



COLUMBIA AREA
TRANSPORTATION
STUDY (COATS)

MOVING THE MIDLANDS
2040 LONG RANGE
TRANSPORTATION PLAN



Planning and Investing in our future | 30-Year Transportation Plan



**ADOPTION OF THE COLUMBIA AREA TRANSPORTATION STUDY METROPOLITAN
PLANNING ORGANIZATION 2040 LONG RANGE TRANSPORTATION PLAN**

WHEREAS, the Columbia Area Transportation Study is the urbanized area Metropolitan Planning Organization (MPO) as required by the Moving Ahead for Progress in the 21st Century (MAP-21) federal legislation to complete and maintain a Long Range Transportation Plan (LRTP); and

WHEREAS, the 2040 Long Range Transportation Plan addresses all modes of transportation in the urbanized area, has a horizon year of at least 20 years, and is fiscally constrained; and

WHEREAS, the Columbia Area Transportation Study (COATS) Metropolitan Planning Organization (MPO) has found the 2040 Long Range Transportation Plan to be in conformance with the South Carolina State Implementation Plan for maintenance of the National Ambient Air Quality Standards; and

WHEREAS, the Central Midlands Council of Governments Board of Directors which also serves as the MPO Policy Committee has provided for a 30-day public comment period for the 2040 Long Range Transportation Plan; and

WHEREAS, the 2040 Long Range Transportation Plan has been developed and reviewed by the MPO staff, member agencies, affected stakeholders, and the general public through the MPO transportation planning process and their recommendations have been found to be consistent with the principles of sound transportation planning practices; and

WHEREAS, the 2040 Long Range Transportation Plan has been developed in a manner that meets and exceeds the requirements of Title 23, Section 134 of the United States Code.

NOW THEREFORE BE IT RESOLVED that the attached 2040 LRTP is hereby approved by the Central Midlands Council of Governments; and,

BE IT FURTHER RESOLVED that the Central Midlands Council of Governments is working in coordination and consultation with other funding agencies to maximize the use of federal, state, and local funds that can be used to support and improve transportation projects and initiatives.

CERTIFICATE the undersigned is the duly qualified Executive Director of Central Midlands Council of Governments, and hereby certify that the foregoing is a true and correct copy of a resolution adopted at a meeting of the Central Midlands Council of Governments held on August 27, 2015.

Roger Gaddy, Chairman
Central Midlands Council of Governments

Benjamin J. Mauldin, Executive Director
Central Midlands Council of Governments

Witness

Witness

MOVING THE MIDLANDS
2040 LONG RANGE TRANSPORTATION PLAN
FOR TRANSPORTATION PLANNING
IN THE
COLUMBIA METROPOLITAN PLANNING AREA
APPROVED BY THE POLICY COMMITTEE OF THE
COLUMBIA AREA TRANSPORTATION STUDY
AUGUST 27, 2015

Revision #

Approval Date

Public Review & Comment

REVISION SUMMARIES

REVISION 0

Moving the Midlands

2040 Long Range Transportation Plan

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CHAPTER 1: 2040 LONG-RANGE TRANSPORTATION PLAN

1.1 INTRODUCTION

The Columbia Area Transportation Study (COATS) Metropolitan Planning Organization (MPO) 2040 Long-Range Transportation Plan (LRTP) serves as the comprehensive plan for transportation investment to support the safe and efficient movement of people and goods within the Columbia urbanized area through the plan horizon year of 2040. The 2040 LRTP is the Metropolitan Planning Organization's (MPO) primary transportation policy document. It establishes the purpose and need for major projects included in the Federal transportation funding program, identifies activities to address major transportation issues, and prioritizes investments in the transportation system.

Some pertinent Federal requirements of the 2040 LRTP are as follows. These are defined in more detail in subsequent sections of the document.

A minimum 20-year plan horizon is required;

- The plan must be fiscally constrained; that is, activities are prioritized relative to realistic projections of available financial resources (Federal, state, local, and in some cases, private) out to the LRTP horizon year (2040);
- The plan identifies policies, strategies, and projects for the future;
- The plan focuses at the systems level, including roadways, transit, non-motorized transportation, and intermodal connections;
- The plan must be consistent with the statewide long-range transportation plan; and
- The plan must be updated every five years in air quality attainment areas (every 4 years in nonattainment).

The 2040 LRTP serves as an update of the most recent 2035 LRTP (updated in 2008), in accordance with the five-year update required for air quality attainment areas by Federal transportation legislation – Moving Ahead for Progress in the 21st Century (MAP-21).

The 2040 LRTP update addresses a number of transportation challenges:

- Future Federal transportation funding levels are uncertain. As of this writing, the current transportation funding legislation, MAP-21, has expired and is being maintained through short-term continuing resolutions; the timing on the reauthorization of a transportation bill is unknown.
- Existing transportation facilities require a significant portion of anticipated resources to be maintained. Unless funding assumptions are dramatically revised, the region can realistically expect a general decline in the quality of its infrastructure.
- Diversification of investments beyond the roadway system into transit (both bus and fixed-guideway) and bicycle-pedestrian facilities is sorely needed to ensure expanded choice for households that own a car and reasonable mobility for households without a car.
- The 2040 LRTP utilizes new tools, including a new travel demand model;
- The 2040 LRTP expands its scope beyond roadway capacity, to explore appropriate levels of investment in transit, bicycle-pedestrian facilities, and preservation of the existing system at acceptable levels; and
- For the first time, the long-range plan considers the national trend of performance-based planning to support more effective project selection and programming decisions. A performance framework of LRTP goals, objectives and associated performance measures was established to guide plan development, with the intent to provide a more structured means to identify and prioritize transportation improvement strategies that best support attainment of long-term transportation goals. Transportation strategies and specific projects were screened through a process that considered the plan's performance framework, public input, and financial considerations. The result is a fiscally constrained, phased program of projects to improve the transportation system over the 2040 LRTP horizon.

The 2040 LRTP was developed around a core set of steps that include:

- **Defining investment needs.** Needs analysis typically occurs for both current-year travel conditions, given existing transportation infrastructure and available system capacity, and projected travel conditions, assuming certain changes in land use, population and employment growth over time.

- **Defining long-range transportation goals and objectives and a complementary set of evaluation criteria to measure the contribution of planned investments towards achieving the goals.** For the 2040 LRTP, a detailed performance-based planning approach was developed to ensure investment decisions were made in the context of attaining stated goals and objectives.
- **Defining specific policy statements to guide investment decisions.** Policy statements typically address short-term transportation needs as well as long-term mobility and development goals.
- **Identifying and evaluating potential transportation investment solutions.** Details related to the 2040 LRTP evaluation process has been provided.
- **Gathering input from stakeholder groups, the general public, and a spectrum of planning partner agencies.** This outreach is intended to ensure the transportation plan is vetted appropriately and developed with multiple perspectives in mind. Outreach activities are summarized in the public participation plan.
- **Matching available transportation revenue to cost for proposed projects (and programs) in the 2040 LRTP, to ensure it is fiscally constrained.** This fiscal leveling process is defined in detail in Chapter 18.

The Central Midlands Council of Governments (CMCOG) hosts the COATS MPO. Elected representatives from the CMCOG member governments, staff members of various transportation, environmental, and resource agencies, local stakeholders, and interested citizens participated directly in the development of the 2040 LRTP. It was developed in accordance with MAP-21 planning regulations. In accordance with Federal planning regulations, the 2040 LRTP reflects latest available land use, population and employment, travel and economic activity assumptions. It identifies long-range transportation goals and specific long- and short-range investment strategies across all modes of transportation to support meeting those goals. It is fiscally constrained, and supports regional land use and economic development policies and plans. The horizon year for the plan is 2040, in accordance with the MAP-21 requirement for a minimum 20-year planning timeframe.

1.2 METROPOLITAN PLANNING ORGANIZATION

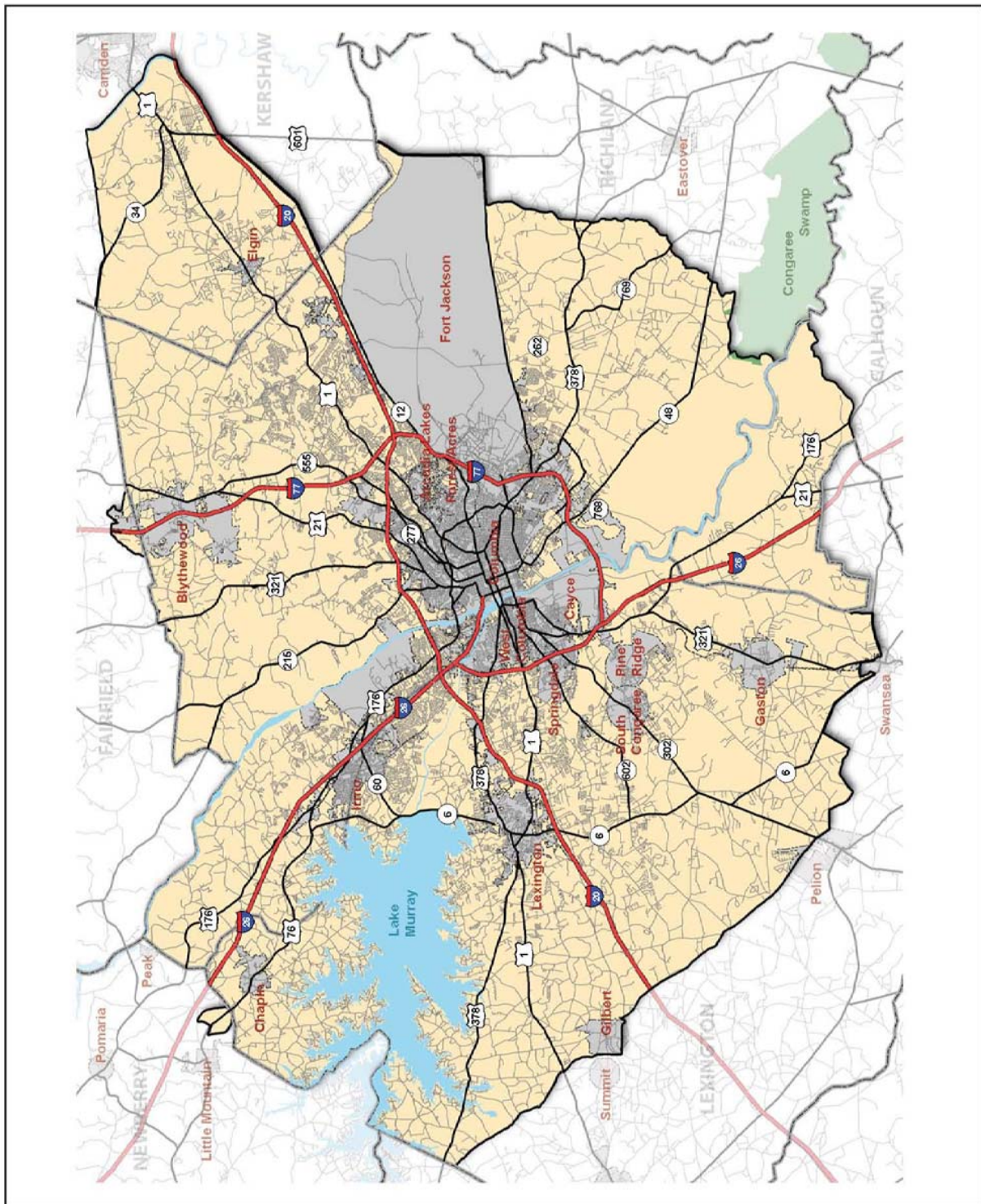
Each urbanized area in the United States with a population of 50,000 or more, is required by Federal regulation to have a designated Metropolitan Planning Organization (MPO) with the responsibility of conducting a continuing, cooperative and comprehensive transportation planning process. The MPO is responsible for transportation planning in the area defined by the most current 10-year census as being urbanized, plus the area anticipated to be urbanized in the next 20 years. This area is known as the Metropolitan Planning Organization (MPO). The present MPO is based on the most recent 2010 census and includes portions of the Richland, Lexington, Newberry, Fairfield, Calhoun, and Kershaw Counties (Reference Figure 1.1). The COATS MPO comprises approximately 1,200 square miles and a (year 2010) population of 647,091.

For MPOs such as the COATS MPO, which serve an urbanized population greater than 200,000, they are further classified as a Transportation Management Area (TMA). These areas have additional Federal requirements for planning, monitoring, and maintaining the transportation system.

In the MPO, the Central Midlands Council of Governments hosts the MPO. The CMCOG is composed of a Policy Committee, Transportation Subcommittee, and a Technical Committee. The MPO Policy Committee consists of elected and appointed policy officials from 14 local governments, representatives from the transit agencies, a county government from another Council of Governments district, as well as (nonvoting) representation from the South Carolina Department of Transportation, FHWA, and FTA. The CMCOG Board of Directors serves as the MPO Policy Committee and decides how the Federal Planning Funds (PL), Transit Planning Funds, and Federal Surface Transportation Program-Urban (STP-U) Funds will be spent within the urban area. The Policy Committee approves the MPO Work Program, Transportation Improvement Program, Long Range Transportation Program & adopts plans and programs prepared by the MPO staff. The Transportation Subcommittee consists of elected and appointed officials that are responsible for reviewing and approving items before they are sent to the CMCOG Board of Directors. The Technical Committee consists of planners and engineers from local governments and public agencies within the MPO planning area and serves as an advisory committee to the Transportation Subcommittee.

The MPO staff coordinates and administers these official committees, their meetings and leads development of all federally required MPO products, including: the long-range transportation plan, short-range transportation improvement program, associated transportation conformity determinations (if required), the Unified Planning Work Program (UPWP), and the Congestion Management Process (CMP).

FIGURE 1.1: MPO BOUNDARY



The MPO is directly responsible for developing a long-range transportation plan and short-range transportation improvement program. These plans serve as the vehicles for addressing growth and travel demand issues in metropolitan areas throughout the country. They must be updated at a minimum every five years in air quality attainment areas like the COATS MPO (four years otherwise). Regional transportation planning by legislative definition must be comprehensive (including all modes), cooperative (involving a broad array of stakeholders and other interested parties), and continuous (ever improving and evolving). This “3-C” process directs cooperation across all levels of government to develop transportation plans which provide for comprehensive, multimodal strategies to improve regional transportation system performance.

Federal transportation planning provisions of MAP-21 list eight planning factors which must be considered as part of the transportation planning process for all metropolitan areas. These factors are summarized in Table 1.1.

TABLE 1.1: MAP-21 PLANNING FACTORS

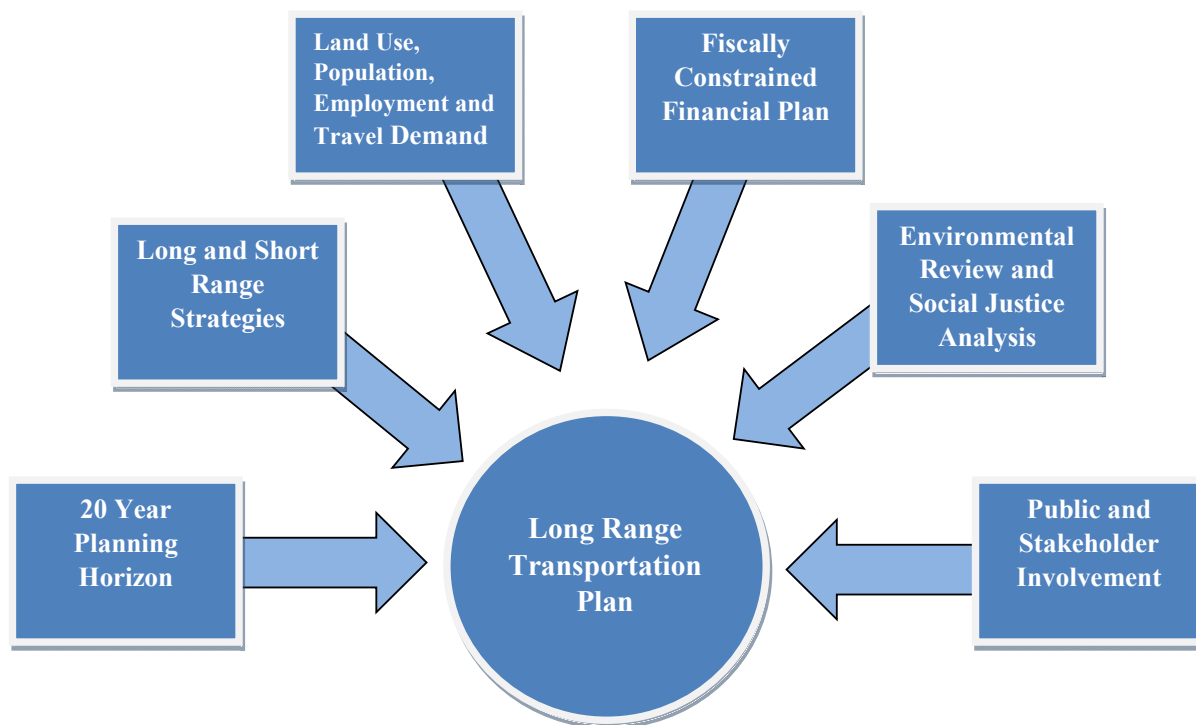
- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users.
- Increase the accessibility and mobility of people and for freight.
- 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.
- Enhance the integration and connectivity of the transportation system, across and between modes, people and freight.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.

The MAP-21 planning factors are codified in Title 23 Code of Federal Regulations (CFR) 450.306. Each has been considered as part of the 2040 LRTP development, as noted throughout various sections

of this document. The planning factors have been addressed as appropriate, given the scale and complexity of many of the issues, including transportation system development, land use, employment, economic development, human and natural environment, and housing and community development.

In addition to the eight planning factors, a number of more specific transportation planning provisions are defined in MAP-21 regulations that outline the various required elements of a long- (and short-) range transportation plan. These transportation planning requirements are codified in Title 23 CFR 450.322 and are referenced or footnoted throughout various sections of this document.

FIGURE 1.2: MAP-21 PLANNING REQUIREMENTS



Once a plan is drafted by an MPO and its Policy Committee, it is provided for formal public review and feedback. The MPO Policy Committee must then adopt the plan prior to sending to the Federal Highway Administration and Federal Transit Administration for review and approval.

The most recent update to the COATS long-range transportation plan was the 2035 LRTP, completed in 2008. The 2035 LRTP (2008 Update) was completed to address the minimum five-year transportation plan update requirement, as well as address the provisions of new MAP-21 planning regulations that were phased in during that time.

1.4 TRANSPORTATION CONFORMITY REQUIREMENTS

As defined by the Clean Air Act Amendments of 1990, the COATS MPO has met the National Ambient Air Quality Standard (NAAQS) for particulate matter and ozone. Currently, the counties of Richland, Lexington, Newberry, Fairfield, Calhoun, and Kershaw are considered to be in air quality *attainment area* under the annual NAAQS for particulate matter of 2.5 microns or less in size (PM_{2.5}); and under the current eight-hour ozone standard 0.075 parts per million (ppm).

1.5 TRANSPORTATION PLANNING PARTNERS

Transportation planning requires participation by transportation agencies at the local, regional, state and national levels, as well as users of the transportation system to achieve established goals and objectives. MPOs are the primary entity in the planning process and are ultimately responsible for adopting and implementing transportation plans.

The 2040 LRTP represents a cooperative effort of citizens, planners, engineers, and public officials, who work with the MPO in developing and maintaining the plan. Entities that participated in the planning process and development of the 2040 LRTP are listed below along with a brief description of their role in the planning process.

1.6 COLUMBIA AREA TRANSPORTATION STUDY METROPOLITAN PLANNING ORGANIZATION (MPO)

The Central Midlands Council of Governments hosts the COATS MPO. The MPO is responsible for the continuing, cooperative and comprehensive (3-C) transportation planning function required of urbanized areas in order to qualify for federal transportation funds. The MPO is responsible for complying with federal requirements pertaining to transportation planning as determined in transportation authorization bills.

The CMCOG Board of Directors serves as the MPO Policy Committee. They meet on a monthly basis to address the needs of the MPO. The CMCOG Policy Committee consists of elected and appointed policy officials from 14 local governments, representatives from the transit agencies, a county government in another Council of Government district, as well as (nonvoting) representation from South Carolina Department of Transportation. The CMCOG Board of Directors serves as the MPO Policy Committee and is responsible for approving the MPO Work Program, Transportation Improvement Program, Long Range Transportation Program & adopts plans and programs prepared by the MPO staff. The Transportation Subcommittee consists of elected and appointed officials that are responsible for reviewing and approval items before they are sent to the CMCOG Board of Directors.

The Technical Committee consists of planners and engineers from local governments and public agencies within the MPO planning area and serves as an advisory committee to the Transportation Subcommittee.

1.6.1 UNITED STATES FEDERAL GOVERNMENT

United States Department of Transportation – Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)

The FHWA and FTA are non-voting members on the MPO Policy Committee. They provide guidance in the interpretation and implementation of Federal regulations pertaining to transportation planning. FHWA, because it has an office in the city of Columbia, has a greater opportunity to participate in the planning activities of the MPO and is involved with most aspects of the transportation planning process.

1.6.2 STATE OF SOUTH CAROLINA

South Carolina Department of Transportation

The South Carolina Department of Transportation (SCDOT) is responsible for all interstates, U.S. Routes and state highways in the planning area. SCDOT has the responsibility together with the MPO and the Central Midlands Regional Transit Authority to conduct the 3-C planning process. It has the lead responsibility in the preparation of a statewide long-range transportation plan and a statewide transportation improvement program.

South Carolina Department of Health and Environmental Control

The South Carolina Department of Health and Environmental Control has the responsibility to oversee air quality planning and participate in the review of the air quality aspects of the COATS MPO regional transportation plans and programs, and transportation air quality conformity requirements.

1.6.3 MUNICIPAL AND COUNTY GOVERNMENTS

As part of the COATS MPO, portions of Richland, Lexington, Newberry, Fairfield, Kershaw, and Calhoun counties participate in the transportation planning activities of the MPO. Individual incorporated cities and towns included in the MPO within these counties are represented on the CMCOG Board and/or transportation committees.

1.6.4 Central Midlands Regional Transit Authority

The CMRTA operating as the Comet is responsible for providing the COATS MPO public transit service. The CMRTA, as the public transit system operator, is included in the transportation planning process and is represented on the COATS Policy Committee. As the public transit service provider, it is responsible together with the MPO and the state for conducting the 3-C planning process.

1.6.5 PRIVATE SECTOR AND NON-PROFIT AGENCIES

Under MAP-21 legislation, grantees under the Elderly Individuals and Individuals with Disabilities (Section 5310) and the Large Urban Area Program (Section 5307) grant programs must meet certain requirements in order to receive funding. One of the requirements is that projects from the Job Access and Reverse Commute (Section 5307) and the New Freedom (Section 5310) components of the programs listed above must be part of a “locally developed Coordinated Public Transit-Human Services Transportation Plan.” This transportation plan is required to be developed through a process that includes representatives of public, private, and non-profit transportation services, human services providers, and the general public. CMCOG is in charge of administering this program in the Columbia urbanized area.

1.6.6 Outreach to Other Interested Parties

Private providers of transportation services:

- Ridesharing agencies
- Transportation safety agencies
- Traffic enforcement agencies
- Commuter rail operators
- Freight companies
- Railroad companies
- Environmental organizations
- Neighborhood associations
- Local health departments

- Other city, county, and municipal departments
- Advocacy groups
- Interested citizens
- Public schools
- Private schools
- Organizations representing the interest of the following:
 - Elderly people;
 - Minority populations;
 - Transportation agency employees;
 - Users of various modes of transportation;
 - Persons with disabilities;
 - Economically disadvantaged persons; and
 - Others underserved by the transportation system.

The 2040 LRTP document contained herein satisfies the required five-year update from the 2035 LRTP (2008 Update), while also ensuring a minimum 20-year planning horizon.

CHAPTER 2: 2040 LRTP PUBLIC PARTICIPATION PROCESS

The CMCOG Public Participation Plan requires a 30-day public comment period in order to adopt this 2040 LRTP. A three-pronged approach was used to gather public input during the public comment period. They include:

1. Stakeholder Interviews
2. Public Meetings
3. Continued Public Outreach

2.1 STAKEHOLDER INTERVIEWS

Interviews were held with individual community stakeholders throughout the MPO. The interviews provided critical background information prior to the public meetings. A range of perspectives was provided. Interviews were conducted with elected officials, local government staff, police and fire officers, emergency management officials, school and college representatives, members of various community organizations, residents, and business owners. While the primary focus of these one-on-one discussions was land use and mobility considerations, topics also included quality of life concerns, community sustainability, and economic development. These discussions provided key information and helped identify local planning issues.

2.2 PUBLIC WORKSHOPS

Two public meetings were conducted to gather additional public input for the 2040 LRTP update. On Wednesday, September 16, 2015, the public workshop was held at the Richland County Public Library. On Thursday, September 17, 2015, the second public workshop was held at Seven Oaks Park. Each meeting provided an opportunity for elected officials, government staff, and representatives from civic and community organizations, residents, business owners, and children to express their preferences, concerns, and vision for growth for the next thirty years in their respective county with a focus on transportation, land uses, and sustainability.

The public workshops included a presentation describing the 2040 LRTP update process, current and projected conditions of the region, and the design and lifestyle implications of transportation/land use planning. Using regional and national examples, the presentation provided the participants with a broad

perspective of how the region had grown historically, the implications of the various development patterns evident, and how it might grow in the future.

Participants were escorted through a series of maps and planning boards and provided further details about the 2040 LRTP. This methodology allowed for easy interaction and one on one conversations to address any specific questions. Participants expressed concerns about density, transportation improvements, transit, appropriate locations for future growth, and various improvements or uses needed in their communities. Tables were also provided for individuals to share their thoughts and provide written comments and questions.

2.3 CONTINUED PUBLIC OUTREACH

Efforts to gather public input and feedback is ongoing throughout the 2040 LRTP update process.

The comprehensive outreach effort includes the following:

- online and print newspaper advertisements;
- press releases to all local newspapers including minority language publications;
- flyers throughout the community and directly mailed to non-profit organizations;
- email invitations, notifications, and reminders;
- public presentations;
- meetings with interested individuals, focus groups, government staff, and civic organizations;
- posting of materials on the CMCOG website; and
- an online survey

2.4 PRESENTATIONS AND MEETINGS

The 2040 LRTP team met with various MPO committees, local governments, civic and environmental organizations, and private residents. Results from events and studies are posted on the website, and people and entities were notified of the availability of new information.

2.5 WEBSITE AND SURVEY

The website, www.centralmidlands.org, was provided to gather input and to continually inform the public. In addition to English, other languages were provided upon request so that all populations could easily participate in the process. A link to send email comments and a link to become part of the email list for updates and meeting notifications is also provided on the website.

An on-line survey is also posted on the website. The survey was created with the input of the member governments of the MPO and provided input throughout the 2040 LRTP process.

2.6 SURVEY RESULTS

The 2040 LRTP is based upon the following goals:

- Preserve, make safe, and improve utilization of the existing transportation system
- Enhance regional transportation mobility and accessibility
- Coordinate transportation system improvements to be consistent with regional values

The results of the 2040 survey revealed that:

- 54% of the participants support maintaining existing roads
- 78% of the participants support the installing of traffic calming devices
- 82% of the participants support improving intersections
- 68% of the participants support more public transit

In accordance with MAP-21, these results are indicative of the goals and objectives towards a multi-modal transportation network. They also support a transportation system management approach to addressing the needs and developing the solutions to meeting the goals and objectives of this 2040 LRTP.

CHAPTER 3: REGIONAL TRANSPORTATION POLICY

3.1 INTRODUCTION

An important component of the 2040 LRTP is the policy foundation that is used to guide plan development and help shape proposed system improvements that will address the transportation needs of the region. The policy statements documented below were developed through a series of stakeholder interviews conducted as part of 2040 LRTP development. Focused interviews were conducted to ensure that policy statements were developed in a collaborative forum, with multiple perspectives taken into account. Policy statements are intended to address both the MPO's transportation needs and stated goals and objectives for the LRTP, while addressing the many issues, needs and opportunities that were identified through the stakeholder interview process.

3.2 2040 LRTP POLICY STATEMENTS

Many of the following policies were directly implemented for the 2040 LRTP, while others will be used to shape the MPO work program and plan development in the future.

Goal #1: Preserve, make safe, and improve utilization of the existing transportation system

Policy 1 – Continue to promote the safety of both motorized and nonmotorized transportation users.

In addressing this policy, safety should be a key factor when identifying and prioritizing system preservation, capacity expansion and transit projects for the MPO's Long-Range Transportation Plan and the Transportation Improvement Program. In addition safety audits are encouraged during project design to identify potential safety enhancements that could be incorporated into each project.

Policy 2 – Maximize the efficiency of the existing transportation system in reducing congestion and enhancing the region's mobility through such alternatives as transportation demand management and operational enhancements in lieu of single occupant vehicle (SOV) capacity expansion projects.

In addressing this policy, the Congestion Management Process (CMP) will serve as a starting point for assessing non-SOV options for the plan.

Goal #2: Enhance regional transportation mobility and accessibility

Policy 3 – Expand focus on multimodal transportation options, building on the “Complete Streets” strategy, including transit, bicycling and pedestrian modes, identifying investment options in alternative modes to encourage diversion from congested highway corridors.

In order to be effective, this policy should incorporate an educational process through which the region gains an understanding of the behavioral and land use changes that would be required in conjunction with an expanded multimodal focus and subsequent acceptance and usage of alternative transportation modes. Possible strategies for addressing this policy would include transit-oriented development (TOD) and related programs that encourage walkable communities, as well as incentives to encourage alternative modes in conjunction with disincentives for SOV usage. In addition, a portion of traditional highway funds should be shifted to transit.

Policy 4 – Support the regional transportation authority which would serve as a comprehensive multicounty transit system.

The Central Midlands Regional Transit Authority (The Comet) serves as the catalyst for the continued development of a regional approach to transit. The MPO will continue its efforts to provide financial and technical support to the regional transit efforts to make public transportation more accessible.

Policy 5 – Encourage enhanced freight mobility through a combination of more efficient use of existing freight infrastructure and expanded freight infrastructure while taking advantage of opportunities to capitalize on freight mobility as an economic development incentive.

In conjunction with this recommendation, the region should identify and take advantage of potential funding programs for freight-related projects. In addition, the project evaluation process should continue to include freight-related performance measures to ensure the consideration of freight enhancing projects in the programming process. The region also should promote practices to facilitate freight movements that minimize impacts in a variety of land use and development environments.

Goal #3: Plan, design, and implement coordinated transportation system improvements to be consistent with regional values

Policy 6 – Promote the alignment of regional and local policies that ensure consistency across the region in terms of land use, economic development, and the efficient movement of both people and goods, while ensuring sustainable regional development.

The MPO should provide a forum for ensuring that local agencies understand the importance of making local decisions that support regional goals, with emphasis on smart growth concepts. In addition, both regional and local planning should reinforce the linkages between transportation, land use and economic development.

Policy 7 – Promote environmental stewardship and sustainability by supporting regional planning decisions that protect and enhance the environment, promote economic prosperity, ensure social equity, conserve natural resources, and enhance the region’s quality of life.

Consultation with environmental agencies on a regular and ongoing basis is a vital component of implementing this policy. In addition, a regional approach to integrated planning is essential in promoting a sustainable region.

Policy 8 – Promote a transportation system for the region that is secure for motorized and nonmotorized users, while at the same time playing a vital role in ensuring the security of the region in terms of disaster preparedness.

Coordination with Homeland Security, emergency management agencies and emergency responders is essential in implementing this policy.

3.3 PLAN DEVELOPMENT POLICIES

Policy 9 – Promote the use of new and innovative alternative financing strategies to better match the region’s changing multimodal needs.

For example, these strategies should include the allocation of a portion of traditional highway funds for transit. In addition, nontraditional funding sources should be explored, such as congestion pricing, public-private partnerships, as well as local revenue options.

Policy 10 – Continue to implement a performance-based approach to planning and programming to identify and prioritize projects.

Like other regions in the country, the COATS MPO will have more transportation needs than funding in the years ahead; therefore, they must make tough decisions regarding which projects to fund. A performance-based prioritization methodology will provide a transparent and quantitative means of project evaluation which will ensure accountability within the project selection process. This approach combines a benefit/cost type of analysis with an assessment of how well each potential project supports stated policy goals and objectives.

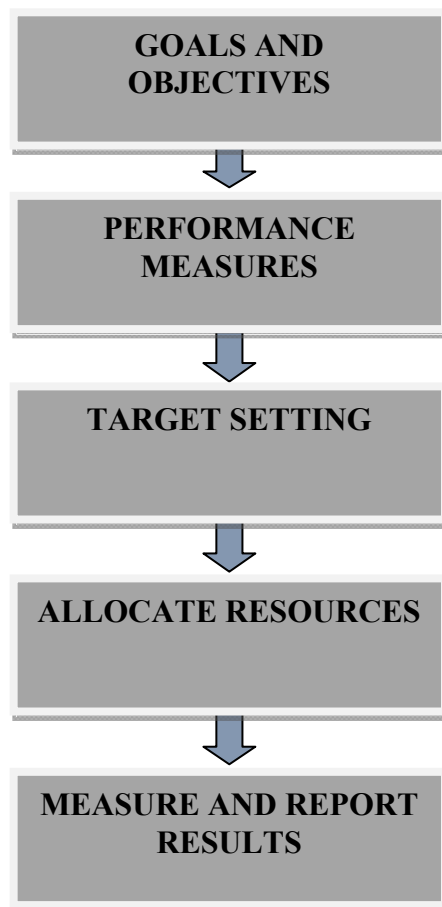
CHAPTER 4: LONG-RANGE GOALS, OBJECTIVES AND PERFORMANCE MEASURES: A PERFORMANCE-BASED PLANNING PROCESS

4.1 INTRODUCTION

Once transportation needs, both current and forecasted, are identified, the next step in plan development is defining an objective process to evaluate and select investment strategies that best address the regional needs. As part of the development of the 2040 LRTP, a *performance-based* planning process was developed to guide decisions regarding transportation investment in the COATS MPO.

Performance-based planning consists of five basic elements as illustrated in Figure 4.1.

FIGURE 4.1: ELEMENTS OF PERFORMANCE-BASED PLANNING



Establish Goals and Objectives. A goal is a general statement of purpose that reflects a desired end. An objective is an intermediate step required to reach a goal and is more focused and more easily measured.

Select Performance Measures. Performance measures are used to evaluate investment options and monitor progress towards achieving goals and objectives. The criteria for selecting measures often include: feasibility of calculating, policy sensitivity, ease of understanding, and usefulness in decision-making. They should help address questions such as:

- Are the proposed investment strategies helping to attain our longer-term transportation goals?
- Are we identifying and evaluating appropriate transportation strategies?
- Are we investing in transportation as efficiently and effectively as possible?

Identify Targets. A target is a specific value for a performance measure that an agency hopes to achieve.

Allocate Resources. In the context of long-range planning, resource allocation is the process of prioritizing projects based on their expected impact on system performance.

Measure and Report Results. From a long-range planning perspective, this step entails tracking progress towards overall goals and objectives, rather than tracking the performance of individual projects.

Throughout the U.S., the MPO community has become increasingly proactive in implementing performance-based planning over the last several years. MPOs must develop fiscally constrained long-range plans but with significant transportation funding issues having served as an immediate driver, many MPOs have begun to develop a more structured and transparent performance-based decision-making processes.

CHAPTER 5: 2040 LRTP PERFORMANCE-BASED PLANNING FRAMEWORK

To help implement a transparent, performance-based planning approach for the 2040 LRTP, a “performance framework” was designed to convey the following:

The key resource allocation steps that occur during the plan development process;

- The performance assessment that occurs at each step and how it is intended to inform the decisions made at that point; and;
- The linkage to long-range transportation goals and objectives, to ensure decisions are made with the desired end-state in mind.
- The framework developed for the 2040 LRTP addresses three key components. These components served as the main building blocks for the analysis conducted as part of the LRTP update effort and include:
 - **Network analysis** – Evaluation of the impact of different funding allocations across various transportation programs (e.g., roadway expansion, roadway preservation, transit, etc.) on the performance of the transportation network. This analysis was used to inform the preferred, relative distribution of funds across transportation investment areas.
 - **Corridor analysis** – Identification of corridors of greatest strategic importance for the region, based on objective criteria, to inform project evaluation for roadway projects. Note: for the transit program, this level of analysis involved development of a broader Transit Vision Plan to identify strategic, focus areas for transit investment (by geographic segment and transit mode, as opposed to only transportation corridor).
 - **Project analysis** – Evaluation and prioritization of proposed roadway and transit expansion projects.

Each level of the framework (network, corridor, project) defines a key decision point in the resource allocation decision-making process that occurred as part of 2040 LRTP development. Performance analysis at each level was conducted in the context of the long-range goals and objectives to ensure a common link to the planning direction for the 2040 LRTP.

5.1 GOALS AND OBJECTIVES

The first step in a performance-based approach is to define the MPO's long-term transportation goals and objectives. As a starting point for the 2040 LRTP, the goals and objectives established for the previous 2035 LRTP (2008 Update) were reviewed to assess if they should be updated. The existing goals and objectives had been vetted extensively through the 2035 LRTP planning process and were approved by both the MPO Policy and Technical Committees. As part of the 2040 LRTP update, the MPO conducted a subsequent review of the goals and objectives, but no changes were made. These goals and objectives are provided in Table 5.1.

For the previous and current LRTP, the goals and objectives align with MAP-21 planning factors to clearly demonstrate the link between the regional transportation plan and Federal planning requirements.

TABLE 5.1: 2040 LRTP GOALS AND OBJECTIVES

Goals	Objectives
<i>Goal 1:</i> Preserve, make safe, and improve utilization of the existing transportation system.	<p><i>Objective 1:</i> Maintain the existing network in a state-of-good repair.</p> <p><i>Objective 2:</i> Use cost-effective transportation system management, transportation demand management, intelligent transportation system, and operational improvements and techniques to increase the efficiency and safety of the existing transportation system.</p>
<i>Goal 2:</i> Enhance regional transportation mobility and accessibility.	<p><i>Objective 1:</i> Provide cost-effective transportation improvements to address identified mobility problems and reduce the growth in traffic congestion.</p> <p><i>Objective 2:</i> Provide appropriate travel options and choice for all users, including auto, transit, paratransit, bicycle, and pedestrian.</p> <p><i>Objective 3:</i> Improve accessibility to regional employment and activity centers.</p> <p><i>Objective 4:</i> Enhance connections between modes.</p> <p><i>Objective 5:</i> Support commercial goods movement within and through the region.</p>

<p><i>Goal 3:</i> Coordinate transportation system improvements to be consistent with regional values.</p>	<p><i>Objective 1:</i> Partner with state and local jurisdictions to ensure transportation and land use are complementary.</p> <p><i>Objective 2:</i> Enhance transportation system sustainability and minimize impacts of the transportation system to the built and natural environment.</p> <p><i>Objective 3:</i> Support regional economic development.</p> <p><i>Objective 4:</i> Support transportation security.</p>
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5.2 PERFORMANCE MEASURES

The next step in the performance-based approach is to define performance measures. Measures were selected based on the following guiding principles:

Measures should relate to the regional goals and objectives listed above;

Measures should vary based on the specific needs of the three key LRTP components – network analysis, corridor analysis, and project analysis;

Measures should rely only on existing and readily available modeling tools and resources; and

Measures should focus on a “vital few” – redundant and duplicative measures should be avoided, as well as measures that cannot be clearly communicated to decision-makers and the public.

Final performance measures used for 2040 LRTP will be developed in accordance with MAP-21 guidance. Details on how the measures will be applied as part of 2040 LRTP will also be developed. The measures will vary by level of analysis (network, corridor, project), given the type of resource allocation decision the measurement was intended to support. But measurement activities will always align with the broader goals and objectives of the 2040 LRTP.

5.3 TARGET SETTING

As part of the 2040 LRTP performance framework, the relationship between performance and budget was evaluated. This process provided decision-makers with an opportunity to reach consensus on an overall vision for transportation in the region and enable them to address two basic questions:

- Over the planning horizon, what is the preferred spending level among the following program areas – pavement preservation, bridge preservation, roadway expansion, bicycle and pedestrian facilities, transit, and operations and maintenance?
- What performance can be achieved with these spending levels?

The measures used for this analysis are network-level measures that link funding levels to system performance. The intent was to help decision-makers understand funding tradeoffs and establish relative priorities across program areas.

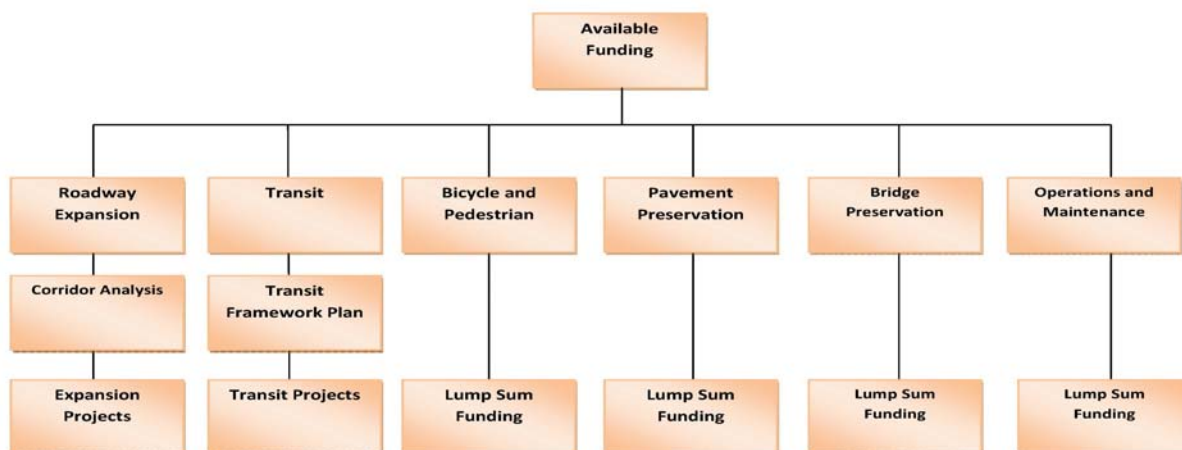
5.4 ALLOCATE RESOURCES

All levels of analysis (network, corridor and project) were applied to guide how resources are allocated in the 2040 LRTP. Results of the network and corridor analyses served as input into the project-level evaluation, with a final feedback loop between the total cost of projects and programs funded in the plan and the funding decisions made at the initial network step. Ultimately, the final set of projects and programs identified in the plan is intended to represent a cost-constrained set that reflects the funding targets developed during the network analysis.

5.5 MEASURE AND REPORT RESULTS

Figure 5.1 presents a set of performance framework that can be used for performance monitoring through 2040 LRTP implementation.

FIGURE 5.1: 2040 PERFORMANCE FRAMEWORK



CHAPTER 6: SOCIOECONOMIC ANALYSIS

6.1 INTRODUCTION

Over the course of the past several decades, the population of the Columbia area, like that of many mid-sized cities in the Southeastern United States, has grown rapidly and, as a result, has undergone a number of demographic and socioeconomic changes. The resultant growth in population has also caused residential and commercial development patterns to shift. Areas that were considered to be rural twenty years ago are now major regional residential and commercial hubs, while some older, more established areas have seen some out-migration, while others have undergone some gentrification.

As the population continues to grow and as these trends extend into the future, the Columbia area will be faced with a number of challenges to the functionality of its regional transportation system. Adequately planning for the region's future transportation needs will entail preserving mobility, providing accessibility, coupled with the protection of the natural and social environment. These goals are important for sustaining the long-term economic vitality of the region and enhancing its overall quality of life.

This chapter examines past, present and future growth and development trends and provides a discussion of social vulnerability and environmental justice issues.

6.2 POPULATION TRENDS

6.2.1 Historic and Existing Trends

In the years following the Second World War, residential growth in Columbia, like many similarly-sized American cities, was confined to the urban core of the city, with limited development occurring in the rural or suburban areas. In 1950, 63.6% of the population of Richland County resided in the urbanized area, which included the newly incorporated city of Forest Acres (incorporated in 1935). In the middle of the twentieth century, Lexington County was a predominantly rural county with a total population of only 44,279 in 1950 (compared with Richland County's population of 142,565), of whom only 27.5% resided in incorporated areas.

Over the course of the next two decades, as in most American cities, the population of the Columbia area continued to grow, but development trends were characterized by a rapid decentralization of the population from the urban core out into the newly constructed suburban neighborhoods. By 1970, the

central urban core of the Columbia had lost 13.0% of its population to the suburbs. By 2000, 78.8% of the population of Richland County resided in the urbanized area, as many formerly rural portions of the Greater Columbia Area had been transformed into major residential and commercial centers. By 2010, 84.3% of the population of the Greater Columbia was considered to be urbanized.

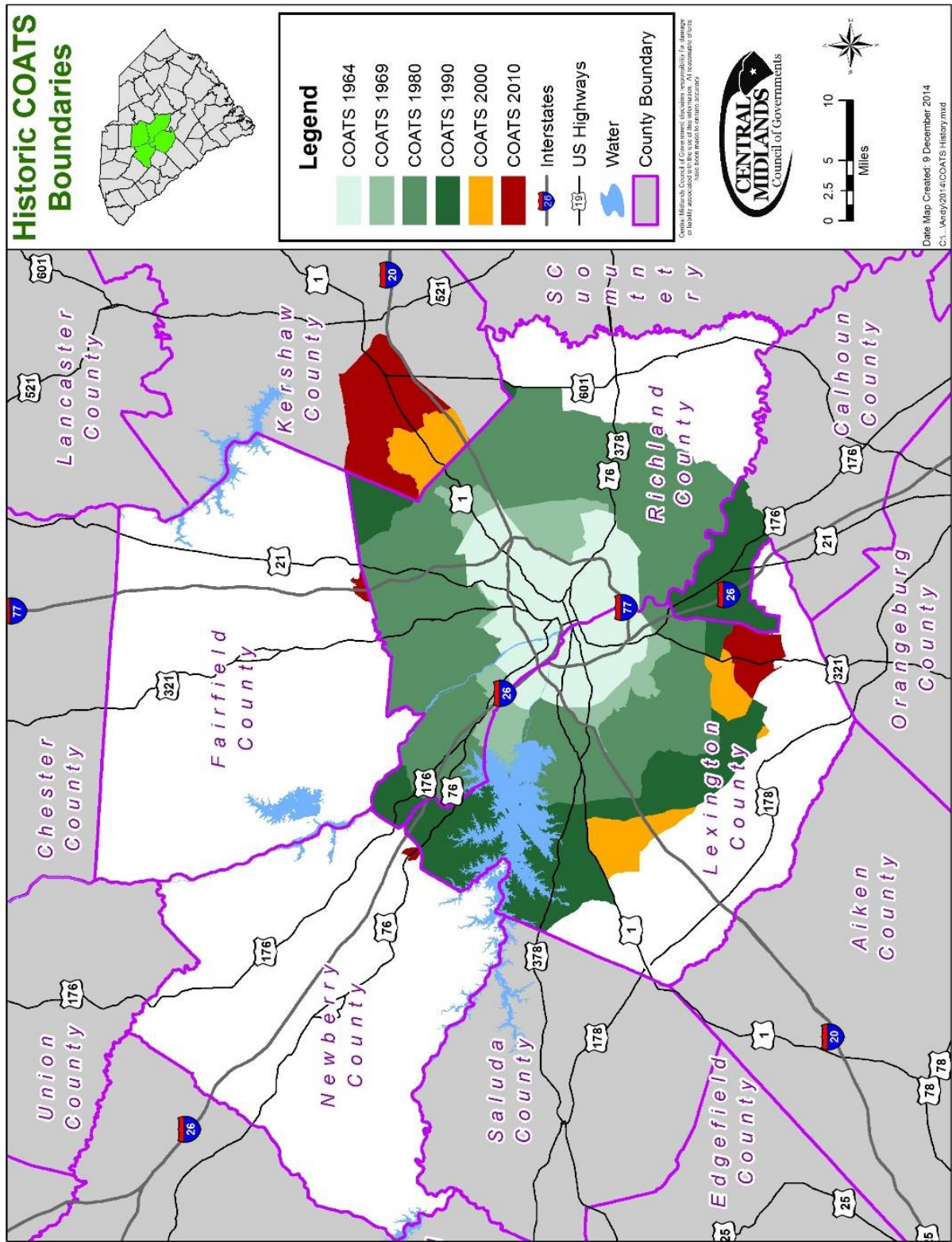
These resultant population shifts over the decades have caused the boundaries of the Columbia Area Transportation System (COATS) study area to expand to accommodate the existing and future growth of the Columbia urbanized area (See Figure 6.1).

In 1964, the original COATS study area had a total population of 195,973 and covered just 182 square miles. Just five years later, the Columbia region was showing signs of its growth potential, having expanded significantly to encompass an area of more than 750 square miles that included Fort Jackson, the Town of Lexington and the eastern portions of Lake Murray around Irmo. This boundary expansion caused the population of the 1969 COATS area to increase by 63.5% to 320,400.

The COATS study area boundary was further expanded in the late 1990s to include newer areas that had experienced rapid growth. The 1998 COATS Long Range Transportation Plan addressed the needs of 1,049 square mile study area with a population of 424,605. By the 2000 Census, the COATS area population had further increased to 496,625 persons, as it edged into Kershaw County for the first time.

After the most recent Census in 2010, the COATS study area boundary was expanded still further to total just over 1,200 square miles with a total population of 647,091 at the 2010 Census, which was estimated to have grown to 667,700 inhabitants by 2014. The current COATS study area now encompasses 580.74 square miles, or 75.2% of the total area, of Richland County; 470.9 square miles, or 62.1% of the total area, of Lexington County. The COATS area also now includes 90.5 square miles of western Kershaw County; 54.6 square miles of Calhoun County; 2.2 square miles of southern Fairfield County around the Town of Blythewood and 1.1 square miles of southeastern Newberry County near the Town of Chapin.

FIGURE 6.1: HISTORIC COATS BOUNDARIES



Over the past fifteen years, the southern United States has witnessed a population boom unlike anything seen elsewhere in the country. Between 2000 & 2010, the population of the southern United States grew by 14.3%, adding more than 14.3 million people over the course of the decade. The Columbia metropolitan area has been no exception to this trend, with new residential growth occurring at record rates in the mid-2000's. Between 2000 and 2013, 67,735 new residential housing units were permitted in the Greater Columbia area, with the peak occurring in 2006, when 8,875 residential units were permitted within the space of one twelve-month period, and the most ever recorded in the region. In comparison, 58,798 new units were approved for construction in the previous fifteen-year period; 8,937 fewer than in the last 14 years.

The reasons for the rapid population growth seen in the Midlands of South Carolina can be attributed to a number of factors:

- A favorable year-round climate and geographic location
- Plenty of available land for development for both residential and commercial purposes
- Relatively low cost of land and housing: The median home value in Columbia is 11.2% less than the National average, with median rental rates being 10.1% less than the National average.
- Comparatively low cost of living
- Lower property and business tax rates
- Good interstate connectivity
- Diversification of industry in new fields, such as automobile components, insurance, banking, hi-tech sector
- Presence of military installations (Fort Jackson, McEntire Air National Guard)
- Institutes of higher education (USC, Benedict College, Allen University, Midlands Technical College)

In 2014, South Carolina was ranked as the 3rd Best State in the USA in which to conduct business. The report, conducted by the business focus group "Area Development," ranked states according to the following criteria:

- Business Environment: the overall cost of doing business, incentive programs, corporate tax environment, cooperative state government, access to capital and project funding, speed of permitting and the most favorable regulatory environment
- Labor Climate: the availability of skilled labor, competitive labor costs, labor climate for right-to-work states, labor climate for non-right-to-work states, leading workforce-development programs
- Infrastructure and Global Access: distribution and supply-chain hubs, rail and highway access, certified sites/shovel-ready programs, competitive utility rates, energy reliability and smart-grid deployment, water outlook, including availability and cost

The Palmetto State long has been held in high regard by the economic development community, with companies citing South Carolina's primary advantages to be its low overall cost of doing business (site consultants ranked the state No. 1 in this regard). The state was also given especially high marks for its incentive programs, cooperative state government, and certified sites/shovel-readiness in the Area Development survey. Site consultants ranked South Carolina No. 2 for all three of the aforementioned factors.

The State of South Carolina's most consistent advantage is stated to be the quality of its workforce. South Carolina is a right-to-work state with a low unionization rate of 3.3 percent overall, and, at 1.3 percent, the lowest unionization rate in the United States for the private sector.

The state's ReadySC workforce training system includes recruiting, screening, training, and other aspects of workforce preparation was also cited as a major factor in its high ranking.

The rapid residential and commercial development seen in the Midlands has resulted in areas that were, until relatively recently, considered rural in nature, now being considered as some of the major growth areas within the region.

While some efforts have been made in recent years to promote new residential development in the urban core (particularly through the adaptive reuse projects of existing structures in the Downtown Columbia area), the majority of population growth has been suburban in nature. This suburban population growth is largely concentrated in the following areas:

- Northeast Richland County

- Lexington
- Irmo/Dutch Fork
- Blythewood
- Southeast Columbia
- Downtown Columbia

6.3 CHANGES IN POPULATION DENSITY

6.3.1 Northeast Richland

The Northeast Richland County area represents one of the best illustrations of this recent growth phenomenon in the Midlands of South Carolina. In 1970, this large, predominantly rural portion of Richland County had a total population of just 4,482 inhabitants and was characterized by large tracts of farmland, with the area's most identifiable feature being Clemson University's Sandhill Research Center on Clemson Road near the intersection with US 1. By 2000, the population of this sector had grown significantly, due to residential and commercial development spreading northeastward along Two Notch Road (US 1). Between 1970 and 2000, the population grew by a staggering 881% to 43,972 persons with this trend continuing through the 2010 Census. By 2010, the population of Northeast Richland had grown a further 66% to total 72,860. Growth is expected to continue in Northeast Richland, despite much of the area becoming built out. Estimated figures for 2014 place the population of the area at 77,615, which is expected to increase further to around 84,000 by 2020. As a result of the influx of new residents, the Northeast Richland area has undergone considerable economic and commercial changes with the addition of brand new retail facilities like the 300 acre Village at Sandhill, featuring a mix of retail, residential, recreational, hospitality, sports and commercial office venues. The Richland Northeast area has also seen a host of retailers and eateries relocate to the area from previous sites in older, first-ring suburban areas closer to Downtown, such as the area around Columbia Mall, Decker Boulevard and Parklane Road. More than 1,800 residential units have been permitted for construction in Northeast Richland since the 2010 Census. By 2040, the population of this portion of northeastern Richland County is expected to number approximately 92,500 persons.

6.3.2 Lexington

The area around the Town of Lexington, the county seat of Lexington County, located ten miles or so to the west of Columbia, has been the second major growth area in the Greater Columbia area over the past few decades. Since 1970, the population of Lexington County as a whole has increased significantly from 89,012 to 262,391 by 2010; an increase of 195%. This growth is a result of immigration into Lexington County both from within the Columbia Metropolitan area and outside it, as new residents flock to the Lexington area to take advantage of lower property taxes and land and housing prices, coupled with its proximity to Lake Murray, good schools and relatively short commute times into the City of Columbia via a well-connected interstate and highway system.

The Lexington area has seen the highest total population gain of any other subarea within the Greater Columbia area. Between 1970 and 2010, the population of the Lexington area increased from 12,297 persons to 82,772 in 2010. Current population estimates place the population of the Lexington subarea at approximately 91,000, due to the 3,844 new residential units that have been permitted for construction in this area since 2010. By 2040, the population of the Lexington area is expected to total in excess of 141,000 residents.

6.3.3 Irmo/Dutch Fork/Chapin

The Irmo/Dutch Fork area in the northwestern portion of the Columbia metropolitan area, is another sector that has seen strong development over the past several decades. The area, which includes the Town of Irmo and the Ballentine community, as well as being home to Columbiana Center and the economic hub that is Harbison Boulevard, was home to just 9,730 inhabitants in 1970. During the 1980's, the area began to develop, and at its peak between 1984 and 1994, saw an average of 700 new residential units permitted annually.

Since the mid-1990's, development has shifted to the north and east into the once rural Dutch Fork and Chapin areas. In 2000, the population of the Irmo/Dutch Fork sector had grown to 59,851; an increase of 50,121 persons in thirty years. The 2010 population of this area totaled 71,388, with the majority of that growth occurring in the Dutch Fork/Ballentine area. The area around the Town of Irmo saw its population decrease from 32,664 in 2000 to 26,162 in 2010, while the Dutch Fork area grew from 32,664 to 45,226 over the same ten-year span.

Since 2010, the Irmo/Dutch Fork area has seen an average of 538 new residential units permitted each year; 90% of which were located in the Dutch Fork portion on the subarea.

The area in and around the Town of Chapin in the northwestern-most part of this subarea has also seen significant development over the past twenty years. The lure of lakeside living is of significant appeal, coupled with highly-rated schools and has resulted in the population of the Chapin area increasing from just 2,039 in 1970 to 14,236 in 2010. 590 new single family homes have been permitted for construction in the Chapin area since the 2010 Census. The 2040 population of this area is projected to more than double to total close to 31,000 persons.

6.3.4 Blythewood

Growth in the Blythewood area is a direct result of its proximity to the neighboring Richland Northeast sector. Residential and commercial development has moved westward in this portion of Richland County over the course of the last decade. In 1970, the Blythewood area totaled 3,164 in population, which had grown to 12,720 by 2000. In 2010, the population of the Blythewood area had more than doubled to 27,222. Since the 2010 Census, a further 1,895 new residential units have been issued in the Blythewood area, with much residential growth seen in the past two years within the municipal limits of the Town of Blythewood.

The Blythewood area has undergone some changes in the major businesses that are located in the sector. In January, 2015, Bose Corporation, which employed 300 staff, announced that it would close in the fall of 2015. However, the area is still home to a number of major employers, such as the SC Department of Motor Vehicles and the SC Department of Public Safety, Belk, Amcor Plastics and Koyo Corporation. Economic development in this sector, which is bisected by I-77, US 21 and US 321, has been further augmented by the construction of a number of major retail establishments (Walmart and Lowes), followed subsequently by a number of automobile dealers (Midlands Honda, Jim Hudson Cadillac and Kia, Dick Dyer Toyota), the presence of which should continue to serve as a catalyst for further development in the coming years, with the population of the Blythewood area expected to rise to 43,974 by 2040.

6.3.5 Southeast Columbia

Long considered to be the next major growth area in the Columbia Metropolitan Area, the Southeast Columbia area saw its population levels stagnate in the 1980's and 1990's when its population increased by just 2,200 persons, from 27,890 in 1980 to 30,086 in 2000. By 2010, the area's population had grown steadily to 35,230.

Residential growth may be hampered by public perception of the sub-area, which has traditionally been considered a semi-industrial area, home to logistical and trucking companies and light

manufacturers, as well as being the location of the Alvin S Glenn Detention Center and the Richland County Animal Shelter. The area is also located on the southern periphery of Fort Jackson as well being bounded by swamp and marshland to the south along the Congaree River.

Recent building permit activity has seen an additional 333 residential units permitted for construction since 2010. The area around Williams-Brice Stadium has also become a hub for student housing and condominiums in the past decade, with more than 1,300 units constructed. A further 100 units are currently also planned for construction.

The increase in residential development has, in turn, had a positive impact on commercial development in the Garners Ferry Rd (US 378) corridor. Woodhill Mall is home to national retailers Target, World Market and Pier One, while the recently-developed Cross Hill Market, which includes trendy retailers and dining establishments such as Whole Foods, Ulta, Basil Thai and American Roadside Café.

Further east along US 378 lies the Hopkins community of Lower Richland County; an area that has also seen some recent development activity, with 375 new homes permitted between 2011 and 2014. Development has, however, tailed off in this sector in recent years, due in part to the economic recession of 2008-09, after which, several significant developments, such as the mixed-use project at Burnside Farms, failed to materialize. Despite this news, the South Columbia area continues to be one of the major growth areas of the region with the population expected to total around 37,051 by 2040.

6.3.6 Downtown Columbia

Despite the major suburban growth that has occurred throughout the Columbia Metropolitan Area, Downtown Columbia has also seen a resurgence in residential and commercial development in recent years. As a result, the Downtown Columbia is now seeing an increase in population for the first time in several decades.

In 1970, the population of the Downtown area was 19,137, which had declined to 14,587 by 2000. In 2010, the area's population had rebounded to 16,626 and is expected to continue to increase to around 20,000 in the next few years. Infill residential developments such as The Battery at Arsenal Hill. Redeveloped Central Correctional Prison, Canalside, City Club, Capitol Places and the Lofts at Lourie's, as well as the imminent redevelopment of the former mental health facility on Bull Street, will all serve to accommodate an influx of new residents who seek to enjoy the entertainment and

dining choices now offered along a revitalized Main Street and in the Vista, centered around Gervais Street.

The University of South Carolina will also continue to serve as a catalyst for future growth and development in the area. The new Greek Village on Blossom Street and the continued development of the University of South Carolina's Innovista research campus should continue to support USC's research initiatives and provide a steady stream of residents, consumers and employees, especially when IBM/Fluor's collaboration takes off, with its promise of 500 new hires.

From a residential perspective, the University of South Carolina will also have a positive impact through the construction of new student accommodations. August 2014 saw the opening of The Hub on Main, a 20 story high-rise (formerly the home of SCANA Corporation) that has been converted into off-campus student housing. This trend is continuing with the construction of a further 1,816 off-campus housing units being erected at seven different locations on or around the USC campus. This residential development, coupled with new economic developments announced along Main Street and Gervais Street, such as the renovated Fox Theater, home to the independent Nickelodeon art house cinema, Kaminsky's dessert bar, coupled with new redevelopment projects such as West End Alley, the City Market Antiques Mall, the Kline Center and the Adluh Mill as well as recent new construction projects such as the Hyatt Place Hotel on Gervais Street and the opening of the new planetarium at the South Carolina State Museum, are expected to cause the population of the Downtown area to rise to levels not seen in the area since the 1960's and 1970's. The population of the Downtown sector is expected to total in excess of 20,000 persons by 2040.

