian, bicycle, and public transportation options, preferring instead to live in more urban areas characterized by “nearby shopping, restaurants, schools, and public transportation as opposed to sprawl.”<sup>60</sup> And this class of workers is choosing where to locate based on these preferences. Experts agree that access to sustainable transportation options is an important factor in attracting young workers.<sup>61</sup> As such, any plan geared at attracting these skilled workers and the businesses which will seek to employ them -should focus on making smart infrastructure investments in the types of transportation that these workers and businesses favor.</p> <p>The environmental benefits mentioned in the draft are important as well.<sup>62</sup> Expanded walking and biking opportunities are of particular importance in an area with persistent air quality problems like the Metrolina region. Traffic congestion deteriorates area air quality, causing increased emissions of harmful pollutants such as carbon monoxide, carbon dioxide, particulate matter, precursors to ground-level ozone like hydrocarbons and nitrous oxide, and other air toxics. As such, the GCLMPO region is primed for congestion management solutions such as expanded transit services and other transportation choices to combat current levels of congestion. <i>Continued on next page...</i></p>	Comment noted	Plan / Conformity



				<p><b>(VI. Bike and Pedestrian Continued)</b></p> <p>We are encouraged by the strong set of policy recommendations in Chapter 10 of this draft. We commend GCLMPO’s intention to integrate multimodal access into road projects, as well as for its commitment to integrating and expanding the bicycle and pedestrian systems within the region.<sup>63</sup> GCLMPO’s commitment to developing this network will be increasingly important in the coming years, because as noted there is no longer any state funding for stand-alone bicycle or pedestrian projects under the STI.<sup>64</sup> In the final draft document, we encourage GCLMPO to make clear that state funding for such projects was fully eliminated.</p> <p><sup>52</sup> Draft MTP at 10-1</p> <p><sup>53</sup> Draft MTP at 10-1; see also NCDOT, <i>North Carolina Statewide Transportation Plan: System Inventory and Modal Needs</i> (Aug. 2012), at 12,20, 23-24; Transportation for America, <i>Aging in Place: Stuck Without Options</i> (2011), available at <a href="http://t4america.org/docs/SeniorsMobilityCrisis.pdf">http://t4america.org/docs/SeniorsMobilityCrisis.pdf</a>; 2040 Plan at 28.</p> <p><sup>54</sup> Draft MTP at 10-1.</p> <p><sup>55</sup> Draft MTP at 10-1.</p> <p><sup>56</sup> The Mineta Transportation Institute, <i>Getting Around When You’re Just Getting By: The Travel Behavior and Transportation Expenditures of Low-Income Adults</i>, at 11 (Jan. 2011).</p> <p><sup>57</sup> <i>Id.</i> at 13.</p> <p><sup>58</sup> Draft MTP at 10-1.</p> <p><sup>59</sup> Draft MTP at 10-1.</p> <p><sup>60</sup> U.S. PIRG, <i>Transportation and the New Generation, Why Young People Are Driving Less and What It Means for Transportation Policy</i> (April 2012), available at <a href="http://www.uspirg.org/reports/usp/transportation-and-new-generation">http://www.uspirg.org/reports/usp/transportation-and-new-generation</a>.</p> <p><sup>61</sup> See, e.g., Jennifer Polland, <i>Presenting: The 15 Hottest American Cities of the Future</i>, BUSINESS INSIDER (June 2012), available at <a href="http://www.businessinsider.com/up-and-coming-cities-2012-6?op=1">http://www.businessinsider.com/up-and-coming-cities-2012-6?op=1</a>; Bill Lewis, <i>Walkable neighborhoods gain traction in city as well as suburbs</i>, THE TENNESSEAN (Jan. 26, 2014), available at <a href="http://www.tennessean.com/article/20140126/business02/1260037/Walkable-neighborhoods-gain-traction-city-well-suburbs?gcheck=1">http://www.tennessean.com/article/20140126/business02/1260037/Walkable-neighborhoods-gain-traction-city-well-suburbs?gcheck=1</a>.</p> <p><sup>62</sup> Draft MTP at 10-1.</p> <p><sup>63</sup> Draft MTP at 10-6.</p> <p><sup>64</sup> See N.C.G.S. § 136-189.10(3)(g); § 136-189.11(d)(3)(c).</p>		