6.4 FUTURE TRENDS

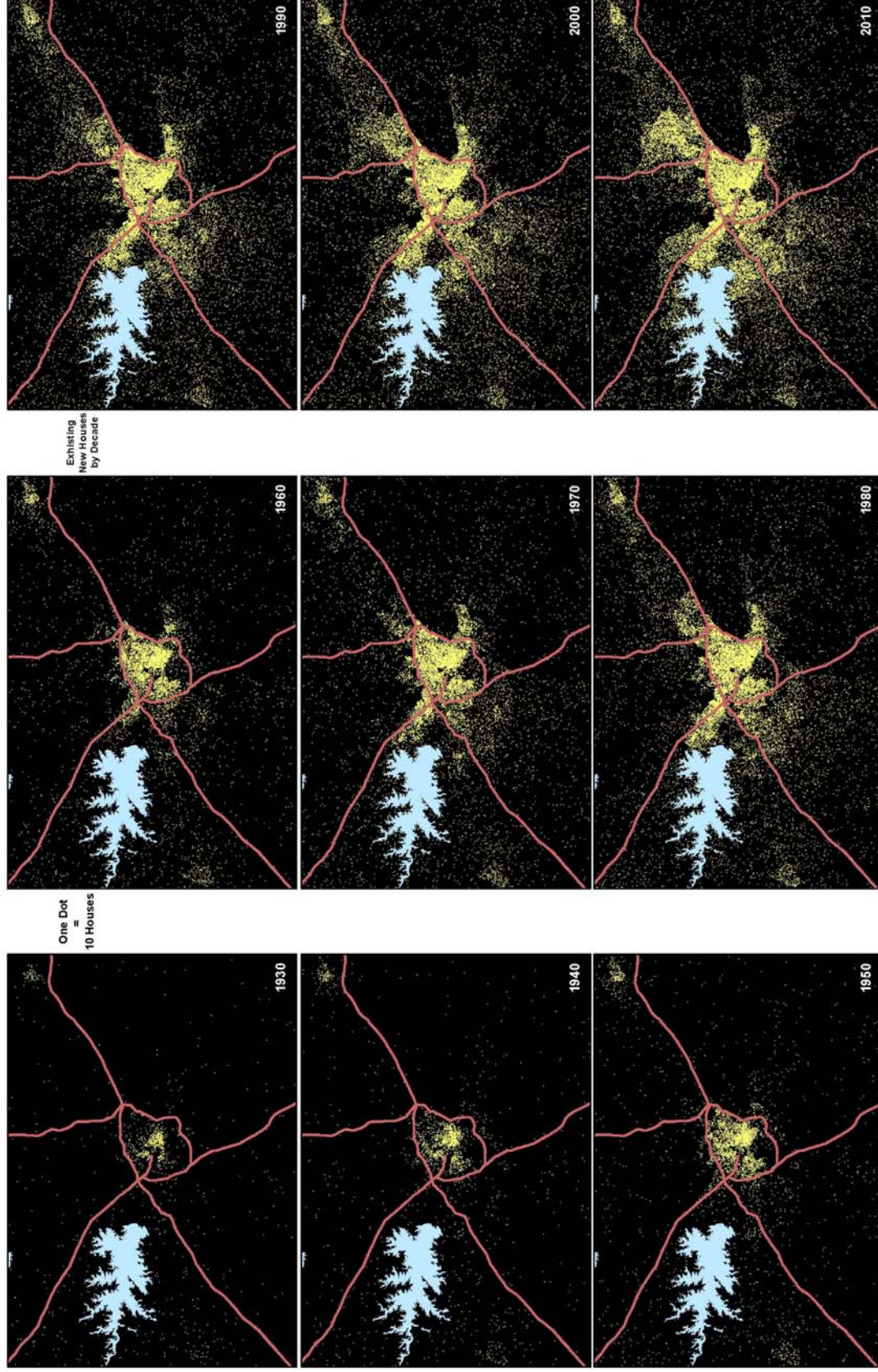
Over the course of the next thirty years, the growth and development trends outlined above are expected to continue. It is anticipated that the "hot spots" in the outlying portions of the metropolitan area will see the majority of the growth. In order to assess the impact this growth will place on the regional transportation system, socio-economic forecasts have been developed for the COATS planning area.

Base year numbers for 2010 were disaggregated to the Traffic Analysis Zone (TAZ) level from data obtained from the 2010 United States Census, while the projected horizon year data for 2040 was prepared utilizing a technical process consisting of two primary steps. First, a reliable set of county level control numbers were derived by reviewing and refining existing forecasts produced by credible sources, such as Woods & Poole and the South Carolina Office of Research and Statistics. These

control totals were disaggregated to the Census Tract level and then further refined to the Traffic Analysis Zone (TAZ) level of geography by analyzing a variety of growth and development trends from the following data sources:

- Historical and recent building permits (both by type and location of permit)
- Historical changes in the number of persons per household
- Mobile home locations
- Group quarter housing locations
- Residential demolitions
- Location of existing and planned water and sewer infrastructure
- Existing, committed and planned transportation improvements
- Available and developable land sites

FIGURE 6.2: URBANIZED AREAS THROUGH THE YEARS



In addition to being used specifically for the purposes of this Long Range Transportation Plan (LRTP), socio-economic data projections are routinely used by CMCOG staff and outside agencies as an essential data inventory resource for a wealth of other planning purposes and projects. CMCOG staff have recently provided data for use in a range of local and regional planning documents from local comprehensive plans, sub-area plans and other county and region-wide planning documents and projects.

Both the base and horizon year figures were reviewed by planning staff or each of the major jurisdictions with the Columbia Metropolitan Area to ensure accuracy and compatibility with other local planning efforts. The final 2010 and 2040 data sets were then presented to the CMCOG Board for their input and ultimate approval.

TABLE 6.1: POPULATION PROJECTION SUMMARY FOR THE COATS AREA

	2010 COATS	2040 COATS	% Change
Richland County	377,484	456,016	20.8
Lexington County	233,656	348,682	49.2
Kershaw County	29,081	46,561	60.1
Calhoun County	2,421	3,833	58.3
Fairfield County	2,031	2,372	16.8
Newberry County	2,418	2,973	22.6
Total Population	647,091	860,437	33.0

In the thirty-year period between the base year (2010) and the horizon year (2040), the population of the COATS study area is expected to increase by 33.0%. This increase represents a total increase of 213,346 persons over the thirty year period.

Geographically, the pattern and distribution of development expected to be seen in the COATS area is anticipated to follow the historic trends of the “hotspots” described earlier in this chapter. As illustrated in Figure 6.3, the overall trend can be characterized as an “X” pattern, with Downtown Columbia as the center point. The lines of the “X” extend outwards into the suburban portions of Richland and Lexington counties with some spillover into Kershaw County along US Hwy 1 and Interstate 20. Continued infill is also expected to take place within Columbia’s urban metro core.

FIGURE 6.3: “X” PATTERN OF GROWTH

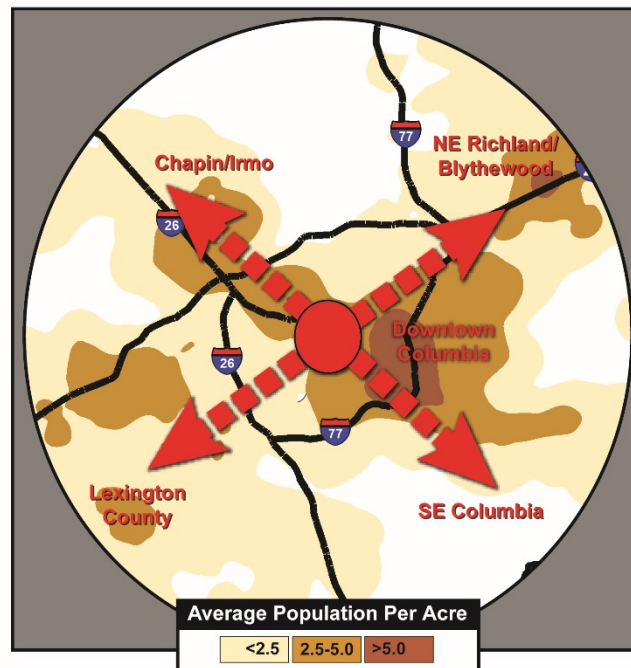


Figure 6.4 and 6.5 show population densities at the sub-area level of geography for the base year (2010) and the horizon year (2040), while Figure 6.6 depicts the change in population density over the 30 year life of the plan.

Downtown Columbia, including the established neighborhoods to the immediate north and east of the Central Business District (CBD), is expected to add just under 3,000 new residents by 2040, increasing the population of the Downtown area to around 20,000; numbers which have not been seen in Downtown Columbia since the 1970's. Northeast Richland County is expected to add a further 19,624 persons, raising the sector's population by 26.9% to 92,484. The population of the neighboring Blythewood and Elgin sectors is also expected to increase significantly. In Elgin, the fastest-growing portion of Kershaw County, the population is expected to nearly double in size over the course of the next thirty years from 29,081 to 46,561; an increase of 60.1%, while the population of the Blythewood area

FIGURE 6.4: 2040 POPULATION PER ACRE

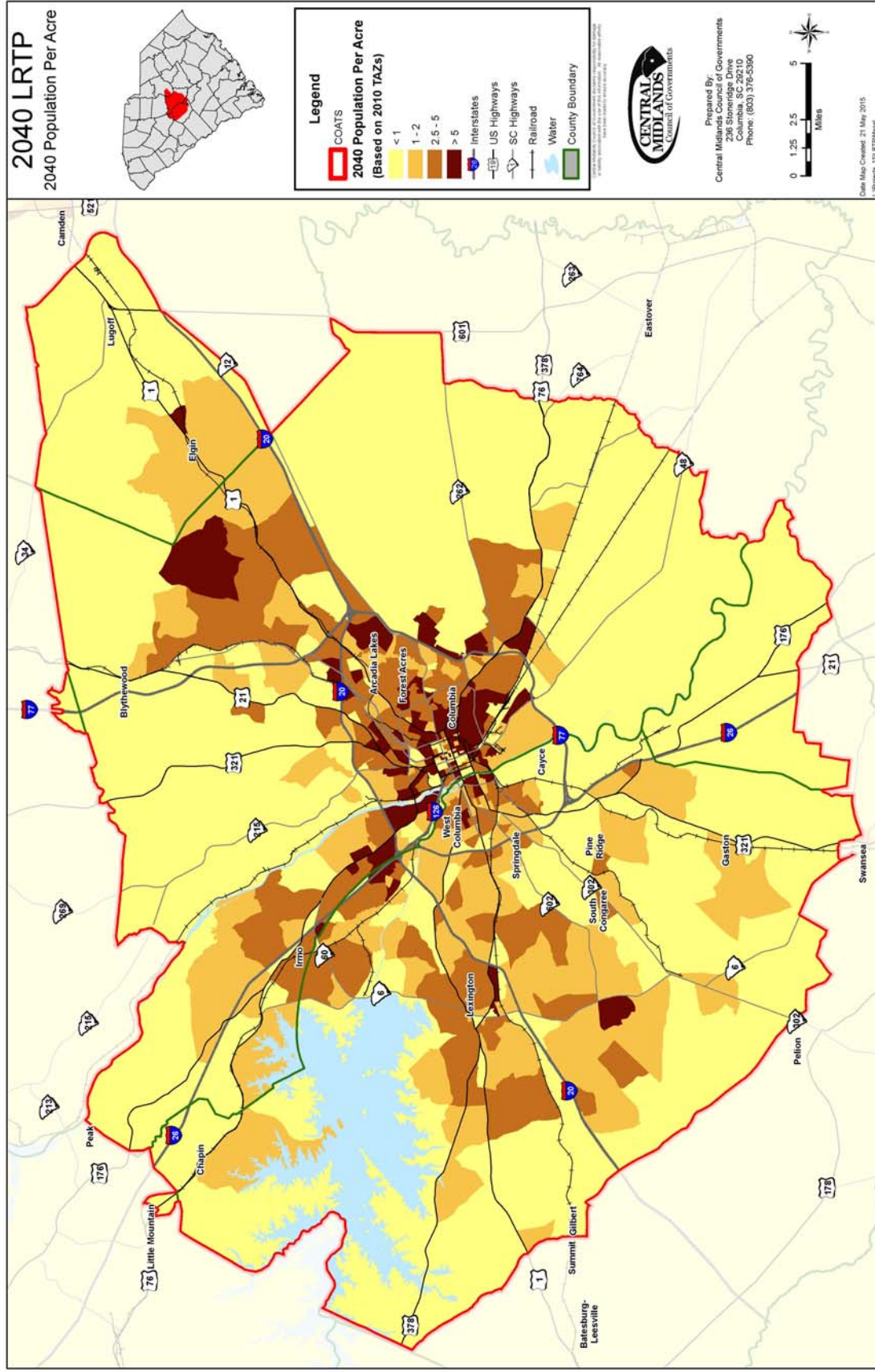


FIGURE 6.5: 2010 POPULATION PER ACRE

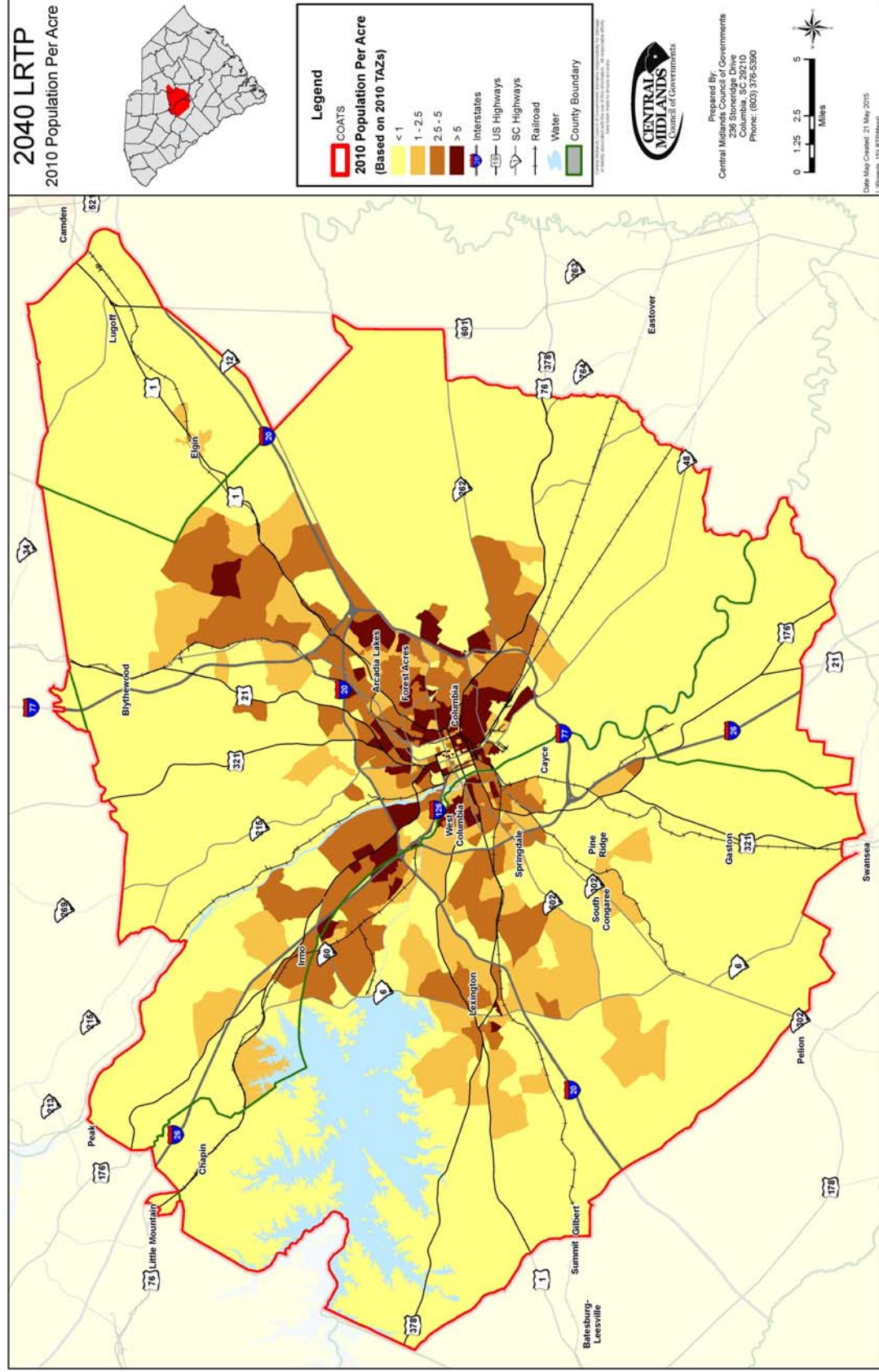
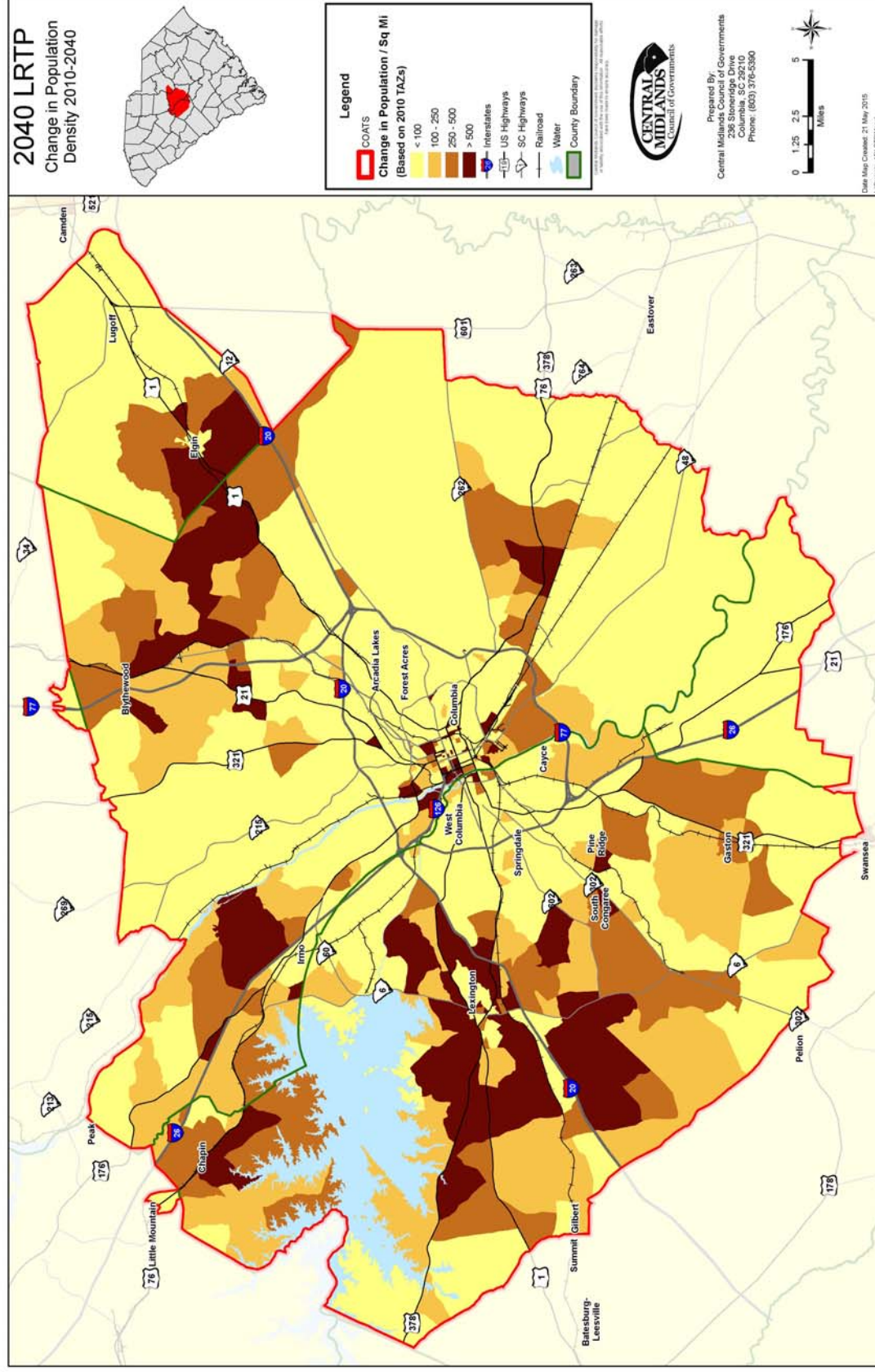


FIGURE 6.6: CHANGE IN POPULATION DENSITY 2010-2040



should see the greatest percentage increase (61.5%) with its expected population increase from 27,222 to 43,974 inhabitants.

In the northwestern portion of the COATS area, the Dutch Fork area, centered on the Irmo, Dutch Fork and Chapin sectors is expected to add a further 34,807 persons between 2010 and 2040. The majority of this population growth is expected to be in the Richland County portion of the Dutch Fork area, which is expected to grow by 43.0% (19,500 people). The Chapin area is expected to nearly double in population, growing by 117.5% or 16,727 residents. The area around the Town of Irmo is expected to see a slight decrease in population from 26,162 to 24,796; a decrease of 5.2%, or 1,366 persons.

The Southeast sector is expected to add an additional 11,290 residents by 2040, with the majority of the growth (7,700 persons) expected to be in the Southeast Columbia portion of the subarea between Garners Ferry Road and Leesburg Road.

The Lexington sub-area in central Lexington County will also continue to see rapid growth, adding more than 58,500 inhabitants by 2040, to total more than 141,000 persons, to make the Lexington area the COATS area's largest population center.

Population growth will not be restricted to solely the areas mentioned above. Infill development will occur in the more urban areas of the region, however, new residential construction in the higher growth rate suburban portions of the planning area is expected to be characterized by lower density single family homes with a population density of less than 2.5 persons per acre.

6.5 SCHOOL ENROLLMENT

In addition to the use of population statistics and projections, socioeconomic forecasts for transportation planning include a number of other variables and data sets. Chief among these are school enrollment figures because of their effect on trip generation data and travel behavior characteristics, in that trips to drop off and pick up school children, as well school bus traffic, directly affect local traffic patterns and congestion levels. Furthermore, as the population continues to grow, more educational institutions will be required to accommodate students, which will, in turn, increase the burden on the region's transportation infrastructure.

In 2010, approximately 110,000 students were enrolled at K-12 schools within the COATS study area. A further 43,925 students were enrolled in higher education. The University of South Carolina has the largest number of students enrolled with 22,008 students, followed by Midlands Technical College

(11,634 students); Benedict College (3,088); Columbia College (1,367); Columbia International University (1,284) and Allen University (848). The remaining 2,857 students were enrolled in other, smaller institutes of higher education.

Areas of the region that exhibit the greatest number of students enrolled in K-12 education are, unsurprisingly, the areas with the greatest total populations and higher population densities.

Within the COATS area, the Lexington sub-area had the highest total of students enrolled in K-12 education with 13,850, followed by the Richland Northeast area (10,804) and Dentsville (9,070). The Blythewood and Kershaw County portions of the region both had more than 8,000 students (8,919 and 8,146 respectively). The Irmo and Dutch Fork areas in the northwest part of the region also accounted for a large number of K-12 students (13,494).

Over the 30 year period, total school enrollment is expected to increase by 33.0% from 110,000 to 146,275 students. The majority of student growth is expected to be in K-12 grade range, with higher education enrollment anticipated to grow at a comparatively slower rate (approximately 11.5%).

Due to the fact that K-12 school enrollment is directly proportionate to population growth, the geographic distribution of new schools typically follows the same “X” growth pattern, with the majority of new schools proposed to be constructed in the suburban and unincorporated portions of Richland and Lexington counties, where land sites that meet the South Carolina Department of Education’s guidelines for new school construction is available.

TABLE 6.2: SCHOOL ENROLLMENT 2010 - 2040

	2010	2040	% Change
K-12 Enrollment	110,000	146,275	33.0
Higher Education Enrollment	43,925	49,000	11.5

In summary, the overall geographic growth pattern in the Columbia area has not deviated significantly from that which was identified in the first COATS Long Range Transportation Plan which was completed in the late 1960’s. Topography and other natural features, such as the region’s three major rivers, have also impacted the development pattern, however, the population growth in the Columbia Metropolitan Area has mirrored that seen in other mid-size metro areas; initial growth on the fringes of the Downtown area that continues to spread outwards into the outlying suburban area. As a result, the population of the urban core of the region, particularly in the immediate Downtown area declined as

residents sought a more suburban lifestyle. Recent developments point to a reversal in this trend with a number of significant new higher-density, mixed-use projects (residential and commercial) being constructed, designed to make urban living a more attractive proposition.

6.6 ECONOMIC DEVELOPMENT

The regional transportation network is critical to the sustainability of the region's economy. Workers, industries, freight operators and many other stakeholders in the business community depend on a well-functioning transportation system for their livelihoods. The analysis of existing and future employment trends helps to assess the level of economic activity supported by the transportation network, and serves as an indicator of the different types, densities and geographic distributions of economic trip generators, whether they be employment-based (trips to and from the workplace) or home-based (trips to retail or entertainment centers).

The following section provides an overview of the existing employment conditions, anticipated future employment growth trends, and recommended objectives and strategies for improving regional economic development through transportation planning.

6.6.1 Existing Trends

As the capital city of the State of South Carolina and the seat of the main campus of the University of South Carolina, employment in the Columbia Metropolitan Area has historically been centered on government and education. Other major employment sectors are the health care and insurance industries as well as retail establishments and other service-related industries.

The Columbia Metropolitan Area continues to be an attractive location for new businesses from elsewhere in the State of South Carolina, the southeast, as well as from around the United States and overseas, due, in part, to its favorable year-round climate, educated workforce and lower commercial tax rates and low presence of trade unions.

According to the 2010 Census, the total civilian labor force of the COATS area was 379,630 persons, (aged 16+). Of these, 352,080 persons were employed (92.7%), with the remaining 27,550 (7.3%) classified as unemployed. Between 2000 and 2010, the labor force within the COATS study area grew by 21.2% or 58,098 persons. Unemployment levels have increased slightly over the past decade, from 5.2% in 2000 to 7.3% in 2010. Unemployment rates peaked during the recession of 2008/10, reaching a peak of 9.3% in early 2010, but have been steadily falling over the past several years to stand at 5.4% in mid-2015.

A total of 57,035 persons were employed by civilian state, local or federal government entities in 2010 (16.2% of total employment in the Columbia area). Of these, a total of 26,639 were employed by the State of South Carolina (46.7% of all government employees in the region), with 91.5% of state employees being employed within Richland County, where the majority of state agencies are located.

The service sector accounts for the highest total of employees in the COATS region by far. Service jobs, which include wide-ranging fields that run the gamut from education and the medical field to entertainment and hotels and eating and drinking establishments, account for 39.6% (140,094) of all employment within the COATS area.

In 2010, 45,194 persons were employed by educational establishments in the Columbia metropolitan area. The University of South Carolina employs 5,262 persons, while over 16,500 persons were employed by the seven public school districts located within the COATS area. The remainder of persons employed in the education sector were employed by independent and private schools, as well as other institutions of higher education and public libraries.

The Healthcare sector is another important employment sector in the COATS study area, with more than 35,000 persons employed. Of these, 18,900 persons were employed by the three largest healthcare institutions in the Columbia area; Palmetto Health (Richland Memorial and Baptist Medical Center), Lexington Medical Center and Providence Hospital.

Insurance companies also maintain a significant presence in the Columbia Metropolitan Area. More than 26,200 persons were employed in Finance, Insurance and Real Estate in 2010, with 12,930 persons employed by the region's three largest insurance companies; Blue Cross/Blue Shield of South Carolina (11,000 employees), Colonial Life Insurance (1,030 employees) and AFLAC (900 employees).

The United States Army maintains a large presence in Columbia due to the Columbia area being home to Fort Jackson; the largest army basic training facility in the eastern United States. 35,000 potential soldiers attend basic training and 8,000 advanced individual training soldiers train at Fort Jackson annually. In recent years, the fort has increased its missions to include the U.S. Army Soldier Support Institute, the Department of Defense Chaplain Center and School, and the [National Center for Credibility Assessment](#), part of the [Defense Intelligence Agency](#), as well as housing the Army's Drill Sergeants training facilities. Fort Jackson employs around 3,500 civilians and more than 46,000 military retirees and their families receive services from the fort. The other military installation in the COATS study area is McEntire Joint National Guard Base, the training facility for 1,250 National

Guard members. About 900 of whom are traditional Guard men and women. Approximately 300 are full-time federal employees (technicians) and about 50 are state employees.

Some traditionally strong areas of the region's economy, such as the manufacturing industry, employ fewer workers than they once did. In 1990, more than 38,000 people were employed in the manufacturing sector; a figure that had fallen to 22,255 by 2010. The reasons for this decline are two-fold. There has been a change in the types of products manufactured. There has been a significant reduction in the number of textile manufacturers in the region, while some industries, such as tires and pharmaceuticals have seen an increase in production. Many manufacturers have also increased automation at the production plants, requiring fewer workers. Furthermore, a number of larger manufacturers have closed their doors altogether, mostly as a result of the recession. Bose Corporation, in Blythewood, employed more than 1,100 in 2008, but closed their facility permanently in late 2014.

The Columbia area is, however, still home to a number of major manufacturers. The Michelin tire plant in Lexington, which recently underwent an expansion to enable it to produce large Earthmover tires, employs close to 2,000 people, while other major manufacturers include Harsco Track Tech in West Columbia, with 550 employees; Cooper Power Tools (415 employees) and CMC Steel (400 employees).

The service industry (38.7%) and retail trade sector (16.8%) also account for a significant percentage of total employment. Walmart, the world's largest company by revenue and the world's largest private employer, operates 10 stores in the Columbia metropolitan area, employing around 4,500 employees.

6.6.2 Major Employment Sectors

The service sector accounts for the largest share of job in the Columbia metro area, with 38.7%. This category of employment includes a wide range of employment sectors, including many listed above in the previous section, such as healthcare and education, but also includes the legal field, automotive services and hotels and lodging. This field also includes a great many smaller establishments, such as child care facilities, call centers and civic and social organizations.

Retail trade establishments account for the second largest share of total employment with 16.8% in 2010. Retail trade includes any mercantile establishment from home improvement and grocery stores, auto dealer and gas stations/convenience stores, eating and drinking establishments and department and clothing stores, many of which are destinations in and of themselves, such as regional shopping

malls, like Columbiana Centre or the Village at Sandhill, or have high auto accessibility, located, as they are, along major thoroughfares.

Government services account for 16.2% of all employment with Finance, Insurance and Real Estate (FIRE), which includes banks, insurance agencies and realtors and other investment and financial services and brokerages, accounting for 7.3% of total employment.

As previously, mentioned, the manufacturing sector, long the mainstay of the southern economy, has seen a decrease in the number of worker employed over the past several decades, and now accounts for just 6.3% of the civilian labor force. Similarly, the agriculture and mining sector employs significantly fewer workers than in the past. Currently, just 1.0% of the workforce is employed in farming or mining.

TABLE 6.3: EMPLOYMENT BY INDUSTRY TYPE - 2010 - 2040

Industry	2010	%	2040	%	% Change
Agriculture & Mining	3,517	1.0	5,917	1.2	68.2
Construction	19,491	5.5	30,968	6.5	58.9
Manufacturing	22,255	6.3	36,139	7.6	62.4
Commercial Transportation	14,692	4.2	21,198	4.4	44.3
Wholesale Trade	14,073	4.0	20,580	4.3	46.2
Retail Trade	59,097	16.8	78,447	16.4	32.7
FIRE	25,609	7.3	41,412	8.7	61.7
Services	136,311	38.7	175,858	36.8	29.0
Public Administration	57,035	16.2	67,636	14.1	18.6
Total	352,080	100.0	478,154	100.0	35.8

Despite some recent changes in the economic composition of the Downtown area, the central city still contains the largest share of total employment in the region, with more than 47,292 jobs (13.4% of the region's total jobs), although this figure is a significant decrease from the 80,000 jobs reported in the sector in 2000, as many businesses and government agencies have opted to move away from the Downtown area into custom-built campuses in the more suburban portions of the region. The most notable example is SCANA Corporation, the State of South Carolina's only Fortune 500 Company, moved its headquarters from Downtown Columbia to a purpose-built location near I-77 in Cayce.

The Tri-City area of Lexington County, which consists of the cities of West Columbia and Cayce and the Town of Springdale, continues to account for the second-largest share, with almost 36,000 jobs

(10.2% of the region's total employment), due, in part, to the opening in recent years of the SCANA Campus near I-77 in Cayce, together with the Amazon Distribution Facility and the new Nephron Pharmaceuticals plant in the neighboring Saxe Gotha Industrial Park.

The Lexington sub-area is the third major sector for employment within the COATS area, accounting for 33,564 jobs in 2010, thanks in part to recent rapid residential growth and its resultant commercial growth.

Other major employment centers within the region include East Columbia/Dentsville (Forest Acres, Shandon) with over 42,647 employees; and Irmo/Dutch Fork (31,200 employees). These five areas account for over 61.1% of the total employment within the region.

TABLE 6.4: EMPLOYMENT BY SUB-AREA – 2010

Sector	Employees	%
Downtown Columbia	47,292	13.4
South Columbia	29,743	8.3
East Columbia	42,647	12.1
North Columbia	28,825	8.2
St. Andrews	27,245	7.7
West Columbia/Cayce	35,951	10.2
Richland Northeast	23,503	6.6
Blythewood/ N Richland	10,586	2.9
Irmo/Dutch Fork/Chapin	34,363	9.7
Lexington	33,564	9.5
Fort Jackson	18,181	5.2
South Lexington	8,657	2.5
West Lexington	2,007	0.6
Kershaw	7,934	2.3
Calhoun	1,244	0.4
Fairfield	707	0.2
Newberry	689	0.2
Total	352,080	100.0

6.7 Future Trends

Thirty year employment projections were developed by CMCOG staff to correspond with the population and school enrollment forecasts. The development and review of employment projections is essential to understanding future travel demand, behavior and trip generation characteristics.

The 2040 projections were generated for each of the major employment categories listed in the 2010 base year analysis (see Table 6.3) by developing control totals for each county by applying the base year total employment to population ratio to the 2040 population numbers. The total employment numbers were then further broken down into the different industry categories based on an analysis of historical trends. These totals were ultimately disaggregated to the Census Tract and TAZ levels, based on a number of features, such as an analysis of growth trends, available and developable land, projected infrastructure improvements (utilities and roads), local comprehensive planning goals as well as local knowledge of future local land use (See Figure 6.7).

In 2040, the number of employees within the COATS area is expected to increase by an additional 126,074 persons to total 478,154. This represents an increase of 35.8% over the 30 year life of the plan, with every industry sector expected to increase in the number of employees.

The service sector is expected to add the most number of new employees between 2010 and 2040, adding 39,547 new jobs (29.0%), followed by retail trade (19,350 employees), Finance, Insurance and Real Estate (FIRE) with 15,803 new employees (an increase of 61.7%). Manufacturing is expected to see an upswing in the number of employees, adding 13,884 new workers, while the construction industry is expected to add a further 11,477 new employees.

Spatially, the distribution of future employment is expected to remain constant over the thirty-year planning period, with the urban heart of the COATS area expected to continue to account for the largest share of employment. Some suburban shift is likely as the population growth in the metropolitan area continues to occur on the periphery of the region, with some of these new growth areas taking on more importance as local and even regional employment centers. Many companies, have used the fact that the Downtown area is built out and land and office space is more expensive as a reason to move their operations to more suburban locations. As has been previously mentioned, SCANA Corporation moved its more than 1,000 strong workforce from the Palmetto Center on Main Street in Downtown Columbia to a 450,000 square foot campus on 12th Street in Cayce near its intersection with I-77. A further example of this can also be seen in the opening of Verizon Wireless' new call center, which employs close to 1,500 persons on Spears Creek Church Road in Pontiac, in the northeast portion of the COATS area (See Figure 6.9).

In summary, existing and future employment trends are closely linked to population growth and are very much reliant on the functionality of the regional transportation system. With an addition 126,000 new jobs expected to be added to the Columbia metropolitan area over the next thirty years, this new

employment growth, which is expected to be more suburban in nature, has the potential to place the road network under considerable strain, as residents may find themselves commuting further in order to get to their place of employment, making the need for a functional transportation system a necessity. However, the central business district of the Columbia metropolitan area is still expected to be the major employment center of the region and recent years have shown promising growth in multiple employment sectors, especially those related to commercial and office which are typical components of mixed use developments such as the Bull Street Commons, the first phase of which is expected to be built out within the next five years.

FIGURE 6.7: EMPLOYMENT BY INDUSTRY

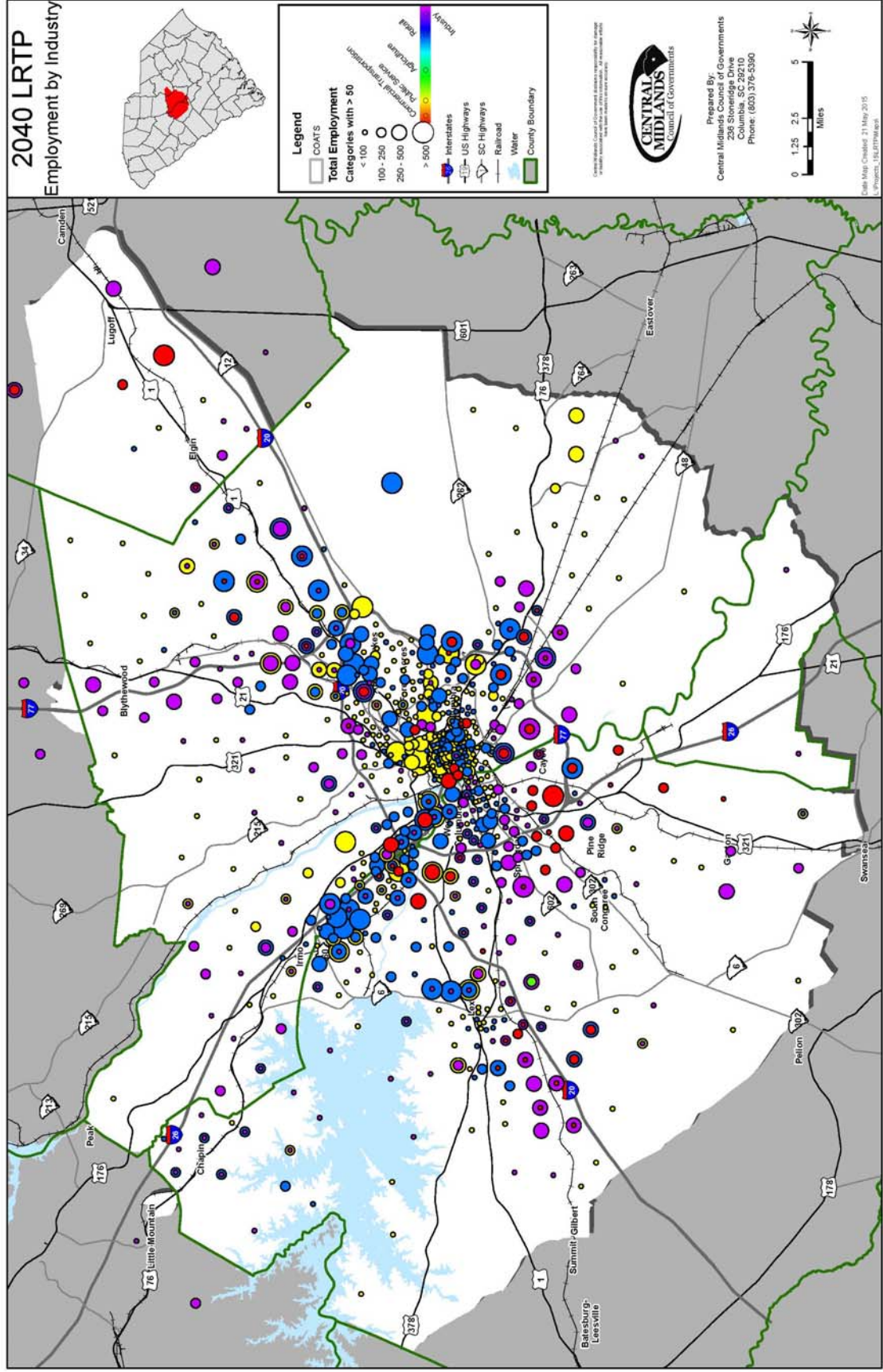


FIGURE 6.8: 2010 EMPLOYMENT DENSITY

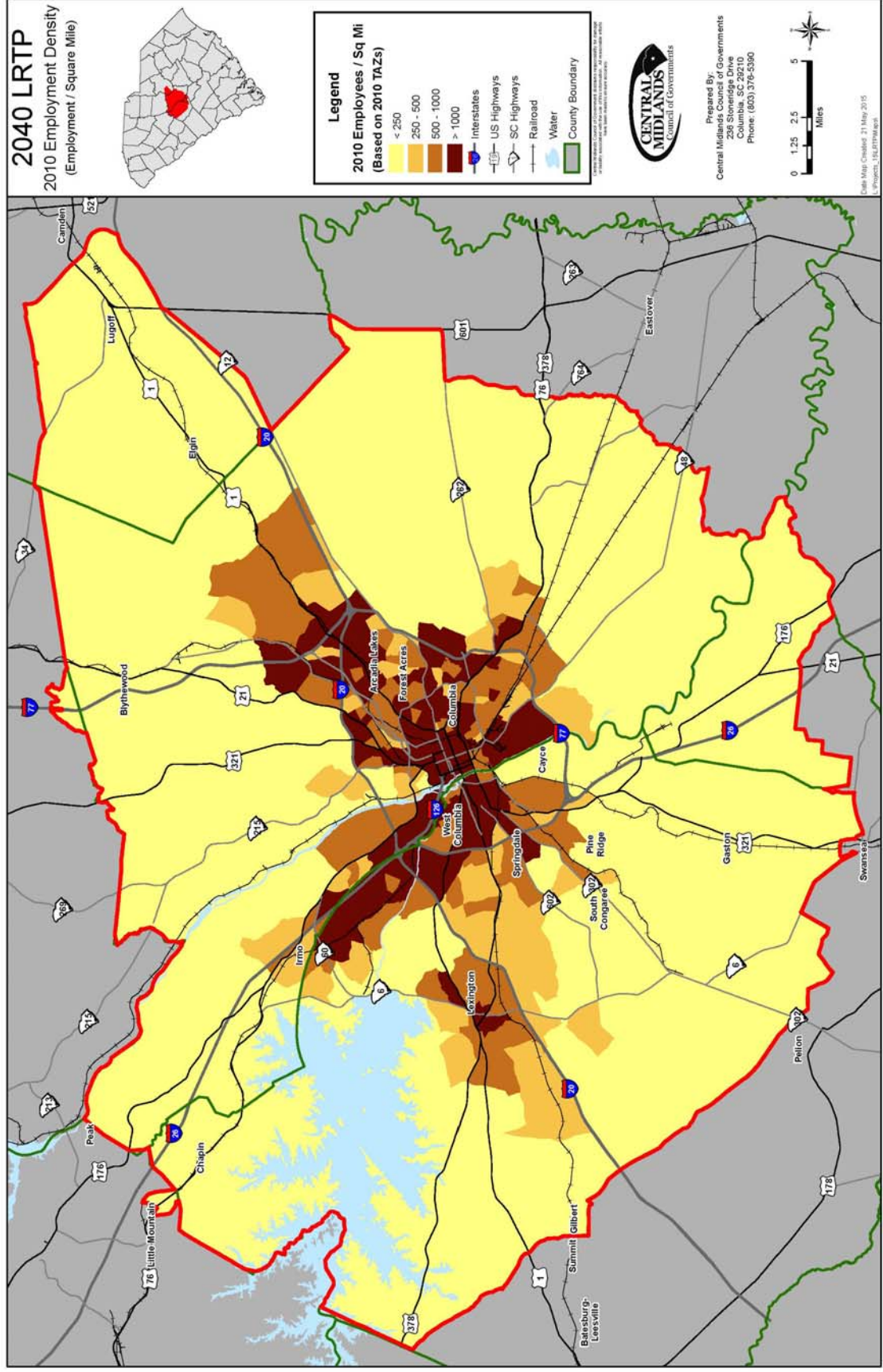
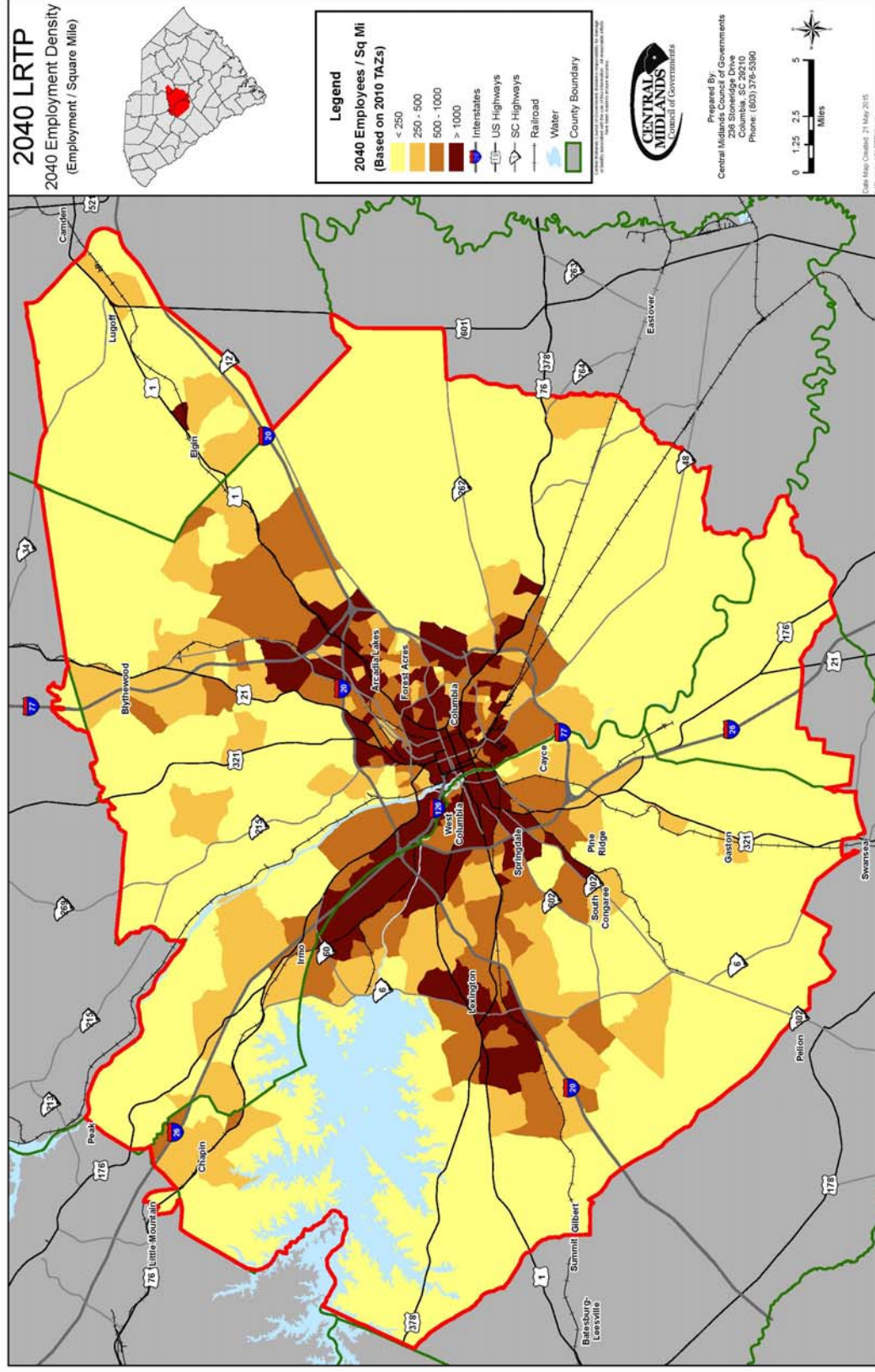


FIGURE 6.9: 2040 EMPLOYMENT DENSITY



CHAPTER 7: SOCIAL ENVIRONMENT

The social environment section of this chapter discusses environmental justice issues and their relationship to long range transportation planning process. The section starts by discussing the environmental justice responsibilities of transportation planning agencies and then provides an analysis of the location and distribution of low income and minority populations. The section concludes with a list of objectives and strategies that supports and advances CMCOG's commitment to improving mobility and accessibility for every citizen and protecting and enhancing the natural and social environment.

7.1 ENVIRONMENTAL JUSTICE

Environmental justice aims to ensure the equitable distribution of both the benefits and adverse impacts of public policy decisions such as investments in transportation infrastructure. Environmental Justice concerns are upheld first and foremost, by the 1964 Civil Rights act which provides legal protection against discriminatory practices by any agency or program receiving federal financial assistance.

“No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.”

- Title VI of the Civil Rights Act of 1964

In 1994 all federal agencies were mandated by Executive Order 12898 to incorporate environmental justice concerns into their programs, policies and activities. In 1997 the U.S. Department of Transportation (USDOT) issued its own mandate which further defined the role of transportation planning agencies in mitigating the adverse impacts of transportation decisions on low income and minority populations. The three fundamental principles of environmental justice as defined by USDOT are as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or 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.

It is the responsibility of the USDOT, State Departments of Transportation, Metropolitan Planning Organizations, and Local Governments to integrate these principles into all aspects of the transportation planning process.

To ensure non-discrimination in accordance with these principles CMCOG has adopted a Title VI Plan which outlines the Title VI policy of the agency and establishes goals and monitoring procedures for all transportation planning activities.¹ The USDOT has also provided additional guidance on how MPOs can meet their responsibilities to uphold Title VI and environmental justice legislative requirements.² This guidance defines the following three primary responsibilities of the MPO:

- To enhance analytical capabilities to accurately assess the compliance of planning programs with Title VI requirements
- To identify residential, employment, and transportation patterns of low income and minority populations to ensure the equitable distribution of the benefits and burdens of transportation investments
- To develop and maintain an inclusionary public involvement process that removes barriers to participation by low income and minority populations

CMCOG will strive to meet each of these responsibilities as they pertain to the development, adoption, and implementation of the region's Long Range Transportation Plan.

7.2 SOCIAL EQUITY ANALYSIS

To determine the location and concentrations of low income and minority populations CMCOG used a methodology described by the Mid-Ohio Regional Planning Commission in a USDOT case study for environmental justice analysis.³ The methodology involved a three step process that included (1) determining the regional percentages of low income and minority populations (2) using the regional percentages as thresholds for determining whether or not a particular Census Block Group is

¹ For more information, see the CMCOG *Title VI Plan for Compliance with the Civil Rights Act of 1964*. Adopted

² Overview of Transportation and Environmental Justice. United States Department of Transportation. Publication No. FHWA-EP-00-013.

considered to be predominantly low income or minority (3) mapping these thresholds (individually and together) to provide a visual representation of the spatial distribution of low income and minority populations.

The criteria used to identify and map low income and minority populations included the following three 2010 Census variables:

- Non-white population
- Hispanic population
- 65 and older
- Families below the Poverty Line

The totals and percentages of these variables for the COATS region and for the COATS portions of Richland, Lexington, Kershaw, Newberry, Fairfield, and Calhoun counties are summarized in the Table 7.1.

TABLE 7.1: ENVIRONMENTAL JUSTICE PROFILE OF THE COATS REGION

	COATS Region	Richland COATS	Lexington COATS	Kershaw COATS	Calhoun COATS	Newberry COATS	Fairfield COATS
Population	657,395	382,849	245,032	23,040	2,687	1,850	1,937
Minority Population	252,762	200,457	45,164	4,896	514	666	1,065
% Minority Population	38%	52%	18%	21%	19%	36%	55%
Hispanic Population	32,792	18,643	13,061	1,056	32	-	-
% Hispanic Population	5%	5%	5%	5%	1%	0%	0%
Over 65 Populatoin	73,213	38,731	30,985	2,587	467	187	256
% Over 65	11%	10%	13%	11%	17%	10%	13%
Households	248,373	141,272	95,743	8,725	1,093	756	784
Households below Poverty	35,066	22,801	10,963	1,026	111	87	78
% Households below Poverty	14%	16%	11%	12%	10%	12%	10%

Note: These totals do not include Fort Jackson. Military populations are not considered to be exposed to the same level of risk for environmental justice concerns as civilian populations.

According to these regional totals, minority populations make up 34.8% of the According to these regional totals, minority populations make up 38.4% of the total population of the COATS region with the largest share (approximately 79%) residing in Richland County. The Hispanic population represents 5% of the total population with the largest share (approximately 56%) residing in Richland County. In addition the 65 and older population represents 11.1% of the total population with the largest share (approximately 52%) residing in Richland County. As well, the poverty population

makes up 14% of the total population with the largest share (approximately 65%) residing in Richland County.

These regional percentages represent the baseline against which to compare each individual block group. Figures 7.1 thru 7.4 illustrate the areas of the region where percent minority and Hispanic populations and families below the poverty line exceed the regional percentage thresholds defined above.

These maps illustrate 4 different themes, with the final composite map adding all of the similarly concentrated areas together to give a better picture of some areas in need. The geography shown in these maps are based off the 2010 Census Block Groups.

Figure 7.1 - Percent Minority Populations shows a large concentration of minorities, which are more than double the regional average, in the Northern Columbia I-20 corridor between I-26 and I-77, and in the Lower Richland/Southeast COATS area, including Hopkins. Areas that are over the regional average include most of Northern and Eastern Richland County.

Figure 7.2 - Percent Hispanic Populations has an evenly distributed coverage throughout the Region including both urban and rural areas.

Figure 7.3 - Percent Over 65 Population shows a fairly even distribution throughout the COATS area. A few areas with a higher concentrated areas are located near Chapin, South Congaree and Pine Ridge, West Columbia, and Arcadia Lakes.

Figure 7.4 - Percent Households Below the Poverty Line shows a higher concentration near the Gaston-Pelion-Swansea triangle, Southeastern Columbia from downtown to beyond I-77, and some near-downtown areas north and east of the city center.

In addition to looking at each individual map, it is helpful to create a composite map to show where the highest concentrations of all 4 variables are located. To get to this point, each block group was given a score of 0, 1 or 2. First, a regional average for each category was calculated. Block groups that were below the regional average were given a score of 0 (zero). Those Block Groups that were between the regional average and up to doubling the regional average were given a score of 1 (one). And finally, the block groups that were more than double the regional average were given a score of 2 (two). All of the scores for each block group were then added together to give us our composite map.

Figure 7.5 - The Environmental Justice Composite shows where the mostly likely environmental justice areas are located. These areas include Elgin-Lugoff-Camden in Kershaw County, Northern Columbia along the I-20 corridor between I-26 and I-77, and some areas east of Downtown Columbia. The Lower Richland and Northern Richland County also has some areas of elevated scores as well.