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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>VII. Public Transit</b></p> <p>GCLMPO's efforts to study the expansion of improvement of transit services in Gaston County are laudable.<sup>65</sup> We appreciate GCLMPO's detailing the several studies that it and local municipalities have performed, and we hope GCLMPO will continue to explore these options in the future.<sup>66</sup> However, in the final draft, we encourage GCLMPO to spend more time outlining how it plans to respond to the information presented in these studies. For example, it is unclear from the information presented in this chapter what study recommendations have been moved forward as projects included in the MTP, which recommendations were not included, and the reasoning behind these decisions. We also note encourage GCLMPO articulate the ways it has considered improving transit services in Cleveland and Lincoln counties as well. It appears from the draft's Financial Plan that GLCMPO currently plans to submit no transit projects for funding at the Regional Impact tier.<sup>67</sup> The Financial Plan fails to include any discussion of transit projects, and states that the full 13% of Division Needs funds allocated to non-highway projects will be dedicated to the bicycle and pedestrian projects, indicating no funding for transit.<sup>68</sup></p> <p>We encourage GCLMPO to consider devoting additional resources to transit projects. For example, GCLMPO and Gastonia's interest in developing a multi-modal transportation center in downtown Gastonia is commendable.<sup>69</sup> We hope GCLMPO will select a site option from those presented in this chapter and move forward with seeking to fund the project. Similarly, we encourage GCLMPO to seek funding to reinstate the express commuter bus service between Mecklenburg and Lincoln Counties which was eliminated in the wake of the recession.<sup>70</sup> These and other such projects would certainly fall in line with GCLMPO's commendable goal to promote an integrated and equitable multimodal local and regional public transit system.<sup>71</sup></p> <p><sup>65</sup> Draft MTP at 11-6.  <sup>66</sup> Draft MTP at 11-6 -11-11.  <sup>67</sup> Draft MTP at 15-3.  <sup>68</sup> Draft MTP at 15-4.  <sup>69</sup> Draft MTP 11-7.  <sup>70</sup> Draft MTP at 8-3.  <sup>71</sup> Draft MTP at 2-2.</p>	Elected officials decide on plan implementation	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>VIII. Financial Plan</b></p> <p><b>A. Garden Parkway</b></p> <p>The draft presents only three projects that GCLMPO expects to compete under the Statewide Mobility funding tier: 1-85 Widening from Belmont to U.S. 29/74, the Garden Parkway, and the Shelby Bypass.<sup>72</sup> The MPO has based its statewide funding forecast on the assumption that all three projects will receive full funding by 2040.<sup>73</sup> This assumption ignores the primary aim of the new STI funding formula: The new funding system requires that projects be ranked and accords funding to only the most meritorious projects. We are concerned that GCLMPO's continued pursuit of the Garden Parkway fails to recognize the project's many shortcomings, and will endanger funding for projects that would better serve the GCLMPO region. Given the project's lack of local support, limited utility, and unlikelihood of funding under the STI,<sup>74</sup> we urge GCLMPO to instead remove the Garden Parkway from the STIP entirely and focus on other priorities that will provide true benefits to GCLMPO's represented area.</p> <p><sup>72</sup> Draft MTP at 15-2.</p> <p><sup>73</sup> Draft MTP at 15-2 -15-3.</p> <p><sup>74</sup> For a detailed description of the project's deficiencies please see the attached comments on the project's EIS, filed with the Northh Carolina Department of Transportation on July 2009, February 2011, and December 2011. Additionally, please see the attached copies of Plaintiffs' and Defendants' briefs filed in the ongoing litigation regarding the project.</p>	Comment noted	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>a. Universally Unpopular</b></p> <p>As you know, the Garden Parkway remains a very expensive, controversial project with extremely limited utility. In response to the project's many flaws, four bills were filed in the North Carolina General Assembly's 2013 legislative session to eliminate previously ear-marked funding for the project and remove it from statute.<sup>75</sup> The project's gap funding was ultimately eliminated through House Bill 817, which passed both the House and Senate with strong bi-partisan support and led to the implementation of the STI.