FIGURE 7.1: PERCENT MINORITY POPULATIONS

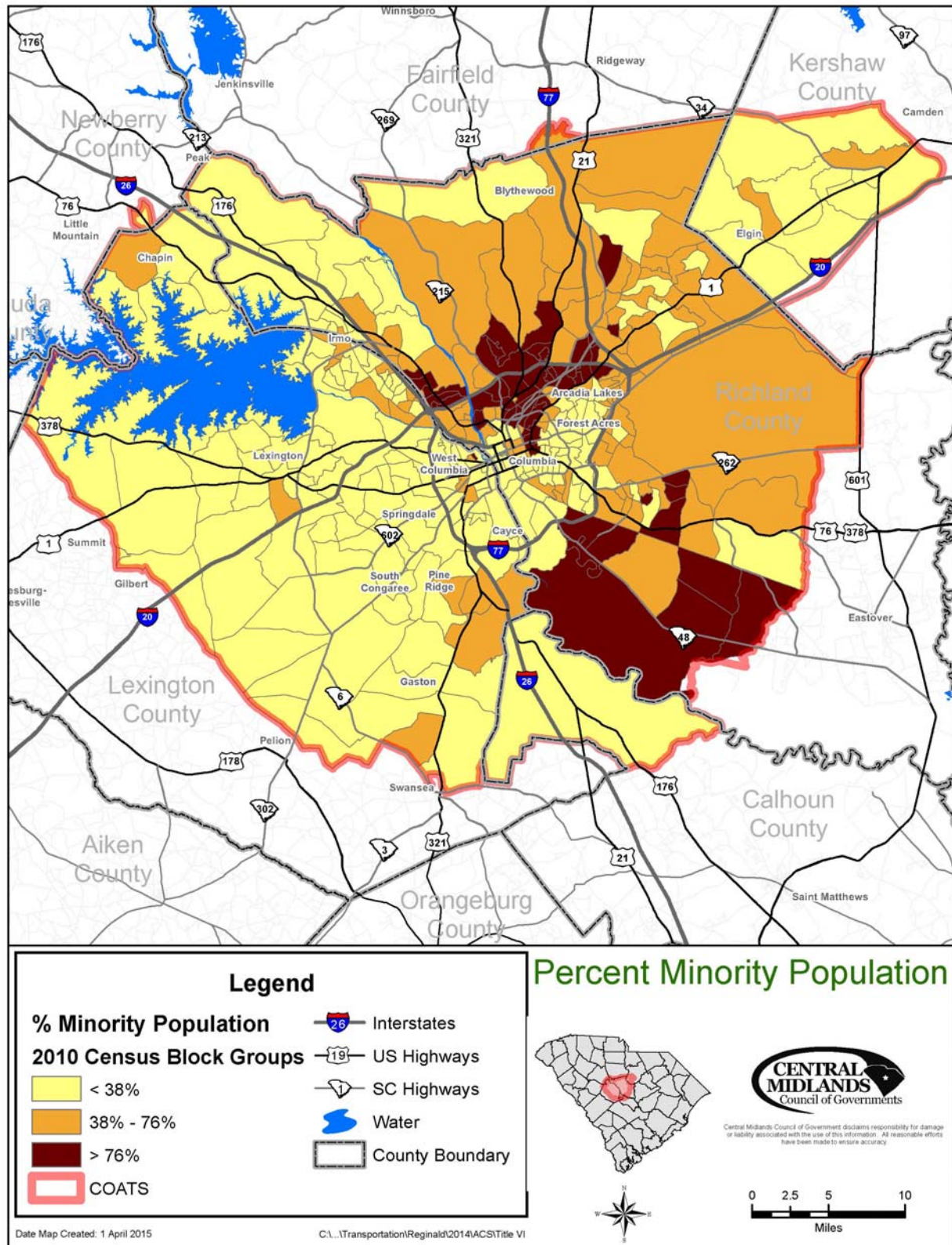


FIGURE 7.2: PERCENT HISPANIC POPULATION

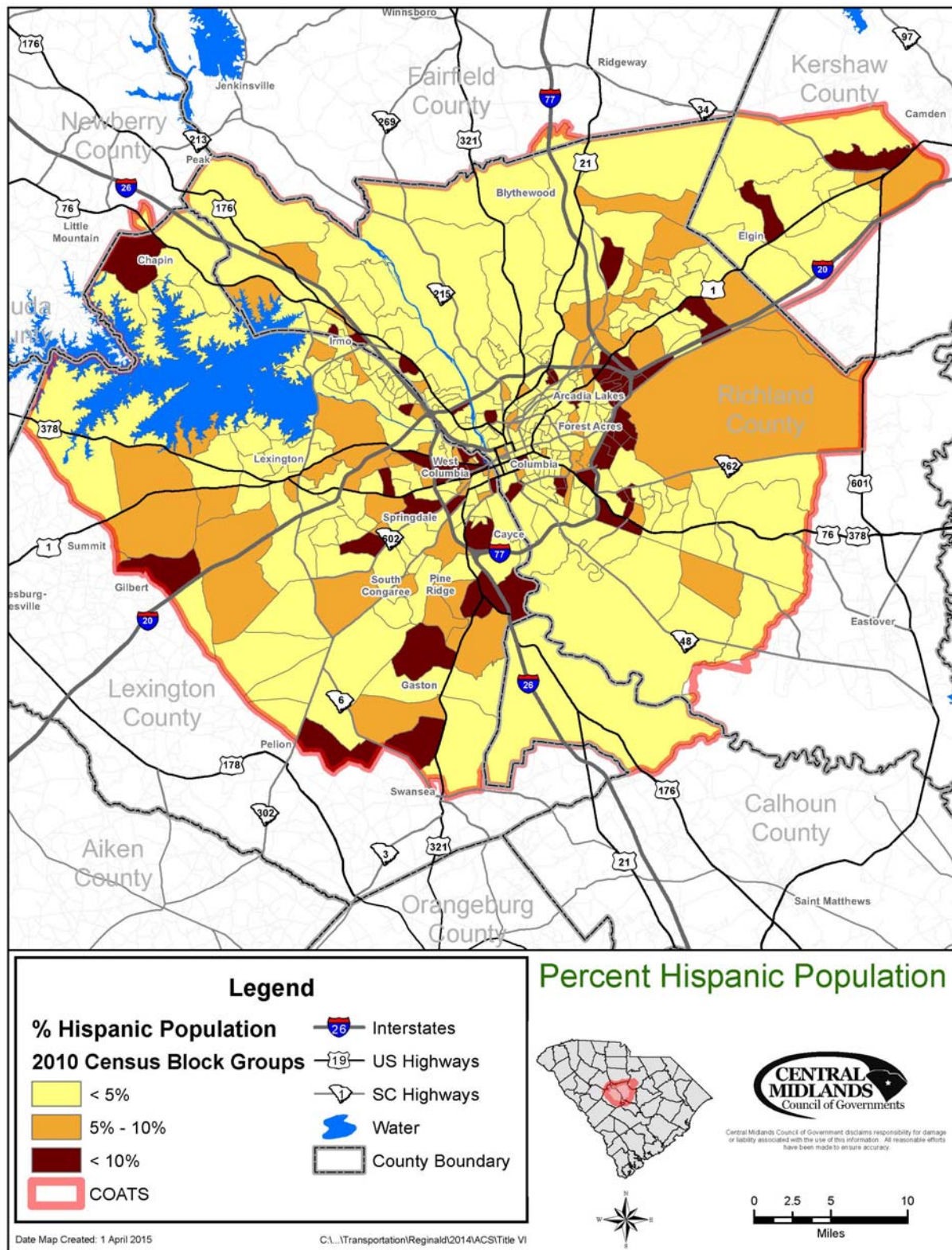


FIGURE 7.3: PERCENT OVER 65 POPULATION

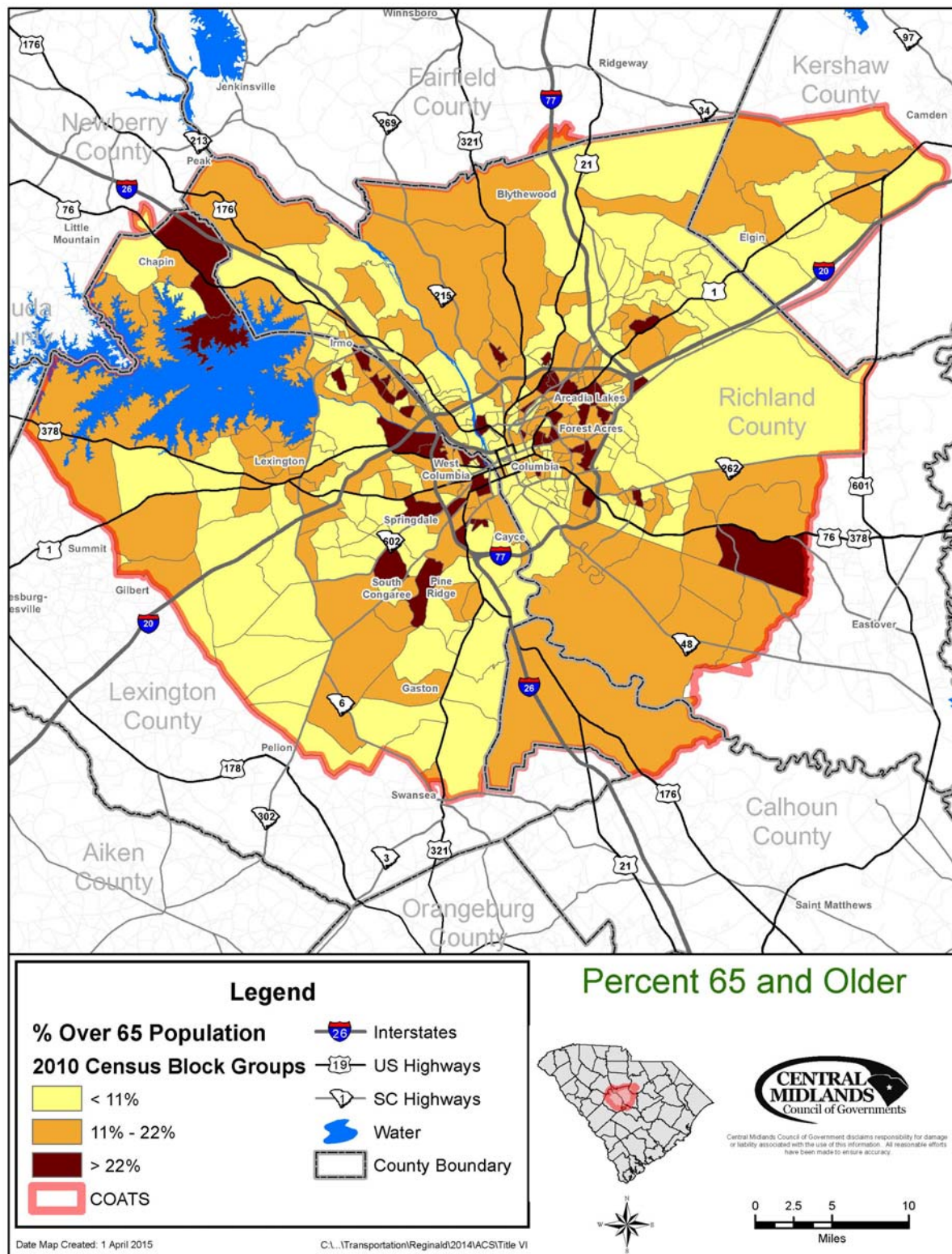


FIGURE 7.4: PERCENT HOUSEHOLDS BELOW THE POVERTY LINE

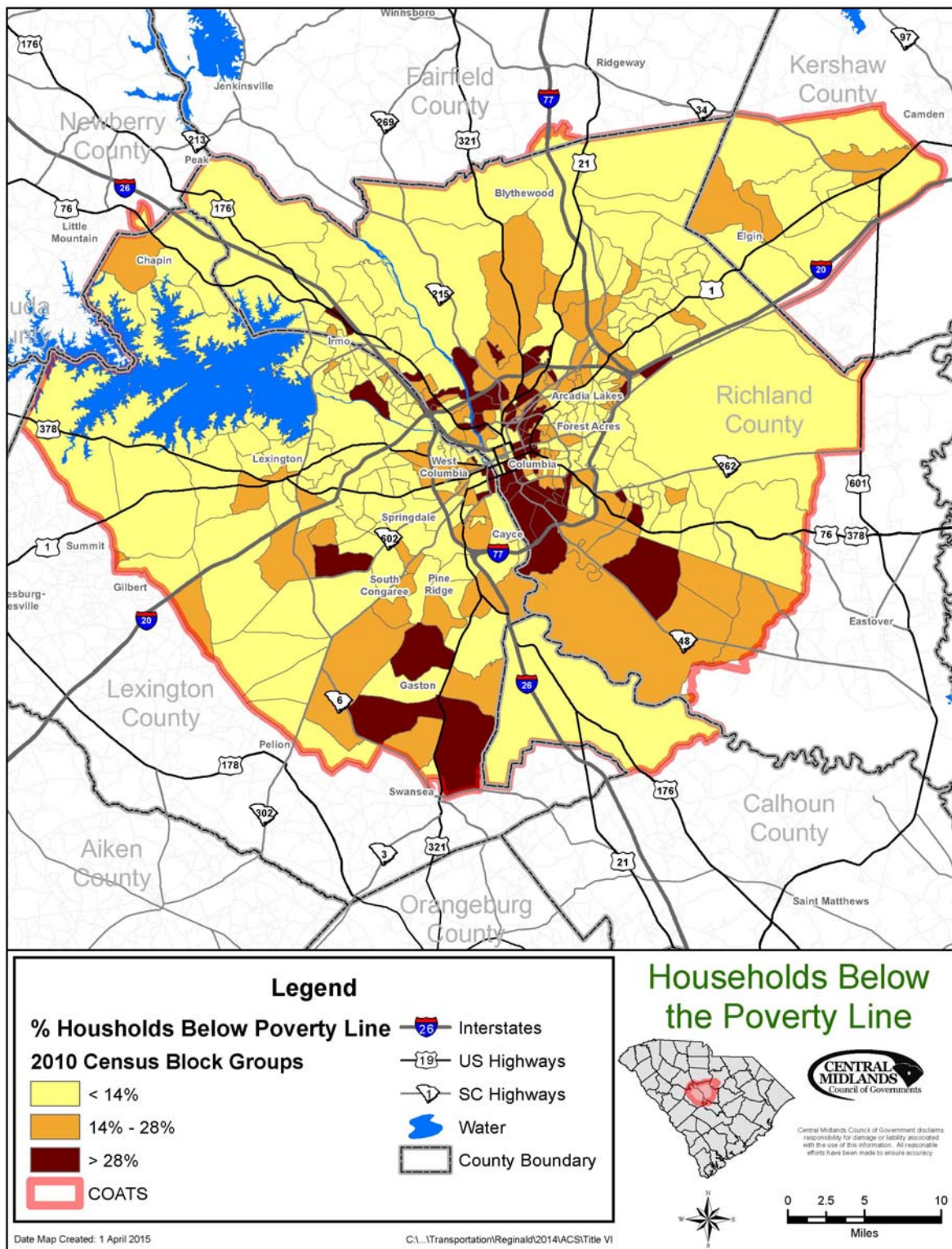


FIGURE 7.5: ENVIRONMENTAL JUSTICE AREAS

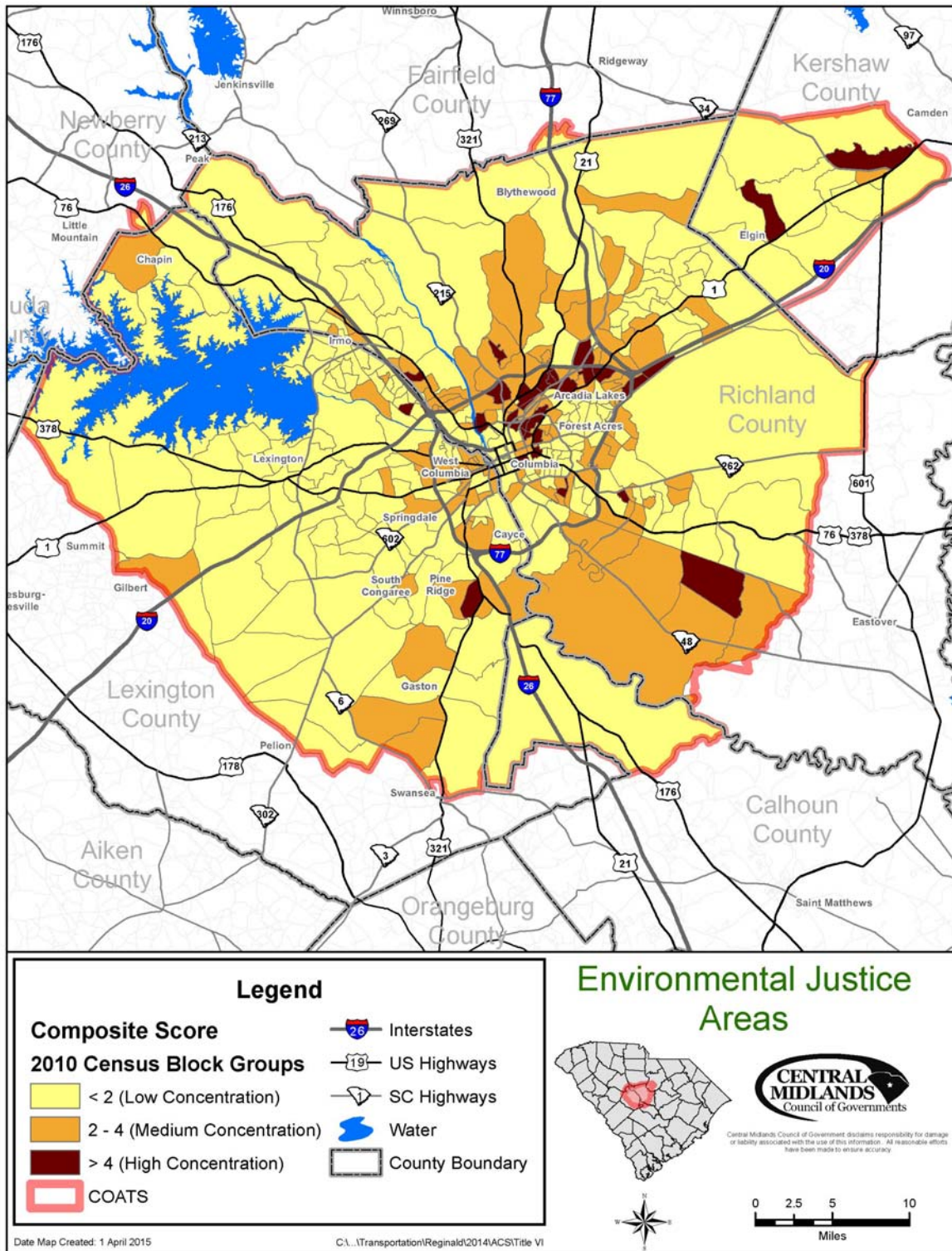


Figure 7.5 represents a useful benchmark for pro-actively assessing the probability of specific transportation improvement projects being in non-compliance with environmental justice and Title VI legislation. While every project will be intensely scrutinized once it is programmed for implementation (regardless of location), this overview provides a good first step in vetting projects that might not adequately serve low income and minority populations or have the potential to inequitably burden them with the adverse impacts of construction and operation.

7.3 OBJECTIVES & STRATEGIES

1. Encourage regional collaboration and coordination amongst local jurisdictions in planning for future growth and development in the region.

- Continue to refine the role of the CMCOG Regional Planning and Development Committee as a means for bringing together stakeholders and local representatives to discuss issues related to current and future development trends.
- Continue to work with local governments to develop and refine regional population projections to ensure multi-jurisdictional coordination and communication about current and future development trends.
- Encourage the regional and local implementation of the goals, objectives, and strategies presented in the Environmental Mitigation and Quality of Life Improvement chapters of this document.

2. Promote economic vitality by investing in infrastructure improvements that increase the potential for job creation and retention, improve linkages between housing and employment opportunities, and support regional economic development strategies.

- Conduct a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of existing and potential transportation linkages between major employment and residential centers
- Encourage expanded transit service to meet employment needs for commuter communities and areas served by the existing fixed route system
- Encourage the development of affordable housing opportunities in proximity to existing and future transit service areas and employment centers

- Encourage coordination between local governments, the department of commerce, and the MPO to implement projects identified in the regional Comprehensive Economic Development Strategy (CEDS)
 - Encourage the regional and local implementation of goals, objectives, and strategies identified in the Motor Freight chapter of this document.
- 3. Ensure that all citizens and communities within the Columbia Metropolitan Area are equitably served by the region's transportation system.**
- Encourage the implementation of the objectives and strategies outlined in the Transit Chapter of this document as they relate to supporting the further development, maintenance, and long term financial viability of a regional transit system in the Columbia Area.
- 4. Ensure that all programs, policies, and activities do not have disproportionately adverse effects on minority and low income populations and that all potentially affected communities are represented in the transportation decision-making process.**
- Encourage the implementation of the objectives and strategies outlined in the CMCOG Public Participation Plan as they relate to removing barriers to participation by low income and minority populations.
 - Establish a framework for measuring the performance and success of strategies designed to educate and incorporate low income and minority populations into the transportation decision making process.
 - Continue to work with federal, state, and local government agencies to preserve culturally diverse areas of the region and to ensure they are not adversely impacted by transportation improvements.
 - Continue to improve data collection efforts and analysis techniques that assess the needs of and potential impacts on socially vulnerable populations.

7.4 LIMITED ENGLISH PROFICIENCY

7.4.1 Introduction/Policy Statement

The purpose of this limited English proficiency policy guidance is to clarify the responsibilities of recipients of federal financial assistance from the U.S. Department of Transportation (DOT) and assist them in fulfilling their responsibilities to limited English proficient (LEP) persons, pursuant to Title VI of the Civil Rights Act of 1964 and implementing regulations. It was prepared in accordance with **Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d, et seq.**, and its implementing regulations provide that no person shall be subjected to discrimination on the basis of race, color, or national origin under any program or activity that receives federal financial assistance, and;

7.4.2 Executive Order 13166

Executive Order 13166 “Improving Access to Services for Persons With Limited English Proficiency,” reprinted at 65 FR 50121 (August 16, 2000), directs each Federal agency that is subject to the requirements of Title VI to publish guidance for its respective recipients clarifying that obligation. Executive Order 13166 further directs that all such guidance documents be consistent with the compliance standards and framework detailed in the Department of Justice's (DOJ's) Policy Guidance entitled “Enforcement of Title VI of the Civil Rights Act of 1964--National Origin Discrimination Against Persons With Limited English Proficiency.” (See 65 FR 50123, August 16, 2000 DOJ's General LEP Guidance). Different treatment based upon a person’s inability to speak, read, write, or understand English may be a type of national origin discrimination.

Executive Order 13166 applies to all federal agencies and all programs and operations of entities that receive funding from the federal government, including state agencies, local agencies and governments such as the MPO, private and non-profit entities, and sub-recipients.

7.4.3 Plan Summary

The Columbia Area Transportation Study (COATS) Metropolitan Planning Organization (MPO) has developed this Limited English Proficiency Plan (LEP) to help identify reasonable steps to provide language assistance for LEP persons seeking meaningful access to MPO programs as required by Executive Order 13166. A Limited English Proficiency person is one who does not speak English as their primary language and who has a limited ability to read, speak, write, or understand English.

This plan details procedures on how to identify a person who may need language assistance, the ways in which assistance may be provided, training staff, how to notify LEP persons that assistance is

available, and information for future plan updates. In developing the plan while determining the MPO's extent of obligation to provide LEP services, the MPO undertook a U.S.

Department of Transportation four factor LEP analysis which considers the following: 1) The number or proportion of LEP persons eligible in the region to be served or likely to encounter an MPO program, activity, or service; 2) the frequency with which LEP individuals come in contact with an MPO program; 3) the nature and importance of the program, activity or service provided by the MPO to the LEP population; and 4) the resources available to the MPO and overall costs to provide LEP assistance. A brief description of these considerations is provided in the following section.

7.4.4 Four Factor Analyses

1. The number or proportion of LEP persons eligible to be served or likely to encounter an MPO program, activity, or service.

The MPO examined 2009 – 2013 American Community Survey data and determined that approximately 42,225 people, or 6.9% of the COATS population 5 or older, spoke a language other than English at home. Approximately 57% of this population lives in Richland County, 40% live in Lexington County, and approximately 3.1% live in Kershaw, Newberry, Fairfield and Calhoun Counties combined. Of the total population not speaking English at home, 8,835, or approximately 21%, reported that they do not speak English “very well.” Hispanics comprised of 77% of the non-English speaking language group.

2. The frequency with which LEP individuals come in contact with an MPO program, activity, or service.

The MPO assesses the frequency at which staff has or could possibly have contact with LEP persons. This includes documenting phone inquiries and surveying public meeting attendees. From January 1 to December 31, 2014, the MPO recorded no requests for a Spanish speaking interpreter and zero requests for translated MPO documents.

3. The nature and importance of the program, activity, or service provided by the MPO to LEP Community.

The largest geographic concentration of Hispanics is in Richland County at 57%. Lexington County has approximately 40% and Kershaw County has 3%. The counties of Calhoun, Newberry, and Fairfield are less than 1%. The MPO works with local Hispanic Outreach

Organizations to identify the transportation concerns of the Hispanic community. The MPO is aware that many in this community do not drive and rely on public transit, walking, or biking. To help accommodate the Hispanic population, the MPO will work with the transit providers to translate their system route maps and brochures; and with our local governments to translate bicycle and pedestrian safety brochures into Spanish.

4. The resources available to the MPO and overall costs.

The MPO assessed its available resources that could be used for providing LEP assistance. This included identifying what staff and volunteer language interpreters are readily available, how much a professional interpreter and translation service would cost, which documents should be translated, taking an inventory of available organizations that the MPO could partner with for outreach and translation efforts, examining which financial and in-kind sources could be used to provide assistance, and what level of staff training is needed. After analyzing the four factors, the MPO developed the plan outlined in the following section for assisting persons of limited English proficiency.

7.4.5 Strategies to Identify an LEP Person who Needs Language Assistance

Below are tools to help identify persons who may need language assistance:

- The MPO will examine records requests for language assistance from past meetings and events to anticipate the possible need for assistance at upcoming meetings;
- When MPO sponsored public meetings, workshops or conferences are held, the MPO will set up a sign-in sheet table and have a staff member greet and briefly speak to each attendee. To informally gauge the attendee's ability to speak and understand English, the MPO staff will ask a question that requires a full sentence reply;
- The MPO will have the Census Bureau's "I Speak Cards" at the meeting, workshop or conference sign-in sheet table. While staff may not be able to provide translation assistance at this meeting, the cards are an excellent tool to identify language needs for future meetings. The MPO will also, have the cards available at the MPO office reception area; and
- The MPO will post a notice of available language assistance at MPO reception area.

7.5 LANGUAGE ASSISTANCE MEASURES

When an interpreter is needed, in person or on the telephone, the MPO will determine what language is required. The MPO can provide an informal interpretation in German and French. For a listing of available languages, persons can check the Central Midlands Council of Governments (CMCOG) website at: www.centralmidlands.org, to see what languages are offered. If the required language is not available or if a formal interpretation is required, the MPO shall use a translation service.

The MPO may be able to assist with written communications and small MPO document translation requests from LEP persons. If not, a translation service shall be used for a fee. MPO documents can be made available in another language, such as Spanish, upon request.

CHAPTER 8: ENVIRONMENTAL MITIGATION

8.1 INTRODUCTION

The COATS MPO and the Central Midlands region are situated in the middle of South Carolina, halfway between the Appalachian Mountains and the Atlantic Ocean. This central location on the dividing line between the mountains and the sea is characterized by an extremely diverse natural and cultural landscape. A vast network of streams, wetlands, woodlands, and productive agricultural areas extend from the sandhills eco-region south of Lake Murray to the extensive flood plains that provide the backdrop for Congaree National Park, located southeast of the City of Columbia.

The rapid pace of growth and development in the Central Midlands region requires planners and policy makers to develop long term strategies for protecting these unique and biologically diverse ecosystems. The implementation of large scale transportation improvement projects can be particularly detrimental to the viability of these resources. Environmental mitigation measures therefore need to be an essential and ever present component of the long range transportation planning process. This can be accomplished by consulting and coordinating with other governmental, non-governmental, and private sector stakeholders to conduct a system-wide review of the potential environmental impacts of short and long term transportation investments. These coordination efforts are an initial step in identifying impacted areas and help to inform preliminary engineering and design. They also allow the MPO to better facilitate the regional visioning and goal setting process. The end result is a transportation plan that minimizes environmental and social impacts, increases efficiency and cost effectiveness, and enhances the overall quality of life for area residents.

Federal transportation legislation supports and requires the adoption of environmental mitigation measures by MPOs and other transportation planning agencies. In defining the scope of the transportation planning process MAP 21 [23 USC 134 (h)(1)(E)] states that the process shall provide for consideration of projects and strategies that:

“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”

The legislation further defines environmental mitigation activities for MPOs by stating that the LRTP shall include [23 USC 134 (h)(2)(D)]:

- A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain environmental functions affected by the plan; and
- Develop this discussion in consultation with Federal, State, and tribal wildlife, land management, and regulatory agencies.

Federal regulations based on MAP 21/SAFETEA LU legislation (23 CFR 450.322) specifically requires that:

“The MPO shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan. The consultation shall involve, as appropriate, (1) a comparison of transportation plans with State conservation plans or maps, if available; or (2) a comparison of transportation plans to inventories of natural or historic resources if available.”

This chapter of the LRTP is intended to comply with each of these requirements by outlining strategies CMCOG is currently undertaking to mitigate against environmental impacts through consultation and coordination, early project screening, and various regional planning initiatives. The chapter also discusses the connection between land use and transportation planning and concludes with a series of recommended objectives and strategies that will help meet the federal legislative requirements and work towards achieving the LRTP goals of Environment and Consultation.

8.2 CONSULTATION AND COORDINATION

To be in compliance with the consultation requirements of MAP 21/SAFETEA-LU, CMCOG uses several strategies including:

- Maintenance and deployment of a current resource agency contact database
- Utilization of the CMCOG committee structure, CMCOG public outreach and involvement strategy, and other CMCOG planning activities
- Coordination with the Office of Planning and Environmental Services Division of SCDOT

CMCOG will develop, maintain, and utilize a resource agency contact database to assist with collecting environmental data and soliciting input on the development of the LRTP and system wide

environmental and social impacts of project proposals. CMCOG will also use this database and consultation process to compare the transportation plan with available maps, inventories, plans, policies and strategies of the different agencies and organizations. CMCOG will also provide these agencies and organizations with an opportunity for review and comment of the plan as it is developed and during the public comment process. Agencies and organizations included in the contact database include, but are not limited to:

- Environmental Protection Agency Region IV
- USDA Natural Resources Conservation Service
- US Fish and Wildlife Service
- National Park Service – Congaree National Park
- US Department of Homeland Security Regional Environmental Officer
- US Army Corps of Engineers (Wetlands Protection and Floodplain Management)
- SC Department of Health and Environmental Control (Bureau of Water, Bureau of Air Quality, and the Bureau of Land and Waste Management)
- SC Department of Natural Resources
- SC Department of Parks, Recreation, and Tourism
- SC State Historic Preservation Office
- Richland County Conservation Commission
- Richland and Lexington Countywide Stormwater Consortiums
- Sustainable Midlands
- Congaree Riverkeeper
- Congaree Land Trust
- Community Open Land Trust

CMCOG will also coordinate planning activities with the various units of Local Government within the COATS MPO Planning Area through the existing MPO policy and technical committee structure. Other CMCOG committees and planning activities will also be coordinated with the long range transportation planning process to ensure compatibility and consistency with other regional planning programs, policies, and projects. The CMCOG environmental planning program and Environmental Planning Advisory Committee will play a particularly important role in coordinating transportation planning projects with regional water quality management and sustainability initiatives.

To ensure ongoing consultation efforts throughout the lifecycle of the plan, SCDOT will play an important role in project specific environmental mitigation activities by serving as a primary point of contact for many of the natural and cultural resource management agencies listed above. SCDOT will review the LRTP and solicit input and comments from these other agencies as priority projects begin to move through the project development process. This consultation will provide the opportunity to evaluate the consistency of individual projects with the relevant federal, state, and local environmental policies and programs.⁴ SCDOT and CMCOG will continue to develop and strengthen these relationships with the agencies and organizations responsible for natural and cultural resource management and preservation in the central midlands region.

8.3 ENVIRONMENTAL MITIGATION STRATEGIES

CMCOG is engaged in a number of environmental mitigation activities that have the potential to restore and maintain environmental functions impacted by the long range transportation plan. These include:

- Environmental Screening
- Green Infrastructure Planning
- Wetlands Mitigation Banking
- Regional Air Quality Planning

⁴ SCDOT works closely with the major resource agencies and either funds full-time positions or has an interagency agreement with: the South Carolina Department of Archives and History, the United States Army Corps of Engineers, the South Carolina Department of Health and Environmental Control, the US Fish and Wildlife Service and the US Environmental Protection Agency.

The scope and intended outcomes of each of these efforts will be summarized below, along with a discussion of their relationship to the LRTP and compliance with MAP 21/SAFETEA-LU environmental mitigation requirements.

8.4 ENVIRONMENTAL SCREENING

CMCOG utilizes an early environmental screening process intended to pro-actively identify potential environmental or social issues that could impact the implementation of road improvement projects proposed in the Long Range Transportation Plan. An early evaluation of the location of proposed projects in relationship to sensitive environmental and cultural features is an essential component of transportation planning and provides the framework for later, more detailed pre-construction project specific analysis that is required by the National Environmental Policy Act (NEPA). The purpose is to subject projects to a planning level “fatal flaw” analysis to identify major problems or “showstoppers” so that appropriate mitigation activities and/or alternatives can be considered before a project enters the pre-construction phase. This process facilitates enhanced coordination between agencies, assists in setting realistic cost and construction estimates, and prepares projects for the NEPA review process.

The primary means for conducting the screening includes system-wide and project specific analysis of the data collected during the consultation and coordination process described above. Typical components of the screenings include spatially examining projects in the context of existing conditions related to:

- Congestion, Traffic Volumes, and Level of Service
- Crash and Safety Data
- Land Use, Growth, and Development Trends
- Preliminary Cost Estimates
- Hydrography
- 303(d) Impaired Streams
- Floodplains
- Wetlands (National Wetlands Inventory and Hydric Soils)

- Endangered Species Occurrence
- Hazardous Substance Disposal Sites
- Protected Lands
- Prime Farmland, Farmland of Statewide Importance
- Vulnerable Populations/Environmental Justice Areas
- Historic Areas/Historic Resources
- Schools, Parks, Churches, and Cemeteries

Although this type of early action screening does not substitute for more detailed, project specific environmental review, it can help to identify important issues that require further analysis.

Understanding the environmental and social complexities of a proposed project or package of projects early on, can reduce the likelihood of encountering unexpected environmental constraints that could stop a project or significantly increase the capital costs for completion.

8.5 GREEN INFRASTRUCTURE PLANNING

Green infrastructure is a term often applied to describe economical and environmentally friendly means for protecting and managing land and water resources. Over the past two decades separate but related conceptual definitions for Green Infrastructure have emerged, one centered on the protection of open space for its inherent natural value, and one centered on utilizing sustainable Low Impact Development (LID) strategies to address stormwater runoff related issues.

In the case of the open space definition, green infrastructure is commonly described as “an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations.” (Benedict and McMahon, 2006). This definition typically describes a hubs, links and sites approach to open space preservation. Hubs anchor green infrastructure networks and provide an origin or destination for wildlife and ecological processes moving to or through it. Different types of hubs can include:

- Reserves: Large protected areas, such as national and state parks and wildlife refuges

- **Managed Native Landscapes:** Large publicly-owned lands, such as national and state forests, managed for resource extraction as well as natural and recreational values
- **Working Lands:** Private farms, forests, and ranches that are managed for commodity production yet remain in a predominantly open and undeveloped state
- **Regional Parks and Preserves:** Less extensive hubs of regional ecological significance

Sites are smaller community parks and natural areas where natural features and ecological processes are protected and/or restored. Links are the connections that tie the system together and enable green infrastructure networks to work. They range in size, function and ownership, and can include the following:

- **Landscape Linkages:** Large, protected areas that connect existing parks, preserves, or natural areas and provide sufficient space for native plants and animals to flourish, while serving as corridors connecting ecosystems and landscapes
- **Conservation Corridors:** Less extensive linear protected areas, such as river and stream corridors, that serve as biological conduits for wildlife and may provide recreational opportunities;
- **Greenways:** Protected corridors of land managed for resource conservation and/or recreational use
- **Greenbelts:** Protected natural lands or working lands that serve as a framework for development while also preserving native ecosystems and/or farms or ranchland
- **Ecobelts:** Linear woody buffers that can ease the zone of tension between urban and rural land uses, while providing ecological and social benefits for urban and rural residents

Since 2006 CMCOG has been working with regional partners to develop a vision for creating a network of protected open spaces by utilizing the Green Infrastructure approach within the central midlands region. This approach is an important component of the COATS transportation planning process because it identifies priority conservation areas that can help guide transportation related environmental mitigation measures and engage stakeholders in discussions about long range plans for protecting the regions natural and cultural resources amidst increasing growth and development pressures.

The water resource definition of Green Infrastructure on the other hand refers more specifically to a natural or engineered system that use soil and vegetation to manage stormwater runoff by retaining and treating it where it falls, allowing for less disruptions to the natural hydrologic cycle and contributing to improved health of the overall watershed. Low Impact Development (LID) concepts are often used interchangeably with this definition of Green Infrastructure because they also refer to a planning, design and development framework for using natural site features along with engineered facilities to better manage land and water resources. Examples of LID techniques for managing water quality include:

- Bioretention and Infiltration (e.g., bioswales, filter strips, Rain Gardens)
- Pervious Pavement
- Rainwater Harvesting
- Green Roofs, Walls, and Planters
- Stormwater Wetlands
- Greenways, Parks, and Plazas
- Green Streets and Parking Lots

Green Streets and Parking lots in particular are important for consideration in long range transportation planning activities. The Institute of Transportation Engineers has defined a series of green streets principles and guidelines for transportation agencies to use. These guiding principles include:

- Minimizing street widths
- Providing pervious surfaces where possible
- Incorporating aesthetic design into retention and detention facilities
- Providing mechanical traps to capture pollutants and particulate matter
- Directing runoff into biofilters or swales where appropriate rather than relying solely on conventional storm drain systems

In regards to this last bullet point, bioswales can be appropriate in many different locations and in many different transportation facility contexts. They can be used in medians, planting strips, curb extensions, islands, and other areas of significant size where runoff can be collected and detained. They can also be employed in areas that slope downward from the curb or sidewalk. Stormwater is allowed to enter bioswale areas by employing frequent curb and gutter cuts in down slope locations. As with bioswales and rain gardens in non-transportation settings, they can and should become an integral part of the existing landscaping treatment. Municipalities spend a great deal of public funds on streetscaping and beautification projects. By embracing green infrastructure and green street concepts, jurisdictions can better leverage these scarce financial resources.

In addition to bioswales, green street designs also rely heavily on pervious pavement systems. As discussed earlier, pervious pavement can be used in a variety of settings including on-street parking areas, off-street parking areas, and alley ways and on low volume collector streets. Sidewalks and pedestrian crosswalks can also use pervious pavement systems. Green street concepts are typically applied to the following five transportation facility types:

- urban commercial streets
- arterial streets
- residential streets
- alley ways and parking lots

Urban Commercial streets offer opportunities for pervious pavement in on-street parking areas, bioswale curb extensions, and stormwater planters around native street trees. Suburban Arterial roads which have much higher traffic volumes and often have two travel lanes in each direction, can use continuous bioswale features parallel to the road. The landscaped bioswale can provide a much needed separation between the vehicle travel lanes and the sidewalks, making for a much safer and aesthetically pleasing pedestrian experience. Residential Streets offer numerous green infrastructure opportunities.

Pervious pavement can be implemented along the edges of wide residential streets that can be used for on street parking (which provides the added benefit of calming traffic). Pervious pavement, such as gravel and turf, can also be used on residential driveways. Homeowners can also site rain gardens next to driveways and along the street frontage to serve as a filter strip and/or infiltration area. Curb

extensions with bioswales or larger bioswale systems can also be used on residential streets. Urban Alleyways which often provide a connection to off street parking can use pervious pavement in access and parking areas. When implemented in tandem with urban commercial green street designs, it can have a positive cumulative impact on stormwater runoff.

Parking Lots represent one of the biggest contributions to impervious surface areas in any given watershed. Fortunately, bioswales and rain gardens are well suited to capture, store, and filter runoff from parking lots. Bioswales can be implemented in the center of a large parking area where frequent curb cuts allow stormwater to enter the bioswale system. If used in tandem with policies that promote shared parking and reduced parking requirements, the negative water quality impacts associated with these types of impervious surfaces can be dramatically reduced.

The green street concept represents a way to reduce impervious surface coverage, increase regional water quality, and support smart growth urban design strategies that facilitate the development of a “complete” street network.

One of the biggest constraints to green street development is a lack of existing technical specifications for planning, design, and construction. Because few projects currently exist in the state of South Carolina, there are a limited amount of benchmarks for demonstrating the effectiveness of these types of projects. As already discussed, many of these techniques can be cost prohibitive for retrofit projects unless they are a part of a complete road redesign or capacity improvement project. As the designated Metropolitan Planning Organization (MPO) for the Columbia area, CMCOG can play an instrumental role in advocating for the use of complete street/green street concepts and should continuously work to identify creative ways for integrating green infrastructure concepts into the regional transportation planning process. This will assist with federal regulatory compliance by identifying potential sites for environmental protection as well as mitigating the adverse impacts of transportation improvements.

8.6 WETLANDS MITIGATION BANKING

Wetland and stream mitigation banking is another important strategy for identifying potential environmental mitigation sites as well as providing project specific mitigation measures. CMCOG has actively engaged in regional mitigation bank planning activities to include developing an eco-region and watershed based site selection and prioritization process used to identify regional focus areas for mitigation banking activities.

The need for wetland and stream mitigation banks in the midlands has increased in recent years as Richland County is about to embark on considerable construction activity as a result of the passage of the Richland Transportation Penny Sales Tax in 2012. In order to meet the project demand for mitigation credits, Richland County is in the process of establishing their own 1,314 acre mitigation bank in the Mill Creek area adjacent to Congaree National Park. The bank, once operational, will preserve existing wetland areas as well as provide opportunities for wetlands restoration which is highly favored by the US Army Corps of Engineers. The bank will have the potential to restore 15,520 linear feet of stream and 267 acres of wetlands and will preserve 14,164 linear feet of existing stream and 662 acres of existing wetlands. In addition to creating a market for Richland County based construction activities, this site also has the potential to absorb pent up demand from SCDOT and private developers who until now have not been able to receive mitigation credits from within the same eco-region and drainage basin because of the absence of mitigation banks in the central midlands region.

In order to comply with federal environmental mitigation regulations, CMCOG will continue to monitor the progress of the Mill Creek mitigation bank and will continue to work with Richland and Lexington Counties to identify opportunities for establishing new banks that can be used for transportation related mitigation credits.

8.7 REGIONAL AIR QUALITY

To proactively address regional air quality issues, primarily those associated with mobile source emissions, CMCOG is an active member of the Central Midlands Air Quality Coalition (CMAQC), which is a group of public, private, and citizen stakeholders who promote regional cooperation for air quality in the central midlands region of South Carolina. CMCOG serves on the CMAQC steering committee which is also comprised of representatives from Richland County, Lexington County, the City of Columbia, the University of South Carolina, The Central Midlands Regional Transit Authority (The Comet), and South Carolina Department of Health and Environmental Control. The goals of CMAQC are to raise public awareness, promote air quality improvement efforts, and work towards developing collaborative, sustainable solutions to regional air quality problems.

Over the past 18-24 months, the CMAQC has developed and received signatures on an air quality pledge of support to promote local air quality initiatives, increased school district-wide participation in air quality awareness programs, and developed the “Clean Air Midlands” campaign to provide local air quality information on social media, TV and radio public service announcements. CMAQC is also in the process of developing a dedicated website called Clean Air Midlands

(www.cleanairmidlands.com) which will serve to educate residents and businesses on local air quality conditions and to encourage involvement in collaborative solutions for emission reduction strategies.

The efforts of CMAQC will increase in importance for the COATS MPO region and surrounding areas if federal air quality standards for particulate matter and ground level ozone become more stringent in the near future. The COATS MPO region will likely trend towards falling into “non-attainment” status and this new designation could significantly hamper regional economic development initiatives and federal funding for transportation infrastructure improvements. To help maintain acceptable air quality, CMAQC will need to promote education and awareness about transportation related strategies that involve reducing number of vehicle miles traveled by single passenger automobiles. Such strategies include:

- **The Congestion Management Process (CMP).** The CMP is outlined in Chapter X of this document. In addition to identifying congested locations, the CMP provides a toolbox of congestion mitigation strategies and a five level screening process to address congestion issues quickly with relatively low-cost improvements. The five levels of strategies range from use of communications and work hour scheduling to reduce the need for travel to full-blown road widening projects. In between are strategies to shift trips from automobiles to other travel modes, increase the use of high-occupancy vehicles, improving the operating characteristics of existing roadways. The CMP approach advocates using the quickest, least expensive method to address the congestion problems identified in each corridor to reduce congestion and related air pollution.
- **Improving the Availability and Service Quality of Alternative Travel Modes.** Chapters 9 and 12 of this plan include proposals for improvement and expansion of bicycle, pedestrian and mass transit facilities and services. While these travel modes currently account for a small share of travel in the Central Midlands, improving these services result in a reduction, or a slowing in the rate of increase, in daily vehicle miles traveled in single passenger motor automobiles.
- **Land Use Practices.** Uncoordinated, disjointed development patterns, generally referred to as “sprawl”, are responsible for increasing the growth of automobile vehicle miles traveled at a much faster rate than actual population growth. Walkable, transit supportive, mixed use neighborhoods and communities, on the other hand, can reduce automobile dependence and enable more destinations to be reached by shorter vehicular trips or non-motorized forms of

transportation. Walkable mixed use communities generally will include higher population densities and therefore make it more feasible to provide transit service for longer commuter oriented trips.

CHAPTER 9: TRANSIT

The primary public transit provider in the COATS MPO is the Central Midlands Regional Transit Authority (aka The Comet). The Central Midlands Regional Transit Authority (CMRTA) provides fixed route service within Richland County and portions of Lexington County. Much of this service is provided within the City of Columbia with operations reaching into the communities of Cayce, West Columbia, Forest Acres, Arcadia Lakes, Springdale, St. Andrews area, and Harbison area. CMRTA current routes are shown in Figure 9.1. Service is provided from 5:00 a.m. - 10:30 p.m., Monday through Friday, and 6:00 a.m. – 8:00 p.m. on Saturdays with 60-minute headways.

CMRTA also provides complementary paratransit service known as DART. The service is a curb-to-curb, advance reservation, shared-ride transportation service. There are no restrictions on the purpose or frequency of reservations. Riders going in the same general direction are grouped together to share rides. The DART base fare is \$3.00 per one-way trip. A fleet of small buses provides DART service. Each bus is equipped with wheelchair lifts and can accommodate four wheelchairs.

To qualify for DART service, applicants must be unable to independently access and/or use CMRTA fixed route systems. Those who wish to use the DART system can be certified as eligible by completing an application and following the short eligibility review process.

Base fare is \$1.50, with a \$0.25 charge for transfers. Bike racks are available on all busses. In FY 2013, the CMRTA provided 1,322,052 passenger trips, with 93,644 revenue vehicle hours. CMRTA recorded approximately 1,262,351 revenue vehicle miles. A recent local options sales tax passed in Richland County will provide additional funding to the Central Midlands RTA which has had to implement cuts in recent years.

9.1 EXISTING RIDERSHIP AND SERVICE TRENDS

The following table and figures present the existing ridership and service trends for CMRTA from 2010 to 2013. In this four year period, ridership has decreased overall for public transportation services. Medicaid transportation ridership has remained stable during that same time period.

Urban system ridership is approximately 1,900,000 annually with anticipation of future growth in lieu of the recent sales tax initiative. The following tables provides an analysis of the most recent trends in ridership, annual revenue vehicle miles, annual revenue vehicle hours, operating expense, and unlinked passenger per revenue vehicle miles:

FIGURE 9.1: CMRTA TRANSIT ROUTES

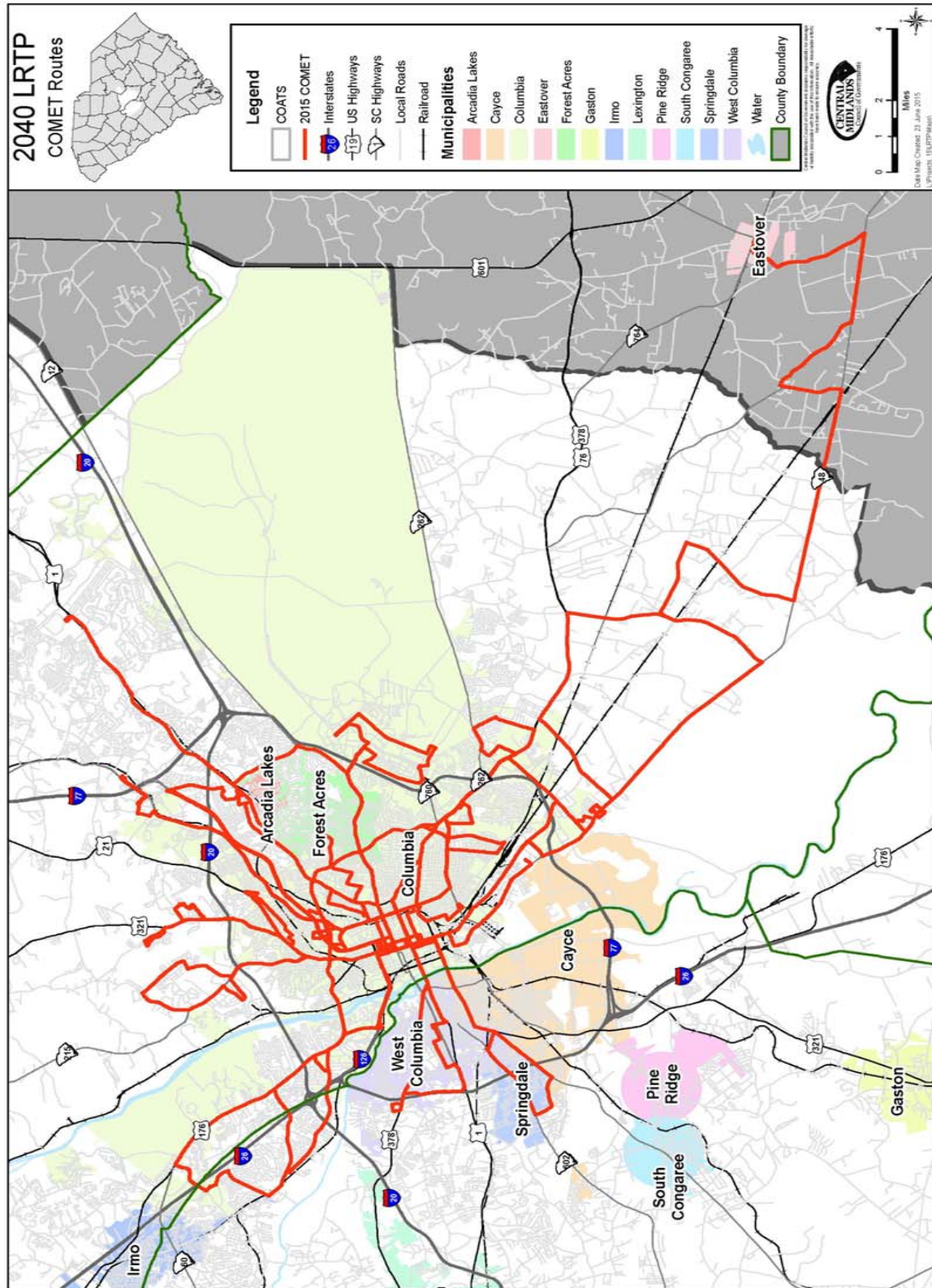
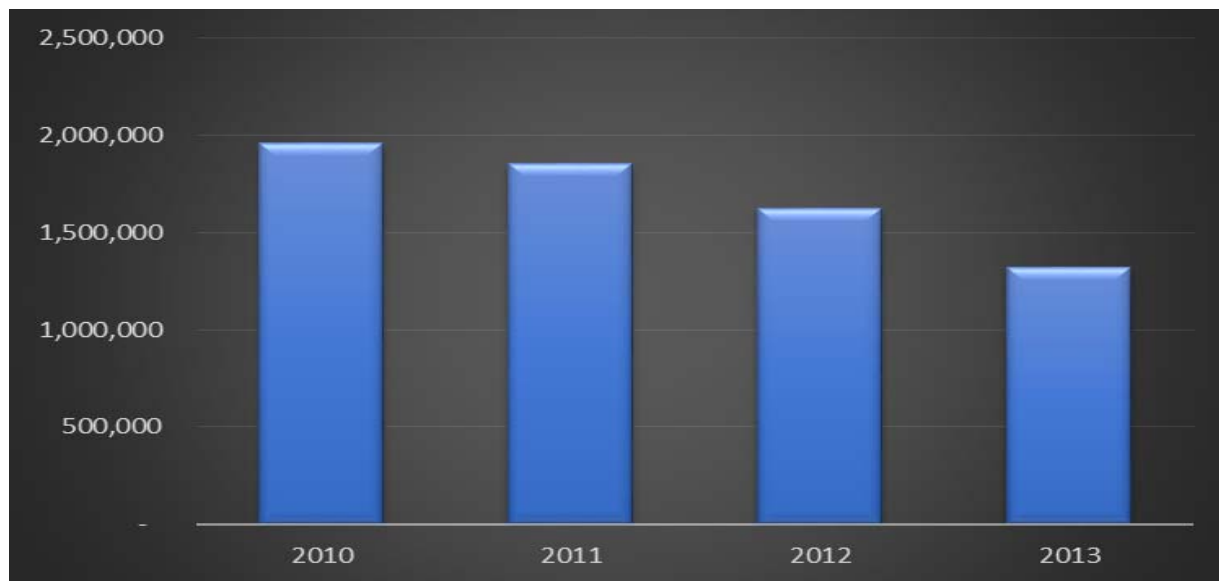


TABLE 9.1: CMRTA RIDERSHIP

Service	2010	2011	2012	2013
Fixed Route	1,885,962	1,781,758	1,568,790	1,262,053
Demand Response	73,288	72,119	57,209	59,999
Total	1,959,250	1,853,877	1,625,999	1,322,052

FIGURE 9.2: CMRTA RIDERSHIP TRENDS

TABLE 9.2: CMRTA ANNUAL VEHICLE REVENUE MILES

Service	2010	2011	2012	2013
Fixed Route	1,470,225	1,412,624	1,148,398	773,201
Demand Response	578,140	538,656	533,549	489,150
Total	2,048,365	1,951,280	1,681,947	1,262,351

FIGURE 9.3: CMRTA ANNUAL VEHICLE REVENUE MILES

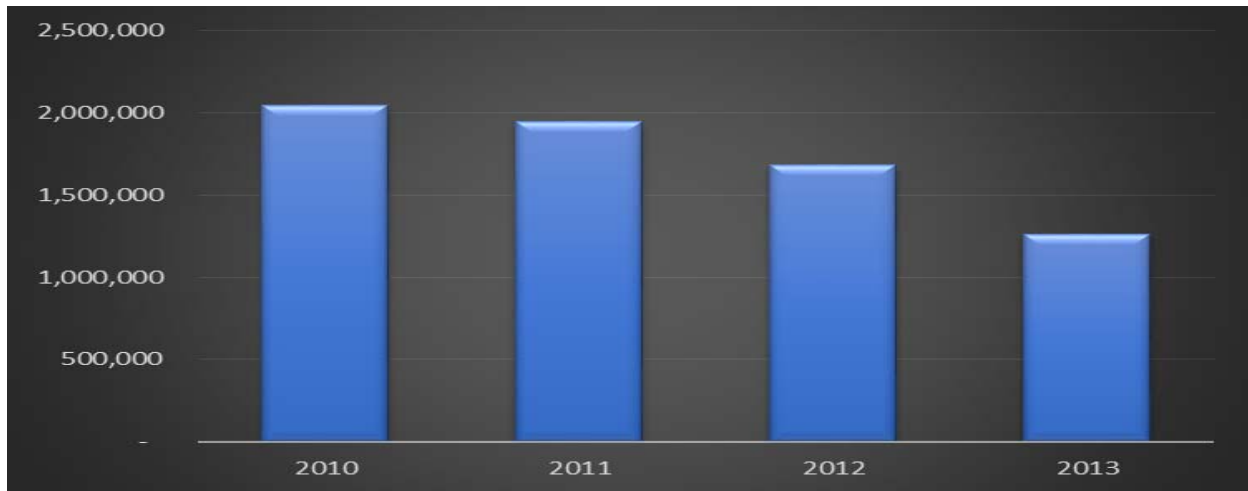


TABLE 9.3: CMRTA ANNUAL REVENUE VEHICLE HOURS

Service	2010	2011	2012	2013
Fixed Route	117,070	110,878	95,280	66,679
Demand Response	33,412	32,200	25,408	26,965
Total	150,482	143,078	120,688	93,644

FIGURE 9.4: CMRTA ANNUAL REVENUE VEHICLE HOURS

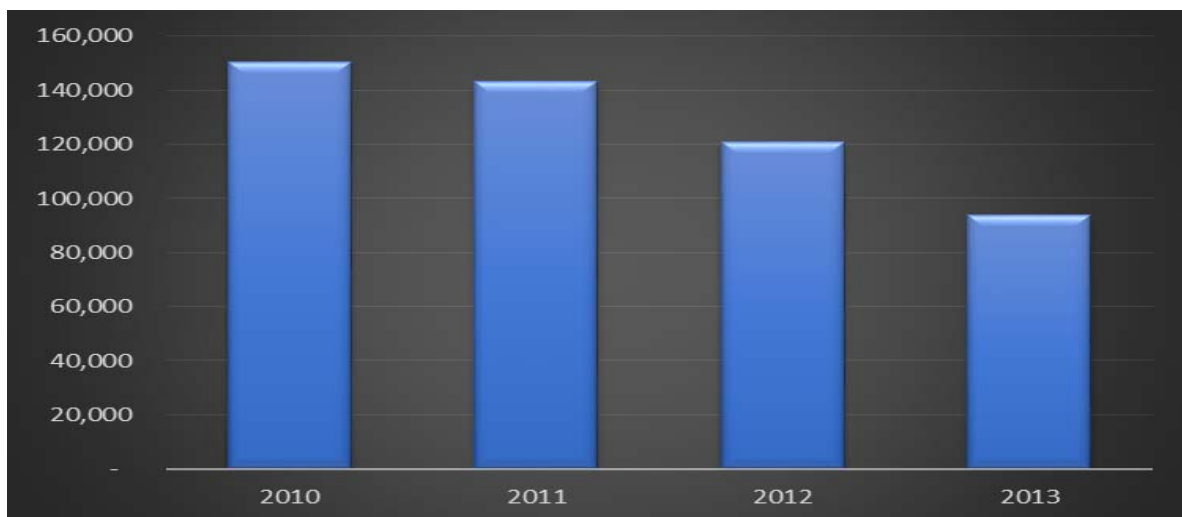
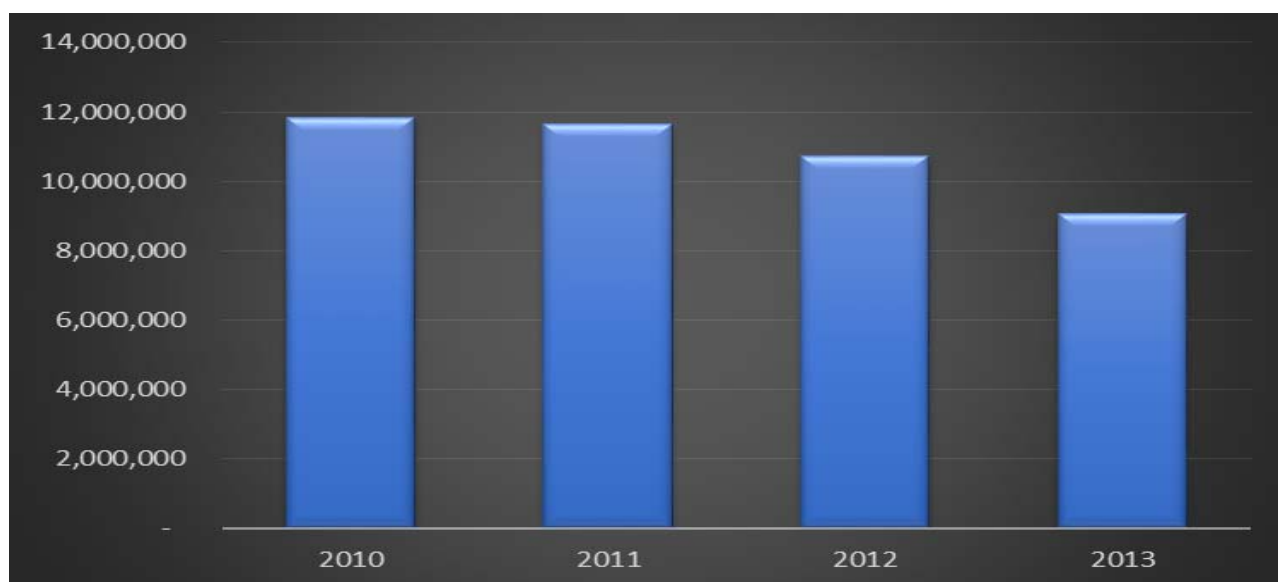


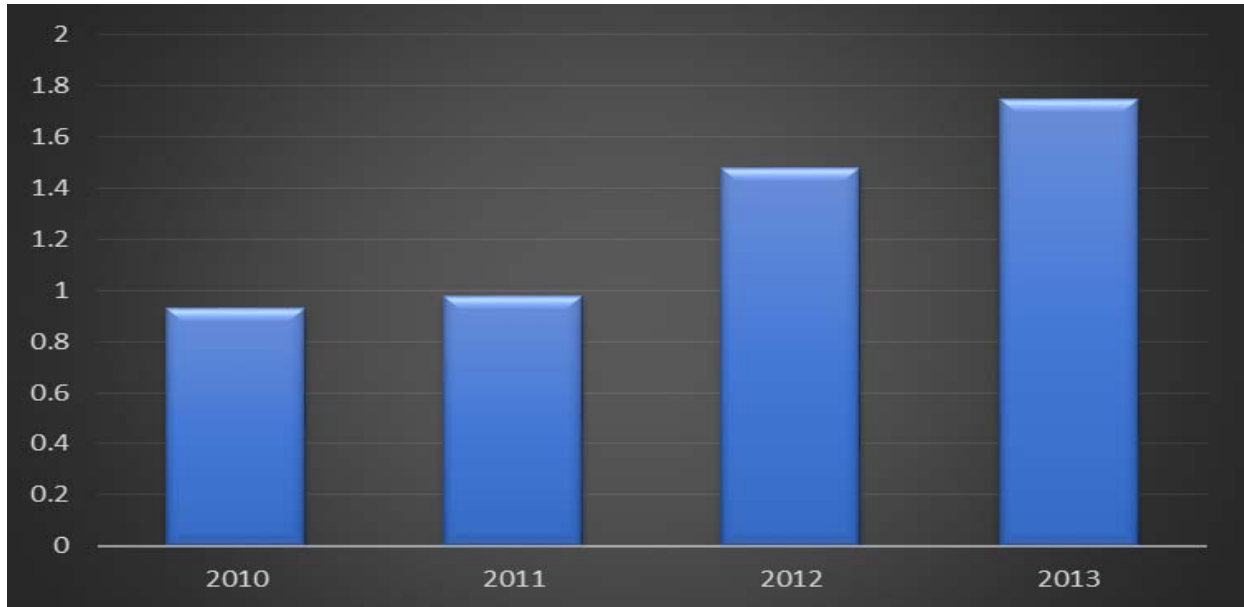
TABLE 9.4: CMRTA OPERATING EXPENSE

Service	2010	2011	2012	2013
Fixed Route	9,617,706	9,535,500	8,845,026	7,251,914
Demand Response	2,224,745	2,108,414	1,887,884	1,802,024
Total	11,842,451	11,643,914	10,732,910	9,053,938

FIGURE 9.5: CMRTA OPERATING EXPENSE

TABLE 9.5: CMRTA UNLINKED PASSENGER TRIPS PER VEHICLE REVENUE MILES

Service	2010	2011	2012	2013
Fixed Route	1.28	1.26	1.37	1.63
Demand Response	0.13	0.13	0.11	0.12
Total	0.93	0.98	1.48	1.75

FIGURE 9.6: CMRTA UNLINKED PASSENGER TRIP PER VEHICLE REVENUE MILES



9.2 TRANSIT VISION

The transit vision presented by the Central Midlands Regional Transit Authority (CMRTA) proposes a new direction and approach to public transportation in the Midlands that will create a more innovative, connected and accessible system to facilitate a better quality of life for all Richland County citizens.

The conversion of compressed natural gas (CNG) as a new fuel source for the CMRTA's transit fleet will not only be a major investment in the infrastructure for CMRTA helping the system save up to 40% of fuel cost while mitigating its impact on the environment, but it will also create much needed infrastructure for the entire region that allows local businesses and governments to use and develop cleaner, American homegrown energy while boosting the economic development potential for the entire region.

The development of high frequency service along high capacity corridors will provide greater connectivity and added convenience for riders during peak hours so that they can get to work, school and retail in a more efficient manner.

The CMRTA will also restructure service to begin serving neighborhoods with lower density routes with smaller buses to directly connect riders with the higher capacity transit corridors. This change will enhance efficiency, provide opportunity for increased ridership and better connect neighborhoods to the downtown business corridors.

With new technologies and improved infrastructure the CMRTA will create a more intelligent transit system. Some of these measures include implementing the automated vehicle locator (AVL) and enhanced GPS tracking to provide real time arrival and departure information for riders so that they can more efficiently plan their trips using their smart phones or the redesigned CMRTA website. And the new smartcard fare payment technology will allow riders to quickly and easily recharge their transit passes at terminals to speed rider commutes.

All of these innovations and service enhancements will enable a more robust, accessible service for the citizens of Richland County to live, to work and to play. Increased frequency, more coverage and greater connection will contribute to a higher quality of life for all.

The Central Midlands Regional Transit Authority's Vision reflects a new philosophy and approach to service. This vision is simply about growing ridership by providing amazing service for our transit riders while constantly attracting new customers and building community wide support. By focusing on job connectivity, job growth and livable communities, CMRTA services will become a transportation style. The vision's operational plan targets improving existing services, creating new services and bringing about innovative technologies/infrastructure to support current and future riders. The changes include:

➤ **ENHANCED SERVICES:** High Capacity Transit Corridors and Local Routes:

- Traditional transit but with high frequency to make riding transit easy and convenient.
- Ridership rates are well above other routes with high demand for more services.
- Enhancements target frequency, expanded evenings and restored Sundays.
- Local routes will build on existing successful services and connect people with jobs and shopping. These services will see high frequency peak hours, as supported by ridership.

➤ **NEW SERVICE TYPE:** Limited Stop Express (LSE) Routes:

- Travels along major metro transit corridors, stopping only at major intersections, transfer points, large employment areas and retail centers.

- Limited Stop Express routes are designed to operate both directions to serve suburban and metro commuters. Initially, these routes will only operate during peak periods. Service will expand as supported by ridership.
- **NEW TECHNOLOGY:** Compressed Natural Gas (CNG):
- Compressed Natural Gas (CNG): As part of its environmental commitment and emphasis on supporting American industry, CMRTA will actively pursue CNG as its fuel type for its transit fleet. CMRTA's leadership in this area brings considerable federal funds and investment that can act as a catalyst for alternative fuel use in the Midlands.
 - By opening the first permanent natural gas fuel station to the Midlands, it opens doors to other fleets from Richland County, City of Columbia, State of South Carolina, University of South Carolina and School Bus fleets.
 - CMRTA will pursue a strong public private partnership to bring CNG fuel to the retail market, allowing private citizens to purchase flex fuel, natural gas or hybrid gas vehicles and fuel for local or regional travel. Emerging green technology—such as bio gas production—will help establish new industries in the Midlands.
 - Natural gas has lower tailpipe emissions, is a US based fuel product that creates US jobs, costs about 40% less than diesel fuel and permits CMRTA to stretch its dollars even farther. It is very expensive to build the onsite infrastructure and buy the new transit fleet.
- **NEW SERVICE TYPE:** Neighborhood Service & Flex Routes:
- Redesigns low productivity transit routes and uses small buses in neighborhoods to directly connect people with high capacity transit corridors.
 - Flex routes allow buses to leave neighborhood service routes to pick up or dropoff customers in low density areas. Usually operate in peak service only but use dial-a-ride options in mid-day, evening and on weekends.
 - Creates more independence and ridership options for persons with disabilities and the elderly.