<sup>76</sup></p> <p>The legislative actions to eliminate the Garden Parkway's funding came in response to a strong local and statewide opposition to the project. Since 2009, over 7,000 people have signed a petition opposing the project. In Gaston County polls, more than 64 percent of voters oppose the project.<sup>77</sup> Several state legislators have won office on a pledge to oppose the Garden Parkway.<sup>78</sup> During the project's NEPA review, the transportation agencies received many public comments, and the vast majority opposing the project.<sup>79</sup> Even State transportation leaders, including former Transportation Secretary Gene Conti and former North Carolina Turnpike Authority Executive Director David Joyner, have raised "cost and project efficiency concerns" and indicated that the 22-mile project is being built only to obtain a new crossing of the Catawba River, and current Transportation Secretary Tony Tata wrote a letter to the legislature last year outlining his support for legislation which would remove the project from statute.<sup>80</sup></p> <p><sup>75</sup> See HB 817, 2013 Leg., Reg. Sess. (N.C. 2013); H.B. 134 (2013); H.B. 10 (2013); H.B. 932 (2013); S.B. 716 (2013) Leg., Reg. Sess. (N.C. 2013).</p> <p><sup>76</sup> HB 817, 2013 Leg., Reg. Sess. (N.C. 2013).</p> <p><sup>77</sup> Civitas Institute, <i>Results of SurveyUSA Election Poll #16515 (5/07/2010)</i>, on file with SELC.</p> <p><sup>78</sup> See, e.g., Ken Elkins, <i>How does Garden Parkway fit into plans for area near Charlotte's airport?</i>, CHARLOTTE OBSERVER (Feb. 7, 2014), available at <a href="http://www.bizjournals.com/charlotte/print-edition/2014/02/07/how-does-gardem-parkway-fit-into-plans-for-area.html?page=all">http://www.bizjournals.com/charlotte/print-edition/2014/02/07/how-does-gardem-parkway-fit-into-plans-for-area.html?page=all</a>.</p> <p><sup>79</sup> See NCDOT, <i>Garden Parkway</i>, available at <a href="http://www.ncdot.gov/projects/gardenparkway/">http://www.ncdot.gov/projects/gardenparkway/</a>.</p> <p><sup>80</sup> See, e.g., letter from Sec. Anthony J. Tata, NCDOT, to President Pro Tempore Philip E. Berger and Speaker Thom Tillis, North Carolina General Assembly (March 18, 2013).</p>	Comment noted	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>b. Limited Utility</b>                      Opposition to the Garden Parkway springs from the fact that the project is not only immensely destructive and expensive, but also has been shown to have very limited utility. For example, it has become increasingly clear that the project will not ease area congestion as originally expected. The Draft MTP identifies I-85 through Gaston County as one of the most congestion corridors in the region, and claims it will address this congestion through a combination of building the Garden Parkway and widening I-85. <sup>81</sup> Yet NCDOT's own documents demonstrate that constructing the Garden Parkway will do little to alleviate congestion on existing sections of I-85, US 29-74, and US 321 in the project study area. In fact, construction of the Garden Parkway is now expected to make congestion on many of these roadway segments worse. <sup>82</sup></p> <p>Even more, due to funding constraints, NCDOT admits that it plans to construct six miles of the project as a two-lane road -with very little likelihood that funding will become available in the future to expand to the full four-lane design. <sup>83</sup> Further, contrary to popular hopes, NCDOT does not expect the project to bring job growth to the region. The Environmental Impact Statement ("EIS") actually shows that there will be net job losses to the State if the project is built. <sup>84</sup></p> <p><b>c. The Garden Parkway does not merit funding from the STI</b>                      These factors have helped contribute to the project's unlikelihood of meriting funding under the STI funding formula. The STI requires that the state will use a partially data-driven ranking process to determine which new transportation projects will receive funding. The draft plan recognizes that the Garden Parkway is expensive enough that it must be funded under the Statewide Mobility tier, yet the factors that will be used to score projects at this tier have proven to disfavor the Garden Parkway, as detailed below.</p> <p><i>Continued on next page...</i></p>	Comment noted	Plan / Conformity



				<p><b>(b. Limited Utility Continued.)</b></p> <ul style="list-style-type: none"> <li>• <b>Economic competitiveness:</b> The STI is intended to reward projects that bring jobs and economic competitiveness to the State. The Garden Parkway draft project score sheet indicates that this category is still “in progress”; however, the project is unlikely to ultimately score well in this category. NCDOT’s own EIS shows that the project would bring zero economic growth to the Charlotte region, and result in very minimal growth in Gaston County.<sup>85</sup> In terms of job growth, as noted, the EIS actually predicts that the project will cause future job growth to shift away from the state and into South Carolina.<sup>86</sup> During recent litigation the State has reaffirmed this position, stating that it does not expect the Garden Parkway to bring any new jobs or development to the Charlotte region.<sup>87</sup> Even if the project does ultimately score well under this category, the Economic Competitiveness factor is insufficient to raise the project’s overall score significantly enough to make the project competitive at the Statewide Mobility tier.</li> <li>• <b>(Travel Time) Benefit-Cost:</b> As noted above, the cost of the project is huge, \$930 million, with tolls covering just a small portion of this cost. At the same time, the travel time benefits of the project are minimal. Only a fraction of users willing and able to pay tolls would benefit from any travel time savings. Other travelers on area roadways may actually be left with more congestion than if the road was not built. As a result, the project scored very low (just 2.45 points) in the STI’s cost-benefit calculus.</li> <li>• <b>Safety:</b> There is no evidence in the EIS that the Garden Parkway would improve safety. Safety was not included as a “purpose” for the project in NCDOT’s environmental document. As such, the project has scored comparatively poorly in this category as well.</li> <li>• <b>Congestion:</b> As noted above, NCDOT’s own studies show that the Garden Parkway is not predicted to improve congestion on area roadways such as 1-85, US 29-74, and US 321. In fact, the studies predict that construction of the project may even make congestion on these roadways worse. We understand that the STI currently measures rates of existing congestion, rather than an ability to improve congestion. The Garden Parkway project is a good example of why such an approach is flawed -existing congestion is not a relevant metric if the project being scored will do nothing to improve that congestion. Still, the project’s congestion score is rather low (just 30.09 points), not sufficient to make it competitive even with other GCLMPO statewide tier projects, like 1-85 widening (which scored 100 points for the congestion criterion).</li> </ul> <p>In sum, nothing about the Garden Parkway project would suggest that it is the type of project that will be funded under the new funding formula. The project’s high price tag ensures that it must compete at the statewide tier to obtain funding, yet its low draft scores demonstrate it is unlikely to be ranked over other projects of statewide importance. Though only the draft STI scores for Division 12 appear to be publically available on the NCDOT website at this time, the Garden Parkway has scored particularly low compared to other projects, including widening 1-85.<sup>88</sup> <i>Continued on next page...</i></p>		
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				<p><b>(b. Limited Utility Continued.)</b></p> <p>Even if the project were to score highly enough to merit funding under the STI, it is still unwise for GCLMPO to submit the project. As you have recognized in the draft plan, under the STI there are three levels of funding available: Statewide Mobility, Regional Impact and Division Needs. Projects from all across the state are permitted to compete for funding at the Statewide Mobility level, however, as the draft plan recognizes, no one project can be appropriated more than 10% of the available funds. As a result, there is a \$300 million cap per project for the first 5 years of the STI program.<sup>89</sup> The necessary funding for the Garden Parkway far exceeds that amount. Estimates in the Draft EIS put the project cost at \$930 million, but it is likely that those costs are now much higher, given inflation.<sup>90</sup> Because tolls are expected to cover only a fraction of the project's significant funding, close to \$600 million, will be needed from the STI. As a result, the Garden Parkway would require not only the maximum \$300 million from the Statewide Mobility level, but also would take significant funding from the Regional Impact level. Given the lack of utility of the Garden Parkway, these funds could be much better spent on other regional priorities, such as improvements to I-85.