- High ridership and strong fare collection allows the small services to grow into full service transit routes.
- **NEW SERVICE TYPE: Park & Ride Express Routes:**
- Dedicated service to parking areas with express service to major employment sites via the region's interstate highway network but will also circulate through downtown to minimize transfers.
 - Connect people with jobs or events (downtown employers, events/concerts, USC, etc.) over a longer distance.
 - Operates only during peak periods or dedicated event times. All routes will travel into downtown Columbia in the morning and from downtown Columbia in the afternoon with connections to other routes.
 - Allows metro workers to reach suburban retail areas for employment while suburban service increases access to metro job markets.
- **TRANSIT TECHNOLOGIES:** Compressed Natural Gas (CNG) buses; real time arrival and departure information for transfer points and smart phones; web based transit trip planning and trip matching services for rideshare and vanpool programs; new shelters and benches to match the service types; and a new downtown transit center to support downtown revitalization.
- **HIGH CAPACITY TRANSIT CORRIDORS AND ENHANCED LOCAL ROUTES:**
- **Corridor #1: N. Main/Columbia College:** Enhanced to 30 minute all day service, later evenings, enhanced weekend and restored Sunday service. Key residential and retail corridor with service to Columbia College and Eau Claire Community Center.
 - **Corridor #2: Palmetto Health Richland/Farrow Rd:** Enhanced to 30 minute peak service, later evenings, enhanced weekend and restored Sunday service. Will use neighborhood and flex services on weekends to connect to other routes. Key access to Palmetto Health, SC Health Department and large state employment sites.
 - **Corridor #3: Two Notch Rd:** 30 minute all day service with new Limited Stop Express route during peak periods to provide near 15 minute service during peak travel times;

restore evenings, enhance weekends and restore Sundays. Will enhance a major retail, residential and employment corridor that will reduce auto traffic and connect with new services to the Village at Sandhill.

- **Corridor #4: Forest Dr.**: Enhanced to 30 minute peak service, later evenings, enhanced weekend and restored Sundays. Possible Limited Stop Express to Ft. Jackson for support workers and families attending Army graduation ceremonies/events. Route supports a growing retail and residential corridor.
- **Corridor #5: Assembly/Bluff Rd.**: Enhanced to 30 minute peak service and 60 minute midday service. Will use neighborhood and flex services on weekends to connect to other routes. Enhances transportation for University of South Carolina students and workers to campus with increased access to special events at Williams-Brice Stadium and State Fairgrounds. High use by students from the University of South Carolina/Midlands Technical College will allow for 20 minute frequency all day.
- **Corridor #6: Devine/Garner's Ferry**: Enhanced service for the entire area, expanding to Greenlawn Ave. with 30 minute all day service. A new Hopkins Limited Stop Express route during peak periods will provide near 15 minute service during peak travel times. Restores evenings and Saturdays with Sunday neighborhood service and flex services. Enhanced service to Midlands Technical College, Benedict College housing, Veterans' Administration Hospital and Shandon community.
- **Corridor #7: Broad River/Harbison**: Enhanced with 30 minute peak frequencies; enhanced evening and weekend service, including Sundays. Expanded frequency to Dutch Square Mall, state employment centers and Harbison Rd. retail/employment sites. High ridership builds toward a downtown to shopping weekend express service.
- **Downtown Circulator**: This high frequency service into downtown Columbia creates the opportunity for a downtown circulator at a much lower cost. As buses arrive downtown, they will depart the new transit center and "orbit" downtown to connect the north and south ends to include Bull and Assembly streets. Quick access to downtown high rises, University of South Carolina campus and The Vista without having to transfer routes to get there.

➤ **NEIGHBORHOOD SERVICE ROUTES & FLEX ROUTES:**

- **Eau Claire**: Connects Earlewood, Sunset Rd. and Eau Claire neighborhoods with Broad River and N. Main corridors. Fixed route services give customers quick access to shopping or connections into downtown and Palmetto Health Richland.
- **Colonial Dr./W. Beltline**: Connects the neighborhoods between N. Main St. and Two Notch Rd. to downtown with connections at Farrow Rd. providing increased opportunity to reach job centers.
- **Monticello Rd./Denny Terrace**: Flex Route with possible dial-a-ride service to connect Denny Terrace, Eau Claire and N. Main St. communities with evening/weekend service.
- **Fairfield Rd./ Wilson Rd.**: Flex Route with possible dial-a-ride service to connect the Wilson Rd. and Northeast Richland County with the N. Main St and Farrow Rd. corridors. Allows for evening and weekend transit services.
- **Forest Acres**: Flex Route with possible dial-a-ride service to connect Forest Acres with Two Notch, Forest Dr. and possibly Devine/Garner's Ferry. Allows for evening and weekend transit services.
- **Millwood/Shandon**: Flex Route with possible dial-a-ride service to connect The Millwood and Shandon areas with the Forest Dr. as well as Devine/Garner's Ferry Corridors. Also provides connections into Five Points and the University of South Carolina campus. Allows for evening and weekend transit services.
- **Rosewood Dr.**: Connects Hollywood/Rose Hill/Rosewood neighborhoods with the Devine/Garner's Ferry and the Assembly/Bluff Rd. high frequency corridors with access at Midlands Technical College and Assembly St. Allows for evening and weekend transit services.
- **Bush River Rd./St. Andrews**: Connects the Bush River Rd. St. Andrews area with the shopping and employment areas of Bower Parkway, Harbison Rd. and Lake Murray Blvd. and the new Palmetto Health Parkridge. Allows for evening and weekend transit services.

➤ **NEW ROUTES ENHANCED LOCAL ROUTES & NEIGHBORHOOD SERVICE/FLEX ROUTES**

- **Two Notch Road Local**: Creates a new local service along Two Notch Rd. that operates between Columbia Place Mall and the Village at Sandhill. This route will operate bi-directionally to take commuters to job centers in both the city and suburbs.
- **Two Notch Road Limited Stop Express**: Creates a Limited Stop Express that operates from downtown Columbia along Two Notch Road to Columbia Place Mall (or beyond). This route will make limited stops only at major points of interest to our customers. This route will operate bi-directionally bringing commuters to job centers in the city and out to the suburbs. Service will operate during peak periods.
- **College Special**: Connects various off-campus apartments for the University of South Carolina, Allen University and Benedict College students, to the entertainment district of Five Points. This route will operate from Bluff Road to Two Notch Road via Blossom/Harden Streets.
- **Hopkins Limited Stop Express**: Limited Stop Express between Hopkins and downtown Columbia via Garners Ferry Road. Service during peak periods will operate bi-directionally bringing commuters to job centers into the city and out to the suburbs.
- **Gamecock/Event Shuttles**: Shuttles to connect downtown Columbia restaurants, hotels and parking garages and The Vista to Williams-Brice Stadium. This enhanced ☐fare service will provide circulator ☐style transit in the downtown Columbia/University of South Carolina areas, based on demand.
- **Expanded DART service** for persons with disabilities as service areas grow, as well as access to all fixed routes, and all dial-a-ride/flex services.

➤ **NEW ROUTES ENHANCED PARK & RIDE EXPRESS ROUTES**

- **Northwest (I-26) Express**: New service from I-26 Exit 97 (Peak) through Columbiana Mall (Harbison) and then back to I-26 into downtown Columbia. Service will operate during peak periods will take commuters to job centers into the city and out to the suburbs.

- **Northeast (I-77) Express**: New service from Blythewood through Killian Road, Palmetto Health Richland to downtown Columbia. Service will operate during peak periods. This route will operate toward Columbia in the mornings and toward Blythewood in the afternoons.
- **East (I-20) Richland Express**: Creates a service that operates from the Village at Sandhill via Clemson Road, I-20, Columbia Place Mall, Palmetto Health/ Richland Hospital to downtown Columbia. Service will operate during peak periods. This route will operate bi-directionally bringing commuters to job centers into the city and out to the suburbs.
- **Gamecock/Event Shuttles**: New Park & Ride routes from the Northwest, Northeast and East Richland Park & Ride locations for University of South Carolina football games and special events. This premium fare service will provide round trip express services from key locations to downtown for game day activities based on demand.

➤ **INNOVATIONS FOR PARTNERSHIPS & TRANSIT TECHNOLOGIES**

- **Downtown Circulator**: In addition to the emphasis on connecting workers, students and visitors throughout downtown, new partnerships within the Richland/Columbia area will permit the creation of a circulator to connect hotels, convention centers and restaurants.
- **Dedicated Job Center Routes**: As new industry arrives and existing businesses expand, shift work at major employment sites can become more challenging and can create increased burden on the local infrastructure (traffic, lack of surface parking). New partnerships with large employers allows for specialized transit routes (open to the public) from downtown to industrial parks, warehouses or manufacturing centers.
- **Lexington County Transportation Options**: While focused on Richland County as the primary funding source, Lexington County and its many towns and communities will have access to similar programs and services on a pay as you go basis. Several high capacity transit and Park & Ride corridors exist in Lexington County the opportunity to add neighborhood service and flex/dial a ride programs services in outlying communities.
- **University & Commuter Connections**: CMRTA's 2013 programs to begin connecting students to transit will begin with new lower cost fare options for students to encourage

more use by high school & college students. Partnerships with universities, school districts and major employer locations will allow us to connect a whole new passenger base with a whole new set of commute options.

➤ **INTELLIGENT TRANSIT SYSTEMS (A SAMPLE OF POPULAR TECHNOLOGIES):**

- CMRTA will take the next step in technology by adding automated vehicle location (AVL) to allow real time arrival and departure information for customers at stops or on smart phones.
- GPS tracking on buses can help trigger lights to turn green on major corridors helping push the buses through clogged city traffic and speed up commute times.
- New technology will text passengers when their buses will arrive (with userdefined settings) and even let them track the closest bus while waiting on the street corner and use web based trip planning on the new CMRTA website.
- Smartphone apps for visitors can link them to transit and QRT/bar code technology around town can tell tourists about routes and services on-the-go.
- Smartcard fare payment technology will allow customers to ride with the tap of their card and can recharge their transit passes at terminals (similar to an ATM). This also provides real-time bus arrival information, general passenger information and advertising revenue for the system.

➤ **RIDER AMENITIES (A SAMPLE OF POPULAR AMENITIES):**

- An improved downtown Transit Center with off-street bus access and off-street waiting areas. The new downtown transit center will give customers a more secure, convenient and cleaner way to ride transit services. Buses will no longer line up downtown for route transfers therefore downtown sidewalks will be easier to navigate for pedestrians. Customers will be able to catch their buses at the same gate every day to improve reliability and get them home on time.
- New buses for all routes and services are vital to improving CMRTA services.

- New buses for major corridors will be state-of-the-art, low-floor buses. New, on-board technologies will announce major stops, digitally display the cross-streets and include on-board security cameras. New ergonomic seating with stainless steel interiors (and on-board Wi-Fi for Park & Ride routes) will create the look and feel of a light rail train car.
- New neighborhood service and flex route buses will be smaller, less expensive to operate and more neighborhood friendly. In addition to being quieter, they have a lower profile, take up less of the road and support the feeling of community. They are less expensive to purchase and permit service in new areas until ridership grows.
- Larger capacity bicycle racks to support growing use of transit for bicyclists—in partnership with business and employers—will encourage riders to bike to the route and ride transit to their destination.
- Brand new benches, shelters and signs with enhanced services at Super Stops and neighborhood connection points will feature solar lighting; reflective decals and real time arrival information at enhanced stops will make for safer and more convenient transfers. Trash and recycling bins will make it easier to keep the areas clean and neat. All bus stop signs will be replaced with high visibility signage to include the route and travel information.

CHAPTER 10: HUMAN SERVICES COORDINATION

In 2007, the Central Midlands Region completed the Human Services Transportation Coordination Plan. That planning effort included extensive public outreach within the region and feedback from local stakeholders. The plan included:

- An inventory of services and needs for the region, and
- Strategies and actions to meet the needs.

This section of the Regional Transit & Coordination Plan provides an update to the 2007 planning effort by updating the state of coordination within the region, identifying needs and barriers, and identifying strategies to meet those needs. Additionally, the inclusion of social service transportation alongside public transportation provides an opportunity to see various needs and available resources across the region.

10.1 FEDERAL REQUIREMENTS

10.1.1 Background

In 2005, President Bush signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, commonly referred to as SAFETEA-LU. The SAFETEA-LU legislation authorized the provision of \$286.4 billion in funding for federal surface transportation programs over six years through Fiscal year 2009, including \$52.6 billion for federal transit programs. SAFETEA-LU was extended multiple times in anticipation of a new surface transportation act. Both the Intermodal Surface Transportation Efficiency Act (ISTEA) and Transportation Equity Act for the 21st Century (TEA- 21) predate SAFETEA-LU. SAFETEA-LU was the most recent surface transportation act authorizing federal spending on highway, transit, and transportation-related projects, until the passage of Moving Ahead for the 21st Century – MAP-21 was signed into law in June 2012.

Projects funded through three programs under SAFETEA-LU, including the Elderly Individuals and Individuals with Disabilities Program (Section 5310), Job Access and Reverse Commute Program (JARC, Section 5316), and New Freedom Program (Section 5317), were required to be derived from a locally developed, coordinated public transit-human services transportation plan. The 2007 Human Services Transportation Plans for the Central Midlands region met all federal requirements by focusing on the transportation needs of disadvantaged persons.

10.1.2 Today

In June 2012, Congress enacted a new two-year federal surface transportation authorization, MAP-21, which retained many but not all of the coordinated planning provisions of SAFETEA-LU. Under MAP-21, JARC and New Freedom are eliminated as stand-alone programs, and the Section 5310 and New Freedom Programs are consolidated under Section 5310 into a single program, Formula Grants for the Enhanced Mobility of Seniors and Individuals with Disabilities, which provides for a mix of capital and operating funding for projects. This is the only funding program with coordinated planning requirements under MAP-21.

10.1.3 MAP-21 Planning Requirements: Mobility of Seniors and Individuals with Disabilities Program (Section 5310)

This section describes the revised Mobility of Seniors and Individuals with Disabilities Program (Section 5310), the only funding program with coordinated planning requirements under MAP-21, beginning with FY 2013 and currently authorized through FY 2014.

At the time this Plan update began, FTA had yet to update its guidance concerning administration of the new consolidated Section 5310 Program, but the legislation itself provides three requirements for recipients. These requirements apply to the distribution of any Section 5310 funds and require:

- That projects selected are “included in a locally developed, coordinated public transit-human services transportation plan”;
- That the coordinated plan “was developed and approved through a process that included participation by seniors, individuals with disabilities, representatives of public, private, and nonprofit transportation and human service providers, and other members of the public”; and
- That “to the maximum extent feasible, the services funded ... will be coordinated with transportation services assisted by other Federal departments and agencies,” including recipients of grants from the Department of Health and Human Services.

Under MAP-21, only Section 5310 funds are subject to the coordinated-planning requirement. Sixty percent of funds for this program are allocated by a population-based formula to large urbanized areas with a population of 200,000 or more, with the remaining 40 percent each going to State’s share of seniors and individuals with disabilities in small-urbanized areas (20 percent) and rural areas (20 percent).

Recipients are authorized to make grants to subrecipients including a State or local governmental authority, a private nonprofit organization, or an operator of public transportation for:

- Public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable;
- Public transportation projects that exceed the requirements of the Americans with Disabilities Act;
- Public transportation projects that improve access to fixed route services and decrease reliance by individuals with disabilities on complementary paratransit; and
- Alternatives to public transportation that assist seniors and individuals with disabilities with transportation.

Section 5310 funds will pay for up to 50 percent of operating costs and 80 percent for capital costs. The remaining funds are required to be provided through local match sources. A minimum of 55 percent of funds apportioned to recipients are required to be used for capital projects. Pending updated guidance from FTA on specific activities eligible for Section 5310 funding under MAP-21, potential applicants may consider the eligible activities described in the existing guidance for Section 5310 and New Freedom programs authorized under SAFETEA-LU as generally applicable to the new 5310 program under MAP-21.

This section of the report (Chapter 3) identifies the state of coordination within each region and a range of strategies intended to promote and advance local coordination efforts to improve transportation for persons with disabilities, older adults, and persons with low incomes.

10.2 GOALS FOR COORDINATED TRANSPORTATION

The 2007 Central Midlands Human Services Transportation Coordination Plan did not include specific coordination goals within the report. In order to evaluate the needs and strategies identified below, the following coordinated transportation goals are presented and also support the overall SCMTP goals, which are presented in Chapter 4.

The goals are:

- Provide an accessible public transportation network in the region that offers frequency and span of service to support spontaneous use for a wide range of needs; this may include direct commute service, as well as frequent local service focused within higher density areas.
- Maximize the farebox recovery rate and ensure that operation of the transit system is fiscally responsible;
- Offer accessible public and social service transportation services that are productive, coordinated, convenient, and appropriate for the markets being served; The services should be reliable and offer competitive travel times to major destinations; support economic development;
- Enhance the mobility choices of the transportation disadvantaged by improving coordination and developing alternative modes of transportation.

10.3 COORDINATION PLAN UPDATE - OUTREACH PROCESS

Because of the extensive outreach conducted in the region during the original 2007 Human Services Coordinated Plan, and ongoing coordination meetings within the region since then, the SCDOT approached outreach specific to the update of this Regional Transit & Coordination Plan in a streamlined fashion, working primarily with the COGs, MPOs, and transit agencies who are knowledgeable of, and serve, the target populations in their communities. The outreach effort was based upon the following principles:

- Build on existing knowledge and outreach efforts, including outreach conducted for 2007 Human Services Coordinated Plan, locally adopted transit plans, the Long Range Planning efforts within the region, and other relevant studies completed since 2007.
- Leverage existing technical committees/groups and relationships to bring in new perspectives and recent changes via their networks.

Some of the specific tools for outreach included local and regional meeting presentations, in-person feedback, webpage for submitting comments, etc. The COGs contacted local agencies in their region to provide feedback and input into the existing state of coordination in the Central Midlands Region, the gaps and needs in the region, and strategies to meet future needs.

10.4 STATE OF COORDINATION IN THE CENTRAL MIDLANDS REGION

As part of this plan update process, local and regional plans completed since 2007 were reviewed. In the initial 2007 Central Midlands Regional Human Services Coordination Plan, many of the human services providers were beginning the discussions of transportation coordination and developing ways to meet the needs in the region. A number of agencies in the region provide human service transportation, although most of the providers concentrate their services in one county. As is common in urban regions, many agencies take advantage of the CMRTA fixed route services whenever possible. However, CMRTA over the past few years had funding and service reductions, which have resulted in less attention for human service-related transportation coordination opportunities.

The evolution of human service transportation in the Central Midlands has resulted in a number of agencies providing services with in-house resources or contracting with private providers. Many of these agencies have not been compelled to coordinate services simply because they have a critical mass of trips within their own parameters, which affords them the economies of scale necessary to operate efficient service. Many agencies in the Central Midlands region continue to express willingness to explore and increase coordination opportunities.

10.5 BARRIERS AND NEEDS IN THE CENTRAL MIDLANDS REGION

An important step in completing this updated plan was to identify transportation service needs, barriers and gaps. The needs assessment provides the basis for recognizing where—and how—service for transit dependent persons can be improved. The plan provides an opportunity for a diverse range of stakeholders with a common interest in human service transportation to convene and collaborate on how best to provide transportation services for transit dependent populations. Through outreach described above with the COG, the 2007 data was reviewed and updated for the transportation gaps and barriers faced in the region today. The results of the needs assessment are summarized in Table 10-1.

TABLE 10.1: NEEDS ASSESSMENT SUMMARY REGIONAL TRANSPORTATION GAPS/BARRIERS TO COORDINATION

2007	2013
Reduction in public transit systems add pressure to human services transportation system	Reduction continues - SC Supreme Court has decided to allow the penny sales tax approval to move forward from the November 2012 election. An expanded service area, increased frequency, and DART services are expected.
Need for more wheelchair access	<ul style="list-style-type: none"> • Wheels of Five Points (5310 in FY 2008). • Wheels of NE (5310 in FY 2009). • Provided 5317 funds for medical escort services on DART vehicles FY 2008, 2009. • Assisted Rides Program for Lt .Governor Office on Aging with 5317 funds FY 2011, 2012. • CMRTA Medical Escort Services 5317 FY 2008. • Newberry COA Medical Escort Services 5317 FY 2008, 2011- Newberry COA.
Need for vehicles replacements is a large capital issue.	ARRA and sales tax will allow replacement and expansion of CMRTA & DART fleets.
Lack of local funding support is currently a popular topic among municipalities.	Richland County and the City of Columbia have signed a new Intergovernmental Agreement that provides local funding for CMRTA. Lexington County has held a Transit Summit to explore the issue.
Late afternoon and return trips are difficult to serve and experience reliability issues.	CMRTA hopes to expand hours of operations with new sales tax funding. CMCOG has also instituted a Rideshare Program.
Communications issues with non-English speaking persons.	Efforts are being made to encourage one or more dispatchers to be fluent in speaking Spanish (most common on English primary language in region).
Difficult to identify "Qualified" third party providers.	One taxi service provided funds to make several vans ADA wheelchair accessible (5317 FY 2008).

10.6 COORDINATION STRATEGIES AND ACTIONS

In addition to considering which projects or actions could directly address the needs listed above, it is important to consider how best to coordinate services so that existing resources can be used as efficiently as possible. The following strategies outline a more comprehensive approach to service delivery with implications beyond the immediate funding of local projects. Examination of these coordination strategies is intended to result in consideration of policy revisions, infrastructure improvements, and coordinated advocacy and planning efforts that, in the long run, can have more profound results to address service deficiencies.

A range of potential coordination strategies was identified primarily through collaboration with the COG with direct outreach to key stakeholders in the region involved in providing service and planning of human service transportation. These stakeholders were asked to review and update the opportunities to coordination and the strategies identified in the 2007 Regional Human Services Transportation Plan and identify other successful coordination efforts that are needed today. The updated data for the Central Midlands Region are shown in Table 10-2 and Table 10-3.

TABLE 10.2: OPPORTUNITIES TO COORDINATE OPPORTUNITIES TO COORDINATE

2007	2013
Information on available transportation capacity.	Mapped several routes or service areas by providers
Mobility manager who can be clearinghouse for centralized information availability as well as scheduling and dispatching.	CMRTA intends to hire a mobility manager to assist with the development and implementation of their services. CMCOG is coordinating with the LGOA to consider a regional mobility manager.
Regional vehicle maintenance to share expenses.	No progress to date
Cooperation in driver training.	Discussions are being led by CMRTA with other agencies and organizations.

Establish a fare structure for non-program riders.	No progress to date
Develop common standards for driver training and qualifications as well as for maintenance and insurance coverage.	Discussions are being led by CMRTA with other agencies and organizations.
Develop insurance pooling program	Need cooperation with SCDOT & insurance commission.
Develop cost allocation formula to encourage cooperation and coordination among providers.	Intended to be done once CMRTA hires a mobility manager.
Use real-time scheduling among operators in an area to utilize available capacity, especially for return trips.	Current being performed by USC and being explored by CMRTA.
Continue and expand statewide leasing and fueling program.	Continues.
Take advantage of new matching regulations by pooling the funding from multiple federal programs.	Currently being explored by CMRTA as they partner with different agencies to provide services.

TABLE 10.3: UPDATED COORDINATION STRATEGIES COORDINATION STRATEGIES

2007	2013
More service (more days, hours, geographic coverage).	Expansion of service expected with the approval of the sales tax.
Access to jobs and reverse commute a major issue.	Have worked with our Workforce Development Partners to develop a reimbursement based transportation program that provides transportation to jobs and job training.
Region should expand use of private operators.	The City of Columbia has required all cab companies to have an accessible vehicle if they request to operate in the city.
Insurance consistency among providers and coverage.	Need cooperation with SCDOT & insurance commission.
Explore mobility manager concept.	CMRTA intends to hire a mobility manager to assist with the development and implementation of their services. CMCOG is coordinating with the LGOA to consider a regional mobility manager.
Address cost allocation among operators.	No progress made to date.

The above coordination information summarizes the gaps, barriers, and proposed strategies in the region. As recognized throughout this planning effort, successful implementation will require the joint cooperation and participation of multiple stakeholders to maximize coordination among providers in the region and across the state.

The strategies identified above should be used to develop and prioritize specific transportation projects that focus on serving individuals with disabilities, older adults, and people with limited incomes. Proposals for these specific projects would be used to apply for funding through the newly defined MAP-21 federal programs. The outreach process identified the need for the coordination of

transportation planning and services. Due to the population distribution throughout the state, it appears that coordination of planning and services is best carried out on a regional basis. One example is holding regular coordination meetings in each region (annual or bi-annual) to engage providers throughout the state.

CHAPTER 11: COMMUTER RAIL IN THE MIDLANDS

Another aspect of achieving regional mobility in the future will come by making a priority investment in some type of high capacity transit system (i.e. commuter rail). As the Central Midlands region continues to grow in both population and employment, the likelihood of more traffic congestion will continue to rise. Providing transportation options, like transit (and commuter rail in the long run), will help maintain quality of life and lessen the need for investment in roadways.

In 2006, CMCOG adopted the *Commuter Rail Feasibility Study for the Central Midlands Region of South Carolina* (aka Commuter Rail Plan) for purposes of fostering the establishment of regional land use policies that would play a major role in the future viability of rail transit in the Central Midlands region. The CMCOG Commuter Rail Plan examines three corridors in the region that exhibit characteristics most suitable for some type of commuter rail investment. These corridors are: Batesburg-Leesville to Columbia, Camden to Columbia, and Newberry to Columbia. The Commuter Rail Plan envisions and encourages the establishment of transit-supportive developments and facilities, in order to reduce the dependence on the use of automobiles and improve air quality; and outlines a series of action steps that can be taken now to build toward high-capacity transit service in the future. This Commuter Rail Element of the 2040 LRTP incorporates by reference the CMCOG Commuter Rail Plan.

A description of the proposed corridors as well as a look into possible high speed rail service are next, followed by a set of recommended action steps for CMCOG and stakeholder municipalities to consider in preparation for future high-capacity transit.



11.1 DESCRIPTION OF POTENTIAL CORRIDORS

As mentioned earlier, three specific commuter rail corridors were considered in this feasibility assessment: Batesburg-Leesville to Columbia, Camden to Columbia, and Newberry to Columbia. These three corridors are illustrated in Figure 11.1. The Commuter Rail Plan evaluated each of these routes as well as provided a description of which modes of transit can be appropriate in various settings. For instance, heavy rail and light rail were determined to be appropriate in densely urban cities that have the population and employment to support these high-capacity modes. While the Central Midlands region is experiencing significant growth, the region will not have the population

and employment densities necessary to support light or heavy rail for some time. The region's population density, however, may support other types of high-capacity transit, such as express bus, bus rapid transit (BRT), and commuter rail. The length of the corridors and population density of the service area are the key characteristics that lend support to these specific modes.

Express bus currently operates in two of the three corridors and serves as a base from which further transit enhancements can be developed. As transit ridership grows, more intense levels of express bus can be implemented. Eventually, further enhancements such as BRT services and even commuter rail may become warranted. While all three corridors may warrant high capacity transit sometime in the future, they will all reach that point at different times. Therefore, phased implementation of a menu of transit strategies can be tailored to each specific corridor. Below is a brief description of each corridor along with the most appropriate mode of transit.

11.2 COMPARISON TO PEER SYSTEMS

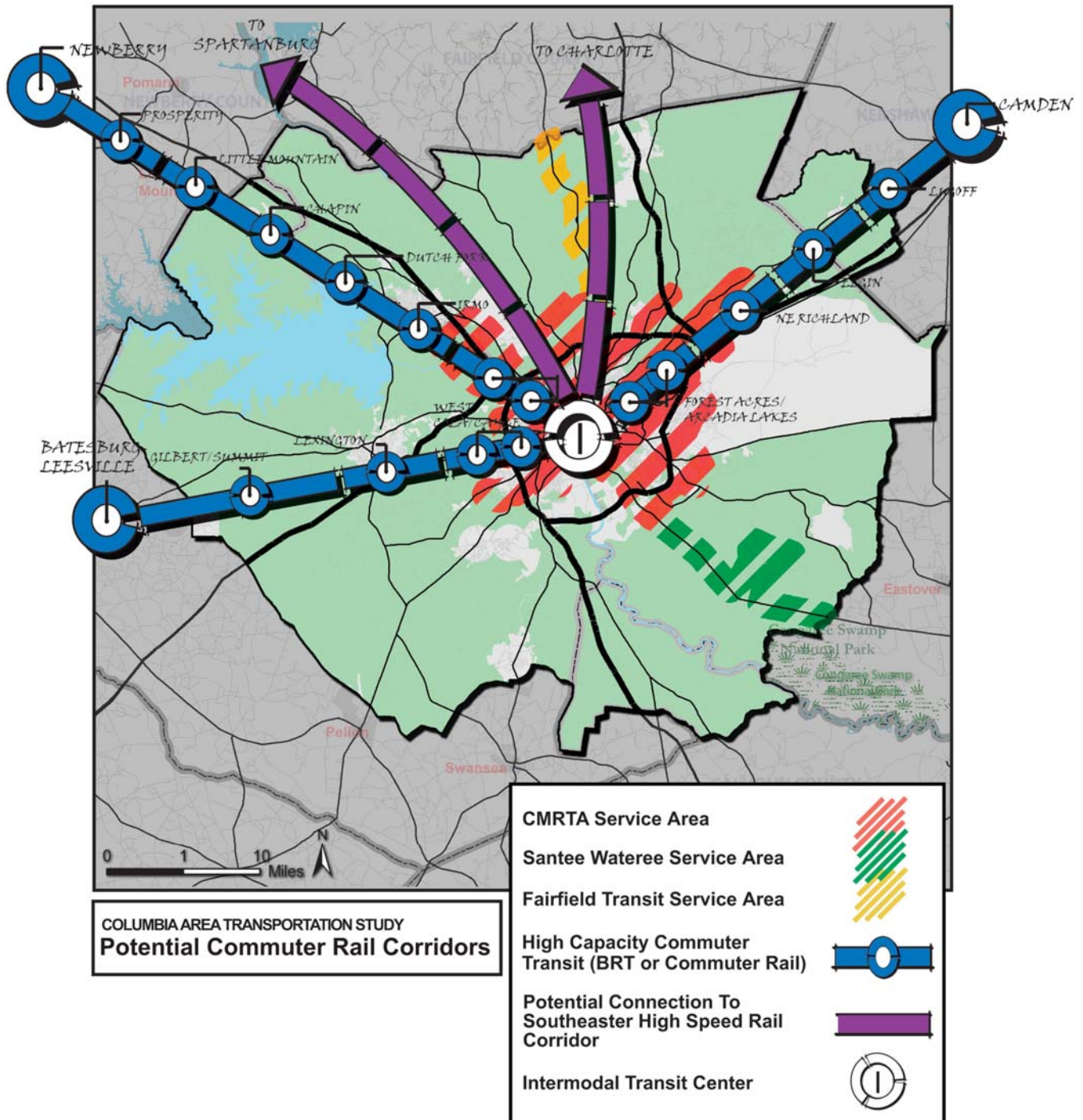
The order-of-magnitude cost and ridership estimates that were produced for the Central Midlands effort were used as a basis for comparison to similar settings in which commuter rail service is actively being planned. Specifically, the ridership and cost projections for the three Central Midlands corridors were compared to that of planned commuter rail lines in Albuquerque, Charlotte, and Nashville.

It should be noted that the related figures for Nashville and Charlotte vary significantly, based on the scope of each project. Nashville is taking a "bare bones" implementation approach, using basic stations and used rail cars, whereas Charlotte is providing more track improvements, new vehicles, and amenities. The current estimates for Nashville project 1,500 daily passenger boardings, with an implementation cost of approximately \$40 million. Plans for Charlotte currently estimate an implementation cost of \$275 million - \$290 million, with 2,500 to 5,000 daily riders. Albuquerque's projected cost is between that of Nashville and Charlotte, but its corridor is significantly longer than that of Nashville or Charlotte.

TABLE 11.1: PEER CITY COMPARISON

Corridor/Peer City	Ridership (daily boardings)	Capital Cost
Camden Corridor	1,900 – 2,300	\$80 million
Newberry Corridor	1,200 – 1,500	\$120 million
Batesburg-Leesville Corridor	600 – 800	\$92 million
Albuquerque	n/a	\$125 million
Charlotte	2,500 – 5,000	\$275 - \$290 million
Nashville	1,500	\$40 million

FIGURE 11.1: POTENTIAL COMMUTER RAIL CORRIDORS



A comparison of projected ridership and cost between the Central Midlands corridors and the three peer corridors is given in Table 11.1. As illustrated in the table, the estimated ridership of the Camden corridor compares favorably with the projected Nashville ridership, and the Newberry corridor approaches Nashville's estimated ridership. The estimated patronage for the Batesburg-Leesville line falls far below that of the peer systems.

In terms of cost per mile, the Nashville corridor (32 miles in length) is estimated to cost approximately \$40 million, resulting in a unit cost of \$1.25 million per mile. On the other end of the spectrum, Charlotte's North Corridor is envisioned as a full service line, costing \$290 million for a 30-mile corridor, or \$9.7 million per mile. Compared to these corridors, the Camden line's costs are competitive - \$80 million for 33.3 miles of service, or \$2.4 million per mile. The Newberry and Batesburg-Leesville lines also have reasonable unit costs, at approximately \$2.8 million per mile.

11.3 CONNECTIONS TO REGIONAL HIGH SPEED RAIL

Another aspect of the Commuter Rail Plan was to examine the feasibility for a regional high speed rail corridor that would pass through the Upstate of South Carolina. This connection would serve as a passenger link between the Columbia area and a terminal point in either Charlotte or Spartanburg, both of which lie along the primary corridor for the Southeast High Speed Rail service.

In determining the best connection to high speed rail, a comparative cost analysis was performed with regard to the major categories of infrastructure improvements. The projected cost associated with instituting service on the Columbia to Charlotte corridor is less than the cost of establishing service in the Columbia to Spartanburg corridor. However, if commuter rail service were already in place to Newberry, the additional cost of extending service to Spartanburg would be less than the cost of the Columbia to Charlotte corridor.

Based on the projected infrastructure costs in each corridor, it appears that the Columbia to Charlotte corridor offers a more effective opportunity for connecting to the potential Southeast High Speed Rail line. The caveat to this statement is that if improvements were to already be made to the Spartanburg corridor enabling commuter rail service to Newberry, the additional costs of extending service to Spartanburg would be less than the costs of establishing new service to Charlotte. Furthermore, there may be additional business ties between Columbia and Charlotte that could be strengthened with a rail connection.

11.4 RAIL IN THE FUTURE

The Commuter Rail Plan indicates that each of the corridors analyzed exhibit characteristics supporting the implementation of high capacity transit and that the Camden corridor should receive priority consideration. Corridor population densities, the strength of downtown Columbia as a regional destination and employment center, and the proximity of activity centers to the existing freight rail lines create a positive environment for potential rail services. Projected population and employment in each of the three corridors (Camden, Batesburg-Leesville, and Newbury) show that these characteristics will only improve over time and the investment in transit will become more and more cost effective. As a result, these findings present an opportunity for the region to address mobility concerns before they reach critical mass.



CHAPTER 12: BIKE AND PEDESTRIAN ELEMENT

12.1 INTRODUCTION

Transportation planning has historically focused on streets and highways as the primary means of travel. Bicycling and walking facilities have generally been regarded as recreational facilities and not realized for their potential as alternative modes of transportation. In recent years, however, rising gas prices, worsening congestion, and increased public advocacy and support for active lifestyle choices, have elevated the need for better integrating bicycle and pedestrian projects into the overall transportation planning process. Over the past decade, federal, state, and local agencies have responded to this need by placing an increased focus on developing programs, policies, and projects that provide a more balanced transportation system among all modes of travel. Implementing bike and pedestrian projects can enhance a community's overall quality of life by:

- Providing better transportation choices;
- Growing transit ridership and increasing transit access;
- Encouraging physical fitness and healthy lifestyles;
- Creating opportunities for outdoor recreation and non-motorized travel;
- Enhancing the local economy;
- Protecting the environment (e.g., reducing traffic congestion); and
- Preserving cultural and historical areas.

An increasing number of communities across the country are seeing the potential of a future where better walking, bicycling and transit are critical parts of transforming and revitalizing our communities, making them more desirable places to live and visit. This movement is a direct result of the nationwide demand for more livable communities and transportation options. An overwhelming percentage of people are now interested in having more transportation choices that will allow them to spend less time in their cars. Making such choices can have important economic and public health implications such as mitigating traffic congestion, reducing personal expenditures on motor vehicles, increasing real estate values near bike/ped projects, creating employment opportunities, decreasing healthcare costs associated with obesity related illnesses, and improving mental well-being.

The COATS MPO has long recognized the importance of bicycle and pedestrian planning. In 1996, CMCOG adopted the *Columbia Area Bikeways and Pedestrian Pathways Study*, which primarily delineated policy recommendations for each jurisdiction within the study area. In 2006 a new *COATS Bike and Pedestrian Pathways Plan* was developed and adopted. This new plan not only addressed existing policy matters, but also recommended specific near and mid-range action strategies and projects for implementation. In 2015, CMCOG partnered with the City of Columbia, the Comet, the University of South Carolina, Palmetto Health, and Abacus Planning Group to develop a comprehensive bike and pedestrian master plan for the City of Columbia. Major funding for this project was provided by the Federal Transit Administration and a primary focus of the effort was directed towards better integrating bike and pedestrian facilities with the existing fixed route transit system. This comprehensive study provided a number of important and transferrable policy, program, and project recommendations. Many of these which are discussed below are applicable to other jurisdictions within the COATS region and will be considered as a part of the COATS long range transportation planning process.

12.2 BIKE AND PEDESTRIAN VISION AND GUIDING PRINCIPLES

The bike and pedestrian vision and guiding principles for the LRTP are based on the vision and goals set for the Walk Bike Columbia plan which was developed by a project advisory committee with guidance from agency staff, stakeholder and public input, and nationally recognized performance measures. The future vision for the COATS study area is to have an expanded and ADA-accessible network of transit, sidewalks, greenways, trails, and on-street bicycle connections that link people to jobs, schools, destinations, and adjacent communities. Walking, biking and transit will become an integral and routine part of regional and local planning policies, programs and projects and will be perceived as efficient, safe, and comfortable options for both transportation and recreation. People of all ages and abilities will be able to enjoy walking and biking and will benefit from enhanced quality of life, public health, and economic opportunity. To achieve this vision, the COATS MPO will consider the following guiding principles as a part of the long range regional transportation planning process:

- Provide a range of transportation options to advance the regions multi-modal linkages and transportation culture;
- Increase accessibility by institutionalizing universal design principals to meet the needs of all modes and all users including families, the aging, and those with disabilities;

- Enhance connectivity and convenience so that biking, walking, and transit will become efficient and easy to use for routine activities and destinations;
- Improve safety and comfort while designing attractive and comfortable streets, trails, and greenways for all users;
- Increase awareness, education, encouragement, and enforcement related to biking and walking to build confidence for residents;
- Promote and encourage the usage of bike, pedestrian, and transit facilities;
- Facilitate coordination to help implement key regional and local bike, pedestrian, and transit policies, programs, and projects.

The COATS MPO will encourage the use of these guiding principles in transportation planning initiatives impacting all jurisdictions. Selected strategies identified in the Walk Bike Columbia Plan which support these guiding principles and are applicable at the regional level include but are not limited to the following:

- Better integrating transportation and land use policies to encourage sustainable growth that encourages walking, bicycling and transit; prioritizing pedestrian and bicycle routes that connect key destinations including existing facilities and transit stops;
- Promoting design guidelines that encourage the development of low-stress facilities and innovative bike treatments;
- Incorporating intersection safety and accessibility improvements for pedestrians and bicyclists within corridor improvement projects; develop off-street facilities to meet national best practices in design, providing a safe and inviting environment for all ages and ability levels;
- Assisting with the development of education and awareness programs that build support, increase confidence, and promote socioeconomic and geographic equity;
- Coordinating an annual counts program and documenting regional trends in pedestrian and bicycle activity;
- Facilitating coordination among jurisdictions, departments, and organizations to achieve short-, medium-, and long-term transportation-related goals and plans;

- Assist with developing a bi-annual report summarizing progress in implementing the transit, walking, and bicycling recommendations of the plan;
- Facilitating coordination of annual pedestrian and bicycle counts with planned infrastructure investments to measure impacts;
- Conducting bi-annual analysis of pedestrian and bicycle collision data to measure progress towards safety goals and objectives;
- Maintaining up-to-date GIS inventory of pedestrian, bicycling, and transit facilities including ADA improvements.

As a part of the COATS MPO bike and pedestrian planning process we will coordinate with our local jurisdictions to adopt these guiding principles and strategies to assist in the identification and development of local level bike and pedestrian plans and projects. Once policies and projects are identified they can be coordinated with local level comprehensive plans, ordinances, and capital improvement programs, and can then be integrated into the COATS planning and capital needs initiatives.

12.3 EXISTING CONDITIONS

As a state, SC does not fare well in terms of being a bicycle and pedestrian friendly state. According to the League of American Bicyclists which publishes a Bicycle Friendly Report Card, SC ranks number 44 in the nation and number 11 across the south. The report card is based on criteria such as supportive legislation, existing policies and programs, infrastructure and funding, education and encouragement, and evaluation and planning. Despite this poor statewide rating, the Columbia area has made strides towards improving its reputation as a walk and bike friendly community, especially with the recent adoption of the Walk Bike Columbia Master Plan. The plan, through a demand and benefits analysis revealed that despite a lack of adequate existing facilities, Columbia residents are already walking, biking, and accessing transit at a comparatively high level with a combined total of 40 million trips annually. This equates to a total of 30 million miles traveled by bike or on foot each year and about 9 million hours of moderate intensity physical activity. When translating existing demand into measurable benefits to the Columbia community, the analysis revealed that Columbia is already realizing over \$14 million in community-wide benefits from existing walking activity, and over \$1 million in community-wide benefits from existing bicycling activity. With incremental increases in mode share for walking and bicycling, those monetary benefits will grow exponentially,

equating to a significant return on investment when it comes to walking and bicycling infrastructure, policies, and programs.

In order to try and quantify existing local levels of bike and pedestrian use and service and to provide strong benchmarking information for future planning initiatives, the planning team conducted a point in time count along key areas in the fall of 2014. The project team, assisted by a host of volunteers collected data at 28 sites around Columbia based on access to transit, proximity to main entrances for shopping or employment areas, and high density downtown or residential areas. Locations with recently completed or planned pedestrian or bicycle projects were also considered. Counts Summary As seen from both the weekday and the weekend counts, Columbia has a substantial amount of pedestrian and bicycle traffic occurring throughout the City. Much of this traffic observed during the counts implementation is occurring around popular destinations for walking and bicycling such as recreation centers, civic buildings, college and university campuses and downtown. Pedestrian levels are indicative of the City's census-reported high rates of walking commuting.

Anecdotally, many surveyors noted unsafe jaywalking occurring at several of the count locations. Weekend events such as the Soda-City Market, South Carolina Pride Festival and Greek Festival also likely increased walking rates. The count results suggest that many people in Columbia are bicycling for commuting purposes to work and/or school as higher numbers of these users are bicycling during typical weekday commute times. The counts also show a high instance of sidewalk bicycle riding, even occurring on streets with existing bike lanes. This is typically an indicator that users don't feel comfortable riding in the roadway due to inadequate bicycle facilities for roadway conditions. A comparison of the weekday and weekend count numbers are provided below as well as the top count locations.

Top 3 Locations for Bicyclists from Weekday Counts:

- Wheat Street between Pickens Street and Sumter Street - 47 bicyclists
- Greene Street between Laurens Street and Saluda Ave - 45 bicyclists
- Harden Street between Greene Street and Devine Street - 29 bicyclists

Top 3 Locations for Pedestrians from Weekday Counts:

- Blossom St between Park St and Lincoln St - 185 pedestrians

- Harden St between Greene St and Devine St - 121 pedestrians
- Laurel St between Sumter St and Main St - 128 pedestrians

Top 3 Locations for Bicyclists from Weekend Counts:

- Broad River Rd between St. Andrews Pkwy and Farrington Way - 18 bicyclists
- Sumter St between Greene St and Pendleton St – 11 bicyclists - 11 bicyclists
- Wheat St between William St and Huger St – 9 bicyclists

Top 3 Locations for Pedestrians from Weekend Counts:

- Hampton St between Assembly and Park St - 462 pedestrians
- Sumter St between Greene St and Pendleton St - 329 pedestrians
- Gervais St between Lincoln St and Park St - 279 pedestrians

In addition to conducting bike and pedestrian counts, the Walk Bike Columbia Master Plan effort also included a multifaceted public outreach effort over a period of four months, from May 2014 to August 2014. The purpose of the effort was to gather local knowledge and community input to guide the plan's development. The project team's public engagement events and efforts included the following:

- 4 Steering Committee meetings: 25 committee members
- 4 public workshops with interactive project boards and maps: over 120 attendees
- 8 stakeholder focus groups: 90 invited stakeholders
- Citizen survey (available both online and in hard copy): 825 respondents
- Project website with project information, videos, and relevant links: 3,300 unique viewers
- Online interactive map and input tool: 282 points on the map and comments

Staffed information booth on multiple days at the downtown transit center and Main Street Farmer's Market

The project team promoted these public involvement opportunities through broad distribution of flyers, posters, and postcards, social media, press releases, and TV ads on the City access channel. Spanish language interpreters attended public events and The COMET bus with bike rack was available for public meeting attendees to explore. Public outreach efforts were offered across the city and through a variety of media in order to provide the representatives and residents of Columbia with many opportunities and different mechanisms for contributing to the Plan's development. The Walk Bike Columbia public outreach process confirmed that Columbia citizens value access to active transportation and public transit. This is reflected in the low marks given to Columbia's existing pedestrian and bicycle network and its transit operations, as well as in the fact that 81 % of survey respondents said walking and bicycling improvements are "very important" and 61% of respondents said that transit improvements are "very important." Comments received through the public meetings and focus group meetings underscored this.

The primary concerns of residents when it comes to both walking and biking are the lack of safe roads and/ or sidewalks, the need for improved design and/or maintenance of existing facilities, and the distance between destinations. The latter item points to a critical link between land use planning/land development and transportation planning/network development. The current efforts by the City of Columbia and Richland County to work collaboratively to update their land use plans and policies present a unique opportunity to address that important element. In addition to these priority concerns, citizens also noted lack of bicycle parking as a key deterrent to bicycling activity and transit users stressed the need to improve and enhance transit operations (route network, headways, and reliability) while improving walking and biking access to transit. Citizens expressed a preference for sidewalks, trails, and shared-use paths and intersection improvements for both pedestrians and bicyclists. For on-street bicycle facilities, buffered bicycle lanes and cycle tracks are preferable to standard bicycle lanes or shared roadways. Citizens also clearly stated neighborhood connectivity and access to parks and trails as city-wide priorities.

Non-infrastructure improvements expressed in the public input process fell within the following categories: education and enforcement, encouragement, and evaluation priorities. Education and enforcement priorities included safety education media campaigns, law enforcement stings targeted to motorists, pedestrians, and bicyclists, and awareness campaign regarding the benefits and availability of walking, bicycling, and transit usage. Encouragement priorities included such things as employer-based incentives way finding signage for the complete multi-modal network, and informal, family-friendly events like 'Open Streets' (also known as Ciclovía). Evaluation priorities included policies, plans, programs, and funding that prioritizes safe routes to schools and transit, coordination of land use

planning and transportation planning and updating and improving design standards and design guidance for pedestrian and bicycle infrastructure, transit stop infrastructure, bicycle parking, and ADA accessibility.

In addition to the priorities mentioned above, a majority of public outreach responses also support the concept of bike share in Columbia. Concerns regarding the distance between destinations in Columbia and the low levels of bicycling for transportation that currently exist were expressed in terms of potential bike share usage. For a local bike share program to be deemed successful, citizens and stakeholders identified the following as the primary outcomes: improvement in transportation options and access to healthy living, reduction in the number of cars on the road, and reduction in the number of car trips and vehicle miles traveled in private vehicles.

12.4 BICYCLE FACILITIES

Bicycling is an efficient and convenient mode of transportation, that much like the automobile provides a great deal of flexibility, independence, and access to a wide range of short and mid distance destinations. Door to door travel times are comparable to driving for shorter trips and have the added benefit of providing physical activity and easier access to parking in congested central business districts. The existing and bicycling network in the COATS study area has many strengths and opportunities especially in the areas in and around downtown Columbia and other historic commercial and residential districts in smaller municipalities where key origins and destinations are spaced in closer proximity to one another. In Columbia, especially around the downtown core, the city offers good street connectivity which provides alternate routes for bicyclists wanting to travel off of heavily trafficked streets. Many roadways in Columbia also have more capacity than their traffic volumes warrant creating an opportunity to reutilize this space for other uses that are more human-scaled. For example, road diets can be implemented to add space for on-street parking, landscaping, pedestrian crossing improvements, and/or bike facilities. Most Columbia primary schools are located in walkable or bikeable areas. Relatively minor improvements can be made to make walking and bicycling to school a more attractive and safe activity. The City's growing greenway network and the presence of the Palmetto Trail also provide many opportunities for recreational riding. These facilities can help prospective bicycle commuters hone their skills as grow confidence towards a goal of bicycling for transportation needs. As these facilities become more connected with the on-street bicycling network, they can become the backbone of a strong citywide bicycling system. Several jurisdictions in the COATs area have worked closely with SCDOT to implement on-street bicycling improvements along many key corridors, including Platt Springs Road, Knox Abbot Drive, North

Main Street, Beltline Blvd, Wheat St and Hardin Street. Recent intersection improvements that will make crossing conditions safer for pedestrians and bicyclists have also been made in many areas throughout the region such as along Assembly Street. The new bike path across the recently reconstructed Broad River Road Bridge provides an important and high-quality pedestrian and bicycle connection across the Broad River and to the Three Rivers Greenway. The future Gills Creek Trail will provide an important connection both along and across Gills Creek.

Despite all of these strengths and improvements, there are still many physical barriers currently present for bicyclists throughout the region. Large vehicular corridors such as (but not limited to), US 378 and US 1 in Lexington, Harbison Boulevard, Bower Parkway, and St. Andrews Road in the Irmo area, Assembly Street, Elmwood Avenue, Bull Street, Gervais Street, Blossom Street, Huger Street in Columbia, and Broad River Road, Two-Notch Road and Garners Ferry Road in Richland County pose a tremendous barrier for many prospective cyclists, primarily due to their width, traffic speed and volumes, and lack of separated bicycle facilities. Many of the regions busiest retail, employment, recreation and learning centers are difficult to access by bike due to their location along high-traffic, high-speed and wide roadways. Also, the low density of development, high frequency of curb-cuts and large parking lots in front of businesses along these corridors decreases bicycling comfort and increases bicycling distances and potential safety issues. As one moves away from the town center districts throughout the region, street network connectivity and development density decreases. This makes bicycling more difficult as prospective riders are typically forced onto major roadways and must travel longer distances to reach their destinations. Strategic improvements in street network connectivity and policy affecting new development can help to improve this. Bike connectivity across the Congaree River and on interstate overpasses is limited due to a lack of separated bicycle facilities across many of the bridges. Separated bike facilities, such as bike lanes or off-street paths are limited. These are important as they create a more comfortable environment for bicyclists of multiple ages and abilities. Design of some existing bikeways are uncomfortable and/or dangerous for bicyclists and surface conditions and debris on some roadways make it difficult for bicyclists, who are more susceptible to poor maintenance conditions than automobiles. Finally, short and long-term bicycle parking is limited throughout in most areas throughout the COATS region, even within the central business districts of most municipalities including in downtown Columbia.

FIGURE 12.1: EXISTING AND PLANNED BICYCLE INFRASTRUCTURE

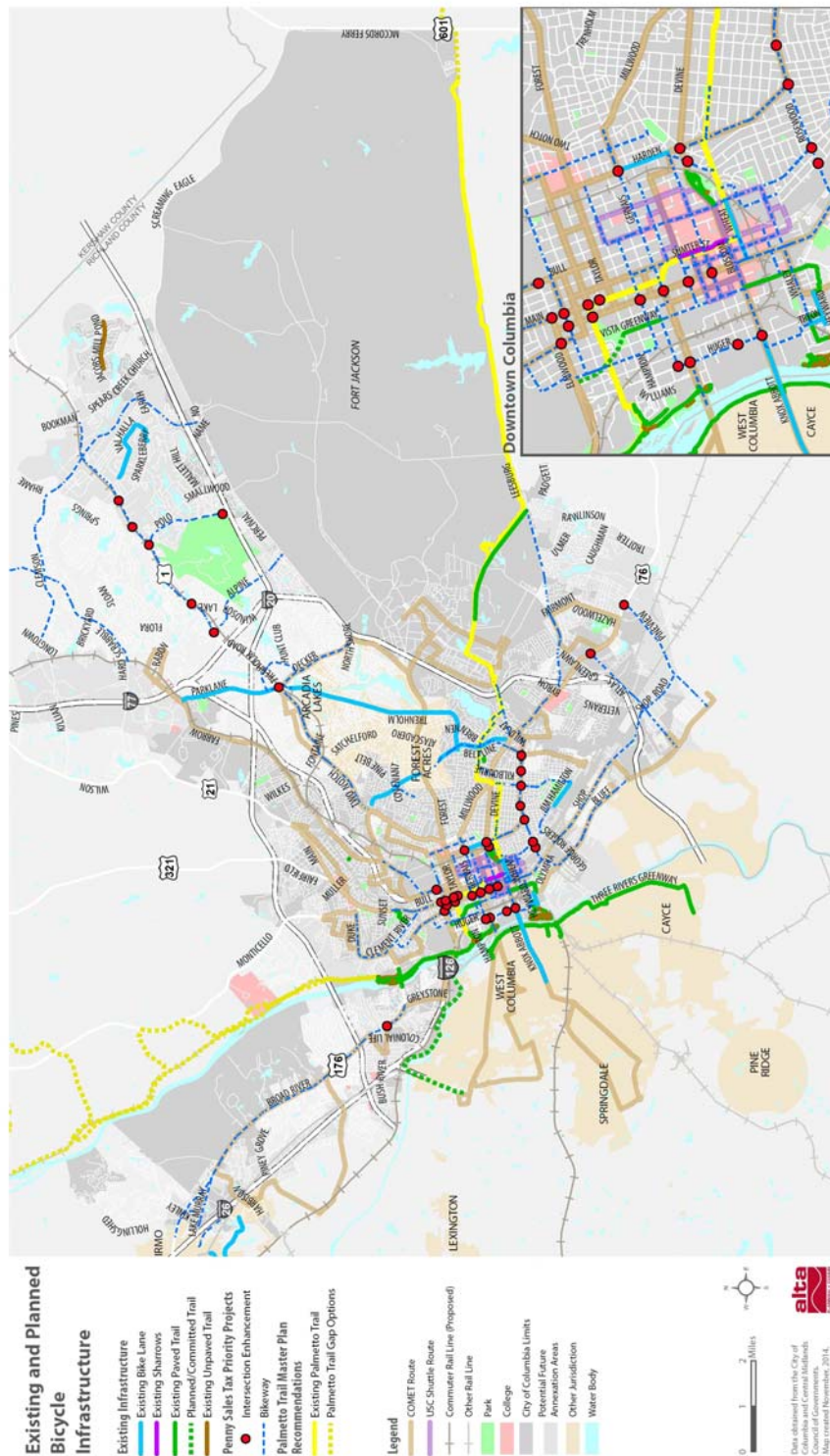
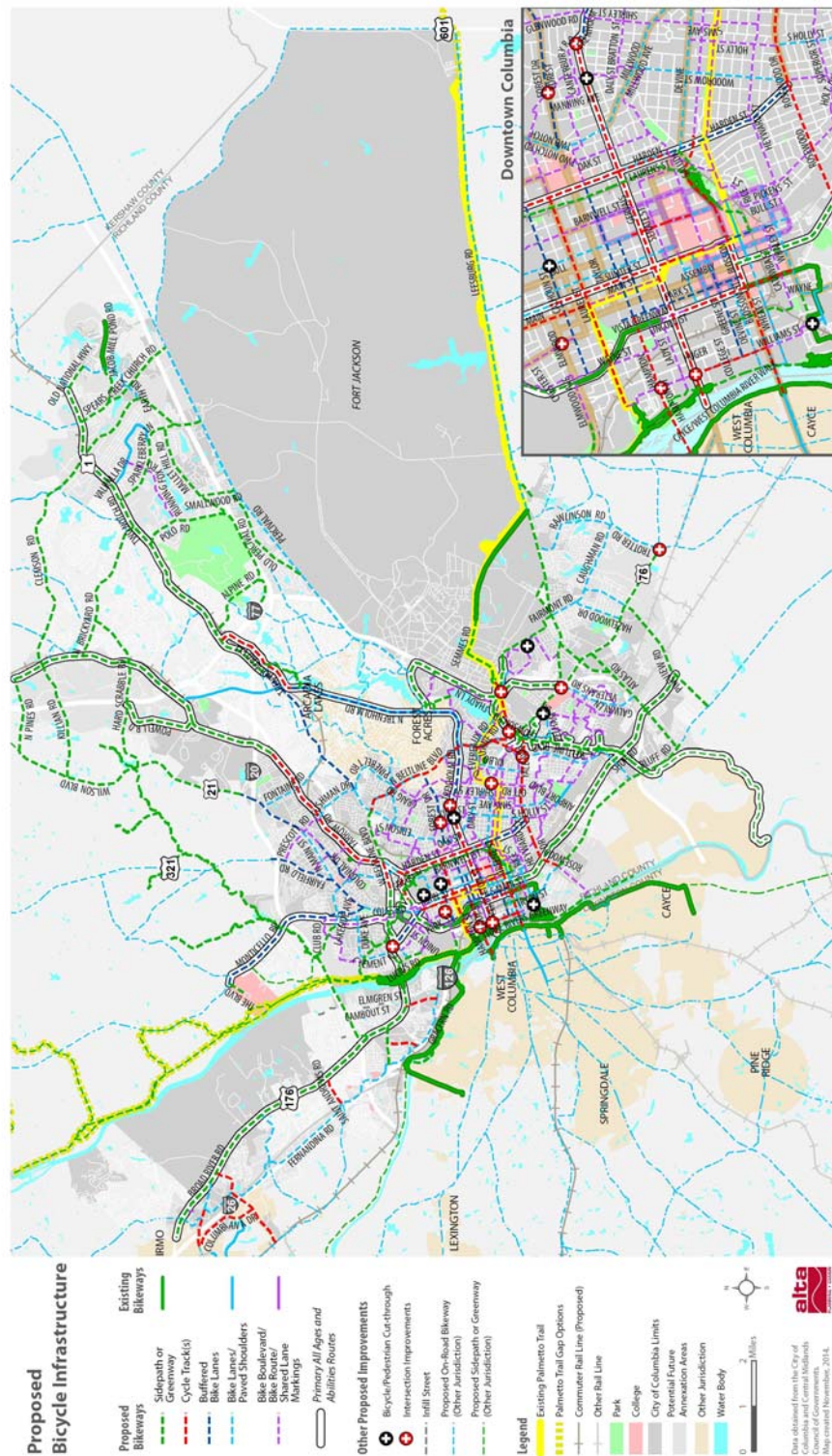


FIGURE 12.2: PROPOSED BICYCLE INFRASTRUCTURE



12.5 PEDESTRIAN FACILITIES

Walking is one of the most important modes of transportation because it is an essential and integrated part of every trip whether by road, rail, plain, bike or boat. Walking for transportation purposes as opposed to strictly recreational exercise, however, is dependent on the physical design of the built environment. The lower the density, the higher the distance between destinations which results in a less convenient and safe walking environment. Most pedestrian oriented districts are therefore located either in historic residential and commercial areas built before the dominance of the automobile, or in newer, more compact, mixed use neighborhoods that are consciously designed to accommodate more bike and pedestrian activity. Because transit depends on pedestrian access, a pedestrian supportive environment is also by nature a more transit supportive environment.

The COATS region has a number of existing pedestrian supportive areas. The street and sidewalk network is well connected in the downtown core and surrounding older neighborhoods of Columbia and some of the smaller municipalities with historic commercial districts such as Town of Lexington and the Town of Chapin. There are many existing streets in these areas that are walk friendly and easy to cross. Recent crossing improvements have been made in key areas such as along Assembly Street in proximity to the new Darla Moore School of Business at the University of South Carolina. The existing greenways, downtown business district, Five Points and Congaree Vista in Columbia also offer walk-friendly environments that many residents and students currently utilize. Planned pedestrian improvements at key intersections along many of Columbia's major corridors such as Huger Street, Rosewood Drive and Elmwood Avenue will improve pedestrian safety and encourage people to walk. Many civic destinations such as schools, libraries and parks are accessible by walking, especially in older areas of Columbia where street networks are well connected and sidewalk coverage is good. Many bus stops in Columbia have amenities such as benches and shelters for pedestrians. The City utilizes high-visibility crosswalk markings in some highly-trafficked pedestrian areas such as near schools and in business or retail centers. Several ADA accessibility improvements at curb ramps have been made throughout Columbia in recent years.

Despite these improvements there are also many physical barriers currently present for pedestrians as well. Large vehicular corridors such as (but not limited to) Garners Ferry Road, Fort Jackson Boulevard, Two Notch Road, Broad River Road and North Main Street are barriers for pedestrians trying to cross or traverse these roads due to large distances between safe crossings, long distances across roadways and long wait times for traffic signals to change. Also, some of the major corridors throughout the COATS region do not currently have sidewalks. Many of the regions busiest retail,

employment, recreation and learning centers are difficult to access by foot due to their location along high-traffic, high-speed and wide roadways. Also, the low density of development, high-frequency of curb-cuts and large parking lots in front of businesses along these corridors decreases walking comfort and increases walking distances and potential safety issues. Access to significant parks and green space, especially along the three rivers is limited by foot which discourages the use of these areas. The area adjacent to Columbia's riverfront has the potential to be a rich pedestrian-oriented work/live/play destination. One important key to realizing this potential will be improving connectivity to the riverfront from adjacent neighborhoods. As one moves away from the City core, presence of sidewalks, sidewalk connectivity and street connectivity worsens, rendering many areas of town virtually un-walkable. Many existing sidewalks are narrow or constrained by obstructions such as utility poles or maintenance issues. This forces pedestrians with assisted mobility devices to ride within the roadway in some areas. Several bus stops lack sidewalk connectivity, especially as one moves away from the City core and many crosswalks lack curb ramps or do not meet ADA requirements for accessibility. In some areas, median islands at pedestrian crossings do not have cut-throughs necessary for pedestrians with mobility impairments.