</p> <p><sup>81</sup> Draft MTP at 8-4.</p> <p><sup>82</sup> See <i>Final Traffic Operations Technical Memorandum for 1-85, 1-485, US 29-74, and US 321 Under various Scenarios</i>, prepared for NCTA by PBS&amp;J (Sept. 2008), at 5-8, available at <a href="http://www.ncdot.gov/projects/gardenparkway/download/gardenpkwy_deis_FinalTraffiOpsTechMemoScen.pdf">http://www.ncdot.gov/projects/gardenparkway/download/gardenpkwy_deis_FinalTraffiOpsTechMemoScen.pdf</a>.</p> <p><sup>83</sup> See <i>Plaintiffs' Memorandum of Law In Support of Motion For Summary Judgment</i> (), attached, at 26-27.</p> <p><sup>84</sup> <i>Gaston East-West Connector Final EIS</i> at 2-69; see also <i>Gaston East-West Connector: Quantitative Indirect and Cumulative Effects Analysis</i>, prepared for NCDOT by the Louis Berger Group, at 4, 31</p> <p><sup>85</sup> <i>Id.</i></p> <p><sup>86</sup> <i>Id.</i></p> <p><sup>87</sup> See <i>State Defendants' Brief in Support of State Defendants' Crossmotion for Summary Judgment and in Opposition to Plaintiffs' Motion for Summary Judgment</i>, attached, at 12.</p> <p><sup>88</sup> Compare NCDOT Prioritization 3.0 Project Summary, ? (<i>New Route -Garden Parkway (Toll)</i>), available at <a href="https://connect.ncdot.gov/projects/planning/STI%20Results/H129632.pdf">https://connect.ncdot.gov/projects/planning/STI%20Results/H129632.pdf</a>; NCDOT Prioritization 3.0 Project Summary, 1-85, available at, <a href="https://connect.ncdot.gov/projects/planning/STI%20Results/H129671.pdf">https://connect.ncdot.gov/projects/planning/STI%20Results/H129671.pdf</a>.</p> <p><sup>89</sup> N.C.G.S. § 136-189.11 (d)(1)(b).</p> <p><sup>90</sup> See, e.g., <i>Monroe Connector/Bypass Draft Supplemental Environmental Impact Statements</i> at 3-10-3-11, available at <a href="http://www.ncdot.gov/projects/monroeconnector/download/MonroeDSFEISSec3PrefAltFINAL.pdf">http://www.ncdot.gov/projects/monroeconnector/download/MonroeDSFEISSec3PrefAltFINAL.pdf</a>. (August 3, 2010), available at <a href="http://www.ncdot.gov/projects/gardenparkway/download/Gaston_QuantitativeICE_Aug2010.pdf">http://www.ncdot.gov/projects/gardenparkway/download/Gaston_QuantitativeICE_Aug2010.pdf</a>.</p>		
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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>B. Non-Highway Funding</b></p> <p>We are also quite concerned that GCLMPO has opted to designate 0% of its Regional Impacts funds to non-highway projects.<sup>93</sup> GCLMPO should be aware that many non-highway projects such as commercial aviation, public transit spanning two or more counties, and both passenger and freight rail services spanning more than one county can all be funded under the Regional Impacts tier.<sup>94</sup></p> <p>And GCLMPO has outlined many non-highway needs that could be served by such projects, such as expanded transit connections between Gaston, Cleveland, and Lincoln Counties and to job centers in Mecklenburg County,<sup>95</sup> as well as expanded aviation and freight rail needs.<sup>96</sup> We strongly encourage GCLMPO to consider whether a larger percentage of allocated non-highway funds would better address the region's transportation needs.</p> <p>We are pleased to see a much more ambitious percentage (13%) of Division Needs funds allocated toward non-highway projects.<sup>97</sup> However, it appears from the Draft Financial Plan that this percentage is devoted entirely bicycle and pedestrian projects.<sup>98</sup> If GCLMPO does choose to include additional non-highway projects into its Financial Plan, we encourage GCLMPO to consider submitting some of these non-highway projects for funding under the Regional Impacts tier. As we have noted above, the STI funding formula allows higher tier projects to cascade down to utilize lower tier funding if such cascading is justified by the project's rank. As such, much of the lower tier Division Needs funding may ultimately be tied up in more Regional Impact projects, perhaps leaving little funding for smaller scale Division Needs non-highway projects.</p> <p><sup>93</sup> Draft MTP at 15-3.  <sup>94</sup> N.G.G.S. § 136-189.10.  <sup>95</sup> See, e.g., Draft MTP at 2-2.  <sup>96</sup> See Draft MTP at Chapters 12 and 13.  <sup>97</sup> Draft MTP at 15-4.  <sup>98</sup> Draft MTP at 15-4.</p>	The funding distribution in the 2040 MTP was based on the legal requirements contained in NC HB 817. The MTP includes projects to construct greenways throughout the greater GCLMPO area. It also supports the concept of "complete streets"-designing streets to accommodate all users, including pedestrians and pedestrian projects.	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>C. Highway Ranking Methodology</b></p> <p>We also encourage GCLMPO to adopt a highway ranking methodology that better incorporates the guiding goals and objectives articulated in the MTP. GCLMPO's ranking methodology focuses almost entirely on existing congestion, existing safety, cost effectiveness, freight volume, and transportation plan consistency.<sup>99</sup> In fact, out of a 100 possible points, only 5 points are allocated to "multimodal accommodations."<sup>100</sup> We encourage GCLMPO to reconsider how this ranking methodology could better square with its goals guiding this MTP, such as by considering additional metrics that would address the overall sustainability and equity of the transportation network. For example, CRTPO's MTP Roadway Ranking methodology includes a Tier II evaluation that considers how projects address the sustainability of the overall transposition system through factors such as environmental justice impacts, as well as impacts to natural, cultural, and historic resources.<sup>101</sup></p> <p>Additionally, we are concerned that the "existing congestion" metric receives an overly heavy weight under GCLMPO's scoring system (up to 25 points),<sup>102</sup> and may not ultimately lead to the congestion relief desired by the MPO due to, among other factors, Braess's paradox, by which the addition of lanes to heavily congested roads leads only to additional trips, and not, ultimately, to congestion relief.</p> <p><sup>99</sup> Draft MTP at 15-5.  <sup>100</sup> Draft MTP at 15-5.  <sup>101</sup> CRTPO, Metropolitan Transportation Plan Roadway Ranking Methodology, available at <a href="http://www.crtpo.org/PDFs/LRTP/2040/LRTP%20Roadway%20Project%20Ranking%20methodology.pdf">http://www.crtpo.org/PDFs/LRTP/2040/LRTP%20Roadway%20Project%20Ranking%20methodology.pdf</a>.  <sup>102</sup> Draft MTP at 15-5.</p>	Comment noted	Plan / Conformity



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Kym Hunter & Kate Asquith	Southern Environmental Law Center	601 W Rosemary St Suite 220 Chapel Hill NC 27516	kasquith@selcnc.org	27-Mar	<p><b>IX. Draft Air Quality Conformity Determination Report</b></p> <p>We also welcome the opportunity to comment on the Metrolina Region's draft Air Quality Conformity Determination Report. As the conformity determination demonstrates that the total emissions projected for the MTP are within established emissions limits, it is very important that the modeling used to estimate emissions accurately reflect the plan. As we have expressed in our recent comments on CRTPO's draft MTP,<sup>103</sup> we remain concerned that the Metrolina Regional Travel Demand Model ("MRM") is insensitive to the presence of the proposed Monroe Connector/Bypass or other projects like it.</p> <p>As explained in the report, the planning assumptions and travel forecasts used in the draft conformity analysis were based on the use of the MRM, a travel demand model.<sup>104</sup> We appreciate, as CRTPO staff has explained, that the agencies developing the conformity report have used the MRM to simulate the conditions for "(collectively) the network of projects expected to be open to traffic by each MTP horizon year," rather than performing analyzes for each project individually.<sup>105</sup> However, our understanding is that the socioeconomic projections underlying the full network analysis must accurately reflect the presence of each individual project in the network in order to be an effective representation of the MTP's effects on air quality.</p> <p>But NCDOT and FHWA have found that the various models used to develop the MRM socioeconomic projections are insensitive to the presence or absence of the Monroe Bypass, a major new location highway project. In their recent re-analysis of the project, NCDOT and FHWA explained that while the MRM socioeconomic projections were adjusted for some specific projects, such as the Garden Parkway, no such adjustments were made to account for the Monroe Bypass.<sup>106</sup> As such, the agencies and their consultant found that the MRM itself was "blind to the accessibility impacts of the project,"<sup>107</sup> and appropriate for use in their No-Build Scenario for their environmental analysis of the Monroe Bypass.<sup>108</sup></p> <p><i>Continued on next page....</i></p>	The Metrolina Regional Model (MRM) used to develop the 2040 MTP includes all projects in the fiscally-constrained transportation plan, including the Garden Parkway.	Plan / Conformity