FIGURE 12.3: EXISTING AND PLANNED PEDESTRIAN INFRASTRUCTURE

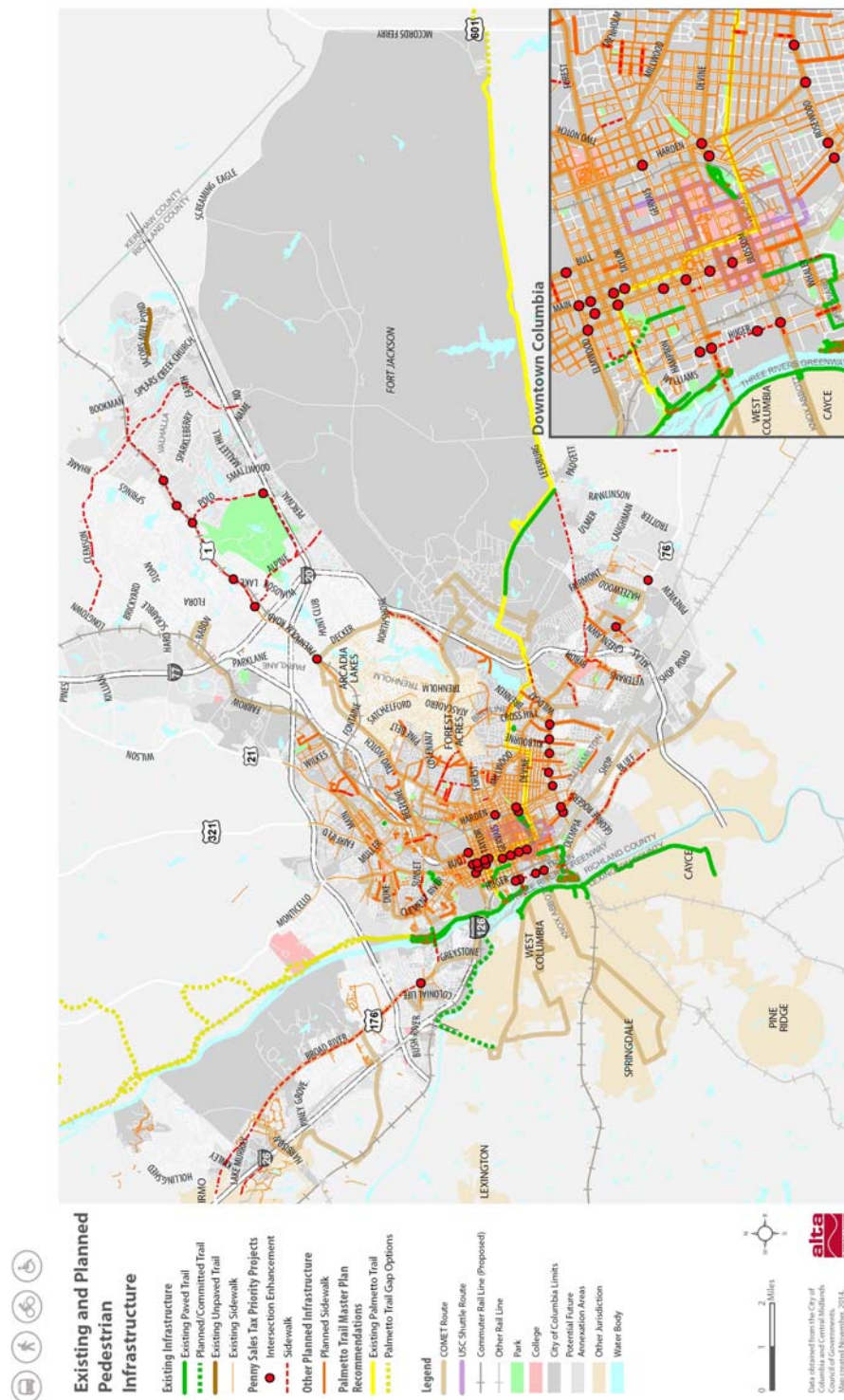
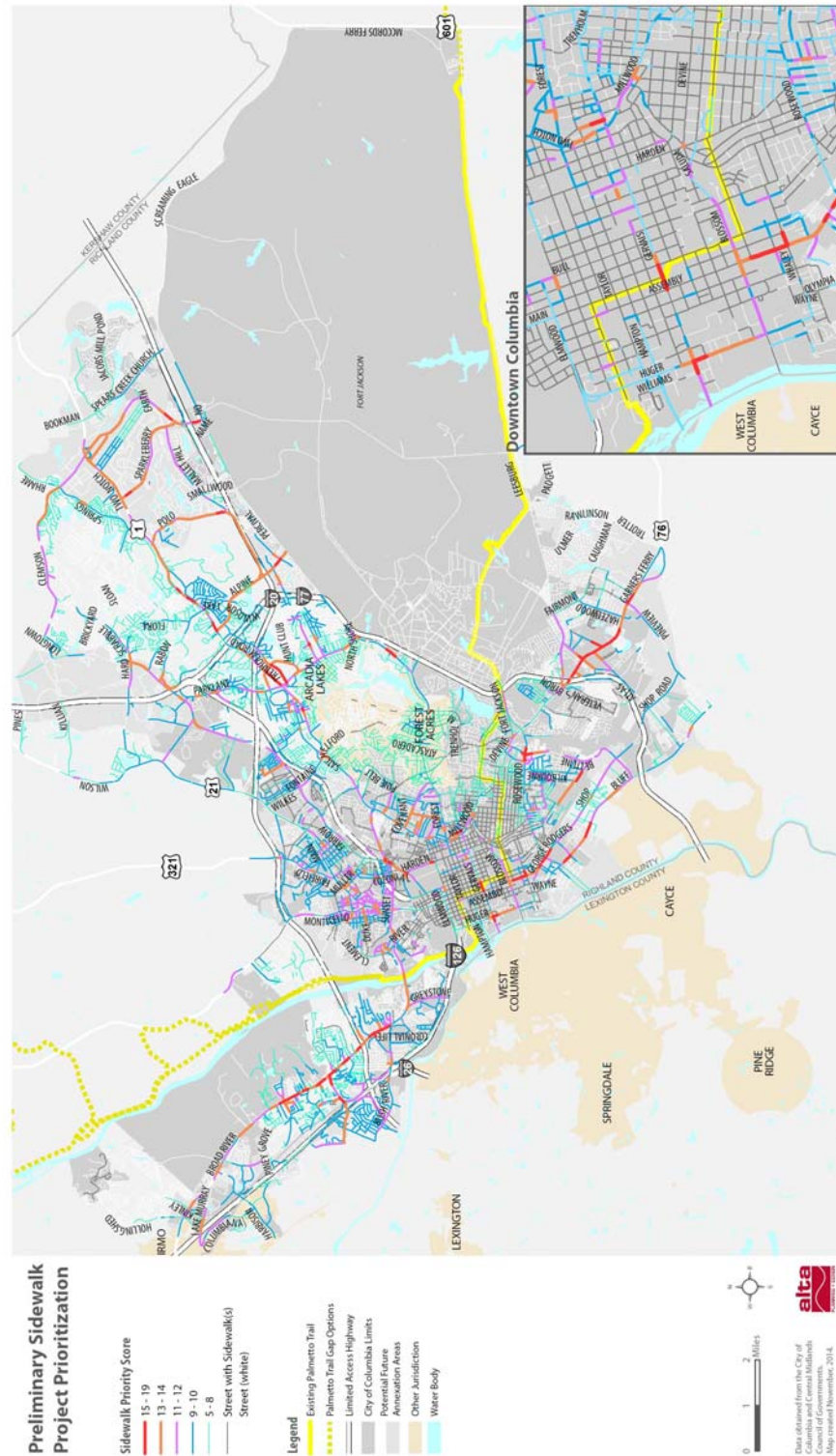


FIGURE 12.4: PROPOSED PEDESTRIAN INFRASTRUCTURE



12.6 GREENWAYS

Greenways are an important component of the regional bike and pedestrian system because they provide protected, paved, multi-use pathways that can accommodate both bike and pedestrian activity. The COATS planning area is fortunate to have the Three Rivers Greenway which provides a connected system of paved pathways along the three rivers that come together in downtown Columbia. The River Alliance, a non-profit public/private partnership, oversees the development of the Three Rivers Greenway, a 9.5 mile linear park system, linking citizens of Columbia, Cayce and West Columbia to the confluence of the Broad, Saluda, and Congaree Rivers (i.e. at the border of Richland and Lexington Counties). The Greenway is comprised of an eight-foot wide pathway that includes lighting, trash receptacles, water fountains, picnic benches, overlooks, fishing access, canoe/kayak access, public restrooms, and parking. Additional amenities include connections to area recreational facilities, such as: Granby Park, Cayce Riverwalk, West Columbia Riverwalk, Columbia Canal, Mill Villages River Link, West Columbia Extension, and Congaree Riverwalk. The City of Cayce has completed the most recent additions to the greenway with the Timmerman Trail developed in partnership with SCANA.

West Columbia and Columbia are working together to build a new addition at the mill race rapids adjacent to the zoo and crossing the Saluda River to connect to Lexington Medical Center. With the passage of the Richland County Penny Sales Tax, more improvements will be forthcoming with a bridge across the Congaree River connecting the zoo to the Columbia Riverwalk and improvements around Rocky Branch Creek near Olympia. The Richland Penny is also funding a greenway project along Gills Creek and a host of the bike and pedestrian improvements throughout the Richland County portion of the COATS MPO area. Future greenway plans include connections between the Riverbanks Zoo, Saluda Shoals Park, and the Lake Murray Dam walkway along the Saluda River. This project was included as the number 6 ranked project on the Lexington County Penny Sales Tax referendum which was voted down in 2014. These and other expansion plans for the Three Rivers Greenway were incorporated into the recommendations of 2006 COATS Bike and Pedestrian Pathways Plan and have also been incorporated into the Walk Bike Columbia Master Plan. The three river greenway system provides an important regional spine that will allow for future connectivity and will likely serve as an alternative transportation commuter corridor as it gets closer to completion.

12.7 BIKE AND PEDESTRIAN SAFETY

Analysis of crash data can provide insight as to the major areas of concern for safety within the existing pedestrian and bicycle network. While this information is helpful in determining both

infrastructure and non-infrastructure priorities, it should always be utilized in conjunction with other sources of information such as walking and bicycling counts and demographic information. For instance, an absence of crashes does not necessarily denote safe conditions for walking and bicycling – it could also imply that the corridor is lacking the key elements that make it an inviting and safe place to bike and walk, and therefore is not being utilized.

The safety analysis shows that while pedestrian and bicycle crashes are distributed fairly evenly throughout the Columbia area, the majority of pedestrian and bicycle crashes have occurred on major roadways. Broad River Road, Two Notch Road and Bluff Road are among the corridors which have seen the greatest number of pedestrian and bicycle accidents in Columbia. The highest concentration of pedestrian collisions occurred in the central part of Columbia – west of Main/N. Main Street and east of US 1 and US 76. The following provides an overview of where the majority of pedestrian and bicycle crashes occurred in Columbia:

Top Intersections Number of Collisions:

- Bull & Whaley
- Forest & McDuffie
- Devine & Santee
- Devine & Harden
- Greenlawn & Garners Ferry

Top Corridors Number of Collisions:

- Broad River Rd
- Two Notch Rd
- Bluff Rd
- Garners Ferry Rd
- Farrow Rd
- Harden St

- Blossom St
- Devine St

Pedestrian crashes are relatively evenly distributed in Columbia and the surrounding areas. The highest concentration exists in the central Columbia area, immediately west of Main/N. Main Street and east of US 1 and US 76. Additionally, several arterials present long stretches of high levels of pedestrian collisions and pedestrian collisions are clustered at several key intersections.

Distribution of Bicycle Crashes Bicycle crashes are evenly distributed in Columbia and the surrounding areas. The majority of crashes are along streets with no dedicated bikeway facility, however three occurred on the Beltline Boulevard bike lane, one on the Wheat Street bike lane, and four along the Trenholm Road bike lane (outside of the project study area). Collisions occur on arterials, collector roads, and neighborhood streets alike. Collisions occurred on both the Hampton Street and Gervais Street bridges across the Broad River. Broad River Road and Bluff Road bear the highest numbers of bicycle collisions.

Analysis of reported contributing factors to pedestrian and bicycle accidents provides some insight as to what may be needed as priority infrastructure and non-infrastructure improvements. For pedestrians: motorists failing to yield the right of way, pedestrian improper crossing, and pedestrian lying and/or illegally in the roadway are all recorded as primary contributing factors of collisions involving pedestrians. Motorists failing to yield the right of way could be improved through both educational and infrastructure improvements such as signs that highlight the State law to yield to pedestrians, improvements to the visibility of pedestrian crossings through enhanced pavements markings or actuated signals, and general traffic calming improvements that slow down traffic and improve stopping sight distances for motorists. Improper pedestrian crossing is primarily caused by an infrequency of designated crosswalks along a roadway. Crosswalk infill along corridors could help improve this safety issue. Pedestrians illegally in the roadway may be linked to a lack of adequate pedestrian facilities. For example, many users, especially those who depend assisted mobility devices, often have no choice but to travel in the roadway in areas where sidewalks are absent or don't meet ADA requirements. This can be addressed through infrastructure improvements.

Major causes of bicyclist accidents include disregarding signals, bicyclists failing to yield the right of way, motorists failing to yield the right of way and bicycling wrong side/way riding were all listed as major contributing factors to bicycle collisions. Bicyclists disregarding signals could potentially be addressed through programs which encourage good bicycling behavior, or bicycle-specific traffic

signals or signs in key areas. Motorists failing to yield the right of way may be addressed through better educational programs for motorists and clearer delineation of a bicyclist's path of travel through pavement marking improvements along roadways and at intersections. Bicycling wrong side/way riding can be improved through educational programs and bicycle infrastructure that clearly delineates the expected direction of travel such as bike lanes and shared-lane markings.

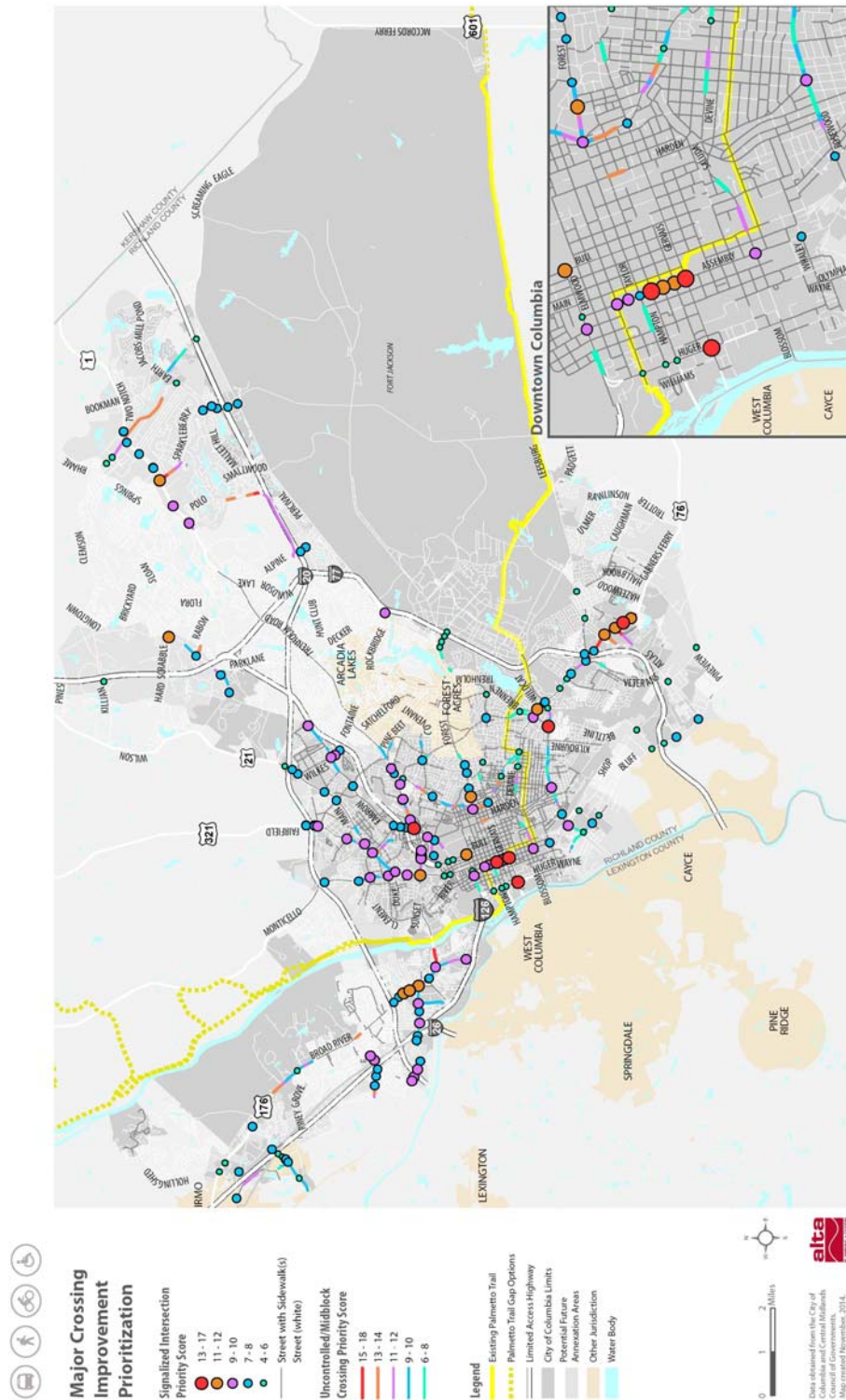
Between 11.8% (in 2013) and up to 18.8% (in 2014 to-date) of reported collision fatalities in Richland County are pedestrian fatalities, with an annual average (excluding 2014) of 13.0%. No bicyclist fatalities are shown in this time period, however, the Columbia community has suffered the loss of several bicyclists over the last few years. The tragic deaths of 19 year old Jesse Gamble in 2008 and 45 year old Mandy Kennedy, a mother of two, in March of 2014 rattled the community. Each was commuting to/ from work at the time of their motor vehicle collision. The March 2014 fatality is not included in this data because the incident is under investigation at the time of this study.

From 2010 through May 9, 2014 there have been no bicyclist fatalities as a result of reported collisions in Richland County over the time period. However, the majority of bicycle collisions (94.4%) result in an injury. In terms of pedestrian injuries and fatalities, 86.6% of the pedestrian collisions resulted in one or more injuries, and 9.1% resulted in a fatality. Only 4.3% of pedestrian collisions during the data time period did not result in an injury or fatality.

A total of 529 pedestrian collisions and 162 bicycle collisions were reported in Richland County from January 1, 2010 through May 9, 2014. Most crashes for pedestrians and bicyclists occurred during dry road surface conditions (96% and 87%, respectively) and on clear days (89% and 83%, respectively). The majority of bicycle collisions occurred during daylight hours (70%), but only 43% of pedestrian collisions occurred during daylight. In addition, most collisions occurred on the roadway (89% for bicyclists and 87% for pedestrians).

In South Carolina, 11.5% of all traffic fatalities are pedestrians and 1.6% are bicyclists. While there have been no documented bicyclist fatalities in the last four years, Columbia's pedestrian fatality rate is significantly higher than the State's average (as high as 18%). Currently in Columbia, nearly one in ten pedestrian collisions results in a fatality. One of the most effective means of increasing safety across all modes is through reducing vehicular speeds. The chances of a pedestrian fatality are reduced from 85% to 45% to 5% when the speed of the vehicle is reduced from 40 mph to 30 mph to 20 mph, respectively. System-wide vehicular speed reduction can be accomplished through a combination of education, enforcement and design.

FIGURE 12.5: MAJOR CROSSING IMPROVEMENTS



12.8 BIKE AND PEDESTRIAN TRANSIT CONNECTIVITY

An important part of bike and pedestrian planning is focusing on how these modes of travel can serve as feeder modes for an area's fixed route transit network. A safe and accessible pedestrian network is key to an effective transit network and vice versa. Without accessible pedestrian connectivity to stops, the effective transit network is greatly reduced; and a strong transit network can greatly expand the effective range of someone heading to a destination by foot. Likewise, an accessible bike network can expand the range of transit significantly. If a transit station is a 20 minute walk from someone's origin, but only a 5 minute bike ride, this may be the difference in choosing to take a car or take transit. The key to encouraging people to bike to transit is to make it convenient, comfortable and safe. For example, installing separated bike facilities to the transit stop, providing end-of-trip facilities such as secure bike parking at the stop, or planning bike share station placement around transit lines.

A major theme emerging from the Bike Walk Columbia Plan and the long-range vision for the Columbia area is that the region must develop a transportation system that creates and encourages the use of more travel choices, such as transit, biking, walking and ridesharing, and begin to reduce the degree of reliance on the single-occupant automobile for vehicle travel. Well-designed, strategically located pedestrian and bicycle facilities can increase ridership on public transit by providing people with safe, pleasant access to these transit options. With geographically strategic investments in pedestrian and bicycle system improvements, together with the implementation of smart land use strategies and better education and incentive programs, many short auto trips could be shifted to walking, biking or transit trips to help reduce vehicles miles traveled (VMT) and emissions for a relatively low cost. Summary of over the past 10 years, there has been a strong national emphasis for livable communities that provide a range of transportation choices available to all residents within the community, including transit, walking and bicycling. The transit services within Columbia and surrounding areas (shown at left) offer some transportation options to residents. Building upon these existing systems is a goal for many agencies in the area. The state of coordination among the transit providers is present, but limited within the community. The COMET has bicycle racks on all buses, which has been a priority for the agency for several years. New buses ordered by The COMET buses will have racks for three bikes.

USC does not have bike racks on buses, but does have many bicycle racks located on campus to accommodate student and faculty bike riders. Future buses should include bicycle racks on the front of the vehicles to accommodate the high usage of bicycles on campus. USC should continue to provide bicycle racks around campus to accommodate the bicycle mode share. The COMET, in coordination

with USC, began in August 2014 the Garnet route, which provides service every 20 minutes from the student complexes on Bluff Road to the USC campus. Currently the apartment complexes on Bluff Road provide small shuttle vans for USC students to/from campus. Over the next year, The COMET and USC will continue to work together for future funding of this route. The COMET began in August 2014 more frequent service in the core downtown from the Downtown Transit Center to the USC campus. The goal of the reconfiguration of routes is to provide convenient and frequent service to downtown employees, students, and staff. Local government agencies involved in the High Speed Rail initiatives continue to recognize the necessary link between bus and rail services for the future. The COMET has approximately 900 bus stops located across Columbia. One goal of the agency is to have accessibility at all bus stops. This goal will improve accessibility to pedestrian facilities within the community.

The following information provides examples of effective policies supporting coordination of transit, pedestrian and bicycle modes:

- Promote convenient intermodal connections between all elements of the Columbia transportation network, including a transit system that incorporates easy pedestrian and bike access.
- Promote transportation improvements that support the redevelopment of lower-density, auto-dominated arterials to become more pedestrian and transit compatible urban transportation corridors.
- Promote the development of local street patterns and pedestrian routes that provide access to transit services within convenient walking distance of homes, jobs, schools, stores, and other activity areas.
- Develop a coordinated network of facilities for pedestrians and bicycles which provide effective local mobility, accessibility to transit services and connections to and between centers.
- Support opportunities to redevelop the road system as multimodal public facilities which accommodate the needs of pedestrians, bicycles, transit, automobiles, and trucks.
- Provide opportunities for creation of town centers in urban areas that: (1) serve as focal points for neighborhoods and major activity areas; (2) include a mix of land uses, such as pedestrian-

oriented commercial, transit stops, recreation and housing; and (3) encourage transit use, biking and walking through design and land use density.

- Support the transformation of low-density auto-oriented transportation corridors to higher-density mixed-use urban transportation corridors when redevelopment would not detract from centers or compact communities. Corridors that offer potential include those that are located near significant concentrations of residences or employment, and have the potential to support frequent transit service and increased pedestrian activity. Encourage the redevelopment of these arterials through: Addition of transit facilities, pedestrian-oriented retail, offices, housing, and public amenities, Building design and placement, street improvements, parking standards, and other measures that encourage pedestrian and transit travel, and provision of pedestrian and bicycle connections between transportation corridors and nearby neighborhoods.

CHAPTER 13: TRANSPORTATION ALTERNATIVE PROJECTS

Transportation Alternative Projects (TAP) are innovative, community-based projects that provide opportunities to expand transportation choices beyond traditional highway programs. Such projects enhance one's travel experience by walking, bicycling, taking transit, or simply riding in a car. TAP funds are provided through MAP-21 and are allocated by SCDOT. The program facilitates retrofitting of local streets and roads to accommodate bicycles and pedestrians. Included are numerous projects nationwide that help communities protect scenic vistas, create bike paths, develop walkable downtowns and protect the environment.

In order to qualify for TAP funding, projects must adhere to certain criteria. First, they must be oriented toward surface transportation; that is they must illustrate a relationship to a particular highway or a pedestrian/bicycle corridor and whether it serves a current or past transportation purpose. Second, "enhancement" projects must accomplish one or more of the following activities:

- Provision of facilities or safety and educational activities for bicyclists and pedestrians
- Acquisition of scenic or historic easements and sites related to transportation
- Creation or expansion of scenic or historic highway programs (such as tourist and welcome centers)
- Landscaping and scenic beautification
- Historic preservation of transportation-related activities
- Rehabilitation and operation of historic transportation buildings, structures or facilities
- Conversion of abandoned railway corridors to trails
- Inventory, control, and removal of outdoor advertising
- Archaeological planning & research
- Environmental mitigation of runoff pollution and provision of wildlife connectivity

- Establishment of transportation museums

In general, SCDOT works with the Federal Highway Administration (FHWA) and the COATS Policy Board to ensure that projects meet the funding criteria. Funding of TAP typically run as an 80/20 match. The federal government provides up to 80 percent of a TAP project cost. The remaining 20 percent of the project cost is generally the responsibility of the project sponsor. The sponsor may generate these "matching funds" from a variety of sources. The value of donated materials, services and land; funds from other state or non-DOT federal programs; the value of local and state government services, and the value of preliminary engineering prior to project approval may be counted towards the matching requirement.

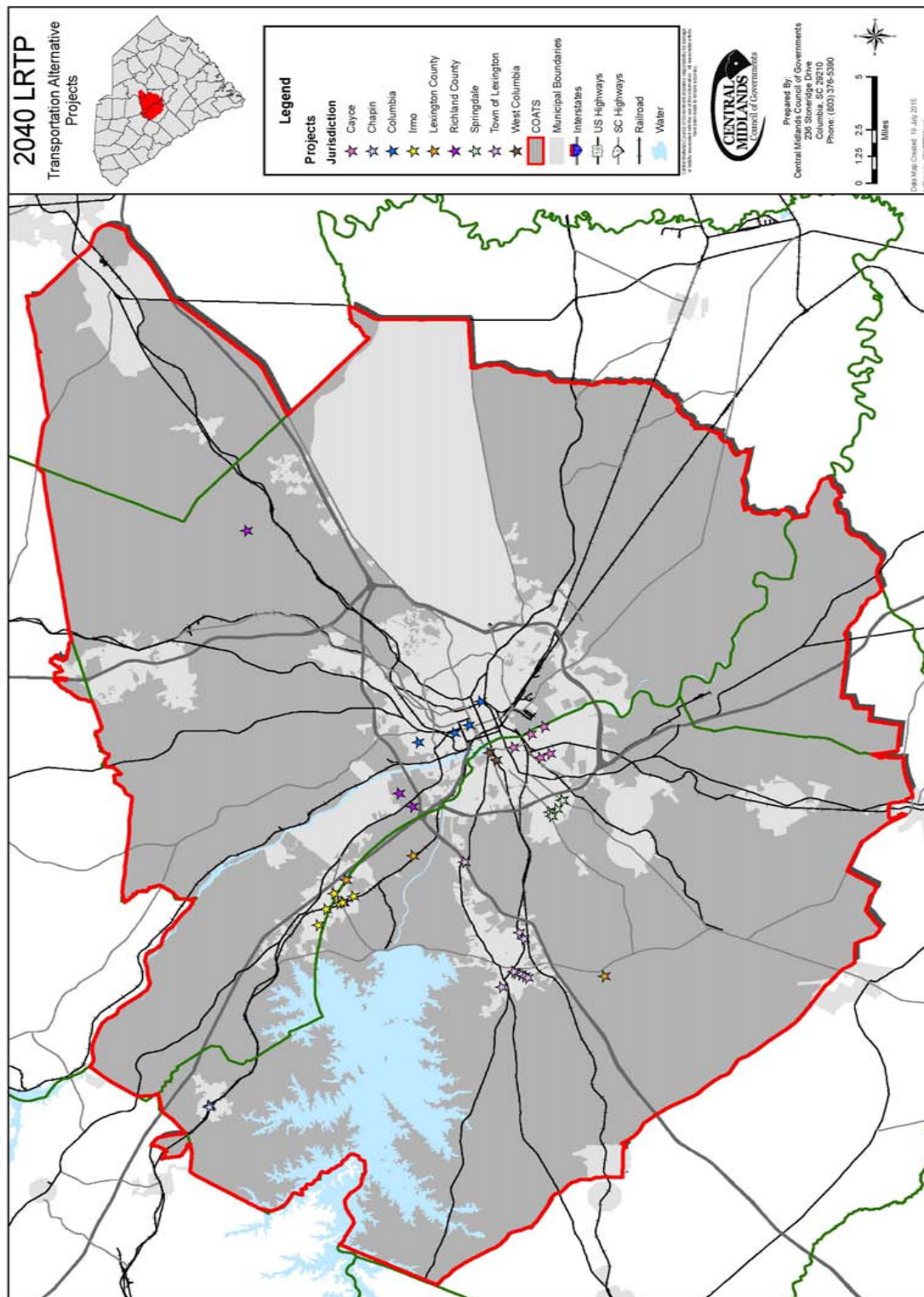
The COATS staff coordinates the project evaluation and recommendation process of projects for the metropolitan area. The COATS Policy Board performs annual evaluation of these projects and then approves them for inclusion into the TIP. Grants are limited to \$145,000 federal funds per project. Local governments with a population of less than 50,000 will require only a 20% match, while populations greater than 50,000 will have a 40/60 match.

TAP funds have been used to finance key local projects in the COATS, such as the Fort Jackson Facade Project. Since 2010, 40 projects have been funded in the greater Columbia metro, helping to create over \$5 million in TAP investments in our region. Table 13.1 shows the projects funded since 2010:

TABLE 13.1: COATS TRANSPORTATION ALTERNATIVE PROJECTS

City/Town	Project Name	Description	Federal Funding
West Columbia	Sunset Blvd/Klapman Blvd	Beautification Project	\$ 145,000.00
	Highway 1 Pedestrian Lighting	Pedestrian Lighting	\$ 145,000.00
Irmo	Palmettoewood Parkway	Sidewalks	\$ 114,440.00
	Carlisle/Moseley Street	Sidewalks	\$ 231,242.00
	Brickling Road	Sidewalks	\$ 156,672.00
	College & Eastview Sidewalk	Sidewalks	\$ 121,003.00
	Carlisle Street Phase II	Sidewalks	\$ 82,000.00
	Carlisle Street Phase I	Sidewalks	\$ 63,000.00
	St. Andrews Road Phase I	Sidewalks	\$ 60,000.00
Cayce	Julius Felder Project Phase IIB	Sidewalks	\$ 179,000.00
	Riverland Drive Phase II	Sidewalks	\$ 80,395.00
	Julius Felder Project Phases I & II	Sidewalks	\$ 290,000.00
	Riverland Drive Phase I	Sidewalks	\$ 145,000.00
	State Street Revitalization	Streetscape	\$ 145,000.00
	Airport Blvd Beautification Project	Streetscape	\$ 145,000.00
Lexington Town	Augusta Highway Phase II	Sidewalks	\$ 145,000.00
	S. Church Street Phase IV	Sidewalks	\$ 290,000.00
	August Highway Phase I	Sidewalks	\$ 60,560.00
	Ice House Pedestrian and Streetscaping	Streetscape	\$ 145,000.00
	S. Church Street Phase III	Sidewalks	\$ 121,049.00
	Gateway Beautification Project	Landscaping and Beautification	\$ 102,400.00
	S. Church Street Phase II	Sidewalks	\$ 134,631.00
	S. Church Street Phase I	Sidewalks	\$ 62,133.00
	Park Road		\$ 284,040.00
Springdale	Kitty Hawk Drive	Sidewalks	\$ 142,170.00
	Airport Blvd Beautification	Streetscape	\$ 145,000.00
	Platt Springs Road Project Phase II	Pedestrian Lighting	\$ 145,000.00
	Platt Springs Road Project Phase I	Pedestrian Lighting	\$ 145,000.00
Chapin	Beautification of Downtown Chapin	Streetscape	\$ 145,000.00
	Lexington Avenue	Sidewalks	\$ 145,000.00
Columbia	Maxcy, Mildred, Sulton Street Sidewalks	Sidewalks	\$ 105,046.00
	Mast Arms on Main Street	Streetscape	\$ 145,000.00
	Accessibility & Landscaping on Main Street	Streetscape	\$ 97,620.00
	Five Points Village Streetscape	Streetscape	\$ 145,000.00
Richland County	Columbia High & Sandel Elementary Sidewalks	Sidewalks	\$ 145,000.00
	ADA Improvements	Sidewalks	\$ 145,000.00
	Rhame Road/Westridge Road Projects	Sidewalks	\$ 145,000.00
Lexington County	Buck Corley Road	Sidewalks	\$ 145,000.00
	Archers Lane and Crossbow Drive	Sidewalks	\$ 145,000.00
	Bush River Road	Sidewalks	\$ 145,000.00

FIGURE 13.1: COATS TRANSPORTATION ALTERNATIVE PROJECTS



CHAPTER 14: CONGESTION MANAGEMENT PROCESS

All metropolitan planning areas with a population over 200,000 are required by federal regulations (23 CFR 450.320) to adopt a formal Congestion Management Process (CMP) that provides for the safe and effective integrated management and operation of the multimodal transportation system through performance monitoring and the use of travel demand reduction and operational management strategies. The CMP is an integral component of the metropolitan transportation planning process as it helps to identify areas with high congestion (as a complement to the travel demand modeling process) and recommends appropriate mitigation strategies that manage travel demand, reduce single occupancy vehicle (SOV) usage, and improve travel conditions without having to add roadway capacity. When capacity improvement projects are warranted, the CMP provides recommendations for facilitating future demand management strategies and operational improvements that will help maintain the functional integrity and safety of the road once additional travel lanes are added. Per federal regulations, the congestion management process should include the following activities:

- Monitoring the performance of the multimodal transportation system to include identifying the causes of congestion and evaluating mitigation strategies;
- Defining congestion management objectives and appropriate performance measures
- Establishing a coordinated program for data collection and system performance monitoring to define the extent, duration, and causes of congestion, and to evaluate the efficiency and effectiveness of implemented actions;
- Identifying and evaluating the anticipated performance and expected benefits of appropriate congestion management strategies to include: demand management measures, including growth management and congestion pricing; traffic operational improvements; public transportation improvements; ITS technologies as related to the regional ITS architecture; and, where necessary, additional system capacity;
- Identifying an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation;
- Implementation of a process for periodic assessment of the effectiveness of implemented strategies.

To assist MPOs with CMP regulatory compliance the Federal Highway Administration (FHWA) developed a congestion management process model based on implementing the following eight actions or activities:

- Develop Regional Objectives for Congestion Management
- Define CMP Network
- Develop Multimodal Performance Measures
- Collect Data/Monitor System Performance
- Analyze Congestion Problems and Needs
- Identify and Assess Strategies
- Program and Implement Strategies
- Evaluate Strategy Effectiveness

As part of the 2040 LRTP, the regional congestion management process for the COATS MPO will be defined in terms of these eight activities. The following information describes each activity and outlines how it is being implemented and incorporated into the metropolitan transportation planning process.

14.1 DEVELOP REGIONAL OBJECTIVES FOR CONGESTION MANAGEMENT

Regional objectives define what the COATS MPO hopes to achieve through the congestion management process. This may include broader regional goals consistent with those defined for the larger long range transportation planning process, as well as more specific congestion management oriented objectives that help to achieve the regional goals. The COATS MPO therefore hopes to enhance regional mobility, increase transportation accessibility, and maintain existing infrastructure in a state-of-good repair by developing and implementing strategies that mitigate congestion through travel demand management, operational improvements, modal connectivity, land use compatibility, and where necessary, through capacity improvement projects.

14.2 DEFINE THE CMP NETWORK

The geographic boundary or area of application for the CMP is consistent with the 2010 COATS MPO boundary which covers most of Richland and Lexington counties, and a small area of Fairfield, Newberry, Kershaw and Calhoun counties. The defined CMP road network was established through an iterative process that considered a number of factors including corridors analyzed in previous CMPs, an examination of base and horizon year travel demand model output, CMCOG staff and stakeholder input, and the availability of existing data coverages for monitoring system performance (i.e., AADT, Impedance Attributes, and Travel Time Information). The selected roadway network consists of federal aid eligible roadways that are functionally classified by SCDOT as primary arterials, minor arterials, major collectors, and minor collectors. Interstates are not included as a part of the COATS CMP because all performance monitoring, analysis, and funding for Interstate improvement and congestion mitigation projects are programmed and implemented directly by SCDOT. Local roads are also not included in the CMP road network. The CMP transit network is defined by long term, high capacity, mainline routes currently operated by the Comet. Because bike and pedestrian facilities represent such a small percentage of the modal split in the COATS region, they are primarily monitored in the CMP in terms of their ability to contribute to the effectiveness of travel demand management strategies along adjacent congested roadway corridors. Table 14.1 shows the CMP roadway corridor network and Table 14.2 shows the CMP transit corridor network.

TABLE 14.1: CMP ROADWAY CORRIDOR NETWORK

ROAD	SUM (MILES)	ROAD	SUM (MILES)
12TH ST	3.36	SAINT ANDREWS RD	11.93
ALPINE RD	4.85	SC-12	56.67
BLYTHEWOOD RD	9.53	SC-16	19.13
BUSH RIVER RD	6.00	SC-2	7.77
CHARTER OAK RD	0.92	SC-215	24.48
CHURCH ST	3.04	SC-262	29.63
CLEMSON RD	15.77	SC-277	16.23
COLUMBIA AVE	5.79	SC-302	35.74
COLUMBIA COLLEGE DR	2.85	SC-48	58.01
DECKER BLVD	3.97	SC-555	27.27
FONTAINE RD	1.82	SC-555/HARDEN ST	1.44
GREYSTONE BLVD	1.98	SC-6	62.68
HARBISON BLVD	4.35	SC-60	10.11

HARD SCRABBLE RD	20.52	SC-602	21.51
HARDEN ST	3.48	SC-768	8.64
KILLIAN RD	5.32	SC-768/S BELTLINE BLVD	0.60
LEAPHART RD	6.44	SPEARS CREEK CHURCH RD	5.06
LONGS POND RD	8.66	ST ANDREWS RD	1.23
LOWER RICHLAND BLVD	17.50	TRAM RD	1.74
MINERAL SPRINGS RD	10.90	TRENHOLM RD	8.54
N 12TH ST	1.39	TWO NOTCH RD	35.25
N TRENHOLM RD	3.27	US-1	110.33
OLD SANDY RUN RD	3.76	US-176	37.20
PARKLANE RD	4.62	US-21	23.68
PINEY GROVE RD	5.79	US-321	69.78
PISGAH CHURCH RD/CHARTER OAK RD	4.64	US-378	77.29
PRESCOTT RD	2.38	US-601	59.90
S BELTLINE BLVD	4.99	US-76	42.20
S HARDEN ST	1.01	WHITE POND RD	4.76

TABLE 14.2: CMP TRANSIT CORRIDOR NETWORK

High Capacity Transit Route
Corridor #1: N. Main/Columbia College
Corridor #2: Palmetto Health Richland/Farrow Rd
Corridor #3: Two Notch Rd
Corridor #4: Forest Drive
Corridor #5: Assembly/Bluff Rd
Corridor #6: Devine/Garner's Ferry
Corridor # 7: Broad River/Harbison

14.3 DEVELOP MULTIMODAL PERFORMANCE MEASURES

Performance measures are used in the CMP to characterize current and future travel conditions, track progress toward meeting regional objectives, identify locations of congestion, assess the effectiveness of congestion mitigation strategies, and to communicate system performance to public officials, private sector stakeholders, and the general public. A wide range of performance measures are

available for measuring and monitoring system performance. For many performance measures, however, considerable human and financial resources are required to collect and analyze the necessary data. Some performance measures are also very difficult to understand and are not easily communicated to general audiences. As a result of these two factors, the COATS MPO selected a number of local and regional performance measures that are commonly used, relatively easy to communicate, and make use of readily available data sources. These performance measures include:

- **Roadway Segment Volume to Capacity (V/C) Ratio/Level of Service (LOS):** Comparison of observed and estimated traffic volumes to planning level roadway design capacities. This measure uses SCDOT Average Annual Daily Traffic (AADT) counts and COATS Travel Demand Model output. Regional and System Level performance goals include reducing the number or share of road miles operating above V/C ratio 1.15 or operating at a LOS E or F.
- **Congestion Index (CI):** The CI is the ratio of the actual travel speed to the free flow travel speed. This measure uses real-time and archived speed data available through the I-95 Corridor Coalition Vehicle Probe Project (provided by INRIX) and through point-in-time data collected on an as needed basis. Regional and System Level performance goals include reducing the number or share of congested road miles.
- **Travel Time Index (TTI):** The TTI compares peak-period travel times to free flow travel times illustrating both the duration and intensity of congestion on a corridor. This measure uses real-time and archived speed data available through the I-95 Corridor Coalition Vehicle Probe Project (provided by INRIX) and through point-in-time data collected on an as needed basis. Regional and System Level performance goals include reducing total excess delay time and the number or share of roads experiencing a comparatively high TTI.
- **Transit Ridership:** Analysis of current and historic transit ridership data for high capacity routes. This measure will rely on data reported in the National Transit Database (NTD) and ridership information provided by the Comet. Regional and System Level performance goals include increasing transit ridership on high capacity routes and reducing crowding via increased frequencies as needed.
- **Transit On Time Performance:** Analysis of on time performance for high capacity routes. This measure will rely on data reported in the National Transit Database (NTD) and ridership information provided by the Comet. Regional and System Level performance goals include increasing the percentage of buses arriving on-time regionally.

- **Bike and Pedestrian LOS:** Congested corridors will be assessed in terms of the percentage of the roadway with access to sidewalks, crosswalks, bike lanes, multi-use pathways, transit stops and regional activity centers. Data will be derived from various sources. Regional and System Level performance goals include increasing access to bike, pedestrian, and transit access along congested corridors.

14.4 COLLECT DATA/MONITOR SYSTEM PERFORMANCE

Since 2013 the COATS MPO has been an affiliate member of the I-95 Corridor Coalition's Vehicle Probe Project. This project is a collaborative effort among Coalition members, University of Maryland and INRIX, Inc. providing comprehensive and continuous real-time travel information. The objective of this project is to acquire travel times and speeds on freeways and arterials using probe technology. While the dominant source of data is obtained from fleet systems that use GPS to monitor vehicle location, speed, and trajectory, other data sources such as sensors may also be used. The INRIX system fuses data from various sources to present a comprehensive picture of traffic flow.

As a member of the Coalition, the COATS MPO has been granted access to the data collected in the Vehicle Probe Project. This is an innovative data source for both highway performance monitoring and regional planning that provides continuous real-time speed and travel time data. The archived data is of particular interest as a valuable source for congestion monitoring and evaluation for the Congestion Management Process. Probe data will be used to examine the reliability of traffic conditions, addressing the CMP's need to look at non-recurring congestion due to accidents, construction, or weather events. To implement the CMP the COATS MPO will rely heavily upon this data as well as AADT data collected by SCDOT, GIS data generated by CMCOG staff, and transit data provided by the Comet.

14.5 ANALYZE CONGESTION PROBLEMS AND NEEDS

Once collected, raw data will be analyzed and translated into meaningful measures of performance. The purpose of this process is to identify specific locations with congestion problems and identify the sources of these problems. The data collected from the sources identified above will be maintained on an ongoing basis by CMCOG GIS and transportation planning staff. Analysis will be conducted on a bi-annual basis. An illustration of the aggregate travel time index for the region for the first quarter of 2015 is provided in Figure 14.1. An illustration of the AM and PM peak hour travel time index for the first quarter of 2015 is shown in Figures 14.2 and 14.3.

FIGURE 14.1: AGGREGATE TRAVEL TIME INDEX FOR JANUARY THROUGH MARCH 2015

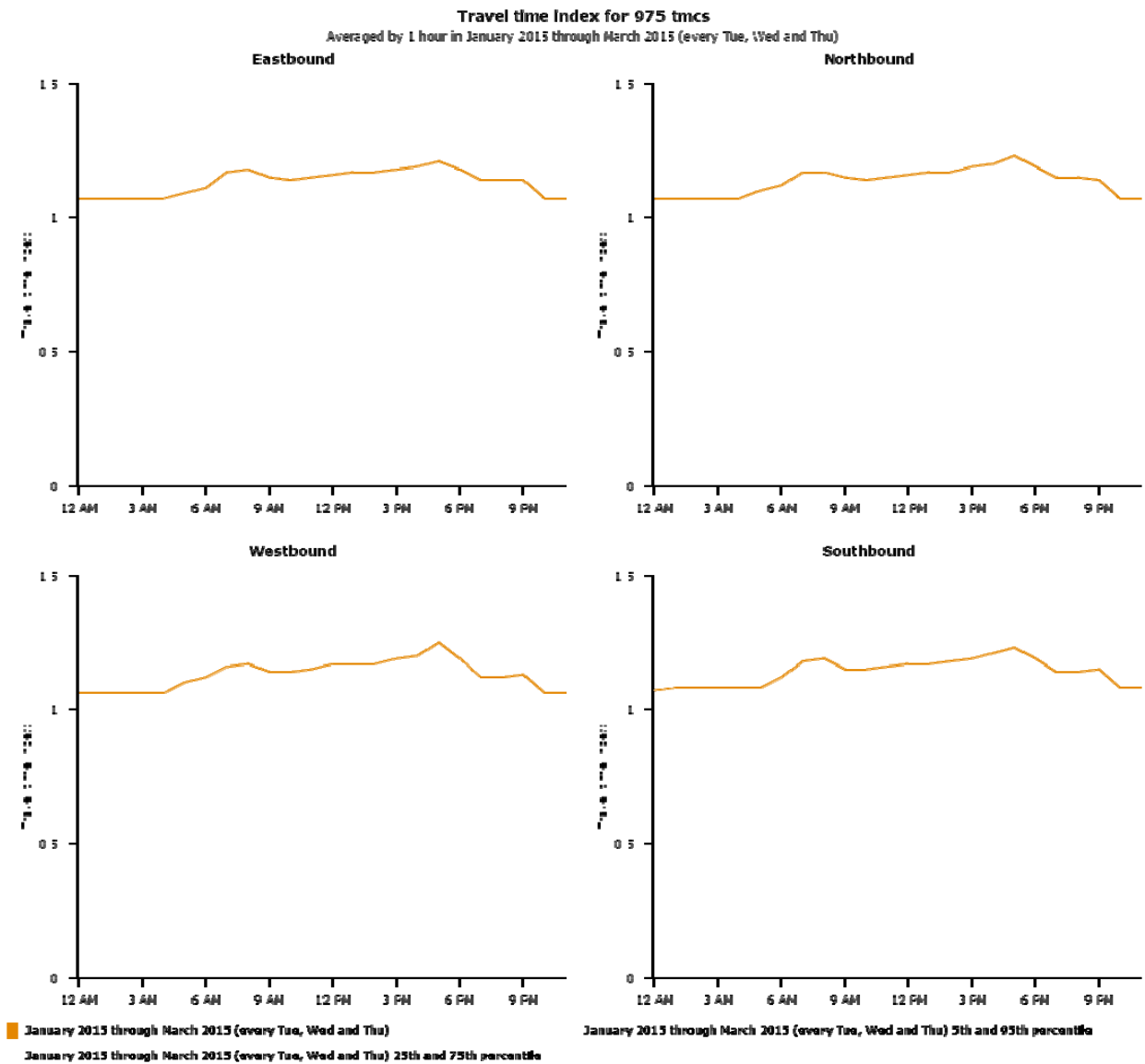


FIGURE 14.2: AM PEAK PERIOD TRAVEL TIME INDEX FOR JANUARY THROUGH MARCH 2015

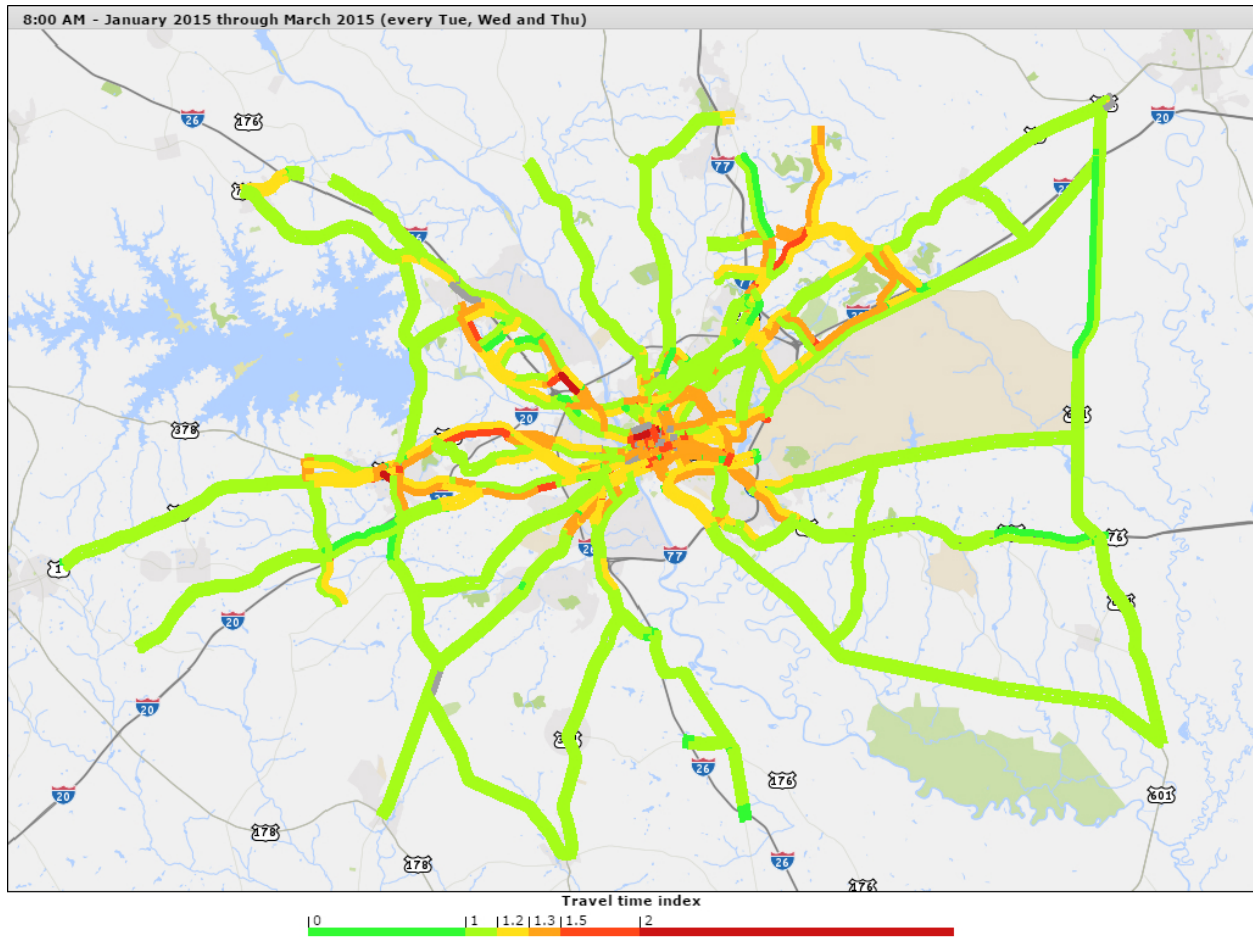
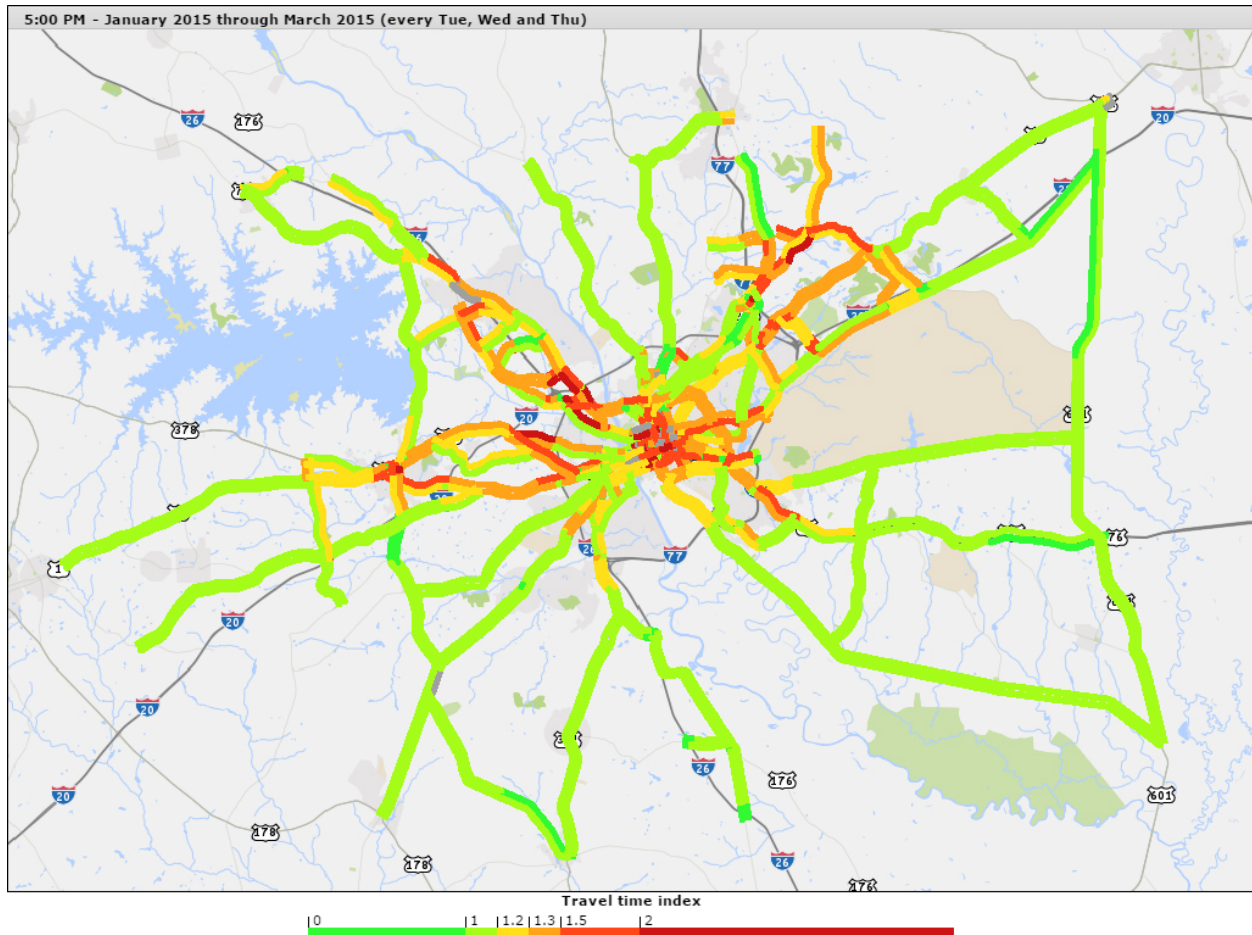


FIGURE 14.3: PM PEAK PERIOD TRAVEL TIME INDEX FOR JANUARY THROUGH MARCH 2015



14.6 IDENTIFY AND ASSESS STRATEGIES

During this step in the process, the MPO will analyze the information gathered in the performance monitoring step and determine which strategies and types of infrastructure modifications have the most impact on congestion and SOV usage. Regional CMP strategies (support for carpooling, bicycling, etc.) as well as the most appropriate localized CMP strategies will be evaluated to determine potential alternatives to expansion. The System Performance Report will be used over time to evaluate the most successful strategies to continue pursuing. Variations in types of roadways (differentiated by number of lanes, travel speeds, surrounding land uses, infrastructure design and designation for use by different transportation modes) will result in different CMP strategies being most appropriate for each. By using approved regional transit plans and regional bicycle/pedestrian plans, appropriate modal considerations will also be recommended for the various roadways throughout the region. Using these

multimodal plans as a guide, a Complete Streets policy is being considered for the region. As a matter of standard practice, the policy would help assure that roadways are designed, built and maintained with very strong consideration for accommodating not only automobiles but, in accordance with recommendations from the various modal plans, for transit vehicles and non-motorized modes of travel as well. The findings from the Performance Monitoring Plan could show that a given corridor may not need to include all of the capacity that would be required to eliminate all congestion at all times of the day, but may provide enough physical capacity to eliminate much of the congestion in the off-peak periods and shoulders of the peak period. Reliance on identified congestion management strategies could then be utilized to help improve traffic flow, primarily during the peak periods.

A primary component of the CMP process involves developing a toolbox of mitigation strategies that are consistent with federal guidelines and can be applied to the identified congested corridors and intersections. The toolbox is intended to provide a hierarchical methodology for congestion mitigation that begins with the most cost effective and efficient strategies and ends with the most cost prohibitive and intrusive strategies (i.e. road widening for capacity improvement). The five major levels of mitigation strategies can be summarized as projects that include:

1. Decreasing the need for trip making (strategies at regional level versus corridor level)

- Land use policies and regulations to limit growth in areas with limited infrastructure
- Land use policies and regulations to enhance jobs to housing balance along corridors and within sections of the region
- Flexible work hours

2. Shifting trips from automobiles to other modes

- Public transit capital improvements (exclusive right-of-way, commuter express, circulator, park and ride)
- Public transit operational improvements (service enhancements, queue jumpers, information systems)
- Encourage the use of non-motorized modes (sidewalks, bicycle facilities, transit park and ride)

3. Increasing the use of High Occupancy Vehicles (HOV)

- Parking management/fee adjustment
- Vanpooling programs
- Ride share matching services

4. Enhancing operations on existing roadway facilities

- Traffic operations improvements (intersection widening, signal coordination, traffic surveillance and control systems)
- Incident Management (detection and clearing of incidents)
- Access management (medians, signal and driveway spacing, frontage roads, inter-parcel connections)

5. Increasing roadway capacity through additional infrastructure Arterial roadway capacity (widening and new roads)

As a part of the CMP, each congested corridor is subjected to a screening process that examines the unique characteristics of the roadway and determines the most appropriate level of mitigation treatment and corresponding improvement strategy. Figure 14.4 below further illustrates the application of the screening process.

In addition to collecting and analyzing data regionally across the congestion management network, any “needs” project proposed for the LRTP will also be analyzed (as part of future plan updates) through this process to determine the best CMP strategies to be pursued for each. Data items will include information related to roadway characteristics (e.g., name, description, jurisdiction, length), roadway performance (e.g., daily traffic volumes, V/C), roadway function (e.g., on core bus route, express bus corridor), and possible roadway strategies (e.g., travel demand management, ITS, access management, widening). A report will be developed with a listing of the top CMP strategies for each identified roadway segment.

An initial single occupant vehicle (SOV) analysis will also be conducted to estimate the potential reduction in the expected rate of growth in SOV usage that would result from implementing a series of CMP strategies throughout the region. This initial estimate will be used to identify where roadway LOS will continue to need additional capacity, even after CMP strategies are put in place. Over time, the SOV analysis will be refined through subarea analyses – to better indicate the locations and levels of impact that will result from specific types of CMP strategies.