				<p><b>(IX. Draft Air Quality Conformity Determination Report Continued.)</b></p> <p>The modeling used to determine conformity necessarily must include all projects on the fiscally constrained plan, yet it remains unclear whether the MRM accurately reflects the air quality impacts that can be expected from constructing the Monroe Bypass. Similarly, the claims made by NCDOT and FHWA raise the issue of whether other major transportation projects were also absent from the socioeconomic projections underlying the model. We encourage GCLMPO to clearly articulate whether the socioeconomic projections underlying the MRM include the Monroe Bypass specifically, as well as the other projects listed in GCLMPO's fiscally constrained plan, and further, whether the MRM reflects a future with the Bypass and all other projects in the MTP.</p> <p><sup>103</sup> Letter from Kym Hunter and Kate Asquith, SELC, to Robert Cook, CRTPO, <i>Comments on CRTPO's 2040 Metropolitan Transportation Plan and Air Quality Conformity Determination Report</i> (Mar. 19, 2014).</p> <p><sup>104</sup> Draft Conformity Report at 22.</p> <p><sup>105</sup> Letter from Robert Cook, MUMPO, to Kym Hunter, SELC, <i>2008 Ozone Conformity Determination</i> (June 20, 2013).</p> <p><sup>106</sup> Monroe Connector/Bypass Draft Supplemental Final Environmental Impact Statement at 4-27.</p> <p><sup>107</sup> <i>Id.</i></p> <p><sup>108</sup> <i>Id.</i> at 4-28.</p>		
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Joel Long and John Kimbrell	Gaston Regional Chamber of Commerce	601 W. Franklin Boulevard, Gastonia, NC 28052		12/3/2013	<p>Mr. Joe Carpenter, Chair Gaston-Cleveland-Lincoln Metropolitan Planning Organization James B. Garland Center 150 S. York Street, 2nd Floor Gastonia, NC 28052 Dear Chairman Carpenter and other members of the GCLMPO:</p> <p>On behalf of our 800 business members, the Board of Directors of the Gaston Regional Chamber of Commerce continues our strong endorsement of the North Carolina Turnpike Authority's plans for the Garden Parkway. This has been a long, ongoing project that will ease congestion of large numbers of trucks and cars traveling along the Interstate 85 corridor and provide an additional route in case of an emergency. The Garden Parkway will have a major economic impact to Gaston and Mecklenburg Counties and the State of North Carolina by providing direct access to Charlotte-Douglas International Airport and its proposed Intermodal Offloading Facility which is currently under construction and scheduled to be opened in 2014. The business community is concerned that without the Parkway access increased truck traffic from the intermodal terminal would overcrowd I-85 South which could cause frequent accidents and diminish the ability of I-85 to function as a Strategic Highway Corridor.</p> <p>As you are aware, the General Assembly changed the way in which transportation projects will be constructed by adopting the State Transportation Improvement Program (STIP). It is our understanding that the STIP priority list come out in January and after that time the Garden Parkway, along with other projects will be evaluated based on their criteria. It is our hope that the GCLMPO will continue their current path and submit the Garden Parkway project for scoring under the new Strategic Investment Formula.</p> <p>The Gaston Regional Chamber of Commerce also supports the idea of submitting the widening of I-85 to the STIP as well. While we believe the widening of I-85 is necessary in the future it should not take priority over the construction of the Garden Parkway. The Garden Parkway will offer an additional route which will help alleviate traffic off I-85 and will assist with traffic congestion during its widening phase.</p> <p>Thanks for your leadership and please feel free to contact us if you have any questions or comments. Cordially yours, John Long</p>	Comment noted	Plan / Conformity



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2040 MTP  
(8 Hour Standard)  
Gaston-Cleveland-Lincoln  
Metropolitan Planning Organization