FIGURE 14.4: PROCESS AND TOOLBOX OF MITIGATION STRATEGIES

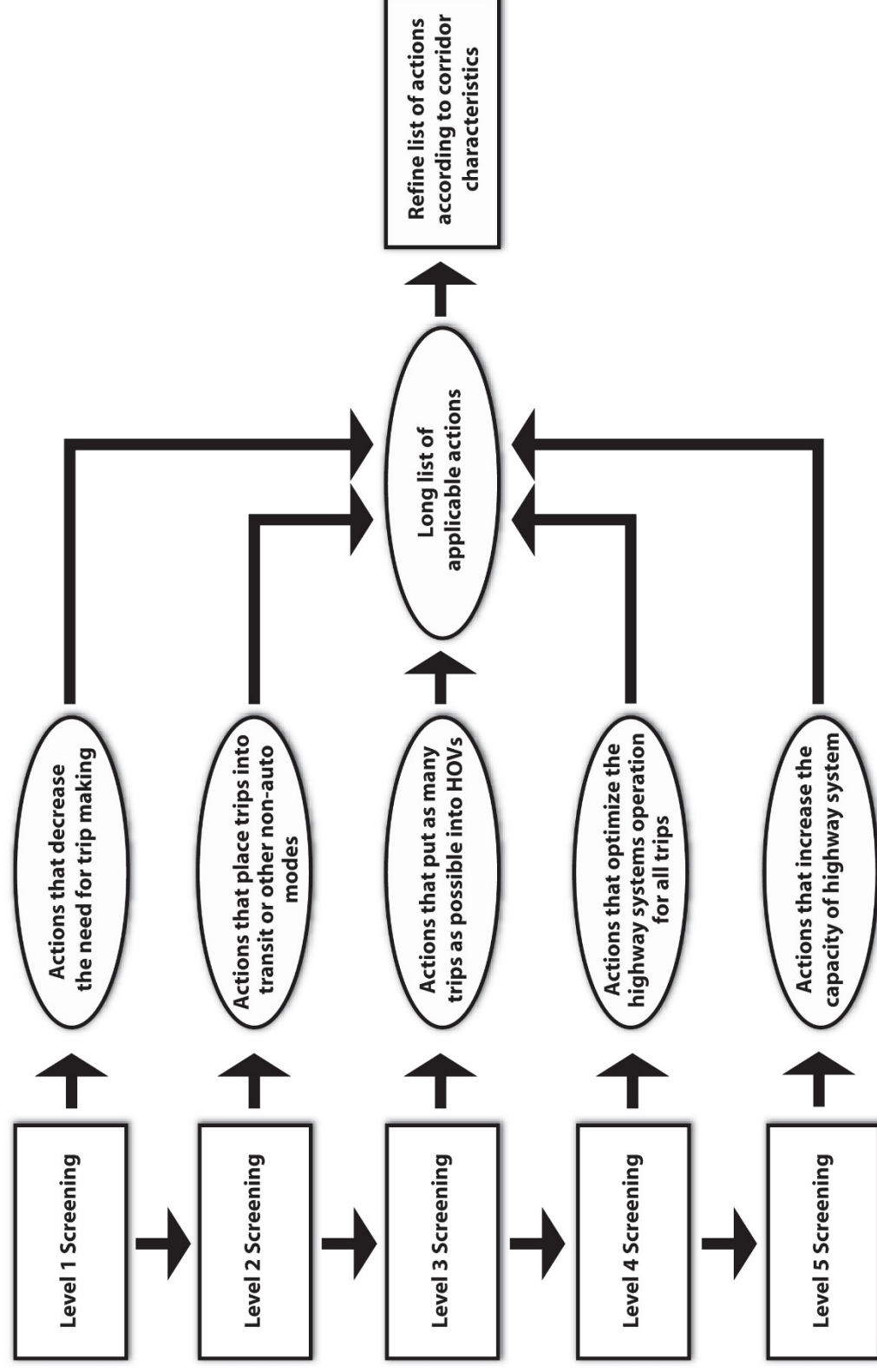


TABLE 14.3: CMCOG CONGESTION MANAGEMENT TOOLBOX

Table X: CMCOG Congestion Management Toolbox				
STRATEGY	DESCRIPTION	TYPICAL PROJECT APPLICATIONS	SCOPE AND BENEFITS	IMPLEMENTATION NEEDS
ROADWAY CAPACITY IMPROVEMENTS	Physical capital-intensive improvements that increase vehicle throughput capacity along roads and highways	<ul style="list-style-type: none"> □ Roadway widening □ Urban area bypass roads □ Urban area freeway loops □ New freeways, arterials and collector streets □ Street grid with hierarchy in functions □ Grade-separated interchange □ Flyover ramp □ Interchange configuration upgrade □ One-way couplets □ Connector roads 	Roadway capacity enhancements are desired in high growth transitional areas to support forecast growth in regional population and employment, in isolated areas with major development or redevelopment proposals, and along roadway corridors that carries interstate, inter-regional and regional traffic. These projects are capital-intensive and will result in significant capacity expansion. These projects would either enhance or preserve mobility for future growth and development.	Roadway capacity expansion projects will typically require feasibility analysis, alternatives analysis, environmental assessment, funding assessment and public outreach. Project planning would require significant coordination and cooperation among multiple agencies and stakeholders. Projects using federal funds will require to follow federal guidelines such as NEPA in project planning
ROADWAY OPERATIONAL IMPROVEMENTS	Traffic control improvements to improve traffic flow and safety along roads and highways	<ul style="list-style-type: none"> □ New traffic signal □ Signal timing coordination □ Street signs and markings □ Adaptive signal control □ Intersection turn lanes □ Roadway realignments □ Traffic surveillance cameras □ Freeway ramp metering □ Designated truck routes □ On-street parking □ Center turn lane □ Road diet / traffic calming 	Roadway operational improvements are desired in urbanized areas and congested roads where deficiencies exist in current conditions. These projects are far less expensive than roadway capacity projects. These projects will result in significant reduction of traffic delays or crashes along congested corridors or intersections. These are short-range improvement projects that can reduce intersection delays, stop-and-go traffic volumes, and crash incidence rates. These are also referred to as Transportation System Management (TSM) strategies.	Roadway operational improvement projects will require lesser amount of analysis and environmental impact assessment due to the limited influence area. These projects are typically identified and funded through a variety of existing state-wide and local transportation programs such as safety, traffic operations, congestion management, air quality, traffic calming and parking management. Project planning would require some coordination and cooperation among agencies and stakeholders.
TRANSIT CAPITAL IMPROVEMENTS	Capital improvements that increase person throughput capacity across transit ridership markets	<ul style="list-style-type: none"> □ New Buses □ Park-and-Ride Lots □ Transit Stations □ Transit rider amenities at bus stops □ Parking for commuters and buses □ Commuter rail transit (CRT), light rail transit (LRT), bus rapid transit (BRT) or people mover facilities □ Dial-a-ride transit □ Intermodal transportation centers 	Transit capacity enhancements are desired in metropolitan and highly urbanized areas with air quality issues to support forecast growth in regional population and employment. These projects are capital-intensive and will result in significant capacity expansion of transit services. These projects would either enhance or preserve transit mobility, mode choices, and air quality while accommodating future growth and development.	Transit capital improvement projects typically require federal funding and grants. Therefore, project planning typically involves alternatives analysis, cost-benefit analysis, environmental analysis, community impacts, and financial feasibility. Projects eligible for federal "New Starts" funding include any fixed guideway system which utilizes and occupies a separate right-of-way, or rail line for the exclusive use of mass transportation and other high occupancy vehicles.
TRANSIT OPERATIONAL IMPROVEMENTS	Operational improvements to improve travel time and reliability of transit services	<ul style="list-style-type: none"> □ Transit signal priority □ Regional smart fare card □ Automatic Vehicle Location (AVL) Technology □ Automatic Passenger Counts (APC) Technology □ Express Bus Routes □ Bus frequency and dwell times □ Bus stops, pull-outs and transfer point locations 	Transit operational improvements are typically targeted to increase ridership, and travel time reliability of transit services through use of technological solutions, scheduling solutions or small scale road improvements.	Transit operational improvements would typically need to be implemented based on detailed feasibility, environmental review, design, and contract agreements with bus operators and equipment suppliers. In addition, marketing activities are required to promote new services.

TABLE 14.3: CMCOG CONGESTION MANAGEMENT TOOLBOX - CON'T

STRATEGY	DESCRIPTION	TYPICAL PROJECT APPLICATIONS	SCOPE AND BENEFITS	IMPLEMENTATION NEEDS
LAND USE PLAN	Policies and plans that link land use vision with appropriate transportation solutions	<ul style="list-style-type: none"> □ Subarea master plan to integrate land use vision with proper transportation solutions □ Strategic corridor plan to preserve mobility, access, and character along highways □ Transit-oriented development (TOD) guidelines □ Re-development guidelines □ Mixed-use development guidelines □ Zoning overlay districts 	In one school of thought it is recognized that the best transportation plan is a land use plan. This implies the importance of land use strategies in solving traffic congestion. Increasingly, many metropolitan regions are seeing the benefits of proactive master planning approach where a land use vision is matched with the right mix of transportation solutions to reduce auto dependence and to allow taking alternate modes to work and shopping.	For localized high growth or redeveloping areas, individual jurisdictions would need to work with property owners and stakeholders to develop a master plan that defines the land use-transportation vision and outlines design standards for implementation. For larger areas crossing jurisdictional boundaries, CMCOG would need to take the lead in defining master plans that link land use vision with supporting multi-modal transportation facilities.
GROWTH MANAGEMENT PLAN	Policies and plans that outline type, mix, intensity and character of allowable growth by geographic areas and the mitigation requirements	<ul style="list-style-type: none"> □ Mobility management goals and LOS standards by geographic areas □ Growth management ordinance by local or regional agencies □ Development moratoriums □ Adoption of smart growth principles for development reviews and permit approvals □ Transportation Impact Fees □ Regional land use vision development and marketing □ Local land use vision development and marketing 	This strategy is similar to the land use plan, but more appropriate for urbanized built-up areas with limited developable or re-developable land. The main principle of this strategy is focused on defining an urban growth boundary to reduce suburban sprawl, minimize environmental impacts, and preserve rural lands and quality of life.	State legislative acts such as a Growth Management Act is desirable in order to develop consistent local growth management plans. However, local jurisdictions can adopt transportation impact fees based on detailed cost-benefit analysis of the impacts of new growth on public infrastructure cost of services.
CONGESTION MANAGEMENT PROCESS (CMP)	Traffic congestion monitoring and mitigation prioritization plan that identifies recurrent and non-recurrent bottlenecks	<ul style="list-style-type: none"> □ Highway travel time and delay studies □ Intersection delay and Level of Service (LOS) studies □ Transit travel time and reliability studies □ Crash studies 	SAFETEA-LU mandates development of congestion management process by MPOs in urbanized areas. The purpose of CMP is to monitor traffic congestion in a systematic way such that effectiveness of mitigation strategies can be evaluated over time.	The data collected for CMP are expected to guide selection of short-term mitigation strategies that are easier to implement. Congestion mitigation projects requiring federal funds would require justification based on CMP evaluations.
NON-MOTORIZED TRANSPORTATION IMPROVEMENTS	Policies, plans and strategies that fosters safe and increased use of bicycles and walking for recreational, work, and school trip purposes	<ul style="list-style-type: none"> □ Comprehensive bicycle plan development □ Adoption of Bicycle Level of Service (BLOS) standards □ Bicycle lanes □ Intersection bicycle box □ Comprehensive pedestrian plan development □ Adoption of Pedestrian Level of Service (PLOS) standards □ Sidewalks with ADA compliance □ Safe route to schools □ Off-road recreational and commuting trails □ Adoption of "complete streets" principles □ Awareness, education and promotional programs □ Traffic calming devices 	Non-motorized transportation facilities should be an integral part of transportation planning projects and TIP development. It has been demonstrated that a good non-motorized transportation system contributes to healthier living and a lower carbon footprint for the communities.	SAFETEA-LU has expanded the funding program and provided flexibility in using federal transportation dollars for non-motorized projects.

TABLE 14.3: CMCOG CONGESTION MANAGEMENT TOOLBOX - CON'T

STRATEGY	DESCRIPTION	TYPICAL PROJECT APPLICATIONS	SCOPE AND BENEFITS	IMPLEMENTATION NEEDS
HIGH-OCCUPANCY VEHICLE (HOV) SYSTEM	Highway lanes with limited access reserved for exclusive use by high-occupancy vehicles (HOV) and transit buses. HOV occupancy requirements typically vary from 2 or more persons (2+) to three or more persons (3+).	<ul style="list-style-type: none"> Freeway HOV lane Arterial HOV lane Ramp metering with HOV bypass lane Intersection queue jump lane for HOVs HOV-only interchange Conversion of General Purpose (GP) lane to HOV lane Ride share services Employer-based carpool monetary incentives Preferential parking for carpools 	HOV lanes have proven to be effective congestion mitigation strategy along corridors with severe recurring traffic congestion. The goal of providing HOV 2+ or HOV 3+ lane is to increase the person throughput capacity of the lane and provide significant travel time advantage for carpools, vanpools and transit.	SCDOT would need to take the lead to evaluate the need and feasibility of HOV lanes along congested freeway corridors, while CMCOG or individual jurisdictions can take the lead in defining the need for arterial HOV treatments along congested urban arterials. SAFETEA-LU funding programs have many incentives for implementing HOV lanes. A system planning approach is required to develop an effective HOV system.
TOLL ROADS	Highways constructed using private funds and financed by collecting user tolls	<ul style="list-style-type: none"> Roads with toll collection facilities Bridges with toll collection facilities Electronic toll collection system Traffic surveillance system Traffic monitoring system for dynamic, variable toll pricing system 	Toll road projects are very successful in South Carolina. The toll road projects in South Carolina helped in providing mobility along key transportation corridors. With shrinking transportation funding, toll roads are increasingly considered an important element of congestion management toolbox.	Toll road financial feasibility studies should be undertaken for the targeted corridors. These projects would require design-bid-build-operate type contracting.
PARKING MANAGEMENT	Policies, plans and application of technologies to improve parking access, safety, supply, utilization and payment management.	<ul style="list-style-type: none"> Parking capacity, utilization and rate studies Parking payment kiosks Parking passes by zones Parking subsidies for carpools/vanpools 	Daily and hourly parking costs at central business districts or at major activity centers such as universities, airports, shopping centers and stadiums are an important element of how people choose their mode of travel. The parking cost is driven by market conditions, and land use.	Local jurisdictions are responsible for developing a comprehensive parking policy and management program. Policies are needed to provide monetary incentives to carpools and vanpools.
TRAVEL DEMAND MANAGEMENT (TDM)	Employer-based or area-wide strategies to reduce rush hour traffic congestion by providing mode choice, time choice, location choice, and route choice.	<ul style="list-style-type: none"> Flex work or alternative work schedules Telecommuting Reduced-fare transit passes Reduced-cost parking passes Vanpools Amenities at work for transit and bicycle commuters Tax incentives at work for transit and bicycle commuters Pre-trip route planning services such as real-time information on bus locations, construction closures, incident delays, and weather conditions Alternate mode awareness/education programs Car sharing Bike Rentals 	TDM is part of the congestion management toolbox in growing urban areas. These strategies tend to provide incentives or dis-incentives to either shift travel from peak hours to off-peak hours or eliminate trips all together by providing alternate mode and work choices. TDM strategies help improve air quality and reduce energy usage.	CMCOG and SCDOT can take the co-lead in working with major employers in the region and develop employer-based TDM strategies. The region can develop and adopt a comprehensive trip reduction ordinance. There are several federal funds that can be used to implement TDM strategies.

TABLE 14.3: CMCOG CONGESTION MANAGEMENT TOOLBOX - CON'T

STRATEGY	DESCRIPTION	TYPICAL PROJECT APPLICATIONS	SCOPE AND BENEFITS	IMPLEMENTATION NEEDS
CONGESTION PRICING/VALUE PRICING	Use of peak-period tolls on congested roads to reduce traffic congestion in urban areas. The toll amount is typically defined based on local prevailing traffic and market conditions to provide monetary incentive to travelers to find alternate routes, modes, or times of day for their discretionary trips.	<ul style="list-style-type: none"> □ Variably priced lane such as High-occupancy toll (HOT) lanes that allow free or reduced cost access to qualifying HOVs, and also provide access to SOVs and trucks at a higher price □ Cordon charges such as peak hour fee to access central business district (CBD) □ Area wide per-mile charges in congested urban areas on all roads □ Toll roads and bridges 	Pricing is part of the congestion management toolbox in highly urbanized areas. These strategies tend to provide monetary dis-incentives to either shift travel from peak hours to off-peak hours, from congested corridors to non-congested corridors or eliminate trips all together. Pricing strategies make efficient use of the transportation system. Many European cities have adopted these strategies more aggressively than in the United States.	The region can develop a strategy for toll roads and HOV lanes prior to moving into congestion pricing.
ACCESS MANAGEMENT	Policies and plans to manage residential and commercial access to highways, major arterials and other roadways to promote safe and efficient use of the roadway capacities.	<ul style="list-style-type: none"> □ Street functional class hierarchy □ Access management guidelines by roadway functional class and geographic area □ Strategic corridor access management plan □ Spacing standards for interchanges, traffic signals and driveways □ Roadway median treatments and openings □ Left-turn movement treatments □ Clear sight distance □ Connectivity between adjacent parcels □ Turn lanes and auxiliary lanes 	Access management is an indirect congestion mitigation strategy. The purpose of access management is often preserving the available capacity of a roadway by developing access approval guidelines for future developments. This strategy should be applied to those highway corridors which not only provides local access, but also provides regional mobility to through traffic.	SCDOT is the lead agency to implement access management strategies. Access management guidelines should incorporate best-practice standards.
INTELLIGENT TRANSPORTATION SYSTEM (ITS)	Application of technological solutions to improve the operation, safety and security of existing transportation systems (highway, transit and other modes)	<ul style="list-style-type: none"> □ Regional ITS deployment plan development □ Traffic operation centers □ Traffic surveillance system □ Traffic monitoring devices □ Traffic signal control interconnection and fiber-optic communication line □ Real-time traveler information system □ AVL and cameras for buses □ 511 traveler information hotline □ Work zone temporary traffic control □ Evacuation routing system □ Commercial Vehicle Operations (CVO) □ Commercial Vehicle Information Systems (CVIS) □ Road weather management 	ITS improvements can help in getting extra capacity out of existing transportation system. ITS solutions improve traffic operations, security, and safety. In addition, ITS solutions support information dissemination to system users and operators.	SCDOT is the lead agency to implement ITS strategies. ITS implementation will require developing a regional ITS architecture that is in line with the national ITS architecture, and defining a multi-agency ITS deployment plan following systems engineering approach.
INCIDENT MANAGEMENT	Multi-agency program to detect, respond, and clear traffic incidents and restore traffic flow to normal conditions	<ul style="list-style-type: none"> □ Road ranger patrol vehicles □ HAZMAT and major incident response team □ Traffic surveillance system □ Dynamic message signs (DMS) to inform motorists about incidents, delays and detours □ Call boxes □ Call dispatchers □ Multiagency communication and incident response coordination protocols 	Incident management improvements are an important element to mitigate non-recurrent traffic congestion, which is a big part of today's traffic congestion. The traffic delays due to crashes and incidents can be reduced significantly by developing a coordinated incident response program.	SCDOT is the lead agency to implement incident management (IM) strategies. IM guidelines should incorporate best-practice standards, and involve multiple agencies.

14.7 IMPLEMENT STRATEGIES AND EVALUATE EFFECTIVENESS

As part of the MPO ongoing planning processes, information about the best ways to minimize increases in SOV usage and maintain a strong transportation network while limiting roadway expansions will be used to help select the types of projects to be included in future editions of the LRTP and the Transportation Improvement Program (TIP). This information will primarily be learned through data compiled in the regularly produced CMP Performance Reports as well as through travel demand modeling work to analyze impacts of various changes to the MPO's transportation network. The Congestion management process will examine the effectiveness of CMP strategies at both the regional level and corridor level by continuously applying the performance measures adopted as a part of this planning process.

CHAPTER 15: HIGHWAY ELEMENT

15.1 INTRODUCTION

Of the several transportation modes represented in this 2040 Long Range Transportation Plan, the highway system is the most heavily utilized. The vast majority of trips in the COATS planning area are automobile trips. It is also significant that the major roadway network provides the basis for other transportation modes, specifically fixed route bus, higher capacity commuter bus transit services, para-transit for special needs populations, and bicycle and pedestrian facilities—all of which travel in road rights of way. While improvements to the major road network benefit automobile travelers, these improvements can also result in better service for transit users, pedestrians, bicyclists and motor freight haulers.

This chapter explains improvements recommended for reducing congestion and expanding capacity of the highway network. The major topics of discussion are the project prioritization process, road widening, “new right-of-way” construction, intersection improvements and interstate interchange and highway improvements. The chapter also explains the “financially constrained” planning requirements of MAP-21.

Earlier in this document a series of transportation system design principles were presented. The principles are intended to guide the development of an efficient, safe multi-modal network of roads, transit and bike and pedestrian ways. The improvements proposed in this chapter should be designed in accordance with the Congestion Management Plan that was developed as part of the 2040 LRTP planning process. This process is designed to identify opportunities to make relatively quick, low cost improvements to the transportation system, as opposed to an over-reliance on expensive road widening projects which, due to financial limitations, proceeds slowly. The Congestion Management process should be applied to all congested transportation corridors to identify the most appropriate type of improvement and level of investment.

15.2 THE FINANCIALLY CONSTRAINED PLANNING REQUIREMENT

Under the requirements of MAP-21, the MPO must adopt a *Financially-Constrained Plan*, showing prioritized projects that can be funded with revenues that are reasonably expected to be available during the planning period. The Financial Element further explains this requirement and provides revenue forecasts that were used in preparing the financially-constrained component of the 2040 Plan.

MAP-21 also provides inclusion of projects that would be included in the adopted, financially-constrained plan if additional resources beyond the funds identified in the financial plan were to become available. Because the costs of the transportation improvements needed in the COATS MPO are far in excess of the funding forecast, this chapter also includes aspirations lists of very long-range projects with no currently identified funding source.

15.3 HIGHWAY PROPOSALS

The 2040 LRTP proposes widening of major arterials and interstate highways, intersection improvements, interstate interchange improvements, and construction of a few new roads on new rights of way. COATS prioritized the major thoroughfare and intersections projects through the process described below. Interstate highway improvements were taken from the South Carolina Statewide Multimodal Transportation Plan.

15.4 THE PROJECT PRIORITIZATION PROCESS

Both the South Carolina Legislative Act 114 of 2007 (Act 114) along with MAP-21 require an objective, data-driven process for selecting projects for inclusion in the financially-constrained plan, and, ultimately, for funding and construction. One key component of the process included using the Statewide Travel Demand Model to analyze current and anticipated travel patterns and traffic congestion rates. Documentation of the travel demand model appears in a separate appendix to this plan.

Following the requirements of Act 114, COATS adopted a project ranking systems for road widening, intersection improvements, interstate interchange improvements, and construction of new roads (“new right-of-way construction”). These ranking criteria and their potential scoring ranges are shown in Table 15.1.

It should be noted that the project ranking requirements do not apply to projects that do not use SCDOT guideshare funding. Projects funded entirely by state or federal earmarks, a local sales tax initiative, local government general obligation bonds or other exempt sources could be built as funds become available at the discretion of SCDOT and the funding entity.

TABLE 15.1: ROAD WIDENING RANKING CRITERIA

Widening Projects	Weighting
Financial Viability and Maintenance Cost	20 Points
Public Safety	10 Points
Potential for Economic Development	8 Points
Traffic Volume and Congestion	33 Points
Truck Traffic	8 Points
Pavement Quality Index	5 Points
Environmental Impact	8 Points
Right of Way Preservation	8 Points
Alternative Transportation Solutions	For Consideration Only
Consistency with Local Land Use Plans	For Consideration Only

In addition to these criteria, two other criteria that do not lend themselves to quantitative scoring were considered. The first is financial feasibility. Based on guidance received from SCDOT, viability review was performed on the initial list of road segments needing improvements. To be considered feasible, the cost of a project must not be so high that it is impossible to fully fund it within the six-year cycle of the Transportation Improvement Program (TIP). Projects which could not meet this test were reconfigured into smaller segments for ranking purposes.

The second un-quantified criterion is consistency with local land use plans. In the judgment of COATS, this assessment is best left to the local governments who are given, under the South Carolina Planning Enabling Act, the responsibility to prepare comprehensive development plans and the authority to develop land use regulations and capital improvements programs to implement those plans. Representatives of local government land use planning agencies participate in the COATS Technical Committee. During the final public comment period, local governments have further opportunities to suggest changes to the final draft based on any comprehensive land use planning concerns.

Prioritized lists of road widening, intersections, interstate interchange, and new construction projects are included in the following sections.

15.5 ROAD WIDENING

Using the statewide travel demand model, the regional highway network was analyzed to identify road segments that would be at Level of Service “E” or “F” by 2040 if they were not improved. Levels of Service “E” and “F” represent unacceptable levels of travel delay and traffic congestion. This needs analysis provided the basis for a shorter list of projects which was prioritized using the road widening project selection criteria.

Table 15.2 and Figure 15.2 show a prioritized list of road widening projects. Unless otherwise noted, these projects involve widening two or three-lane roads to four or five lanes. While a number of existing four and five-lane roads will have future capacity problems according to the travel demand model, the plan proposes to limit use of guideshare funds to upgrading the two and three-lane facilities, rather than re-widening roads that have already been upgraded. This does not mean that issues with the existing four and five-lane roads will not be addressed. The plan proposes to seek alternate funding sources beyond the projected guideshare allocation, and also, to use the five-level screening process in the Congestion Management Process to provide additional travel improvements.

Road Widening projects were prioritized based on the criteria shown in Table 15.1. Figure 15.1 shows the road widening projects identified for improvements.

FIGURE 15.1: ROAD IMPROVEMENT PROJECTS

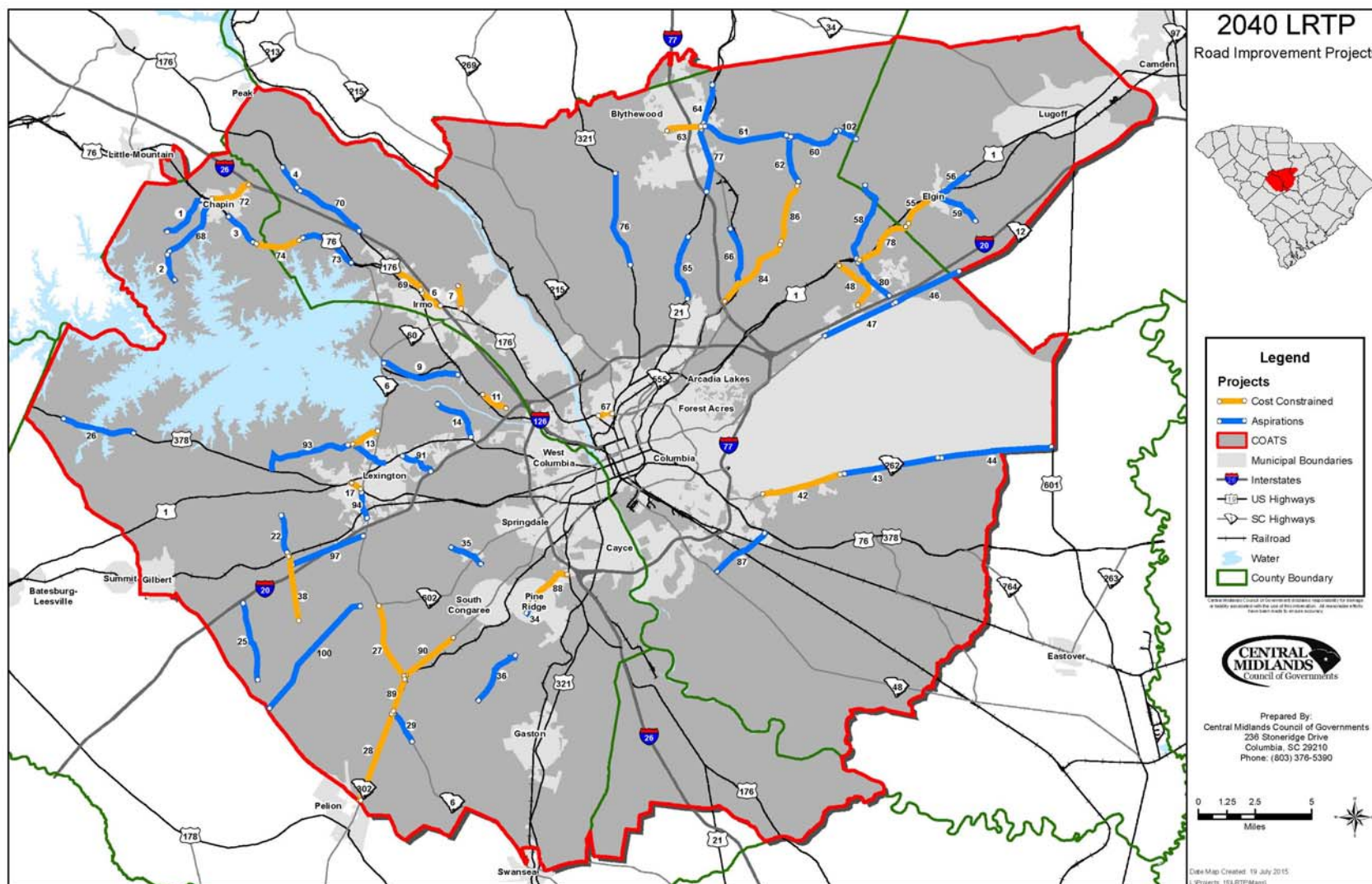


TABLE 15.2: COATS MPO 2040 PRIORITIZED LIST OF ROAD WIDENING PROJECTS

<u>COATS 2040 PRIORITIZED LIST OF ROAD WIDENING PROJECTS</u>						
<u>Cost Constrained Improvement List</u>						
<u>Overall COATS Rank</u>	<u>Project ID</u>	<u>Route Name</u>	<u>Project Limits</u>	<u>Total Score</u>	<u>Estimated Project Cost with a 3% Inflationary Rate</u>	<u>Running Total of Estimated Project Cost</u>
1	78	Two Notch Road	Steven Campbell Road (S-407, Kershaw Co.) to end of S-53 Spears Creek Church Rd	79.899	\$ 18,988,909.34	\$ 18,988,909.34
2	38	Longs Pond Road	Barr Road (S-77) to Nazareth Road (S-243)	78.690	\$ 26,779,231.12	\$ 45,768,140.45
3	17	West Main Street	Columbia Avenue to N. Lake Drive (SC 6)	69.175	\$ 5,355,846.22	\$ 51,123,986.68
4	89	Edmund Highway	S. Lake Drive (SC 6) to SC 6	68.510	\$ 13,065,018.82	\$ 64,189,005.49
5	84	Hard Scrabble	Farrow Road (SC 255)/I-77 to Clemson Road (S-52)	66.602	\$ 30,025,198.52	\$ 94,214,204.02

6	42	Leesburg Road	Fairmount Drive (S-404) to Lower Richland Blvd. (S-37)	66.512	\$ 30,187,496.89	\$ 124,401,700.91
7	67	Sunset Drive	River Drive (US 176) to SC 277 interchange	66.316	\$ 6,491,934.82	\$ 130,893,635.73
8	27	South Lake Drive	Platt Springs Road (SC 602) to Boiling Springs Road (S-279)	63.935	\$ 28,564,513.19	\$ 159,458,148.92
9	7	Kennerly Road	Hollingshed Road (S-635) to Broad River Road	63.561	\$ 9,981,349.78	\$ 169,439,498.70
10	86	Hard Scrabble	Clemson Road (S-52) to Lake Carolina	62.426	\$ 23,127,517.78	\$ 192,567,016.48
11	90	Edmund Highway	Princeton Road (S-1287) to S. Lake Drive (SC 6)	60.580	\$ 26,999,280.06	\$ 219,566,296.54
12	88	Fish Hatchery Road	Charleston Highway (US 321) to Pine Ridge Road (S-103)	58.280	\$ 20,320,015.66	\$ 239,886,312.20
13	55	Jefferson Davis Hwy	Steven Campbell Road (S-407) to Sessions Road (S-47)	57.687	\$ 18,344,458.58	\$ 258,230,770.78
14	69	Broad River Road	Dutch Fork Road (US 76) to Woodrow Street (S-27)	57.517	\$ 16,368,901.50	\$ 274,599,672.28
15	72	Columbia Avenue	I-26 to Chapin Road (US 76)	56.682	\$ 19,567,422.48	\$ 294,167,094.76

16	48	Clemson Road	Quality Court to Sparkleberry Crossing	53.590	\$ 26,246,686.89	\$ 320,413,781.65
17	6	Broad River Road	Woodrow St. to I-26 Interchange	52.949	\$ 8,748,895.63	\$ 329,162,677.28
18	28	Edmund Highway	S. Lake Drive (SC 6) to Old Charleston Road (S-625)	51.381	\$ 40,263,734.73	\$ 369,426,412.00
19	63	Blythewood Road	Muller Road to Wilson Blvd.	51.324	\$ 16,086,679.06	\$ 385,513,091.06
20	11	Bush River Road	Seawright Rd S-1002 to Woodlands Dr	49.427	\$ 10,724,452.71	\$ 396,237,543.77
21	74	Chapin Road/Dutch Fork Rd	Sid Bickley Road (S-715, Lex) to Three Dog Road	49.233	\$ 23,229,294.18	\$ 419,466,837.95
22	13	Pilgrim Church Road	N. Lake Drive (SC 6) Old Cherokee Road	48.783	\$ 16,031,484.72	\$ 435,498,322.67



COATS 2040 Cost Constrained Projects (Projects that have been identified for funding over the next 30 years)

\$452,000,000

Available Cost Constrained Funding (Improvement budget for widening projects over the next 30 years)



COATS 2040 Existing Plus Committed Projects

TABLE 15.3: COATS MPO ASPIRATIONS LISTS ROAD WIDENING PROJECTS

ASPIRATIONS LIST – ROAD WIDENING PROJECTS					
	<u>Project ID</u>	<u>Route Name</u>	<u>Project Limits</u>	<u>Estimated Project Cost with a 3% Inflationary Rate</u>	<u>Running Total of Estimated Project Cost</u>
	73	Dutch Fork Road	Twin Gates Road (S-1151) to Three Dog Road (S-1403)	\$ 34,026,008.38	\$ 469,524,331.05
	66	Farrow Road	N Pines Road (S-1437) to Hard Scrabble Road	\$ 29,227,468.74	\$ 498,751,799.78
	94	S. Lake Drive	Industrial Dr S-626 to US 1 (Main Street)	\$ 15,159,022.96	\$ 513,910,822.75
	35	Emmanual Church Road	Old Barnwell Road (S-104) to W. Dunbar Road (S-72)	\$ 18,539,812.26	\$ 532,450,635.00
	56	Jefferson Davis Hwy	Sessions Road (S-101) to Watts Hill Road (S-757)	\$ 19,194,158.57	\$ 551,644,793.58
	34	Fish Hatchery Road	Pine Ridge Drive (S-103) to Bachman Road (S-1257)	\$ 6,434,405.43	\$ 558,079,199.01
	2	Amicks Ferry Road	Paul Fulmer Road to South of Shady Acres Drive	\$ 18,757,927.70	\$ 576,837,126.70
	46	Percival Road	Spears Creek Road (S-53) to Highway Church Road	\$ 29,772,757.33	\$ 606,609,884.04

	61	Langford Road	Wilson Blvd. (US 21) to Grover Wilson Road (S-60)	\$ 50,318,259.00	\$ 656,928,143.03
	77	Wilson Road	I-77 to Blythewood Road (S-59)	\$ 31,190,507.68	\$ 688,118,650.71
	80	Spears Creek Church Road	I-20 to Two Notch Road (US 1)	\$ 28,446,251.95	\$ 716,564,902.66
	47	Percival Road	Smallwood Road to Spears Creek Church Road	\$ 43,870,441.89	\$ 760,435,344.55
	87	Pineview Road	Bluff Road (SC 48) to Garners Ferry Road (US 76)	\$ 37,043,341.42	\$ 797,478,685.97
	68	Amicks Ferry Road	Chapin Road to Paul Fulmer Road	\$ 40,077,608.30	\$ 837,556,294.27
	29	SC 6	Edmund Highway to Meadowfield Road (S-65)	\$ 21,113,440.33	\$ 858,669,734.60
	59	White Pond Road	US 1 (Main Street) to Heath Pond Road	\$ 26,549,835.15	\$ 885,219,569.75
	60	Langford Road	Hard Scrabble Road to Heins Road	\$ 31,859,802.18	\$ 917,079,371.93
	93	Old Cherokee Road	N. Lake Drive (SC 6) to Sunset Blvd (US 378)	\$ 77,247,377.51	\$ 994,326,749.44
	102	Heins Road	Langford Road to Cherokee Blvd.	\$ 14,803,009.96	\$ 1,009,129,759.40
	26	US 378	Old Lexington Road (S-157) to Beulah Church Road	\$ 49,685,350.27	\$ 1,058,815,109.67

	9	Bush River Rd	N. Lake Drive (SC 6) to St. Andrews Road	\$ 54,961,670.65	\$ 1,113,776,780.33
	1	St. Peters Church Road	Chapin Road to Paul Fulmer Road	\$ 36,201,420.40	\$ 1,149,978,200.73
	62	Hard Scrabble	Langford Road to Summit Parkway	\$ 32,244,180.12	\$ 1,182,222,380.85
	22	Pisgah Church Road	Hermitage Road (S-172) to Barr Road (S-77)	\$ 27,407,553.10	\$ 1,209,629,933.95
	36	Fish Hatchery Road	Casa Dell Dr S-868 to Glenn Road (S-875)	\$ 42,063,998.61	\$ 1,251,693,932.55
	43	Leesburg Road	Lower Richland Blvd. (S-37) to Harmon Road (S-86)	\$ 63,755,537.96	\$ 1,315,449,470.51
	64	Wilson Boulevard	Raines Road (S-2126) to Langford Road (S-54)	\$ 28,580,068.74	\$ 1,344,029,539.25
	70	Broad River Road	I-26 to Chapin Road (S-39)	\$ 47,486,883.44	\$ 1,391,516,422.69
	76	Winnsboro Road	Koon Store Road (S-61) to Blythewood Road (S-2200)	\$ 75,949,042.72	\$ 1,467,465,465.42
	100	Platt Springs Road	White Knoll HS past SC 6 to Boiling Springs Rd. (S-279)	\$ 81,046,293.91	\$ 1,548,511,759.33
	25	Caulks Ferry Road	I-20 to Pond Branch Road (S-34)	\$ 63,545,731.50	\$ 1,612,057,490.83
	65	Wilson Boulevard	Fulmer Road (S-1352) to south of Pisgah Church Road (S-34)	\$ 64,904,998.48	\$ 1,676,962,489.31

	58	Bookman	Robinhood Road (S-1051) to Two Notch Road	\$ 65,924,448.72	\$ 1,742,886,938.02
	3	Chapin Road	Murray Lindler Road (S-82) to Sid Bickley Road (S-715)	\$ 30,243,690.39	\$ 1,773,130,628.42
	14	Corley Mill Road	Lee Kleckley Road to Sunset Boulevard (US 378)	\$ 42,137,276.50	\$ 1,815,267,904.91
	4	Broad River Road	Chapin Road (S-39) to north of Jake Eargle Road (S-592)	\$ 24,976,530.83	\$ 1,840,244,435.74
	44	Leesburg Road	Harmon Road (S-86) to McCords Ferry Road	\$ 86,483,361.85	\$ 1,926,727,797.59
	97	Two Notch Road	S. Lake Drive (SC 6) to Longs Pond Road (S-204)	\$ 64,055,456.61	\$ 1,990,783,254.21
	91	Mineral Springs Road	Sunset Blvd (US 378) to Cedar Road (S-387)/Cromer	\$ 35,454,666.93	\$ 2,026,237,921.13

15.6 NEW RIGHT OF WAY PROJECTS

New right-of-way projects (construction of new roads on new routes, as opposed to mere widening of existing roads) are needed in a number of circumstances:

- To improve continuity of the regional road system and to make connections between existing major roads that will make travel more efficient by creating more direct routes and shortening trip lengths;
- To create a more desirable spacing of major arterials
- To take pressure off of parallel routes that are overburdened with traffic due to poor spacing of roadways
- To provide an alternative to widening a parallel route that is already improved to the extent permitted by available rights of way.

In the circumstances described, above, new right-of-way projects may be the best alternative. There are, however, some problems associated with new right-of-way projects. Acquisition costs for right-of-way are likely to be high because of the amount of land that must be purchased. Environmental impacts may be greater than those of road widening, since construction of a new road may have a greater impact than an incremental addition to an existing roadway.

New right-of-way projects have one unique advantage: since they start with “a clean piece of paper”, they offer an opportunity to use state of the art design standards and construction practices. When new right-of-way projects are being planned, it is a good time to be considering improved land use regulation to provide for good access management to avoid conflicts from excessive curb cuts and minor street intersections. Corridor overlays---special urban design and land use regulations added to underlying zoning---are one way to accomplish this. It is also important to develop right-of-way preservation and acquisition for the corridor, well in advance of construction.

SCDOT developed a policy on new right-of-way projects road projects and how they fit into the ranking requirements of Act 114. Based on the policy, the 2040 LRTP provides a list of new construction projects and leaves the COATS/CMCOG Board of Directors the option of adding these projects to the Financially-Constrained Plan, subject to demonstrating that the project is consistent with the goals, objectives and policies of the plan. Projects of this type should be evaluated in a

feasibility study, Advanced Project Planning Report, or Sub-Area Plan prior to being included in the financially-constrained plan.

This plan includes a very short list of new right-of-way projects. The proposed projects include the Shop Road Extension and Rabbit Run Road in lower Richland; the proposed Southern Connector in Chapin; and the Airport Connector (John Hardee Expressway). All four projects were studied in sub-area plans for each area. These roads are needed to provide more continuity and connectivity in the regional thoroughfare system and to relieve congestion on other routes.

New right-of-way projects were prioritized based on the criteria shown in Table 15.4 below. Figure 15.2 shows the new right-of-way projects identified for improvements.

TABLE 15.4: NEW RIGHT-OF-WAY IMPROVEMENT RANKING CRITERIA

New Right-of-Way Improvement Projects	Weighting
Reduction in Delay	30 Points
Network Connectivity	17.5 Points
Economic Development	17.5 Points
Environment	15 Points
Financial Viability	20 Points

FIGURE 15.2: NEW RIGHT-OF-WAY PROJECTS

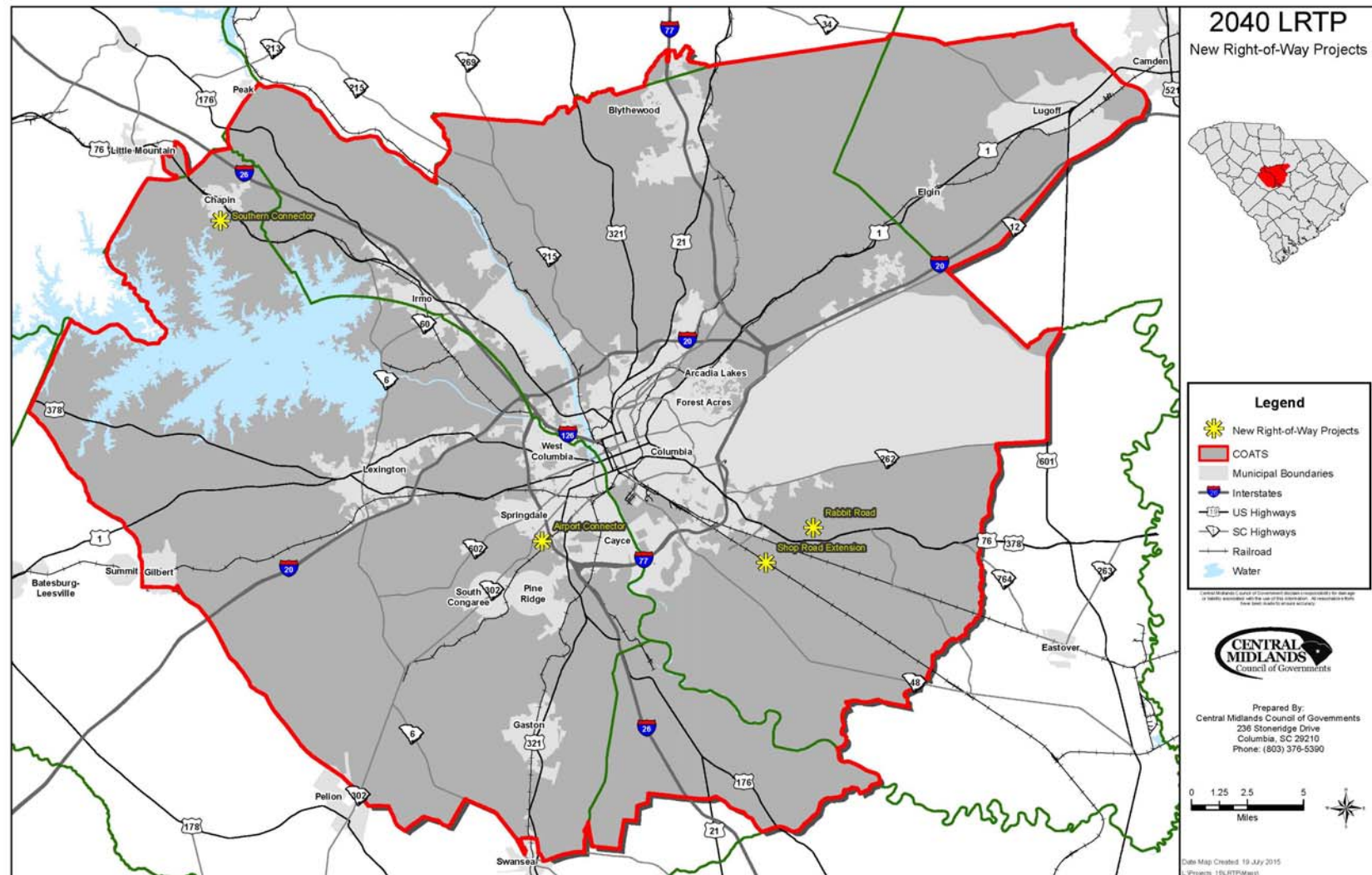


TABLE 15.5: COATS MPO 2040 PRIORITIZED LIST OF NEW RIGHT-OF-WAY PROJECTS

<u>COATS 2040 PRIORITIZED LIST OF NEW RIGHT-OF-WAY PROJECTS</u>							
<u>Overall COATS Rank</u>	<u>Route Name</u>	<u>Project Limits</u>	<u>Existing Lanes</u>	<u>Improved # of Lanes</u>	<u>Total Score</u>	<u>Estimated Project Cost with a 3% Inflationary Rate</u>	<u>Running Total of Estimated Project Cost</u>
1	Southern Connector	From Amick's Ferry Road to Columbia Avenue	0	2	77.30	\$ 22,525,019.86	\$ 22,525,019.86
2	Airport Connector	From SC 302 to Interstate 26	0	4	74.00	\$ 89,032,248.91	\$ 111,557,268,.77
3	Rabbit Run	From Trotter Road to Garner Ferry Point	0	2	67.50	\$ 13,911,288.89	\$ 125,468,557.66
4	Shop Road Extension	From Pinewood Road to Garners Ferry Road	0	4	65.90	\$ 79,061,054.37	\$ 204,529,612,.03

Aspirations List:

Martin Chapin Parkway

15.7 INTERSECTION IMPROVEMENTS

Intersection improvements are generally quicker and less expensive to construct and design than road widening. Some congested corridors respond well to intersection improvements which serve to relieve bottlenecks and create improved traffic patterns. Strategic improvements to a string of intersections along a congested corridor may provide relief from traffic congestion while funding is being obtained to widen the roadway. Correction of poorly designed intersections---those with more than four “legs”, angles other than 90 degrees, or conflicts with other roadways located too close to the intersection---can be justified in terms of safety improvements.

Intersections were prioritized based on the criteria shown in Table 15.6 below. Tables 15.7 thru 15.12 shows the aspirations lists of intersections. Figure 15.3 shows the priority intersections identified for improvements.

TABLE 15.6: INTERSECTION IMPROVEMENT RANKING CRITERIA

Intersection Improvement Projects	Weighting
Traffic Status (Site Specific Conditions)	20 Points
Average Daily Traffic (AADT)	25 Points
Average Daily Truck (% AADT)	15 Points
Economic Development	10 Points
Environmental Impact	10 Points
Public Safety	20 Points
Land Use Plans	For Consideration Only
District Review and Input	For Consideration Only
Compliance to National Rule and Guidelines	For Consideration Only

FIGURE 15.3: INTERSECTION IMPROVEMENT PROJECTS

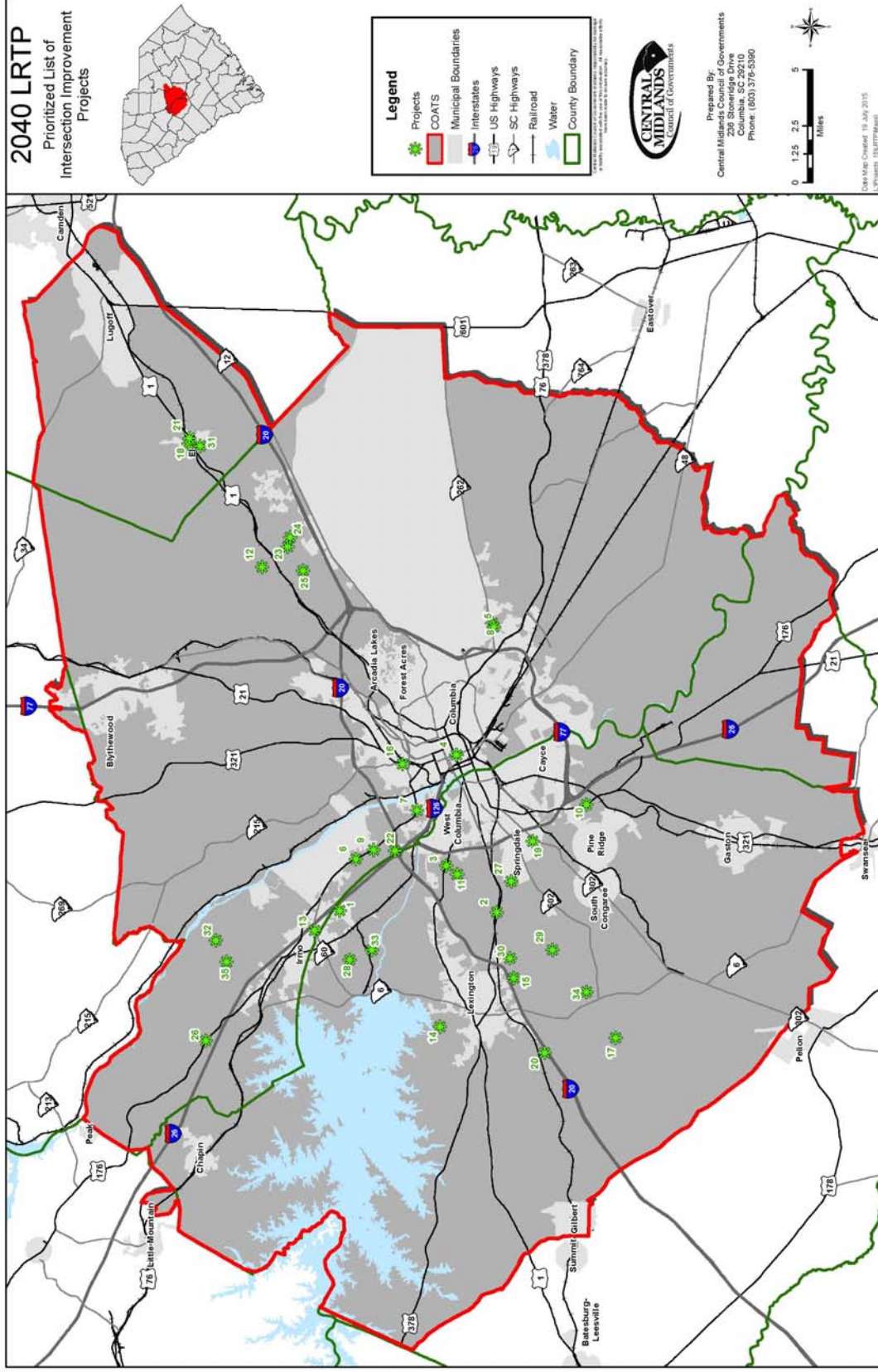


TABLE 15.7: COATS MPO 2040 PRIORITIZED LIST OF INTERSECTION IMPROVEMENT PROJECTS

COATS 2040 PRIORITIZED LIST OF INTERSECTION IMPROVEMENT PROJECTS				
<u>Overall COATS Rank</u>	<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement (Subject to be revised)</u>	<u>Total Score</u>
1	Harbison Blvd	Park Terrace and Entrance to Columbiana	Provide turn lanes on Park Terrace and modify signal	79.831
2	US 1	Oak Street/St. David Church	Right turn lane on side streets	78.835
3	US 378	Fairlane Road/Summerplace	Provide right turn lane on Fairlane Rd and signal modification	72.519
4	Assembly Street	Elmwood to Rosewood	Provide left turn lanes at all approaches	68.146
5	Leesburg Road	Patricia Drive	Left turn lanes on Leesburg Road	63.471

6	US 176	Piney Woods/Haviland Circle	Align side streets	62.967
7	Broad River Road	Riverhill circle	Align side streets and provide signal	58.967
8	Leesburg Road	Patterson Road	Left turn lanes on Leesburg Road	55.471
9	Broad River Road	Meetze/Shivers Road	Realign side streets and provide signal	52.967
10	US 321	Recycle Center	Left turn lane on US 321	50.619
11	Leaphart Road	Mineral Springs Road	Provide left turn at all approaches	50.208
12	North Springs Road	Risdon Way	Left turn lane on North Springs Road	48.700
13	SC 60	Columbiana Drive	Right turn lane on Columbiana / right turn lane on SC 60	48.008

14	Pilgrim Church Road	Old Cherokee Rd	Align side streets, left turn lane all approaches, channelize north bound right	43.345
15	Old Two Notch Road	Shirway Road	Left turn lanes on Old Two Notch and right turn lane on Shirway Rd	40.198
16	North Main Street	Fern Ave./Miller Ave.	Consolidation of Byrd/Lamar/Miller St. approaches	38.371
17	Platt Springs Road	Cannon Trail Road	Left turn lanes and traffic signal	37.513
18	Church St./Sessions Road	Smyrna Road	Traffic signal and/or possible re-design	32.682
19	Boston Ave.	Kitty Hawk Drive/Mobile Ave.	Left turn lanes on Boston Ave./signalized intersection	32.081
20	Old Two Notch Road	Industrial Drive	Provide left turn at all approaches	31.658
21	Main Street	Pine Street	Left turn lane on US 1	31.438

22	Burning Tree Rd. (Frontage rd)	Zimalcrest Road	Left turn lanes on Burning tree drive and a traffic signal	30.940
23	Sparkleberry Lane	Viking Drive (County Road)	Left turn lane on Sparkleberry	30.575
23	Sparkleberry Lane	Wotan Road (County Road)	Left turn lane on Sparkleberry	30.575
25	Polo Road	Running Fox Road West (County Road)	Purchase right of way to eliminate sight distance problem	30.297
26	Broad River Road	Sid Sites/Hopewell Church Road	Realign Sid Sites Road with Bookie Richardson	28.902
27	Old Barnwell Road	Ermine Road	Left turn at all approaches	26.952
28	Nursery Road	Nursery Hill road	Left turn lane on Nursery Road and right turn lane on Nursery Hill Rd	26.922
29	Old Barnwell Road	White Knoll Way (County Road)	Left turn lane on Old Barnwell Road	24.514

30	Old Two Notch Road	Dooley Road	Left turn lane on Old Two Notch	24.088
31	Blaney Road	Forest Road/Highway Church St./Dogwood Lane	Traffic signal and/or possible re-design	23.667
32	Kennerly Road	Old Tamah Road	Left turn lanes on Kennerly road and a traffic signal	23.483
33	Old Bush River Road	Wescott Road/Saluda Shoals	Provide left turn lanes at all approaches	21.654
34	Old Orangeburg Road	Bill Williamson Ct. (County Road)	Left turn lanes on Old Orangeburg and at school bus loop drive	21.628
35	Koon Road	South Hampton Road (County Road)	Purchase right of way to eliminate sight distance problem	21.150

****Please note that this program is financially unconstrained**

*****This program has over \$17 Million in available funding over the next 30 years for intersection improvements.**

FIGURE 15.4: ASPIRATIONS LISTS OF INTERSECTION IMPROVEMENT PROJECTS

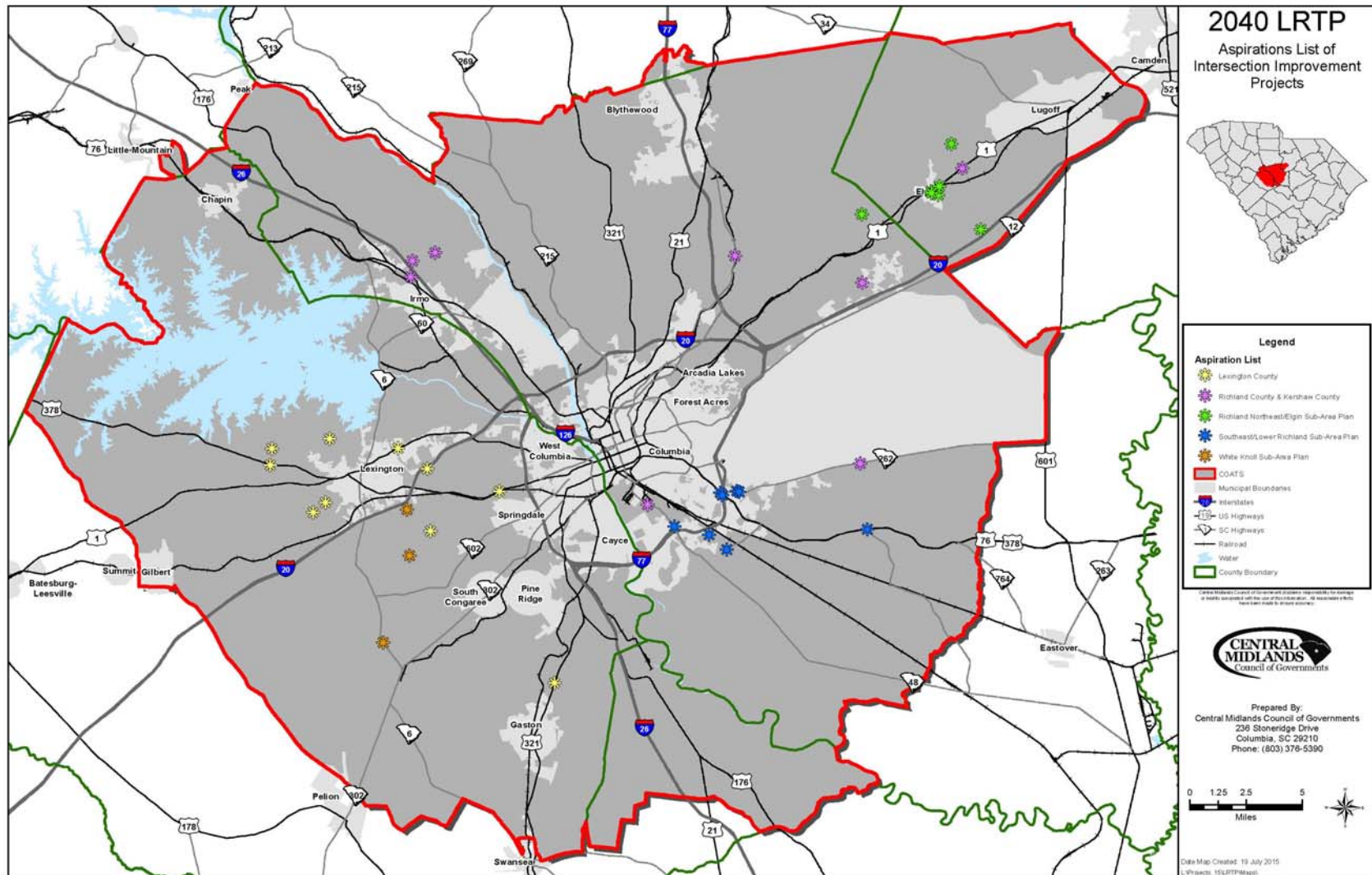


TABLE 15.8: ASPIRATIONS LIST – INTERSECTION IMPROVEMENT PROJECTS – LEXINGTON COUNTY

<u>ASPIRATIONS LIST – INTERSECTION IMPROVEMENTS – LEXINGTON COUNTY</u>					
<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement</u>	<u>County</u>	<u>NHS System</u>	<u>Traffic Study</u>
US 321	State Pond Rd S-1697	Left turn lane on US 321	Lexington	Yes	Yes
Sunset Blvd US 378	Mineral Springs Rd S-106	New location @ Hope Ferry Rd S-28	Lexington	Yes	No
St Peters Rd S-408	Old Cherokee Rd S-204	Re-alignment of Old Cherokee Rd /left turn lanes all approaches / traffic signal	Lexington	No	Yes
Augusta Hwy US 1	Wattling Rd S-71	Left turn lane on Wattling Rd / left turn signal	Lexington	Yes	Yes
Mineral Springs Rd S-106	Cromer Rd – Cedar Rd S-1065	Left turn lanes all approaches / traffic signal or 4 way stop	Lexington	No	Yes
Old Cherokee Rd S-408	Old Chapin Rd S-52	Right turn lane on westbound Old Cherokee Rd	Lexington	No	No
Emanuel Church Rd S-168	Kitti Wake Dr S-1082	Left turn lanes / traffic signal	Lexington	No	Yes

US 378	St Peters Rd S-204 / Charter Oak Rd S-204	Right turn lanes on Charter Oaks Rd /St Peters Rd	Lexington	Yes	Yes
Barr Rd S-77	Rawl Rd S-604	Left turn lanes all approaches / traffic signal	Lexington	No	Yes
Barr Rd S-77	Wildlife Rd S-1067	Left turn lanes all approaches / traffic signal	Lexington	No	Yes

TABLE 15.9: ASPIRATIONS LIST - INTERSECTION IMPROVEMENT PROJECTS IN RICHLAND AND KERSHAW COUNTIES

<u>ASPIRATIONS LIST – INTERSECTION IMPROVEMENTS – RICHLAND COUNTY & KERSHAW COUNTY</u>					
<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement</u>	<u>County</u>	<u>NHS System</u>	<u>Traffic Study</u>
Buff Rd SC 48	Bluff Industrial Blvd	Left turn lanes / traffic signal	Richland	Yes	Yes
Kennerly Rd S-58 /S-217	Coogler Rd S-58 /Steeple Ridge Rd	Left turn lanes / traffic signal	Richland	No	Yes
Broad River Rd Us 176	Elliott Richardson Rd S-3950 – Ministry Rd	Left turn lanes / traffic signal	Richland	No	Yes
Leesburg Rd Sc 262	James Browder Rd S-1444	Right deceleration lane	Richland	No	Yes
Farrow Rd SC 555	N Brickyard Rd S-1274	Left turn lanes on Farrow Rd / Traffic Signal	Richland	No	Yes
Coogler Rd S-58 / Annie Atkins Rd	Koon Rd S-498	Left turn lanes all approaches / traffic signal	Richland	No	Yes
Clemson Rd S-52	Earth Rd	Left turn lane on Clemson Rd / left turn signal	Richland	Yes	Yes
US 1	Watts Hill Rd S-757	Left turn lanes on US 1	Kershaw	Yes	Yes

TABLE 15.10: INTERSECTION IMPROVEMENT PROJECTS IDENTIFIED IN THE RICHLAND NORTHEAST/ELGIN SUB-AREA PLAN

<u>ASPIRATIONS LIST – INTERSECTION IMPROVEMENT PROJECTS – RICHLAND NORTHEAST/ELGIN SUB-AREA PLAN</u>					
<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement</u>	<u>County</u>	<u>NHS System</u>	<u>Traffic Study</u>
Main St US 1	Church St S-47	Dedicated eastbound left turn signal	Kershaw	Yes	Yes
White Pond Rd S-47	Whiting Way S-993	Dedicated southbound left turn lane	Kershaw	No	No
White Pond Rd S-47	Pine St S-109	Geometry, southbound left turn lane, signalize	Kershaw	No	No
Smyrna Rd S-21	Wildwood Ln S -349	Geometry	Kershaw	No	No
Kelly Mill Rd S-955	Bookman Rd S-53	Geometry	Richland	No	No
Main St US 1	Green Hill Rd	Geometry, left turn lanes	Kershaw	Yes	No
White Pond Rd S-47	Church St S-47 /Branham St S-275	Geometry	Kershaw	No	No

TABLE 15.11: INTERSECTION IMPROVEMENT PROJECTS IDENTIFIED IN THE SOUTHEAST/LOWER RICHLAND SUB-AREA PLAN

<u>ASPIRATIONS LIST – INTERSECTION IMPROVEMENT PROJECTS – SOUTHEAST/LOWER RICHLAND SUB-AREA PLAN</u>					
<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement</u>	<u>County</u>	<u>NHS System</u>	<u>Traffic Study</u>
Garners Ferry Rd US 76 / 378	Leesburg Rd SC 262	Left turn lane	Richland	Yes	No
Garners Ferry Rd US 76 / 378	I-77	Left turn lane	Richland	Yes	No
Garners Ferry Rd US 76 / 378	Horrel Hill Rd	Left turn lane	Richland	Yes	No
Leesburg Rd SC 262	King Charles Rd S-2526	Left turn lane	Richland	No	No
Leesburg Rd SC 262	Garden Springs Rd S-2167	Left turn lane	Richland	No	No
Shop Rd Ext SC 768	Pineview Rd SC 768		Richland	No	No

Shop Rd Ext SC 768	Atlas Rd S-50		Richland	Yes	No
Bluff Rd SC 48	S. Beltline Blvd		Richland	Yes	No

TABLE 15.12: INTERSECTION IMPROVEMENT PROJECTS IDENTIFIED IN THE WHITE KNOLL SUB-AREA PLAN

<u>ASPIRATIONS LISTS – INTERSECTION IMPROVEMENTS - WHITE KNOLL SUB-AREA PLAN</u>					
<u>Major Route Name</u>	<u>Minor Route Name</u>	<u>Proposed Improvement</u>	<u>County</u>	<u>NHS System</u>	<u>Traffic Study</u>
Two Notch Rd S-70	Emanuel Church Rd	Improve sight distance	Lexington	No	No
S. Lake Dr SC 6	Bethany Church Rd	Enhanced safety	Lexington	No	No
Old Barnwell Rd S-104	Shirway Rd S-686	Enhanced safety	Lexington	No	No

15.8 INTERSTATE IMPROVEMENTS

The COATS/Central Midlands region is served by four interstates: I-20, I-26, I-77, and I-126.

Interstates 20, 26 and 77 link the Midlands to other states, while I-126 serves as a spur from I-26 into downtown Columbia.

An interstate “loop” surrounds the urban cores of Columbia, West Columbia, Cayce and Forest Acres. The loop is about 15 miles by 10.5 miles across. Over 200,000 people, more than 28% of the population of the region, live inside the loop. Downtown Columbia, the University of South Carolina, the principal commercial areas of Forest Acres, West Columbia and Cayce, and Richland Mall are all within the loop, and the Fort Jackson Army installation is immediately outside the loop on I-77. Two other roads, SC-12 and SC-277 have controlled access cross-sections and supplement the freeway system.

The COATS freeways are critical components in the South Carolina emergency evacuation plan. They are also heavily impacted by tourist traffic and by the increasing reliance on motor freight carriers, coupled with the growth in international freight movement through the Port of Charleston. The massive distribution center planned near the I-95/I-26 interchange in Orangeburg County will impose further demands on the interstate system in the COATS region.

Improving the interstate system in the region can be expensive. According to the Interstate Plan Summary of the SCDOT *Statewide Multi-Modal Transportation Plan*: “Providing an additional lane in each direction on an interstate mainline is estimated to cost almost \$20 million per mile for design, right-of-way acquisition, and construction. The cost to design, purchase right-of-way, and reconstruct an urban interchange averages over \$40 million. A rural interstate interchange would cost slightly lower, averaging close to \$35 million to construct.”⁵

Portions of I-20 and I-26 are among the most congested freeway segments in South Carolina. The interstate improvements needed in the COATS planning area by 2040 total over \$300 million. These interstate improvements are described in Table 15.3 and illustrated in Figure 15.4.

These improvements would be needed to maintain an acceptable level of service on the interstates. Because the regional interstate system is moving from a primarily four-lane system to a system with substantial mileage devoted to six to eight-lane freeways, CMCOG and SCDOT should begin

investigating high occupancy vehicle (HOV), high occupancy toll (HOT), and contra-flow (reversible) lanes as relatively low cost techniques to add further capacity to the improved interstates.

TABLE 15.13: INTERSTATE IMPROVEMENTS

	Total Cost \$1,000s	Preliminary Engineering Planned	Right of Way Planned	Construction Planned
CORRIDORS				
I-20/I-26/I-126 Carolina Crossroads Corridor Improvements Plan	3,000	2015		
I-20/I-26/I-77 Carolina Crossroads Corridor Improvements	92,600	2014		2019
WIDENINGS				
I-20 Widening from US 378 (Sunset Blvd) to Longs Pond Road	154,701	2014-2016		2017-2019
I-77 Widening from Percival to Killian Road	38,701	2014-2015		2016-2018
I-26 Widening from Broad River Road (US 176) to Little Mountain				
MAINTENANCE				
I-20 Near MM 74 to Near MM 76	1,623	2014		
I-26 Near MM 96 to Near MM 101				
I-26 Near MM 110 to Near MM 115				
I-77 Near MM 17 to Near MM 27	5,769	2014		2016

15.9 INTERSTATE INTERCHANGES

Interstate Interchange projects are historically addressed by SCDOT. But in February 2014, the COATS MPO adopted SCDOT's ranking criteria to address an interchange improvement that would be supportive to economic development throughout our MPO. In considering this decision the COATS MPO reviewed SCDOT's Interstate Interchange Management System which is a tool used to rank the state's interstate interchanges. This program has the ability to simultaneously rank all interstate interchanges using any of the six criteria listed below. For the COATS MPO, interstate interchange projects that are identified as a priority need in our MPO are added to our prioritization

list. COATS will ask SCDOT to rank and score the project based on their statewide ranking process. COATS will use the results of those finding to compare and prioritized projects within our MPO.

TABLE 15.14: THE INTERCHANGE PROGRAM ELEMENTS:

1. Payment Quality
2. Financial Viability
3. Public Safety
4. Economic Development
5. Environmental Impact
6. Total User Cost

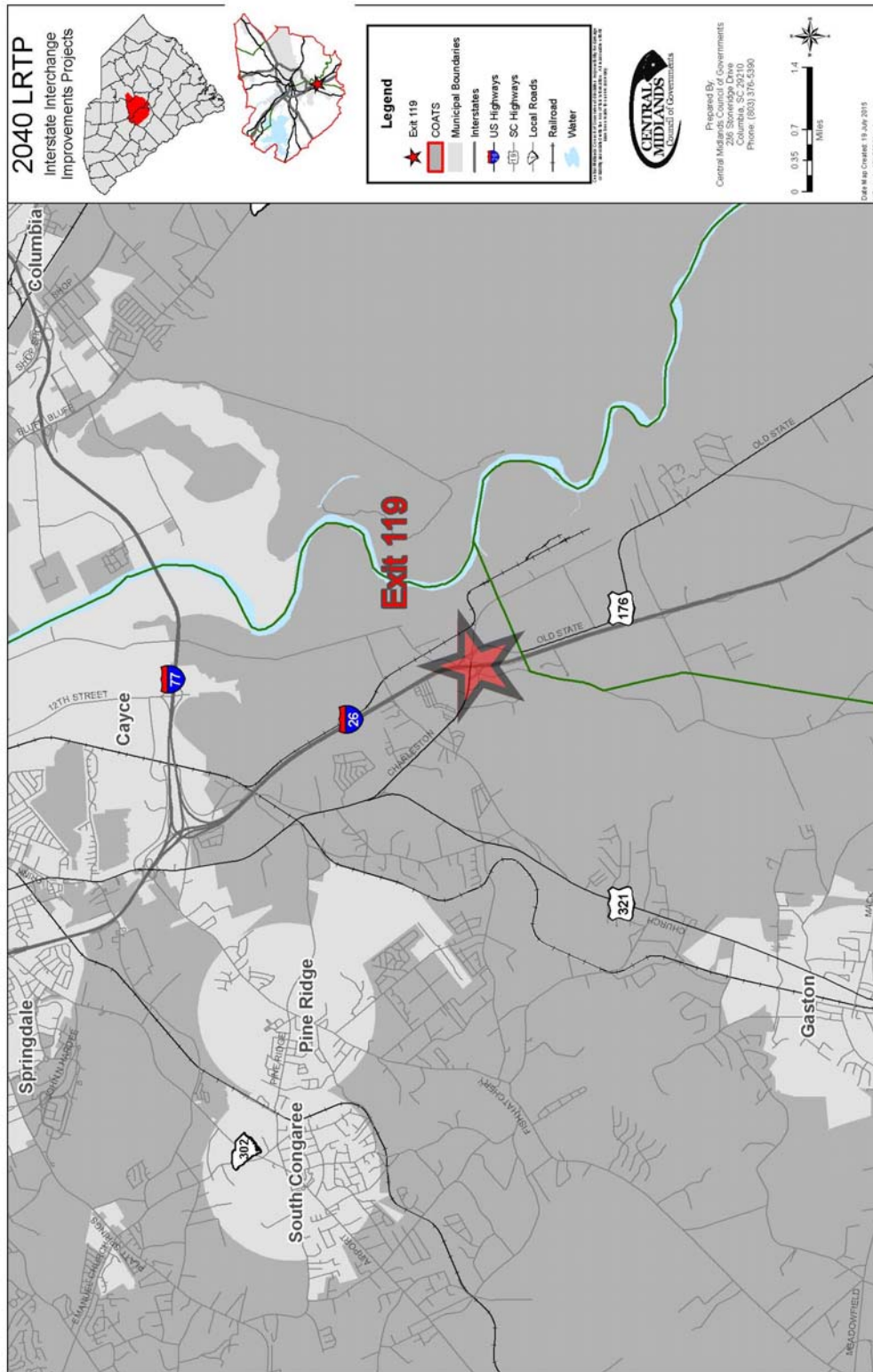
Two elements not included in the program formula, but considered in the overall ranking, are environmental impacts and economic development. These scores are factored into the ranking received from the program. The highest ranking interchanges across the state are typically in urbanized areas with similar environmental impacts and economic development scores. Due to the similarities in project impacts, no adjustment will be needed to the overall ranking.

Interstate interchanges were prioritized based on the criteria shown in Table 15.14. Table 15.15 shows the interstate interchanges identified for improvements.

TABLE 15.15: COATS 2040 PRIORITIZED LIST OF INTERSTATE INTERCHANGE PROJECTS

COATS 2040 PRIORITIZED LIST OF INTERSTATE INTERCHANGE PROJECTS							
<u>Overall COATS Rank</u>	<u>Project Name</u>	<u>Project Improvement</u>	<u>Preliminary Engineering</u>	<u>ROW Costs</u>	<u>Construction Costs</u>	<u>Estimated Project Cost with a 3% Inflationary Rate</u>	<u>Running Total of Estimated Project Cost</u>
1	Exit 119	Re-Design Interchange	\$ 4,700,000	\$ 5,700,000	\$ 28,000,000	\$ 32,459,674.08	\$32,459,674.08

FIGURE 15.5: INTERSTATE INTERCHANGE IMPROVEMENTS



15.10 TRAVEL DEMAND MODELING

A key component of the long range transportation planning process is assessing existing and future transportation needs. One of the primary tools for conducting such a needs assessment, especially in regards to highway capacity and levels of service, is through the use of a travel demand model. For this LRTP update the COATS MPO partnered with SCDOT to use the recently completed SC Statewide Travel Demand Model (SC SWM). The SC SWM was developed for the SCDOT as part of the SC Multimodal Transportation Plan (SC MTP). The SC SWM is a “state of the practice” travel demand model and follows the format of a traditional four-step modeling process of trip generation, trip distribution, vehicle trips, and traffic assignment. The model was constructed in July of 2014 in the TransCAD 6 modeling software and contains a customized and user friendly graphical user interface for managing, running, and producing output analysis of model scenarios. Much of the model inputs for the COATS area (e.g., population projections, traffic analysis zones, and road network) are based on data provided to SCDOT by the COATS MPO. The model provides outputs of daily traffic data on the highway network for analysis years of base year 2010 and forecast year 2040. Traffic data are available by trip purpose including auto and truck vehicle types, where auto volumes can be further defined by urban and rural and by home-based work, home-based other, non-home based and external trips. These outputs are useful for analysis in several different elements of the LRTP including the congestion management process, socioeconomic analysis, network performance, and the financial plan.

15.11 SYSTEM MANAGEMENT AND OPERATIONS

A major purpose of Management and Operation activities is to enhance the efficiency of the existing transportation infrastructure through technology applications and operations strategies that do not add physical roadway capacity.

Planned management and operations investment strategies in the COATS MPO include:

- Implementing the Regional and Statewide Intelligent Transportation System (ITS) Architecture;
- Integrating communications systems between agencies of different municipalities and counties;
- Supporting the regional commuter assistance program;

- Supporting an ozone awareness program;
- Supporting implementation of State Traffic Management Center through the use of:
 - Full Advanced Traffic Management System;
 - Closed Circuit Television (CCTV) Cameras and Vehicle Detection;
 - Permanent Overhead Dynamic Message Signs (DMS);
 - Travel Time Signs (TTS);
 - Reference Markers; and
- Using ITS equipment and software to:
 - Improve traffic signal timing;
 - Provide real-time traffic condition information;
 - Provide alternate route information when incidents occur on the interstate;
 - Assist emergency vehicle movement with traffic signal preemption and monitoring;
 - Identify maintenance issues before the public identifies there is a problem;
 - Implement bus priority strategies and congested locations for rerouting buses;
 - Convey driver information through Dynamic Message Signs (DMS) and Highway Advisory Radio (HAR); and
 - Monitor rail crossings and convey the blockages to drivers.

Maintenance and operations funding comes from various state funding programs.

15.12 THE RICHLAND COUNTY SALES TAX

Richland County Council established a 39 member citizen Transportation Study Commission in 2006. This Commission held numerous public input meetings and completed a comprehensive study. The study addressed failing roads, the lack of sidewalks and greenway infrastructure, and the unstable bus system. Three transportation modes and the projects needed were addressed: (1) transit (buses), (2)

roadway, and (3) bicycle, pedestrian and sidewalks, and greenways. The projects included in this initial study appeared on the ballot on November 2, 2010 but did not pass.

In 2012, the original study was revised which resulted in a reduction in the number of projects and a shorter program timeline. On November 6, 2012, the Richland County voters approved the revised plan of projects funded through a 22-year, \$1.07 billion transportation penny local option sales tax. The “Transportation Penny” will be used to complete major road, bike, pedestrian and greenway projects and fund bus services during that time span.

In April 2013, Richland County Council appointed the Transportation Penny Advisory Committee (TPAC). The function of the TPAC is to review the use of the sales tax. The TPAC is composed of 15 Richland County citizens representing Arcadia Lakes, Blythewood, Columbia, Eastover, Forest Acres, Irmo, and unincorporated areas of Richland County.

15.13 THE RICHLAND COUNTY TRANSPORTATION DEPARTMENT

The Richland County Transportation Department manages all items of the Transportation Penny Program approved by voters in November 2012. This program is broken up into three major categories which include:

- Improvements to highways, roads (paved and unpaved), streets, intersections, and bridges including related drainage system improvements (\$656,020,644)
- Continued operation of mass transit services provided by Central Midlands Regional Transit Authority including implementation of near, mid and long-term service improvements (\$300,991,000)
- Improvements to pedestrian sidewalks, bike paths, intersections and greenways (\$80,888,356)

Though these are not federally funded projects, they will provide significant improvements to our transportation system. Attached is a series of tables which outline the transportation investments to be made by Richland County during the implementation of this 2040 LRTP.

FIGURE 15.6: RICHLAND COUNTY PENNY WIDENING PROJECTS

Council Approval: 10/7/14



Prioritization of Widening Projects

Ranking	Total Score	Council District	Project Names	Begin Location	End Location	Length	Special Typical	2012 Original Budget
1	73.73	7, 8, 9	Hardscrabble	SC 555 Farrow Rd.	Lake Carolina Blvd.	6.155-lane		\$ 29,860,800
2	47.62	9, 10	Clemson Rd.	Old Clemson Rd.	Sparkleberry Crossing	2.215-lane		\$ 23,400,000
3	47.34	11	Leesburg Rd.	Fairmont Rd	Lower Richland	3.755-lane		\$ 4,000,000
4	45.66	4	N. Main St.	Anthony Avenue	Fuller Avenue	1.504-lane		\$ 30,000,000
5	43.86	10	Bluff Rd.	I-77	Rosewood Dr.	2.635-lane		\$ 16,700,000
6	40.94	10	Shop Rd.	I-77	George Rogers Blvd.	3.155-lane		\$ 33,100,000
7	37.01	10, 11	Atlas Rd.	Bluff Rd.	Garners Ferry Rd.	2.823/5-lane		\$ 17,600,000
8	32.93	10, 11	Pineview Rd.	Bluff Rd.	Garners Ferry Rd.	2.943/5-lane		\$ 18,200,000
9	29.90	2, 7	Blythewood	Syrup Mill Rd.	I-77	0.755-lane		\$ 8,000,000
10	29.72	1	Broad River	Royal Tower Rd.	Peak Interchange	4.675/3-lane		\$ 29,000,000
11	28.14	9, 10	Spears Creek Church Rd.	Two Notch Rd	Perclval Rd	2.535-lane		\$ 26,600,000
12	23.82	11	Lower Richland	Rabbit Run Rd.	Garners Ferry Rd.	0.545-lane		\$ 6,100,000
13	21.37	8, 9, 10	Polo Rd.	Mallet Hill Rd.	Two Notch Rd.	2.003-lane		\$ 12,800,000
14	14.29	2, 7	Blythewood	Syrup Mill Rd.	Winnsboro Rd.	3.383-lane		\$ 21,000,000

FIGURE 15.7: RICHLAND COUNTY PENNY INTERSECTION PROJECTS

Council Approval: 10/7/14



Prioritization of Intersection Projects

Ranking	Project Score	Council District	Project Names	Begin Location	End Location	2012 Original Budget
*	Quick Start Program	8, 9	Clemson Rd./Rhame Road	Clemson Rd.	Rhame Rd./North Springs Rd.	\$ 3,500,000
*		2	Broad River Rd./Rushmore Rd.	Rushmore Rd.	Broad River Rd.	\$ 3,700,000
*		7	Farrow Rd./Pisgah Church Rd.	Farrow Rd.	Pisgah Church Rd.	\$ 3,600,000
*		8, 9	North Springs Rd./Risdon Rd.	North Springs Rd.	Risdon Way	\$ 1,800,000
*		8, 9	Summit Pkwy/Summit Ridge	Summit Pkwy	Summit Ridge Rd.	\$ 500,000
*		1	Kennerly Rd./Coogler Rd.	Kennerly Rd.	Coogler Rd./Steeple Ridge Rd.	\$ 1,900,000
		7	Wilson Blvd./Pisgah Church Rd.	Wilson Blvd.	Pisgah Church Rd.	\$ 3,600,000
1	52.52	7	Wilson Blvd./Killian Rd.	Wilson Blvd.	Killian Rd.	\$ 2,600,000
2	41.06	9, 10	Clemson Rd./Sparkleberry Rd.	Clemson Rd.	Sparkleberry Ln. (to Mallet Hill Rd.)	\$ 5,100,000
3	40.75	4	Bull Street/Elmwood Ave.	Bull St.	Elmwood Ave.	\$ 2,000,000
4	28.13	4	North Main St./Monticello Rd.	North Main St.	Monticello Rd.	\$ 5,400,000
5	22.66	2, 9	Hardscrabble Rd./Kelly Mill Rd.	Hardscrabble Rd.	Kelly Mill Rd./Rimer Pond Rd.	\$ 3,000,000
6	22.61	11	Garners Ferry Rd./Harmon Rd.	Garners Ferry Rd.	Harmon Rd.	\$2,600,000
7	16.23	8, 9	North Springs Rd./Harrington Rd.	North Springs Rd.	Harrington Rd.	\$ 2,000,000
8	12.77	9, 10	Screaming Eagle Rd./Percival Rd.	Screaming Eagle Rd.	Percival Rd.	\$ 1,000,000
*		Projects are part of Quick Start Program Design-Build Package				
		Projects has been completed by SCDOT				

FIGURE 15.8: RICHLAND COUNTY PENNY RESURFACING PROJECTS



RICHLAND PENNY RESURFACING PROJECTS

Trader Mill Road	Great North Road	Firebridge Road
Gale River Road	Finn Court	Claey Court
Great North Court	King Maker Court	Baker House Road
Halston Court	South Shields Road	Blakesmoor Road
Calley Court	Tweed Court	Baker House Court
South Royal Tower Drive	Muskrat Run	Silver Fox Lane
Cheryse Court	Murray Point Lane	Brookview Lane
St. Albans Road	St. Stephens Road East	St. Stephens Road West
Concord Place Road	Sweet Thorne Road	Market Hill Court
Chevelston Road	Southern Drive	Windmill Orchard
Windridge Road	Harvest hill Avenue	Harrington Drive
Spendora Drive	Arcola Drive	Inway Drive
Constable Lane	Hibernia Street	Wotan Road
American Italian Way	Quaker Drive	Sagemont Drive
Beaver Dam Drive		



FIGURE 15.9: RICHLAND COUNTY PENNY BIKEWAY PROJECTS

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FIGURE 15.9: RICHLAND COUNTY PENNY BIKEWAY PROJECTS CON'T

BIKEWAY PROJECTS														Council Approval: 10/7/14	
Low Priority Projects	Medium	5	Bull St/Henderson St/Rice St	Wheat St	Heyward St	0	25	2		10	5	15	57	None	
	Medium	5, 10	Holt Dr/Superior St		Airport Blvd	0	10	2	20		10	15	57	None	
	Medium	5	Huger St	Blossom St	Gervais St	0	20	2		10	10	15	57	None, but Parking in some areas (Bikeway possible)	
	Medium	3, 7, 8, 9	Two Notch Rd	Alpine Rd	Spears Creek Church Rd	0	20	2	20			15	57	None	
	Low	5	Catawba St/Tryon St/Whaley St/Williams St	Church St	Blossom St	0	20	2		10	5	15	52	None	
	Low	4	Beltline Blvd/Colonial Dr/Farrow Rd	Harden St	Academy St	0	5	2	20		10	15	52	None	
	Low	4, 5	College St	Lincoln St	Sumter St	0	10	2	20		10	10	52	Traveling toward Sumter St. - Parking On Both Sides (Bikeways possible) - From Begin to End	
	Low	4, 5	Greene St	Assembly St	Bull St	0	10	2	20	10	10	0	52	None, but Parking on Both sides in some areas (Bikeway Possible)///Majority of project complete	
	Low	4	Sumter St	Washington St	Senate St	0	10	2	20		10	10	52	None, but Parking on Both sides (Bikeway possible)	
	Low	2, 7	Blythewood Rd	Winnsboro Rd	Main St	0		1	20	10	5	15	51	None	
	Low	10	Atlas Rd.	Bluff Rd.	Garners Ferry Rd.	0	10	2	10	10	10	5	47	Will be completed as part of Atlas Road Widening Project	
	Low	7, 8	Clemson Rd	Longtown Rd	Brook Hollow Dr	0	5	2	20		5	15	47	None	
	Low	8, 9, 10	Clemson Rd	Summit Pky	Perchival Rd	0	5	2	20		5	15	47	None	
	Low	4, 5	Broad River Rd	Bush River Rd	Greystone Blvd	0	10	2		10	10	15	47	None	
	Low	5	Lincoln St	Blossom St	Lady St	0	10	2		10	10	15	47	None	
	Low	8, 9, 10	Polo Rd	Two Notch Rd	640' south of Mallet Hill Rd	0	20	2		10		15	47	None	
	Low	6	Beltline Blvd/Devine St	Rosewood Dr	Chateau Dr	0	25			10	10		45	Traveling toward Chateau Dr. - Bikeway Exists on Both Sides- From N.Beltline Blvd to Falcon Dr.	
	Low	10	Shop Rd	George Rogers Blvd.	Northway Rd	0	5	2	10	10	5	10	42	Will be completed as part of Shop Rd. Widening Project	
	Low	10	Bluff Rd.	Berea Rd	Beltline Blvd	0	5	2	0	10	10	15	42	Will be completed as part of Bluff Rd. Widening Project	
	Low	10	Bluff Rd.	Rosewood Dr.	Berea Rd.	0	5	2	5	10	10	10	42	Will be completed as part of Bluff Rd. Widening Project	
	Low	3	Beltline Blvd	Forest Dr	Valley Rd	0	5	2		10	10	15	42	None	
	Low	2	Columbiana Dr	Lake Murray Blvd	Lexington County Line	0	0	2	20		5	15	42	None	
	Low	5	Greene St	Assembly St	350' west of Lincoln St	0	10	2		10	10	10	42	None, but Parking on Both sides in some areas (Bikeway Possible)	
	Low	4, 5	Pendleton St	Lincoln St	Marion St	0	10	2		10	10	10	42	None, but Parking on Both sides (Bikeway possible)	
	Low	10	Shop Rd	Northway Rd.	Beltline Blvd	0	5	2	0	10	10	10	37	Will be completed as part of Shop Rd. Widening Project	
	Low	10	Pineview Rd.	Bluff Rd.	Garners Ferry Rd.	0	5	2	0	10	10	10	37	Will be completed as part of Pineview Widening Project	
	Low	1	Broad River Rd.	Royal Tower Rd.	Woodrow St.	0	5	2	5	10	10	5	37	Will be completed as part of US 176 Widening Project	
	Low	2	Broad River Rd.	Lake Murray Blvd	Western Ln.	0	5	2	5	10	10	5	37	Will be completed as part of US 176 Widening Project	
	Low	1	Dutch Fork Blvd.	Broad River Rd.	Rauch Metz	0	5	2	10	10	5	5	37	Will be completed as part of Dutch Fork Widening Project (not currently funded in the roadway projects list.)	
	Low	4, 5	Broad River Rd	Greystone Blvd	Broad River Bridge	0	0	2		10	10	15	37	None	
	Low	8	Clemson Rd	Brook Hollow Dr	Summit Pky	0	5	2		10	5	15	37	None	
	Low	3	Craig Rd	Harrison Rd	Covenant Rd	0	0	2	20		5	10	37	None, except Traveling toward Covenant Rd - Unmarked bikeway on Right side- From N. Beltline Blvd to Covenant Rd.	
	Low	5	Blossom St	Williams St	Huger St	0	20			10			30	Traveling toward Huger St. - Bikeway Exists on the Right Side- From Williams St. to Huger St.	
	Low	1	Broad River Rd	Woodrow St.	I-26 (Exit 97)	0	5	2	5		10	5	27	Will be completed as part of US 176 Widening Project	

FIGURE 15.10: RICHLAND COUNTY PENNY PEDESTRIAN IMPROVEMENT PROJECTS

PEDESTRIAN IMPROVEMENT PROJECTS

Council Approval: 10/7/14

Priority	Rank	Council District	Project Names	Connectivity to Greenway	Acquisition, Construction/ Maintenance Costs Determined	Connectivity to Schools	Connectivity to Business	Connectivity to transit	Maintenance	Total Points	Comments
			Pedestrian Improvements	10-25 pts	0-2 pts	10-20 pts	5-10 pts	5-10 pts	0-5 pts	62 Pts max	
Completed Projects	*	4,5	Broad River Rd and Bush River Rd								Project complete
	*	5	Devine St and Harden St/Santee Ave								Project complete
	*	5	Huger St and Blossom St								Project complete
	*	5	Rosewood Dr and Ott Rd								Project complete
	*	5,10	Rosewood Dr and Marion St								Project complete
	*	4	Main St and Elmwood Ave								Project complete
	*	4	Main St and Laurel St								Project complete
	*	4	Main St and Blanding St								Project complete
High Priority Projects	*	3	Two Notch Rd and Maingate Dr/Windsor Lake Blvd								Project complete///Ped operated traffic control on northeast corner///Sidewalks and handicap access points
	High	4	Elmwood Ave and Park St	25	2	20	10	10	5	72	Ramps present and appear to be ADA compliant. No detectable surface.
	High	5, 6	Rosewood Dr and Beltline Blvd	25	2	20	10	10	5	72	Ramps present and appear to be ADA compliant. No detectable surface.
	High	5	Blossom St and Saluda Ave	25	2	20	10	10	2	69	Detectable surface present at some ramps, ramps appears to be ADA compliant
	High	4	Assembly St and Laurel St	25	2	15	10	10	5	67	Ramps present and appear to be ADA compliant. No detectable surface.
	High	4,5	Harden St and Gervais St	25	2	15	10	10	2	64	Detectable surface present at some ramps, ramps appears to be ADA compliant
Medium Priority Projects	High	5	Huger St and Gervais St	25	2	15	10	10	2	64	Detectable surface present at some ramps, ramps appears to be ADA compliant
	Medium	4,5	Assembly St and Washington St	20	2	15	10	10	5	62	Ramps present and appear to be ADA compliant. No detectable surface.
	Medium	3, 7	Two Notch Rd and Decker Blvd/Parklane Rd	20	2	15	10	10	5	62	One crosswalk on southwest lane of Two Notch///Sidewalk and Handicap Access Points at all four corner
	Medium	5	Huger St and Lady St	25	2	10	10	10	2	59	Detectable surface present, ramps appears to be ADA compliant
	Medium	4	Assembly St and Calhoun St	20	2	10	10	10	5	57	All except one curb are handicap accessible - Facing North on Assembly St. - The bottom left corner in need of improvement
	Medium	4	Elmwood Ave and Bull St	25	2	10	10	10		57	Included in roadway project
	Medium	5	Huger St and Greene St	25	2	10	10	10		57	Included in roadway project. No pedestrian access points
	Medium	5	Rosewood Dr and Harden St	10	2	20	10	10	5	57	Ramps present and appear to be ADA compliant. No detectable surface.
Low Priority Projects	Medium	4,5	Assembly St and Gervais St	15	2	15	10	10	2	54	Detectable surface present, ramps appears to be ADA compliant
	Low	5	Rosewood Dr and Holly St	10	2	15	10	10	5	52	Ramps present and appear to be ADA compliant. No detectable surface.
	Low	5,10	Rosewood Dr and Pickens St	10	2	15	10	10	3	50	Detectable surface present at some ramps, ramps appears to be ADA compliant
	Low	4	Main St and Calhoun St	10	2	10	10	10	5	47	Ramps present and appear to be ADA compliant. No detectable surface.
	Low	5,6	Rosewood Dr and Kilbourne Rd	10	2	10	10	10	5	47	Ramps present and appear to be ADA compliant. No detectable surface.
	Low	3, 7	Two Notch Rd and Alpine Rd	15	2	15	5	5	5	47	No ramps present
	Low	8,9	Two Notch Rd and Brickyard Rd	10	2	10	10	5	5	42	Sidewalk and handicap access only on south corner///Ped operated traffic controls, but no crosswalk or handicap access points at other corners
	Low	9	Two Notch Rd and Sparkleberry Ln	10	2	8	10	5	5	40	Ramps present and appear to be ADA compliant. No detectable surface.

FIGURE 15.11: RICHLAND COUNTY PENNY SIDEWALK PROJECTS



SIDEWALK PROJECTS

Council Approval: 10/7/14

Priority	Rank	Council District	Project Names	Begin Location	End Location	Existing Concept Plans	Connectivity to Greenway	Acquisition, Construction/ Maintenance Costs Determined	Connectivity to Schools	Connectivity to Business	Connectivity to transit	Partial to No Sidewalk/Bike way	Total Points	Comments
Completed Projects	*	5	Blossom St	Williams St	Huger St									Traveling toward Huger St. - Sidewalk on Both Sides - Begin to End (Complete)///Connectivity to City/County SIB///High volume of development in area///Part of Bike/Ped Master Plan
	*	5	Gervais St	450' west of Gist St	Gist St									Traveling toward Gist St. - Sidewalk on Both Sides- From Begin to End (Complete)
	*	5	Gervais St	Gist St	Huger St									Traveling toward Huger St. - Sidewalk on Both Sides- From Begin to End (Complete)
High Priority Projects	High	5	Shandon St	Rosewood Dr	Heyward St	0	22	2	20	10	10	15	79	No Sidewalk at Present
	High	4	Jefferson St	Sumter St	Bull St	0	20	2	20	10	10	15	77	No Sidewalk at Present
	High	8	Polo Rd	Mallet Hill Rd	Alpine Rd	0	25	2	20	10	10	10	77	None (Partial Right Sidewalk in front of apartment complex)
	High	5, 6	Senate St	Gladden St	Kings St	0	25	2	20	5	10	15	77	No sidewalk at present///street passes a park
	High	10	Wiley St	Superior St	Edisto Ave	0	22	2	20	5	10	15	74	No sidewalk at present///Connects to neighborhood park that is not park of greenway system
	High		Harrison Road	Two Notch Rd	Forest Drive	0	20	2	15	10	10	15	72	No Sidewalk at Present
	High	6	Maple St	Kirby St	Gervais St	0	20	2	20	5	10	15	72	No Sidewalk at Present
	High	4	Mildred Ave	Westwood Ave	Duke Ave	0	20	2	20	5	10	15	72	No Sidewalk at Present
	High	4	Wildwood Ave	Monticello Rd	Ridgewood Ave	0	20	2	20	5	10	15	72	No sidewalk at present///Leads to neighborhood park on other side of Monticello Rd that is not part of greenway system
	High	3	Windover St	Two Notch Rd	Belvedere Dr	0	20	2	15	10	10	15	72	No Sidewalk at Present
Medium Priority Projects	High	4	Sunset	Elmhurst Road	River Drive	0	25	2	20	10	10	5	72	Traveling toward River Dr. - None until 300ft before End - Sidewalk on Both Sides until End
	High	11	Leesburg Rd	Garners Ferry Rd	Semmes Rd	0	20	2	20	10	10	10	72	Traveling toward Semmes Rd. - Sidewalk on Left until Green Lawn Dr. - Sidewalks on Both Sides until Eugene St. - Sidewalk on Left until Twin Lakes Rd- None until End
	High	11	Lower Richland Blvd	Rabbit Run Rd	Garners Ferry Rd	0	20	2	20	7	5	15	69	No Sidewalk at Present
	High	3	Magnolia St	Two Notch Rd	Pinehurst Rd	0	20	2	15	7	10	15	69	No Sidewalk at Present
	Medium	9, 10	Clemson Rd	Two Notch Rd	Percival Rd	0	20	2	15	10	5	15	67	No Sidewalk at Present
	Medium	4	Franklin St	Sumter St	Bull St	0	20	2	15	5	10	15	67	No Sidewalk at Present
	Medium	5	Huger St	Blossom St	Gervais St	0	25	2	15	10	10	5	67	Traveling toward Gervais- Sidewalk on Both Sides until Devine St. - Sidewalk on Left side until Building corner- None Until Senate St. - Sidewalk on Both Sides until End
	Medium	3, 8, 10	Alpine Rd	Two Notch Rd	Percival Rd	0	25	2	10	10	10	5	62	Traveling toward Two Notch - Sidewalk Existing on Right Side -Starting from Gardenia Dr. to Two Notch Rd. (Sidewalk and Bikeway shall be combined, thus lower costs)
	Medium	5,10	Heyward St/Marlon St/Superior/Holt St	Whaley St	Airport Blvd.	0	10	2	20	10	10	7	59	Entire length, sidewalk is primarily on one side of the street.
	Medium	10	Royster St	Mitchell St	Superior St	0	10	2	15	7	10	15	59	No Sidewalk at Present
	Medium	3	School House Rd	Two Notch Rd	Ervin St	0	10	2	10	10	10	15	57	No Sidewalk at Present
	Medium	6	Pelham	Gills Creek Parkway	Garners Ferry Road	0	20	2	10	10	10	5	57	City priority list///Project complete, funds need to be redirected to Assembly Street
	Medium	4	Calhoun St	Gadsden St	Wayne St	0	25	2	10	10	5	5	57	Improvements to avoid losing existing earmark.
	Medium	6	Percival Road	Forest Dr	Decker Blvd	0	10	2	20	10	10	5	57	Traveling toward Wayne St. - Sidewalk On Both Sides- From Begin to End
	Medium	5	Prospect	Wilmot Avenue	Yale	0	10	2	20	5	5	15	57	Traveling toward Decker Blvd. - Sidewalk on Right Side for 500' - None until Northshore Rd. - Left Side until End///Part of Bike/Ped Master Plan
	Medium	5	Shandon St	Wilmot St	Wheat St	0	10	2	20	5	5	15	57	No Sidewalk at Present
	Low	5, 10	Assembly St/Shop Rd	Whaley St	Beltline Blvd	0	15	2	10	10	10	5	52	Traveling toward Beltline Blvd. - Sidewalk on Left Side for 350'- None until End
	Low	5	Bratton St	King St	Maple St	0	10	2	20	5	10	5	52	Traveling toward Maple St. - Sidewalk on Left Side for 100' - None until End
	Low	8, 9, 10	Polo Rd.	Two Noth Rd.	Mallet Hill Rd.	0	20	2	20	5	5	5	52	Will be completed part of the Polo Rd. Widening Project
Low Priority Projects	Low	4	Broad River Rd	Greystone Blvd	Broad River Bridge	0	20	2	10	10	10	5	52	Bike/Ped Master Plan
	Low	4, 5	Laurel St	Gadsden St	Pulaski St	0	25	2	10	5	5	5	52	Traveling towards Gadsden, sidewalk on both sides
	Low	7, 8, 9	Clemson Rd	Longwood Rd.	Two Notch Rd	0	10	2	20	10	5	5	52	///Traveling toward Two Notch Rd. - Sidewalk on Right Side - From N. Springs to Town Center Place. Total road length is 4.48 miles, but only 1 mile of sidewalk in plan.
	Low	3	Koon	Malinda Road	Farmview Street	0	10	2	20	5	10	5	52	Traveling toward Farmview St. - Sidewalk on Left Side Until 500' after Prescott Rd. - None at Present until End
	Low	3, 7, 8, 9	Two Notch Rd	Alpine Rd	Spears Creek Church Rd	0	10	2	15	10	10	5	52	Traveling toward Spears Creek Church - Sidewalk Exists on Both Sides Until Rabon Rd - Sidewalk on Left until Lionsgate Dr. - None until End
	Low	4, 5	Wayne St	Calhoun St	Laurel St	0	25	2	10	5	5	5	52	Traveling toward Laurel St. - None until Richland St. - Sidewalk on Left side until End
	Low	5	Lincoln St	Heyward St	Whaley St	0	10	2	10	7	10	10	49	Traveling toward Whaley St, no sidewalk on either side.
	Low					0		2	20	10	10	5	47	Traveling toward Forest Drive - Sidewalk On Right Side Until End - (Left Sidewalk exists for a short amount distance before Forest Drive)///Portion complete, need to finish route to enhance safety///Park of Bike/Ped Master Plan
	Low	3	Pinehurst	Harrison Road	Forest Drive	0		2	20	10	10	5	47	
	Low	10	Bluff Rd.	Rosewood Dr.	Beltline Blvd.	0	15	2	10	10	10	10	47	Will be completed as part of the Bluff Rd. Widening Project
	Low	1	Broad River Rd.	Royal Tower Rd.	Woodrow St.	0	10	2	15	10	10	10	47	Will be completed as part of the US 176 Widening Project
	Low	2	Broad River Rd	Harbison Blvd	Bush River Rd	0	10	2	10	10	10	5	47	Bike/Ped Master Plan
	Low	6	Fort Jackson Blvd	Wildcat Rd	I-77	0	20	2	10	10	5	0	47	Traveling toward I-77 - Sidewalk on Both Sides - From Begin to End (Complete)
	Low	5	Tryon St	Catawba St	Heyward St	0	15	2	15	5	5	5	47	Traveling toward Heyward St. - Sidewalk On Both Sides until End
	Low	2	Broad River Rd/Lake Murray Blvd	I-26	Harbison Blvd	0	10	2	10	10	10	5	47	Traveling toward Harbison - Sidewalk Exists on Both Sides - From I-26 to Kinley Rd.
	Low	2	Columbiana Dr	Lexington County Line	Lake Murray Blvd	0	10	2	10	10	10	5	47	Traveling toward Lexington County Line - Sidewalk on Right Side - From Begin to End /// Sidewalk on Left Side at Begin, but not to the end.
	Low	4	Grand St	Shealy St	Hydrick St	0	10	2	20		10	5	47	Traveling toward Hydrick St. - Sidewalk on Right Side for 350' before Academy St. - None until Liberty St. - Sidewalk on the Right until Dead End
	Low	5	Lyon St	Gervais St	Washington St	0	10	2	20		10	5	47	Traveling toward Washington St. - Sidewalk on the Right Side until End
	Low	5	Park St	Gervais St	Senate St	0	10	2	10	10	10	5	47	Traveling toward Senate St. - Sidewalk on Left Side until End
	Low	11	Veterans	Garners Ferry Road	Wormwood Drive	0	10	2	10	10	10	5	47	Traveling toward Wormwood Drive - Sidewalk on Right Side until End
	Low	11	Atlas Rd	Fountain Lake Way	Garners Ferry Rd.	0	10	2	10	10	10	10	42	Will be completed as part of the Atlas Rd. Widening Project
	Low	2	Broad River Rd.	Lake Murray Blvd.	Western Ln.	0	10	2	10	10	10	10	42	Will be completed as part of the US 176 Widening Project
	Low	2	Blythewood Rd	I-77	Main St	0	10	2	10	10	5	0	37	Traveling toward Main St. - Sidewalk on Both Sides - Begin to End (Complete)
	Low					0		2	10	10			37	Traveling down Colonial Dr. toward Academy St. - Sidewalk on Both Sides- From Begin to End
	Low	4	Colonial Dr/Farrow Rd	Harden St	Academy St	0	10	2	10	10	5		37	/// Traveling down Farrow Rd. toward Academy St. - Sidewalk on Right Side, except after Booker St.- Sidewalk on Both Sides
	Low	6,11	Veterans	Coachmaker Road	Coatsdale Road	0	10	2	10	5	5	5	37	Traveling toward Coatsdale Rd. - Sidewalk on Left Side until End

FIGURE 15.12: RICHLAND COUNTY PENNY GREENWAY PROJECTS



GREENWAY PROJECTS

Council Approval: 10/7/14

Rank	Council District	Project Names	Description	Length	Transit	Existing Ped Facilities	Existing Bike Facilities	Existing Greenway	Proposed Bike Facilities	Existing Concept Plans	Secured ROW	Connectivity	Users Located on Proj. Section	Acquisition, Construction/ Maintenance Costs Determined	Linkage To "Blue Trails"	Users Not Located on Proj. Section	Total Points	Comments
		Greenways								0-20 pts	0-15 pts	0-25 pts	5-10 pts	0-2 pts	0-5 pts	1 pt	77 pts max	
1	5, 10	Three Rivers Greenway Extension	The Saluda Riverwalk from I-26 to Congaree River where Saluda and Broad River join, bridge over the Broad River under I-126.	5.50	1	1	1	1	1	20	7.5	25	10	2	5	0	69.5	Existing with fully developed plan, serves more users, economic impact opportunities
2	4, 5	Lincoln Tunnel Greenway	Abandoned rail tunnel linking Finley Park to Earlewood Park to the north	1.73	1	1	0	1	1	20	7.5	25	8	2	0	0	62.5	Greenway continues north to River Dr. Existing with developed plan and ready for construction
3	6, 10	Gills Creek Section A	South end of Lake Katherine at Kilbourne Road to Congaree River	4.34	1	1	0	1	1	20	5	25	8	2	2	0	62	Greenway goes from Kilbourne to Shop Rd, then continues to Congaree River. Easement agreement required from property owner for section extending from Bluff Rd. to Congaree River
4	5, 10	Smith/Rocky Branch Section C	Rock Branch to Heyward Street	1.70	1	1	1	1	0	15	5	25	9	2	5	0	61	Connection to southern portion of Three Rivers Greenway at train bridge. ROW within Vulcan property required. Private funding available. Rocky Branch to Harden Street: Granby Three Rivers Greenway to Olympia Ave (\$200K) - 4,000 LF. Under Olympia Ave to Olympia Park (\$750K) (100 LF). Olympia Park to Assembly Street. Optional connection: Train bridge north to Granby Park
5	6, 11	Gills Creek Section B	Along Wildcat Creek and Fort Jackson Perimeter parallel to Leesburg Road	5.38	1	1	0	1	1	10	2	25	7	2	5	0	51	Optional route: Kilbourne along Wildcat Creek, under I-77, cross Ft. Jackson Blvd, along Ewell Rd. and terminates at Fitzgibbons Dr.
6	4	Smith/Rocky Branch Section B	Clement Road to Colonial Drive	2.10	1	0	0	1	0	5	0	25	8	2	5	0	45	Greenway confirmed.
7	4	Smith/Rocky Branch Section A	Link existing northern portion of Three Rivers Greenway to Clement Road	0.83	1	1	0	1	1	5	0	25	5	2	5	0	42	Linkage at Smith Branch and northern portion of Three Rivers Greenway to Clement Road.
8	6	Gills Creek North Section C	From to Trenholm Road to Lake Katherine	0.67	1	0	1	0	1	5	2	20	5	2	5	0	39	Trenholm Rd. Plaza at Forest Dr. to Quail Lane at Lake Katherine
9	4	Crane Creek Section A	Monticello Road near I-20 to Three Rivers Greenway system	2.98	1	1	0	0	1	0	0	20	6	2	5	0	33	Greenway confirmed. Should extend to the spillway dam and not along I-20.
10	4	Crane Creek Section B	Secondary Branch leading to Smith Branch Greenway System.	0.89	1	1	0	0	1	0	0	10	5	2	5		22	Optional route: secondary branch from I-20 to Congaree River or from I-20 to Smith Branch at Clement Rd. PDT is locating a community representative.
11	3, 8	Columbia Mall Greenway	A Greenway which bypasses the congested areas around the Columbia Mall	1.25	1	1	1	0	1	0	0	15	5	2	0	0	22	Greenway confirmed. Possible link to greenway planned for the site of Richland Co. School District Elementary School #20.
12	3, 8	Polo/Windsor Lake Connector	Connects Polo Road to Windsor Lake Blvd.	0.75	0	0	0	0	1	0	0	15		2	0	1	18	Greenway extends from Alpine Rd. to Winsor Lake Blvd at I-77 overpass.
13	11	Woodbury/Old Leesburg Connector	Connects Woodbury Drive with Old Leesburg Road	0.22	1	1	0	1	1	0	0	5	5	2	0	1	13	Greenway confirmed. Extension to Leesburg Rd. recommended since it could connect with Gills Creek Section B. PDT locating a community representative.
14	7	Crane Creek Section C	Crane Forest	1.53	1	0	0	0	0	0	0	0	5	2	0	0	7	Greenway confirmed. PDT locating a community representative.
15	4	Dutchman Blvd Connector	Connects Dutchman Blvd.	0.20	1	0	0	0	1	0	0	0		2	0	1	3	Greenway should extend from Dutchman Blvd. to Lake Murray Blvd. Currently shown to terminate at Dutchman Blvd. cul-de-sac. PDT locating a community representative.

CHAPTER 16: FREIGHT

16.1 INTRODUCTION

A trip to a grocery store demonstrates freight movements in United States in the 21st Century. Wheat is harvested in the Midwest and West and shipped by train, barge or truck to flour mills in every state to be ground into flour. The flour is then baked into breads, cakes and pasta that is then packaged and sent to the grocery shelf. Sugar cane and sugar beets are processed into sugar and bagged or added with water to fill cola cans and bottles. Fresh fruits and vegetables are farmed locally or in the coastal counties and trucked in or are picked in California or Mexico and shipped by rail or truck to your grocery store. High value foods (such as lobster or king crab legs), are fished, processed and air freighted for your special meal. Ten, fifteen or twenty trucks are unloaded every day, at your grocery store and each family brings home several bags or boxes filled with food and other household products daily, weekly or monthly. These trucks, trains, ships, barges and planes are vital to keep the American family fed and groomed. Roads, canals, railroad tracks and airports are the infrastructure to support the transportation links and are vital to keep these grocery shelves well stocked. Only after an interruption: caused by hurricane, earthquake or winter storm, does the public understand the importance of freight on their lives.

For thousands of years, the Central Midlands region of South Carolina has been a transportation hub for freight. Local Native American sites reveal that they transported items from the Upstate to Midlands and then to the Coastal Plain via the local network of creeks, rivers and trails. Items from the coast were also transported to the Midlands and then to the Upstate. This system of creeks and rivers were improved during the 1820s with the addition of canals to bypass the rocks in the rivers (the fall line) at Granby and Columbia. Paddle wheelers steamships moved cotton bails downstream into the 1890s while bringing finished products and food stuffs to the Midlands region. By the 1830s, the iron horse (trains) fanned out of Charleston into the coastal plain, then the Midlands and became a major mover of freight and passengers. During the Civil War (War of Northern Aggression) of 1861-1865, Columbia was a vital hub of moving troops and war supplies to battlefields of Virginia and the western fronts and returning the wounded and the dead. After the war, rail connections soon surpassed barges and steam ships for reliability and volume of freight and dominated freight and passenger movements until the advent of the with interstate system built in the 1960s and 1970s. Native trails became wagon roads and then graded dirt and gravel roads. Early in the twentieth century, bicycle enthusiasts advocated city and farm to market roads be paved. Today, our paved roads serve the truck farmers, long haul truckers, commuters and bicyclists. For mail service and other high cost and low

weight objects, the airplane service offers an alternative in our region for products where time is money and next day delivery is vital. Though river freight transportation is currently nil in the Columbia, a major transshipping firm has studied barging shipping containers from Charleston to Santee in Orangeburg County for transshipment via I-95 and I-26. Only sixty miles of waterways separates Columbia from Santee, thus the use of rivers for freight is still be on our horizon. Be it air transport, shipping container, 18-wheeler or rail boxcar, freight travels to, through and from the Central Midlands region.

In today's global economy, freight transportation is crucial to a region's businesses and industrial development and success. For many industries, economic competitiveness is defined by the ability of goods and services to be transported in an on time-manner or next day delivery. A well-functioning commercial transport system brings modern quality-of-life benefits that consumers' value. However, freight also is viewed as a threat to commute times and safety. Several projects planned for our region will benefit both groups and reduce this conflict (adding travel lanes to sections I-20 and I-26, modernizing several interchanges, raising low clearance bridges on I-26 and replacing several aging bridges (US 176 Broad River Road and US 601 McCords Ferry Road). A major redesign of "Malfunction Junction" [I-20@I-26/I-126] has recently been funded by SCDOT and SC State Infrastructure Bank and should reduce truck rollovers and traffic conflicts of trucks traversing through this congested and high volume juncture.

In the current cost effective business environment, time sensitive transportation services are increasingly a strategy for gaining a competitive advantage in manufacturing and service based industries. Global integration of the U.S. economy has grown at a rapid pace as domestic manufacturers now shop the world for components and subassemblies to manufacturing processes. Advances in technology and management practices are also allowing U.S. firms to develop strategies that enable customized products for mass market distribution.

Industries are intent on minimizing costs, focus on ways to manage supply chains effectively and place a premium on logistics and transportation. Logistics is the art of moving the right material, to the right place, at the right time, at the least cost. For some industries, logistics are approximately 40% - 60 % of the overall costs of a supply chain. The major costs of logistics are broken down into transportation and warehousing, with transportation serving as the highest logistics cost.

Transportation is a variable cost, which can be managed to reduce overall costs. All industries rely on the nation's highways, rail, port and air freight facilities to move their cargo. A supportive

transportation infrastructure for freight movement will continue to drive the national economy by providing a reliable and accessible transportation network to local, state and global markets. Table 1 presents the cost of logistics as a percent of sales. In 2010, transportation accounts for over 8 % of total sales and 63% of logistics costs nationally. This data indicates the importance of logistics to business and the need for efficiencies within the transportation industry to minimize costs.

TABLE 16.1: COST OF LOGISTICS

Cost Category	Total Costs (\$ Billions)	% of Sales	% of Logistics Costs
Transportation	768	5.26	63.41
Warehousing	112	0.77	9.24
Inventory Carrying Costs	284	1.95	23.45
Administration	47	0.32	3.88
Total	1,211	8.30	100.00

Source: James Cooke, *State of Logistics Report: US Logistics costs \$1.2 trillion in 2010*

In summary, the importance of reliable, safe and efficient transportation is paramount to ensure the efficient delivery of goods to populated areas throughout the United States.

In December of 2008, Central Midlands Council of Governments Board adopted the Central Midlands Council of Governments Regional Motor Freight Study. This study examined the existing freight network and recommended short and long term strategies for improving freight travel throughout the region. The overall improvements of the CMCOG/COATS transportation network into a multimodal system will enable commercial/freight transportation to thrive in Midlands region. This chapter updates that study.

16.2 EXISTING CONDITIONS

16.2.1 System Overview and Highway System

The Central Midlands region is served by a well-functioning multimodal freight network of highway, rail, and air cargo infrastructure. The backbone of the region's highway system is composed of Interstate highways: I-20, I-26, and I-77. Currently, I-77 carries the highest levels of truck traffic among interstate facilities in the region, at roughly 18 % of the daily traffic of over 80,000 vehicles in 2010. A variety of arterial highways also support the region's freight network, including: US-1, US-21, US-76, US-178, US-321, US -378, US -521, US-601, SC-3, SC-6, SC-12, SC-34, SC-35, SC-48, SC-97, SC-215, SC-262, SC-263, SC-277, SC-302, SC-395 and SC-555. These facilities carry between 6 %-9 % truck traffic.

16.2.2 Rail

Both CSX Corporation and Norfolk Southern (NS) own and operate an extensive rail networks throughout the Central Midlands region, with 308 route miles of active railroad lines in the four counties. The rail lines in the region are predominately single track, with no extended sections of double track. The usage of single track limits rail line capacity, since trains must wait on sidings to pass each other. The capacity of single track depends on a number of factors including the number of sidings, the mix of trains using a segment, the track grade, curvature, speed limits, and the method of dispatch control (parts of each system is centrally computer control, while other sections are manually controlled). Each railroad company also maintains a switching yard in the region (CSX in Cayce and NS in Columbia, south of the Jim Hamilton - L.B. Owens Airport). Channeling a north-south rail corridor through downtown Columbia has reduced the number of at-grade-crossings and improved safety. A proposed railroad bridge over Assembly Street SC-48 (near Whaley Street) would further reduce the number of at-grade-crossings by five and reduce wait times during morning and evening commutes. A planned highway bridge replacement on Two Notch Road US 1 (near Fontaine Road) will have height clearance to allow double stacked container cars.

16.2.3 Air

The Central Midlands region supports a robust air cargo network centered on the Columbia Metropolitan Airport. The Columbia Metropolitan Airport supports scheduled air cargo flights on DHL, FedEx, and UPS, with UPS operating a regional air cargo hub serving five states in the Southeast. Funding for Phase 2 of the Airport Connector will give Columbia Airport direct access to the interstate system (I-26, between I-77 and SC 302 Airport Boulevard). With the completion of Amazon distribution center on October 1, 2011, increased usage of local next day delivery services has expanded. This facility will operate 7/24 year around with 2,000 full time employees and an addition 3,000 employees in the peak holiday period from Columbus Day to New Year's Day. Other industries have announced (Nephron Pharmaceuticals, so far) locating in the same industrial park off SC-35 Twelfth Street Extension at I-77.

McEntire Joint Air/Army National Guard Station in Lower Richland has been studied as part of JLUS (Joint Land Use Study) Base Closing alternatives study and if this site became available, the study recommended it could be transformed into a freight only airfield (allowing Columbia Metro Airport to concentrate on passenger and general aviation). Jim Hamilton - L.B. Owens Airport operates off Rosewood Drive in Columbia and is strictly a general aviation field. Fairfield, Kershaw, Lexington and Newberry counties also operate general aviation fields.

16.2.4 Freight Movements

Based on national traffic count trends, traffic volumes increased for 2006 and 2007 and returned to 2004 counts in 2010, 2011 and 2012. Similar trends were seen in South Carolina and the four counties in our region. Though freight volumes and values, do not directly track with commuter traffic, traffic volumes do suggest some reduction or a slower growth rate for our region in freight traffic and volumes.

In 2006, it is estimated 228 billion tons of commodities moved into, out of, within and through the Central Midlands region. Of the total volume of goods movement, 73% passes through the region and 92% moves by truck. Over the next 25 years, the total volume of freight moving over the region's infrastructure is projected to increase by 42%, to an estimated 325 million tons by 2030. For these same 25 years, truck shipments are forecast to grow by 30% and air shipments by 82%, while rail shipments are projected to increase by 18%, primarily due to through movements. The volume of freight moving in Fairfield County is estimated to grow by 745% by 2030 (to 5.5 million tons annually) [construction of two nuclear power plants in Jenkinsville with large amounts of rebar steel, lumber and concrete accounts for a large portion of this freight]. Richland County is projected to experience a doubling in freight movements (to 45 million tons annually). This level of growth may strain highway infrastructure, specifically routes such as I-20 in the COATS area. Currently, the primary commodity transported to, through and from the region is nonmetallic minerals, with projected additional growth in volumes of 18% by the year 2030. Secondary traffic defined as freight transiting to and from distribution centers or through intermodal facilities, is projected to surpass nonmetallic minerals as the top commodity volume in the region by 2030, growing by 122%.

Based on statistical projections, trucks will continue to serve as the primary mode of transportation in the region in the future. The Central Midlands region is a gateway for freight movement throughout the Southeast, and the area also serves as a major hub for the consolidation of freight. It is also important to note that the types of commodities that originate in or are destined for the region that are projected to increase are primarily bulk commodities. These commodities are typically used for pure manufacturing purposes and the final products will most likely be consumed outside of the Central Midlands region. From an infrastructure perspective, these commodities dictate mode choice and supply chain efficiency, and are likely to impact roadways in the region by increasing Class 8 truck traffic (large 18 wheelers). Several all coal trains offload to the two major coal burning electric power plants in the region (Irmo at the Lake Murray and Eastover on the Wateree River). These shipments will cease as these plants are converted to natural gas or are closed. A large number of tree and tree

products are moved within the region to supply the local timber processing plants and the International paper mill in Eastover on the Wateree River. This effect will be offset somewhat by the leveling off of growth in some of the commodities that account for the heavier volumes, such as nonmetallic minerals. The inland port of Greer (between Greenville and Spartanburg) will transport up to 2000 containers [parts for BMW and others suppliers] nightly from Charleston to Greer. The return daytime trip will fill empty containers with finished BMWs and tires bound for other east coast ports or for Europe. This inland should reduce the truck traffic on I-26 in the metro area.

16.2.5 Safety

Between 2004 - 2006, South Carolina had 9,539 recorded commercial vehicle crashes and 1,515 (15.8%) of these occurred in the Central Midlands region. Almost half of the truck related crashes occurred in Richland County (47%), while Lexington County accounted for an addition 35% of the four-county total. Fifty truck-related crashes resulted in a fatality. Additional concerns regarding the safe movement of freight in the region include hazardous materials movements. In the Central Midlands area, Lexington County may be viewed as having high risk transportation corridors for hazardous materials due to the frequency of bulk flammable materials transported, specifically natural gas. A serious concern in Richland County is the movement of nuclear fuel rods from their plant on Bluff Road to electric power plants throughout the Southeast. All hazardous material routes are classified. Military munitions are shipped to the three local training facilities (Fort Jackson Army Training Center, McEntire Joint National Guard Base and Shaw Air Force Base in Sumter) are also a local concern. Fort Jackson maintains an active bomb disposal unit in case of traffic accident or other non-routine transport of these materials.

16.2.6 Roadway Bottlenecks

Specific congestion points/bottlenecks that directly effecting local operations included the conjunction of I-20 at I-26 and I-126 –Malfunction Junction (Exits 64, 107 & 108), I-77 at Killian/Clemson Road (Exit 22) and lane widths throughout the region. Reported strengths of the transportation system in the Central Midlands Region included: availability of I-20 and I-26 provides good access; convenient terminals located at the Columbia airport, a good highway system overall and reasonable regulations. Suggestions for improving the transportation services in the Central Midlands Region include reducing the congestion on the northern sections of I-26 (Newberry to Irmo Exits 76 to 101). In November of 2013, the SC State Infrastructure Bank (SCIB) approved widening if I-26 to eight lanes from Broad River Road Exit 101 to St Andrews Road Exit 106. At the same time, the SCIB approved the SCDOT to design and build an additional lane in each direction on I-20 from Long

Ponds Road Exit 51 to the existing 6 lanes facility due west of Sunset Boulevard US 378 Exit 61. Added travel lanes; improved transit systems; improved interchanges and intersections and other operational and pavement condition improvements are enhancing freight movement on our roadway network.

16.3 ON THE HORIZON

16.3.1 Coal trains

Four coal electric plants (one at Lake Murray near Irmo, one on Wateree River near Eastover –both operated by SCE&G) are either shutting down or converting to natural gas. The other two plants are operated by Santee Cooper, a state owned utility, (one in Conway and the second in Monks Corners) and have coals trains that travel through the Midlands. As these plants convert or close, these actions will significantly reduce the number of coal trains that transit our region.

It is possible that coal will again be shipped from Charleston (as it had in the early 1970's) to Europe and South America and then the number of coal trains transiting the Midlands would be greatly increased. However, the South Carolina Port Authority (SCPA) [which includes Charleston and Georgetown] does not see this development on the horizon.

16.3.2 Inland Port -Greer

In 1982, the South Carolina Port Authority (SCPA) purchased one hundred acres near Greer (between Greenville and Spartanburg) for an inland port. On October 15, 2013, the SCPA inland port was opened for business and the first containers from Charleston to Greer travelled 212 miles on their nightly run. Containers filled with parts from the Charleston then are transshipped to Greer for immediate delivery to BMW and its suppliers. On the daytime return run, containers filled with finished BMWs and tires and other products transit to Charleston via Columbia for other east coast ports and Europe. This port now feeds a number of growing industries alongside the I-85 corridor from North Carolina to Mississippi. When the Inland Port is fully operational, as many as 50,000 containers will be removed from the I-26 corridor yearly. This action will increase the number of container trains transiting through the Midlands but will reduce the trucks on I-26 throughout our Midlands region.

16.3.3 MAP 21 (Moving Ahead for Progress in the 21st Century Act)

The movement of freight, efficiently and safely are emphasized in this two year transportation bill. An expanded National Highway System (NHS) (including all principle arterials) is the heart of new

national truck route system. States and MPOs will start with the NHS system and choose other roads and connecting roads suited for freight traffic.

A National Freight Network, along with state freight networks are being mapped to handle 70 to 80% of all national and statewide trucking needs. Higher matching funds will be available for upgrades on this system to improve their efficiency and safety. Roads that were previously had a 20/80 match will be increased to 10/90 match. Interstates that were 10/90 match will increase to 5/95 match when significant freight improvements are included.

MPOs and COGs are required to map these networks and add them to their Long Range Transportation Plans. Freight projects in their areas will receive preference as additional funds become available. These projects can include: wider travel lanes, increased turning radii on access roads, improved bridge clearances, better signage of trucks routes, timely emergency services and towing services.

16.4 OBJECTIVES AND STRATEGIES

16.4.1 Create Design Standards for Freight Infrastructure (Short-term)

Officially recognized infrastructure and operational design guidelines implemented by all jurisdictional bodies within the region are a fundamental element of effective metropolitan freight and goods movement planning. Truck traffic, particularly heavy-truck traffic, causes a disproportionate amount of roadway wear and tear in comparison to passenger vehicle traffic. Central Midlands' roadways should be designated on a network of freight transport corridors and designed to common physical standards that are more freight-tolerant than conventional roadways. For example, freight network roadways should be designed to higher lane and curb lane widths, as well as shoulder widths. Pavement Condition Rating (PCR) values, as well as intersection radii should also be designed for a significantly higher volume of freight traffic than other facilities. Developing a truck friendly lane in each direction consisting of a 12 to 13 foot lane with freight friendly geometrics would promote freight mobility and enhance safety of operations for both trucks and passenger vehicles.

16.4.2 Prepare and adopt Regional Truck Route Plan (Short-term)

Truck routing strategies and restrictions for regional jurisdictions vary. It is recommended that a Regional Truck Route Plan be pursued to identify where trucks should travel in the region. In addition to the other benefits discussed, this plan will provide a better and more concise way to identify maintenance needs along the regional system. Also, the identification of a truck route system will help

recognize the appropriate routes that trucks hauling hazardous materials may take, since there are currently no restrictions.

Identifying truck routes is an important component of freight mobility and mitigation of freight passenger conflicts. Designated truck routes focus on the following:

- Targeted design standards: Truck routes provide a means for targeting truck supporting design standards and policies toward specific corridors rather than across the board
- Cost effective infrastructure: Improving roads to accommodate larger trucks requires significant investment. Designated routes provide a means to rationally allocate resources to specific corridors with higher benefits. Truck routes also allow favorable opportunities to implement Intelligent Transportation Systems (ITS) applications
- High safety standards: Improving design standards and segregating freight traffic along specific corridors would also reduce operating incompatibilities and diminish the incidence of crashes
- Operational productivity: Improving truck operations within trade corridors leads to increased productivity, lower truck operating costs and improved reliability

Identifying methods to improve these transportation routes that share a significant amount of truck traffic in the region will improve access to the freight facilities along major corridors. Based on analysis conducted in this study, a regional truck route system is proposed, to improve freight operations on the region's road network.

Instead of tiered roadway system is proposed by the previous freight study, a simplified truck route map that is adopted by the local, county and SCDOT is the recommended. This proposed truck route system can be framed around road characteristics, truck traffic and accessibility to major terminals and markets.

- Wide lanes of 12 feet or more
- Paved shoulders of 4 feet or more
- Clear site lines
- Bridges and overpasses along the route are over 14.6 feet in height

- Railroad bridges upgraded to 23.6 feet in height (to allow double stacked shipping containers)
- Minimal 90 degree sharp turns
- Roads carrying a high volume of truck traffic
- Major regional connectors

16.4.3 Improve Signage and Signalization along Key truck routes (Medium-term)

Key routes that are used by trucks often suffer from poor signage and signal timings. The following routes were identified as routes to consider improving signage or adjusting signals.

- US 1 Augusta Highway and US 378 Sunset Boulevard to Interstate 20 from both Town of Lexington and from West Columbia/Cayce
- US 601 McCord's Ferry Road from SC 262 Leesburg Road to Garners Ferry Rd US 76/378 and from SC-48 Bluff Road in Eastover to Columbia

These routes can be further assessed determine the need for improved signing or better signal timing to prevent consistent stopping and starting of trucks lane restrictions. SC-34 in Fairfield and Newbery counties is a freight route which consists of two lanes, no median and limited paved shoulders.

Temporary signage indicating lumber and pulp industry activities for traffic awareness can be improved. These industries enter the roadway via unimproved or improvised avenues. Limited signage poses a safety hazard for passenger and freight users. Freight route designation and utilization of rural routing to satisfy freight flow requirements should coincide with a review of all signage. Increased heavy equipment use requires a change in strategies, from earlier utilization marked by predominant passenger use.

16.4.4 Support Regional Economic Development (Short-term)

Working with county economic development agencies in the Central Midlands region will improve the COG's understanding of the transportation needs of the region. This communication will begin to integrate the appropriate organizations into the planning process and assist in planning. As metropolitan truck corridors span multiple jurisdictions across a region, it is essential that there exists inter-jurisdictional cooperation for the maximum benefit of this strategy. Understanding the travel flow patterns for heavy-duty vehicles allows transportation planners to approach planning from a

systems and corridors approach. It is recommended that developers be required to provide an overall concept plan that identifies the key routes that are expected to be utilized in their review submissions. Critical to this process is the identification of local routes that are intended to be truck routes between key freight generation and attraction points.

16.4.5 Work with governments and the private sector to mitigate railroad crossings including reducing the number in downtowns (Long-term)

Minimizing the number of crossings is the optimal way of addressing at-grade crossings and should be employed when possible. When elimination is not possible enhancing the safety at railroad crossings should be a priority.

- The proposed railroad bridge on SC 48 Assembly Street at Whaley Street/USC Engineering Building will resolve these concerns. Securing local and federal funding is underway.

16.4.6 Begin to integrate ITS application along freight corridors (Long-Term)

South Carolinas' Intelligent Transportation System (ITS) provides real time traffic information across the interstate/primary route system pertain to accidents and detours. The ITS system includes eleven Variable Message Sign (VMS) and 73 traffic cameras (with radars) which are placed along the interstate and managed from the SCDOT control center which alerts travelers of the need for detouring or cautious driving during accidents or unusual road conditions. Variable message signs to inform truckers of lanes restrictions or dangerous ramps can further promote safety and mobility. Further evaluation of the specific locations of the variable message signs would need to be made to determine effectiveness and feasibility, but some suggested corridors include:

- I-26 from US 21 Charleston Highway [Exit 129] to I-77 [Exit 116]
- I-77 from US 21 Wilson Boulevard [Exit 24] to SC 34 Winnsboro [Exit 34]
- US 321 from Winnsboro to downtown Columbia
- US 1 Augusta Road from Columbia, Congaree River to Town of Lexington
- US 378 Sunset Boulevard from Columbia, Congaree River to Town of Lexington

- US 76/378 Garners Ferry Road from VA Hospital/SC 262 Leesburg Road to Trotter Road /Old Garners Ferry Road S-222, Hopkins
- US 1 Two Notch Road from Elgin to downtown Columbia
- US 76 Dutch Fork Road/US 176 Broad River Road from Chapin to I-26 [Exit 101]
- US 176 Broad River Road from Greystone Boulevard S-3020 to I-26 [Exit 101]
- US 21 Charleston Highway from I-26 [Exit 119] to Columbia, Congaree River
- SC 12 Jarvis Klapman Boulevard from US 1 Augusta Road to Columbia, Congaree River
- SC 48 Bluff Road from I-77 [Exit 5] to William Brice Stadium

Both safety and cost-revenue enhancements are viable with the implementation of manned or unmanned monitoring systems along the rural freight routes, within the Central Midlands region. Increased heavy truck traffic and the inability to appropriately allocate the costs of through traffic will drive the need for non-traditional solutions. The addition of SCDOT Incident Response (formerly known as SHEP) to these sections of roads would also be beneficial to relieve congestion.

In-ground, manned and unmanned, vehicle weigh station technologies can reduce or maintain existing roadway maintenance budgets and provide visible assurances, to the driving public, of ongoing monitoring for safe transit of these freight routes.

16.4.7 Improve Data Collection between Agencies and Private Sector (Medium-Term)

Coordinating with various agencies in the region will help improve planning needs. The various agencies recommended to retrieve data from are:

- Federal Motor Carrier Safety Administration
- SC Trucking Association
- SCDOT - Permitting Office, Regional Operation center, District engineers
- SC Manufacturers Association
- SC Department of Public Safety - SC Highway Patrol, SC Transport Police

Freight data helps transportation planners and economic development analysts understand the trade environment of the region, state and multistate region. Commodity flow data helps supports the link between transportation and economic development by revealing information about key domestic and trading partners, key international gateways, high volume and high value industries, and provides indications of how private sector supply chains work.

16.4.8 Establish Advisory Group to Retrieve Input on Freight issues (Medium-term)

CMCOG/COATS has established guidelines for public involvement, but has not developed practices or guidelines specifically for engaging the private sector in planning activities. To facilitate greater participation in planning, federal legislation encourages metropolitan transportation organizations (MPOs) to provide opportunities for interested parties to provide input into the development of transportation plans and programs. SAFETEA LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, 8-25-2005) stipulates that MPOs shall provide freight shippers and providers of freight transportation services with reasonable opportunities to comment on transportation plans and programs. The Central Midlands COG/COATS is positioned to begin to lead a group of representative from local stakeholders to retrieve input from the private sector and begin to include freight in the transportation planning process. This group can include but not be limited to:

- SC Trucking Association
- Economic Development Agencies (Fairfield, Newberry, Richland and Lexington)
- SC Manufactures Association
- Richland-Lexington Airport Commission
- Columbia Chamber of Commerce
- Lexington County Chamber of Commerce
- Person from one of the railroad companies
- Select citizens throughout the region

This group can serve as a subcommittee to the Technical Committee. The main goal would be to review future transportation plans, and provide input and recommendations that are focused on

improving freight needs in the region. This group can also begin to enhance economic development opportunity around the region.

CHAPTER 17: SAFETY AND SECURITY

The strong commitment of the Secretary of South Carolina’s Department of Transportation and the South Carolina Governor’s Highway Safety Representative, who serves as the Director of the SC Department of Public Safety (DPS), has resulted in the state’s adoption of Target Zero as the State’s main goal in addressing traffic-related deaths. Thus, the State is gearing its highway safety efforts toward eliminating traffic fatalities rather than merely reducing them. The COATS MPO concurs with this analysis has partnered with SCDPS and SCDOT to implement Target Zero.

In 2011, the National Highway Traffic Safety Administration (NHTSA) indicated South Carolina had the 3rd highest fatality rate in the nation, a position it has held since 2006 even though the State’s fatality rate has dropped from a high of 2.11 fatalities per 100 Million Vehicle Miles Traveled in 2006 to 1.70 in 2011. The national average fatality rate also dropped from 1.42 in 2006 to 1.10 in 2011.

The number of fatalities occurring on the State’s roads began declining in 2007 from a total of 1,077 in that year to a low of 810 fatalities in 2010. However, the number has begun to increase with 828 fatalities occurring in 2011 and 863 occurring in 2012.

TABLE 17.1: SC FATALITIES AND RESTRAINT USE, 2008-2012

Year	Fatalities	Unrestrained MV Occupant Fatalities	Seatbelt Usage Rate
2008	921	412	79.5%
2009	894	381	81.5%
2010	809	313	85.4%
2011	828	258	86.0%
2012	863	328	90.5%

South Carolina also had the 5th highest pedestrian fatality rate and the 5th highest bike fatality rate in the nation in 2010. NHTSA recently released the 2011 bicycle and pedestrian fatality state rankings and South Carolina has moved up to the 2nd highest pedestrian fatality rate while still maintaining the 5th highest bike fatality rate.

The cost of vehicle crashes, injuries, and fatalities to society is staggering and greatly exceeds the funding dedicated to SCDOT for highway maintenance, operations, and improvements. In 2009, the South Carolina Department of Public Safety (SCDPS) estimated that the annual economic loss due to vehicle crashes, injuries, and fatalities was \$2.67 Billion. These statistics indicate the need to bring greater emphasis to safety in all aspects of highway planning, design, and operations.

In coordination with the South Carolina Multimodal Transportation Plan, the 2040 LRTP incorporates the finding of the Strategic Highway Safety Plan (SHSP), which provides a coordinated framework toward eliminating deaths and severe injuries on South Carolina’s public roads. This coordination require combining and sharing resources and focusing efforts on areas with the greatest potential for improvement. The SHSP establishes statewide goals and identifies critical emphasis areas, which were developed in consultation with federal, state, local, and private-sector safety stakeholders. The strategies developed involve the “4 E’s” of safety: engineering, enforcement, education, and emergency response.

South Carolina has adopted Target Zero as the state’s goal in addressing traffic related deaths. To this end, the stat is gearing its highway safety efforts towards eliminating traffic fatalities rather than merely reducing them. This is a radical departure from the traditional goal-setting approaches earlier adopted to simply reduce traffic fatalities. Though not achievable immediately, the goal of zero fatalities is a noble goal, one our state strives for and a goal with which everyone can live.

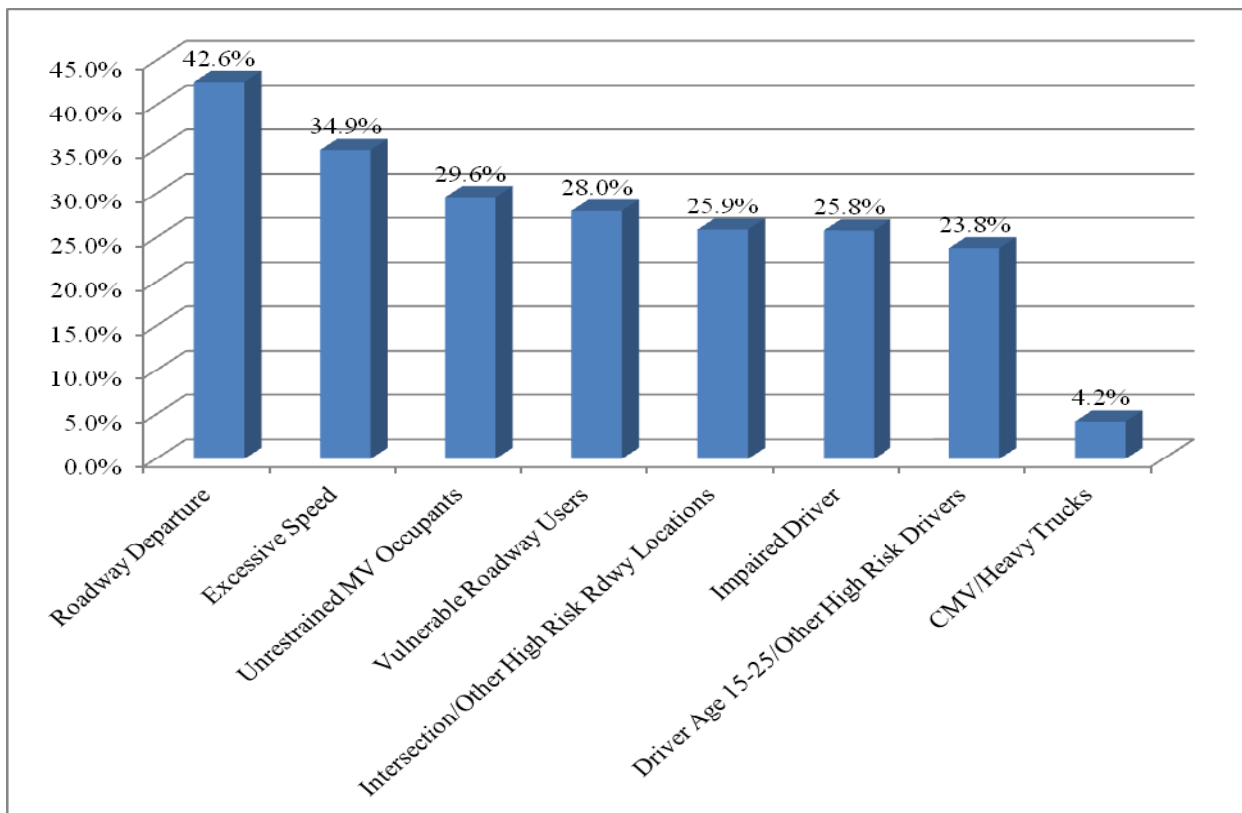
Table 17.2 and Figure 17.1, reveal priority traffic safety areas data analyses accounting for 90% of the total fatal and severe injury collisions from 2008 to 2012. While crash causation factors are often interrelated, the critical areas to target are evident.

TABLE 17.2: SHSP DATA ANALYSIS, 2008 – 2012

Roadway Departure	2,133	49.40%	6,437	37.90%	7,454	42.60%
Excessive Speed	1,684	39.00%	5,775	34.00%	6,102	34.90%
Unrestrained MV Occupants	1,723	39.90%	3,469	20.40%	5,179	29.60%
Vulnerable Roadway Users	1,194,497	28%	3,900	23.00%	4,904	28.00%
Motorcyclists Pedestrian Mopeds	511,115	11.5%	2,060,869	12.1%	2,407	13.8%
Bicyclists	71	11.8%	618,353	5.1%	1,359,715	7.8%
		2.7%		3.6%	423	4.1%
		1.6%		2.1%		2.4%
Intersection and Other High Risk		20.6%		46%		26%
Roadway Locations Intersections	890,830	19.2%	7,819	45%	4,359	25%
Work Zone Railroad Crossing	890,830	1.0%	7,629,158	1%	4,358,154	90%
	4,317	0.4%	32	0%	27	0%
Impaired Driver	1,794	41.60%	3,759	22.10%	4,521	25.80%
Young/Novice Driver Age 15-24	1,208	28.00%	4,849	28.50%	4,163	23.80%
CMV/Heavy Trucks	321	7.40%	4,849	28.50%	4,163	23.80%
Total*		4,315		16,986		17,503

More than one factor is commonly involved in fatal and severe injury collisions. Therefore, each fatality and sever injury tallied on “Total may be represented in multiple factors in the table.

FIGURE 17.1: SHSP EMPHASIS AREAS BASED ON FATAL AND SEVERE INJURY CRASHES 2008-2012



The major focus areas for the state remain similar to those identified in the 2007 SHSP, with a few changes in terminology. Based on an extensive review of the collision data, the SHSP Steering Committee selected the following emphasis areas:

- Roadway Departure;
- Excessive Speed;
- Occupant Protection;
- Vulnerable Roadway Users, including bicyclists and pedestrians;
- Impaired Driving;
- Intersection and Other High Risk Roadway Locations;
- Young/Other High Risk Drivers (including distracted, drowsy, and unlicensed); and

- Commercial Motor Vehicles/Heavy Trucks.

Because of the great importance of data analyses and a data driven approach to eliminating fatalities and severe injuries, the Committee added an additional final emphasis area:

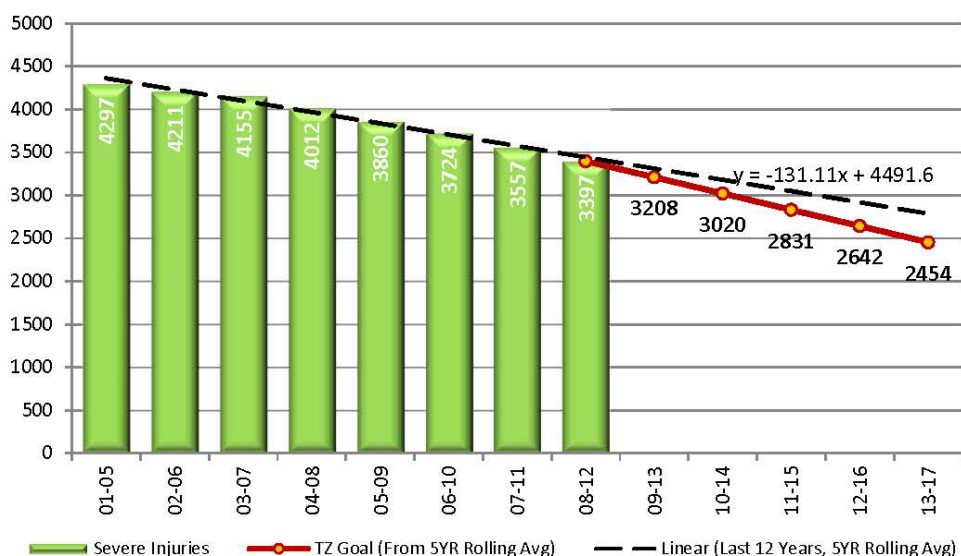
- Safety Data Collection, Access, and Analysis.

Each emphasis area in the SHSP includes an overview of the issue, the challenges, and performance period goals. Objectives and strategies have been identified that will assist in meeting the performance period goals. An annual implementation plan will be developed to implement the strategies identified in the SHSP.

While strategic highway safety plans are designed to be multi-year planning documents, certain performance goals were established for the total number of fatalities, severe injuries, fatality rate, and severe injury rate as well as similar goals for each emphasis area. Each update of the state's SHSP will provide interim goals in order to measure progress towards the long term goal of zero traffic fatalities and a significant reduction in the number of severe injuries. The COATS MPO will be inclusive in the update process to ensure that our efforts to improve safety and security in the Central Midlands region are included.

The performance period goal for the number of severe injuries is shown in Figure 17.2.

FIGURE 17.2: SCDOT'S PERFORMANCE PERIOD GOAL FOR SEVERE INJURIES



CHAPTER 18: FINANCIAL CONSTRAINT PLAN

MAP-21 requires that the 2040 LRTP be financially feasible and demonstrate fiscal constraint over the long-range planning horizon. Implementation of transportation improvements is contingent on available funding and a plan is considered fiscally constrained when the project costs do not exceed projected revenues. The 2040 LRTP must demonstrate reasonably expected sources of revenue available to projects and programs identified in the plan, as well as identify any additional financial strategies used to implement the plan to include implementation strategies for any new funding sources. As part of this requirement, the financial plan also must demonstrate the following:

- Reflect system level estimates of costs and revenue sources reasonably expected to be available to operate and maintain the transportation system;
- Include public transit operators in the cooperative development of funding estimates for the financial plan;
- Include recommendations on any additional financing strategies to fund projects and programs in the plan;
- Reflect year of expenditure dollars for all projects and strategies; and

In nonattainment/maintenance areas, the financial plan must ensure timely implementation of transportation control measures included in the State Implementation Plan.

There are many transportation funding sources through which projects and programs in the 2040 LRTP are funded. Funds may be Federal, state, or local (or various combinations of these). Federal funds are available through various programs administered by the state for roadway construction and other multimodal projects including, but not limited to, pedestrian, bicycle, and transit facilities and major planning and/or environmental studies. The Columbia Area Transportation Study (COATS) MPO has discretion over project selection for use of the suballocated urbanized portion of the Surface Transportation Program (defined below) which is determined through formula population calculations. Some MPOs also have discretion on the spending of Congestion Mitigation and Air Quality (CMAQ) funds as they receive a specified suballocation. The American Recovery and Reinvestment Act of 2009 provided additional funding in Federal highway and Federal transit dollars. Furthermore, local jurisdictions fund capital projects and operations and maintenance activities, often through general fund monies. These funding sources are further explained in the following subsections.

To develop the financially feasible plan, the COATS MPO prepared forecasts of Federal, state and local revenues; and planning level cost estimates for each proposed project. These forecasted revenues and costs were calculated in coordination with SCDOT and local jurisdictions.

By reviewing projected funding trends and expected future funding mechanisms, the program of projects was linked to reasonable and expected funding sources, resulting in a financially feasible plan.

A careful evaluation of the availability of financial resources from Federal, state, and local sources helped guide policy and decision-makers in their request for priority programs and projects.

18.1 ROADWAY FINANCIAL CONSTRAINT

18.1.1 Roadway Revenue Sources

Development of the 2040 LRTP financial plan involved first projecting historic highway transportation revenue (modified to reflect recent funding trends at national/state level) through the 2040 LRTP horizon. The primary fund sources included in the (roadway) revenue projection process are defined below, along with a summary of the revenue projection methods.

18.1.2 Federal Revenue Sources

Federal funding apportionments for roadways/highways from the FHWA are divided among more than 100 individual programs, each having their own formula for distributing funding between states, MPOs, or to individual projects. The majority of transportation funding is generated by the Federal motor fuel tax of 18.4 cents-per-gallon on gasoline and 24.4 cents-per-gallon on diesel fuel.

The following list summarizes the FHWA funding programs anticipated to be available in the COATS Metropolitan Planning Organization (MPO) for the 2040 LRTP.

Surface Transportation Program (STP, STP-Local/Urban) – Funding for transportation improvements to routes functionally classified as urban collectors or higher.

Bridge Replacement and Rehabilitation – Funding for bridge replacement or to rehabilitate aging or substandard bridges based on the sufficiency rating.

Congestion Mitigation and Air Quality (CMAQ) – Funding for transportation projects that improve air quality by reducing transportation-related emissions.

Transportation Alternatives Program (TAP) – Funding for 12 exclusive activities such as pedestrian and/or bicycle facilities, rehabilitation and restoration of historic transportation-related structures, and mitigation of pollution due to highway runoff.

Interstate Maintenance (IM) – Funding to rehabilitate, restore, and resurface the Interstate system. Reconstruction also is eligible if it does not add capacity, and High-Occupancy Vehicle (HOV) lanes can be added.

National Highway System (NHS) – Funding of major roadways, including the Interstate system, a large percentage of urban and rural principal arterials, the Strategic Defense Highway Network (STRANET), and strategic highway connectors.

Transportation Investments Generating Economic Recovery (TIGER) – The grant program will focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for disconnected communities both urban and rural, while emphasizing improved connection to employment, education, services and other opportunities, workforce development, or community revitalization.

Safe Routes to School Program (SRTS) – A MAP-21 program to encourage and improve the conditions for students to walk and bicycle to school. Activities of this program included infrastructure and non-infrastructure educational components.

Highway Safety Improvement Program (HSIP) – A MAP-21 program to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. Funds may be used for projects on any public road or publicly owned bicycle and pedestrian pathway or trail. Each state must have a State Highway Safety Plan in place to be eligible to use up to 10 percent of its HSIP funds for other safety projects (including education, enforcement and emergency medical services).

American Recovery and Reinvestment Act of 2009 (ARRA) – A special 2009 legislative recovery bill to stimulate the economy. The program provided a one-time urbanized formula allocation for transportation project programming in MPO areas as well as other state programs. (Note: ARRA funds were not included as revenue used to fiscally constrain the transportation plan since they already have been programmed).

18.2 LOCAL REVENUE SOURCES

There are various sources of surface transportation revenue at the disposal of units of local government for supplementing the funds from the state and the MPO. General-purpose sources, such as the property tax and the various local option sales taxes. Many local governments have implemented Tax Increment Finance districts, which capture growth in tax revenue for special assessment areas, to fund transportation improvements in economic development and redevelopment areas. These funds are often used in conjunction with bonding instruments, including general obligation bonds (backed by the full faith and credit of the local unit of government) and revenue bonds (backed by a specific funding source) to obtain funding upfront for a particular capital project.

In the COATS MPO, Richland County has been successful in establishing a local option sales tax to fund surface transportation improvements. One outcome of the planning process for the LRTP has resulted in a dialogue with Richland County to establish a partnership that would assist in addressing the transportation improvement needs in that county.

18.3 RICHLAND COUNTY SALES TAX

Richland County Council established a 39 member citizen Transportation Study Commission in 2006. This Commission held numerous public input meetings and completed a comprehensive study. The study addressed failing roads, the lack of sidewalks and greenway infrastructure, and the unstable bus system. Three transportation modes and the projects needed were addressed: (1) transit (buses), (2) roadway, and (3) bicycle, pedestrian and sidewalks, and greenways. The projects included in this initial study appeared on the ballot on November 2, 2010 but did not pass.

In 2012, the original study was revised which resulted in a reduction in the number of projects and a shorter program timeline. On November 6, 2012, the Richland County voters approved the revised plan of projects funded through a 22-year, \$1.07 billion transportation penny local option sales tax. The “Transportation Penny” will be used to complete major road, bike, pedestrian and greenway projects and fund bus services during that time span.

In April 2013, Richland County Council appointed the Transportation Penny Advisory Committee (TPAC). The function of the TPAC is to review the use of the sales tax. The TPAC is composed of 15 Richland County citizens representing Arcadia Lakes, Blythewood, Columbia, Eastover, Forest Acres, Irmo, and unincorporated areas of Richland County.

The Richland County Council established and, in 2013, staffed a County Transportation Department to oversee and implement the projects approved in the referendum. Council also selected a Program Development Team in July of 2014 to assist the County's Transportation Department in the delivery of the program.

The Sales and Use Tax collections began on May 1, 2013 and Richland County received the first revenue from the collections in October 2013. The tax revenues are collected by the state and distributed quarterly to the County.

18.4 FUNDING SUMMARY

The Richland County Transportation Improvement Program (CTIP) is subject to time and funding constraints as identified and approved by voters in the November 2012 referendum. Specifically, the 1% Sales Tax is to be imposed for not more than 22 years or until a total of \$1,070,000,000 in sales tax revenues has been collected, whichever occurs first. These revenues are to be used to pay the costs of administrative expenses, currently estimated to be \$32,100,000, any debt service should bonds be issued, and the following categories of projects:

18.5 ROADWAY

The penny tax program includes widening highways, major intersection improvements, paving dirt roads, and resurfacing local roads. Also included in this category are the identified neighborhood improvement plans, specific "special" projects, and the interchange at Broad River Road and I-20.

Amount: \$656,020,644

18.6 TRANSIT

The continued operation and improvements of mass transit services provided by Central Midlands Regional Transit Authority including implementation of near, mid and long-term service improvements are included. These funds are sent directly by the County to the Central Midlands Regional Transportation Authority for their use in providing and increasing transit service in Richland County. These transit funds and any transit projects are not a part of the Richland County Transportation Improvement Program (CTIP), but are administered by the Board of the Transit Authority. ***Amount: \$300,991,000***

18.7 BIKEWAYS, PEDESTRIAN IMPROVEMENTS AND GREENWAYS

The category also includes significant improvements for pedestrians and bicyclists by adding sidewalks and bike paths, improving pedestrian access at intersections and constructing greenways.

Amount: \$80,888,356

18.8 GENERAL OBLIGATION BONDS

The referendum also allows Richland County to issue up to \$450,000,000 in general obligation bonds to support the program. These bonds may mature over a period not to exceed 22 years, to support the completion of the program.

FIGURE 18.1: TRANSPORTATION PENNY FUNDING SUMMARY

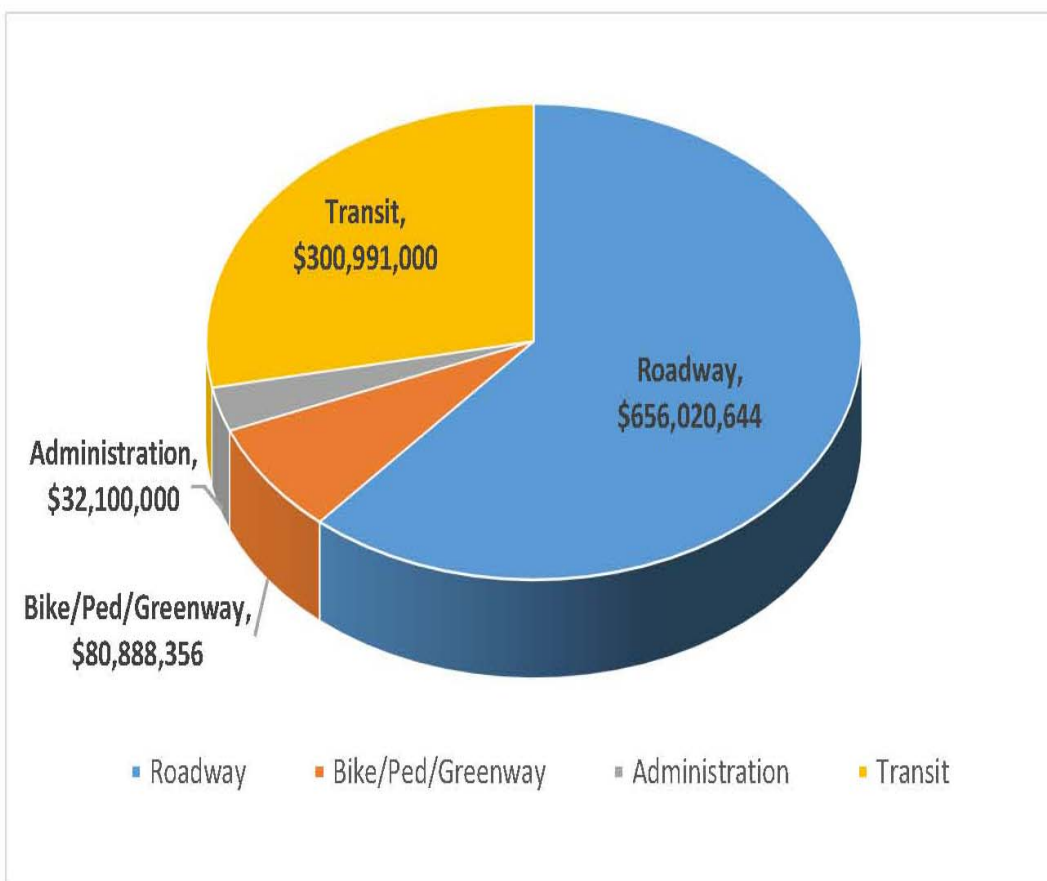


TABLE 18.1: 2040 FUNDING PROJECTIONS

FUNDING PROJECTIONS FOR THE 2040 LRTP WITH 10 PERCENT CENSUS INCREASES							
Fiscal Year	Guideshare	Debt Service	Total Revenue (Guideshare - Debt Service)				
2010	\$ 13,860,000.00	\$ 5,019,986.36	\$ 8,840,013.64				
2011	\$ 13,860,000.00	\$ 5,646,835.07	\$ 8,213,164.93				
2012	\$ 13,860,000.00	\$ 5,464,657.15	\$ 8,395,342.85				
2013	\$ 16,725,999.00	\$ 4,968,142.79	\$ 11,757,856.21				
2014	\$ 16,725,999.00	\$ 4,746,140.18	\$ 11,979,858.82				
2015	\$ 18,754,503.00	\$ 4,849,704.00	\$ 13,904,799.00				
2016	\$ 19,199,714.00	\$ 3,798,639.53	\$ 15,401,074.47				
2017	\$ 19,199,714.00	\$ 4,645,946.06	\$ 14,553,767.94				
2018	\$ 19,199,714.00	\$ 4,589,110.46	\$ 14,610,603.54				
2019	\$ 19,199,714.00	\$ 4,532,954.04	\$ 14,666,759.96				
2020	\$ 21,119,685.40	\$ 3,398,706.12	\$ 17,720,979.28				
2021	\$ 21,119,685.40	\$ 3,403,972.84	\$ 17,715,712.56				
2022	\$ 21,119,685.40	\$ 1,284,111.47	\$ 19,835,573.93				
2023	\$ 21,119,685.40	\$ 1,284,021.74	\$ 19,835,663.66				
2024	\$ 21,119,685.40		\$ 21,119,685.40				
2025	\$ 21,119,685.40		\$ 21,119,685.40				
2026	\$ 21,119,685.40		\$ 21,119,685.40				
2027	\$ 21,119,685.40		\$ 21,119,685.40				
2028	\$ 21,119,685.40		\$ 21,119,685.40				
2029	\$ 21,119,685.40		\$ 21,119,685.40				
2030	\$ 23,231,653.94		\$ 23,231,653.94				
2031	\$ 23,231,653.94		\$ 23,231,653.94				
2032	\$ 23,231,653.94		\$ 23,231,653.94				
2033	\$ 23,231,653.94		\$ 23,231,653.94				
2034	\$ 23,231,653.94		\$ 23,231,653.94				
2035	\$ 23,231,653.94		\$ 23,231,653.94				
2036	\$ 23,231,653.94		\$ 23,231,653.94				
2037	\$ 23,231,653.94		\$ 23,231,653.94				
2038	\$ 23,231,653.94		\$ 23,231,653.94				
2039	\$ 23,231,653.94		\$ 23,231,653.94				
2040	\$ 25,554,819.33		\$ 25,554,819.33				
Totals (2010 - 2040)	\$ 639,653,569.73	\$ 57,632,927.81	\$ 582,020,641.93				
Totals (2015 - 2040)	\$ 564,621,571.73	\$ 31,787,166.26	\$ 532,834,405.47				
Revenues	\$ 532,834,405.47	This is the total amount of revenues after debt service from FY 2015 to FY 2040					
Existing + Committed	\$ 80,470,000.00	This amount includes intersections, sidewalks, signal systems, widenings, and interchanges improvements)					
Remaining Revenues	\$ 452,364,405.47						
Cost Constrained Funding Available (Rounded to the nearest million)	\$ 452,000,000.00						

Please note that this table anticipates increases in our guideshare funding at each centennial census. SCDOT uses a population based formula to apportion road improvement funds to MPOs and COGs. SCDOT has noted that recent growth trends show that the state is becoming more urbanized. Thus this continued growth will account for more population that is based in the urbanized areas. Based on the theory that each legislative reauthorization will apportion more funding to the states for road improvements, COATS anticipates receiving a 10 percent increase in our guideshare allocation. This increase will be shared amongst our road improvements, intersection improvements, signal systems,

and congestion management programs. Through sharing, we make a considerable effort and investment in implementing a comprehensive, continuing, and cooperative transportation planning program that is designed to address the critical needs of our transportation systems.

18.9 TRANSIT FUNDING SOURCES

The principal sources of transit funding within the region are provided through the following sources:

- Federal Transit Administration (FTA) Section 5307 funds
- FTA Section 5310 funds
- FTA Section 5339 funds
- Local matching funds (Richland County Sales Tax)

18.10 SECTION 5307 FUNDS

MAP-21 consolidated several smaller programs into the Section 5307 Program. Section 5307 now includes the Job Access and Reverse Commute Program. Section 5307 provides public mass transportation for cities with populations of more than 50,000. Federal funds will pay 80 percent of capital and planning projects, and 50 percent of deficit operating costs. The remaining match of 20 percent and 50 percent, respectively, must come from non-federal funds and from non-farebox revenue. The federal share may be 90 percent for the cost of vehicle-related equipment attributable to compliance with the Americans with Disabilities Act (ADA) and the Clean Air Act (CAA) Amendments. The federal share may also be 90 percent for projects or portions of projects related to bicycles.

Eligible activities/uses of the grant funding include:

- Planning
- Engineering design and evaluation of transit projects and other technical transportation-related studies
- Capital investments in bus and bus-related activities such as replacement of buses
- Overhaul and rebuilding of buses

- Crime prevention and security equipment
- Construction of maintenance and passenger facilities
- Capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software

18.11 SECTION 5310 ENHANCED MOBILITY FOR SENIORS AND INDIVIDUALS WITH DISABILITIES

This program provides formula funding to increase the mobility of seniors and persons with disabilities. Funds are apportioned on each state's share of the targeted populations and large urbanized areas with populations over 200,000. Projects selected for funding must be included in a locally developed, coordinated public transit-human services transportation plan. At least 55 percent of the program funding must be spent on capital projects. The remaining 45 percent may be used for projects that exceed the requirements of the ADA.

18.12 SECTION 5339 BUS AND BUS FACILITIES PROGRAM

A new formula grant program is established by MAP 21 under Section 5339. This program replaces the previous Section 5309 discretionary Bus and Bus Facilities program. This capital program provides funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities. Nationally authorized funding is \$422 million in FY 2013 and \$428 million in FY 2014. Each year, \$65.5 million will be allocated, with each state receiving \$1.25 million and each territory (including Washington, D.C. and Puerto Rico) receiving \$500,000. The remaining funding will be distributed by a formula based on population, vehicle revenue miles and passenger miles. This program requires a 20 percent local match.

TABLE 18.2: 2040 TRANSIT FUNDING PROJECTIONS

TRANSIT FUNDING PROJECTIONS FOR THE 2040 LRTP						
Fiscal Year	Section 5307	COATS MPO Planning Initiatives	Amount Typically Transferred to CMRTA	Section 5307 Operating Assistance	Section 5310	Section 5339
2013	\$ 4,261,714.00	\$ 500,000.00	\$ 3,761,714.00	\$ 2,821,285.50	\$ 374,280.00	\$ 438,767.00
2014	\$ 4,192,562.00	\$ -	\$ 4,192,562.00	\$ 3,144,421.50	\$ 404,100.00	\$ 425,655.00
2015	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2016	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2017	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2018	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2019	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2020	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2021	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2022	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2023	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2024	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2025	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2026	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2027	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2028	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2029	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2030	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2031	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2032	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2033	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2034	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2035	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2036	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2037	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2038	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2039	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
2040	\$ 4,227,138.00	\$ 200,000.00	\$ 4,027,138.00	\$ 3,020,353.50	\$ 389,190.00	\$ 432,211.00
Totals (2013 - 2040)	\$ 118,359,864.00	\$ 5,700,000.00	\$ 112,659,864.00	\$ 84,494,898.00	\$ 10,897,320.00	\$ 12,101,908.00
Totals (2020 - 2040)	\$ 88,769,898.00	\$ 4,200,000.00	\$ 84,569,898.00	\$ 63,427,423.50	\$ 8,172,990.00	\$ 9,076,431.00
Revenues for Transit (Capital & Maintenance)	\$ 112,659,864.00	Funding can be used to purchase buses and/or provide preventive maintenance				
Revenues for Operating Assistance	\$ 84,494,898.00	Up to 75% of the funding can be use for operating assistance				
Revenues for Transit Planning	\$ 5,700,000.00	Funding can be used to provide planning and technical support for transit services.				
Total Transit Revenues	\$ 202,854,762.00					
Funding Available (Rounded to the nearest million)	\$ 203,000,000.00					

18.13 OTHER LOCAL REVENUE SOURCES FOR LOCAL TRANSPORTATION PROJECTS

There are three types of **Local Option Sales Taxes**. Two of them are available as a transportation funding tool.

The Local Sales Tax was created to reduce property tax. This countywide tax is shared by county and its municipalities. It must be passed by voters in a general election year. This one (1) cent tax

generates funds which lower the milage rate. This tax does not apply to transportation funding.

Capital Project Sales Tax pays for capital projects, including roads and bridges in part or all of a county. This one (1) cent tax has a sunset provision of seven years or when bonds are repaid, whichever comes sooner. Projects must be listed on the ballot. It must be voted on in a general election. Capital projects for transit can be funded with this tax. To be successful, both Lexington and Richland counties would need to pass this tax. Richland County has been successful in passing this tax. Lexington County recently made an attempt, but was unsuccessful.

Local Sales Tax for Transportation Facilities generates funds to be spent on transportation projects, including transit. This tax can be any portion up to one (1) cent. Projects must be listed on the ballot in a general election. The sunset provision on this tax is any length up to 25 years or when bonds are repaid.

In Richland County, a one (1) cent tax would generate approximately \$60 million a year and in Lexington County it would generate approximately \$30 million.

The Property Tax can be levied for transportation similar to taxes for schools. If special transportation districts are established then this tax could be applied to portions of counties instead of countywide. It appears that the property tax can include transit funding but a referendum is required. Voter dislike of property tax increases is a major problem with this funding source.

Tolls can be levied on new roads and bridges to pay for bonds issued to build this infrastructure. This funding source is ideal for new limited access roads or bridges because users would pay for it directly. In our MPO area, few projects lend themselves to this funding source. Transit projects cannot be funded by tolls.

User Fees can be levied by counties for road maintenance and public transportation. Automobile owners pay these fees with their annual registration fees and property tax. Richland County has a fee for road maintenance.

Local Hospitality Tax is levied on prepared food and beverages with a maximum rate of 2%. The intention of this tax is for tourism related activities. Highways which increase access to tourism destinations are eligible for this funding. Roads to local and state parks, local museums, Lake Murray and the Congaree National Park would meet this requirement. Transit could not use these funds except to operate tourism related transit such as the Five Points and Vista shuttle service.

Local Accommodation Tax is levied on hotel/motel rooms with a maximum rate of 3%. Persons visiting for conventions, Fort Jackson and USC are the largest payers of this tax. Most local taxpayers do not pay this tax. Like the local hospitality tax, tourism related activities are the only recipients of these funds. Again, our MPO has few tourism destinations and thus few road projects would be eligible. Several local governments use funds from this tax for other tourism related activities.

Franchise Fees are levied by cities and counties on cable television companies and/or ambulance services. Most local taxpayers do not see fees as an additional tax. With deregulation pending, the future of this funding source is uncertain. Both Lexington and Richland counties use this source of revenue. Local governments have already dedicated this revenue to other programs or projects.

Business License Fees are levied by local governments on gross income of persons or businesses. Local taxpayers do not see this fee as an increase in taxation. Richland County imposes this fee already. Local governments have already dedicated this revenue to other programs or projects.

The South Carolina Transportation Infrastructure Bank (SCTIB) will match large projects or groups of projects (over \$100 million). The revenue of the bank is one (1) cent of the sales tax on gasoline and diesel fuel collected by the state (\$24 million annually), truck registration and licenses (\$53 million), vehicle registration fees (new revenue source), federal funds, private donations or funds appropriated by the General Assembly, and interest from bonds issued by the bank. A match by a local source is required. This match can come from local sales tax, tolls, local hospitality revenue or other sources. With a local referendums passing in counties throughout the state, this fund may not be available for the few years. Transit projects are eligible for these funds.

Development Agreements are allowed between municipalities and counties with developers for subdivisions over 25 acres. The agreements may include provisions to improve existing public facilities or construct new facilities (including roads, water and sewer and drainage). Intersection improvements and additional turn lanes could be required to be built by developers.

Development Impact Fees are levied on new developments. State law requires that fees reflect impact of the development to local infrastructure. This fee is paid indirectly by new homeowners, and not by local taxpayers, since they increase the price of new housing.

Tax Increment Financing (TIF) is a tool to assist in redevelopment of “blighted areas”. Any increases in taxes collection due to increased value of property in a defined area are collected to pay for improvements in that designated district. Columbia’s Vista District is an example of this financing

in which roads and sidewalks were improved. All entities which collect taxes in district must agree to the district (such as school district, county, cities, and special tax districts for fire or water and sewer). Road improvements in the district are eligible for this financing.

Special Assessment Districts are created to provide additional services to special district such as paving roads, sewer service or transportation. They can be created by three methods. A petition containing the signature of 15% of voters would initiate a special election with a majority approval needed. Method two would be a petition that has 75% of voters with at least 75% of assessed property value with no election. The third method of creating a special assessment districts would be for county council to declare all unincorporated land in the county as one special assessment district.

City Vehicle Registration is allowed by state law for any city with a population over 70,000. It does not appear there are not any restrictions on how these funds collected for this registration can be spent. (SC Code of Law Section 56-3-440).

18.14 TRANSIT FUNDING

The following is a summary of the revenue sources available to local Transit Operators. The Local Sales Tax for Transportation Facilities for operations and capital projects and Capital Project Sales Tax for capital projects, Property Tax (countywide or as Special Assessment District), Vehicle Registration Fees (User Fees), and General Funds from local governments and user fees (fares collected by transit system). Local referendums are required for Local Sales Tax, Property Tax for transit operations and for Vehicle Registration Fees. If no property tax funds are spent from General Funds from local governments (such as, Franchise and Business License Fees), no referendum is required. Transportation Infrastructure Bank (SCTIB) can also be utilized to fund transit operations and capital improvements.

Any supplemental funding source could allow funds to also be shared with transit providers for capital and operations expenditures.

Other Supplemental Funding Sources: These sources are currently not available for transportation and transit projects. The South Carolina Legislature would need to approve the following options for SCDOT or local governments. Any of these fees or taxes could support transit operations and capital needs.

Value Pricing (Congestion or Parking Tax) would increase parking fees or fees for peak usage of roadways. Locally, parking lots would charge an additional dollar or two each space daily, weekly or

monthly. Some preference could be given to carpoolers. Congestion fees could include usage of HOV lanes or fees for peak time usage.

Environmental Levies are based on the amount of greenhouse gases emitted by automobiles and trucks. This charge could be based on emissions data collected at annual inspections stations and could help with local air quality problems.

Local User Fuel Fee would allow counties to levy either a sales tax on fuels of 1¢ to 5¢ (allowed in Georgia) or fuel user fee of 1¢ to 5¢ per gallon (Florida counties impose between 10¢ and 18¢). Depending on the restrictions put on from the General Assembly and if “C” funds are still rebated to counties, this fee could be an excellent revenue source for local major and minor road improvements (including paving of dirt roads) and could even assist local transit authorities.

APPENDIX A: PURPOSE AND NEED STATEMENTS

PURPOSE AND NEED STATEMENTS

COATS 2040 PRIORITIZED COST CONSTRAINED PLAN

1. Two Notch Road (*Steven Campbell Rd to Spears Creek Church Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Two Notch Road between Steven Campbell Road (S-407) and Spears Creek Church Road (S-53). This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$18,988,909.

2. Longs Pond Road (*Barr Road to Nazareth Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Longs Pond Road between Barr Road (S-77) and Nazareth Road (S-243). This project will need to consider system linkage, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$26,779,231.

3. West Main Street (*Columbia Avenue to N. Lake Drive*)

Project Goal –The purpose of the project is to provide improvements to the existing corridor of West Main Street. Improvement include widening the existing roadway, intersection realignments, adequate pedestrian facilities, turning lanes, and drainage improvements. The improvements are needed to upgrade access management, mobility, functionality along the corridor to relieve congestion. Improvements should be coordinated with the SCDOT's one-way pairs analysis.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$5,355,846.

4. Edmunds Highway (*S. Lake Drive to SC 6*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Edmunds Highway between S. Lake Drive (SC 6) and SC 6. This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$13,065,019.

5. Hard Scrabble Road (*Farrow Road / I-77 to Clemson Road*) – **APPR COMPLETED**

Hardscrabble Road has experienced extensive residential, commercial and institutional growth over the last decade. As a result, in some areas, traffic volumes have exceeded the original road design parameters, and the corridor is frequently congested with delays at several intersections. In addition, the accident rate along the corridor has increased sharply.

Project Goal –The purpose of the project is to provide improvements by widening an existing 6.4-mile segment of S-83 (Hardscrabble Road) between I-77 (includes a 1-mile section of SC 555, Farrow Road) and Lake Carolina Subdivision entrance in the northern suburbs of Columbia. The widening of Hardscrabble Road will provide needed relief for congestion along the corridor. Adequate shoulder widths and a center lane will improve safety.

The portion of the corridor along Farrow Road (I-77 to Hardscrabble Road) has already been widened to four lanes divided by a grass median with three lanes in some areas to accommodate turning vehicles. This portion of the project may involve further widening, for example, to 3 lanes in each direction, and or other improvements, such as additional turn lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$30,025,199 for this section.

6. Leesburg Road (*Fairmont Drive to Lower Richland*) – **APPR COMPLETED**

Project Goal – The purpose of the propose project is to improve traffic flow and safety on SC 262 between S-88 and S-37. This project will need to consider system linkage, increasing capacity, addressing transportation demand, improving safety, and addressing roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$30,187,497.

7. Sunset Drive (*River Drive to SC 277 Interchange*)

Project Goal –The purpose of the project is to provide improvements to an existing one mile corridor of Sunset Drive. Improvement include widening the existing roadway, intersection realignments, adequate pedestrian facilities, turning lanes, and drainage improvements. The improvements are needed to upgrade access and mobility along the corridor, and to relieve congestion.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$6,491,935.

8. South Lake Drive (*Platt Springs Road to Boiling Springs Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on South Lake Drive between Platt Springs Road (SC 602) and Boiling Springs Road (S-279). This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$28,564,513.

9. Kennerly Road (*Hollingshed Road to Broad River Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Kennerly Road between Hollingshed Road (S-635) and Broad River Road (US 176). This project will need to consider system linkage, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$9,981,350.

10. Hard Scrabble Road (*Clemson Road to Lake Carolina*) – *APPR COMPLETED*

Hardscrabble Road has experienced extensive residential, commercial and institutional growth over the last decade. As a result, in some areas, traffic volumes have exceeded the original road design parameters, and the corridor is frequently congested with delays at several intersections. In addition, the accident rate along the corridor has increased sharply.

The purpose of the project is to provide improvements by widening an existing 6.4-mile segment of S-83 (Hardscrabble Road) between I-77 (includes a 1-mile section of SC 555, Farrow Road) and Lake Carolina Subdivision entrance in the northern suburbs of Columbia. The widening of Hardscrabble Road will provide needed relief for congestion along the corridor. Adequate shoulder widths and a center lane will improve safety.

The portion of the corridor along Farrow Road (I-77 to Hardscrabble Road) has already been widened to four lanes divided by a grass median with three lanes in some areas to accommodate turning vehicles. This portion of the project may involve further widening, for example, to 3 lanes in each direction, and or other improvements, such as additional turn lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$23,127,518 for this section.

11. Edmunds Highway (*Princeton Road to S. Lake Drive*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Edmunds Highway between Princeton Road (S-1287) and S. Lake Drive Road (SC 6). This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$26,999,280.

12. Fish Hatchery Road (*Charleston Highway to Pine Ridge Rd*) – *APPR COMPLETED*

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Fish Hatchery Road between US 321 and Pine Ridge Road (S-103). This project will need to consider

system linkage, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$20,320,016.

13. Jefferson Davis Highway (*Steven Campbell Rd to Sessions Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Jefferson Davis Highway between Steven Campbell Road (S-407) and Sessions Road (S-47). This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$18,344,459.

14. Broad River Road (*Dutch Fork Road to Woodrow Street*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Broad River Road between Dutch Fork Road (US 76) and Woodrow Street (S-27). This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$16,368,902.

15. Columbia Avenue (*I-26 to Chapin Road*) – **APPR COMPLETED**

Project Goal –The purpose of the project is to provide improvements to an existing two mile corridor of S-48 in Chapin. Improvements include widening the existing roadway, intersection realignments, adequate pedestrian facilities, turning lanes, and drainage improvements. The

improvements are needed to upgrade access and mobility along the corridor, and to anticipate future traffic volumes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$19,567,422.

16. Clemson Road (*Quality Court to Sparkleberry Crossing*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Clemson Road between Quality Court (existing 5-lane section) and Sparkleberry Crossing (existing 5-lane section). This project will need to consider system linkage, continuity, increasing capacity, addressing transportation demand, access management, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$26,246,687.

17. Broad River Road (*Woodrow Street to I-26 Interchange*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Broad River Road between Woodrow Street (S-27) and I-26 Interchange. This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$8,748,896.

18. Edmunds Highway (*S. Lake Drive (SC 6) to Old Charleston Road (S-625)*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Edmunds Highway between S. Lake Drive (SC 6) and Old Charleston Road (S-625). This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$40,263,735.

19. Blythewood Road (*Muller Road to Wilson Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Blythewood Road between Muller Road and Wilson Road. This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$16,086,679.

20. Bush River Road (*Seawright Road (S-1002) to Woodlands Drive*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Bush River Road between Seawright Road (S-1002) Woodlands Drive. This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$10,724,453.

21. Chapin Road/Dutch Fork Road (*Sid Bickley Road (S-715, Lex) to Three Dog Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Chapin Road/Dutch Fork Road between Sid Bickley Road (S-715) and Three Dog Road. This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$23,229,294.

22. Pilgrim Church Road (*N. Lake Drive (SC 6) to Old Cherokee Road*)

Project Goal –The purpose of the proposed project is to improve traffic flow and safety on Pilgrim Church Road between N. Lake Drive (SC 6) and Old Cherokee Road. This project will need to consider system linkage, continuity, increasing capacity, access management, addressing transportation demand, improving safety, and address roadway deficiencies.

This goal is to be accomplished by widening the existing 2-lane roadway to a 5-lane with paved median, sidewalks, and bike lanes.

Funding Priority – This potential project appears on the COATS 2040 Long Range Transportation Plan with an estimated cost of \$16,031,485.

APPENDIX B: PUBLIC PARTICIPATION SURVEY

MOVING THE MIDLANDS FORWARD

2040 LONG RANGE

TRANSPORTATION PLAN SURVEY

1. How many people are in your household?

- a. 1
- b. 2
- c. 3
- d. 4 or more

2. In what range is your age?

- a. 15 or under
- b. 16-24
- c. 25-34
- d. 35-44
- e. 45-54
- f. 55-64
- g. 65 or over

3. What is your gender?

- a. Male
- b. Female

4. In what range is your household income?

- a. Under \$10,000
- b. \$10,000 to \$20,000
- c. \$20,000 to \$30,000
- d. \$30,000 to \$40,000

- e. \$40,000 to \$50,000
- f. \$50,000 to \$60,000
- g. \$60,000 to \$70,000
- h. \$70,000 to \$80,000
- i. \$80,000 and above

5. What is your race?

- a. White
- b. Hispanic or Latino
- c. Black or African American
- d. Native American or American Indian
- e. Asian / Pacific Islander
- f. Other

6. Please provide your street name and residential zip code. This will assist us in tracking the general location of where the surveys were received from.

7. What is the zip code and address of your workplace?

8. Which of the following do you consider to be the area's most important transportation issue?

- a. Condition of roadways
- b. Congestion
- c. Distances needed to drive to various destinations
- d. Lack of transportation choices (public transit, biking, walking)
- e. Lack of efficient street connectivity (between home and work)
- f. Other

9. Please rank the roadway/mobility improvements from 1 to 6 with 1 being the most important and 6 being the least important.

- a. Maintenance of existing roads
- b. New roads to make new connections
- c. Widening existing roads
- d. More sidewalks and bike lanes
- e. New and expanded public transportation
- f. Paving dirt roads

10. Which strategies listed below should be used to improve the street/roadway network so that travel would be easier and roadways less congested? You may choose more than one.

- a. Widen existing road/streets
- b. Build new roads/streets
- c. Connecting existing roads/streets
- d. Carpool/Ridesharing
- e. More public transit
- f. Improve intersections

11. Which strategies listed below should be used to improve safety and slow traffic.

- a. Build and/or widen sidewalks
- b. Allow or provide on street parking
- c. Install traffic calming devices: street trees, roundabouts, bulb outs
- d. Narrow road/street lanes
- e. Create more one way streets

12. On average, how many times a month do you drive (round trip) a private automobile to work, school, run errands?

- a. 0 to 4 times
- b. 5 to 9 times
- c. 10 to 19 times
- d. 20 or more
- e. I do not work

13. How have increased fuel prices changed your driving habits? You may choose more than one answer.

- a. Drive less
- b. Purchase more fuel efficient car
- c. Ridesharing/Car pooling
- d. Walk more
- e. Bike more
- f. More public transit
- g. No change

14. How many times a month do you ride public transportation?

- a. 0 to 4 times
- b. 5 to 9 times
- c. 10 to 19 times
- d. 20 or more
- e. I do not use public transportation

15. What would motivate you to take public transportation? You may choose more than one answer.

- a. Stops conveniently near my destination
- b. Transit shelters that are safe and sheltered
- c. More fixed routes in my community
- d. If gas becomes too expensive
- e. Lower cost to ride
- f. I would not take public transportation

16. Would you support a policy to connect commercial, office, and retail parking lots to reduce the need to drive on major roadways?

- a. Yes
- b. No

17. Do you feel the existing roadway system is adequately maintained?

- a. Yes
- b. No

18. Do you feel that there is adequate roads, sidewalks, and bike lanes to accommodate growth?

- a. Yes
- b. No

19. Please list roads and intersections that you feel need to be improved and what is needed?

20. Where would you like to see future job growth areas? Please provide the city, town, county and directional description. (Example: Richland County, Northeast)

21. Where would you like to see future residential growth areas? Please provide the city, town, county and directional description. (Example: Kershaw County, Near City of Camden)

22. Check all the trips below that you might make by walking or biking?

- a. Commute to work
- b. Commute to school
- c. Commute to a transit stop
- d. Run errands
- e. Shop/Dine
- f. Recreational purposes

23. What roads/streets would you like to have bike lanes on?

24. What road/streets would you like to have sidewalks on?

25. Where would you like to see greenways?

26. Would you prefer to have a separated bike lane or within the roadway?

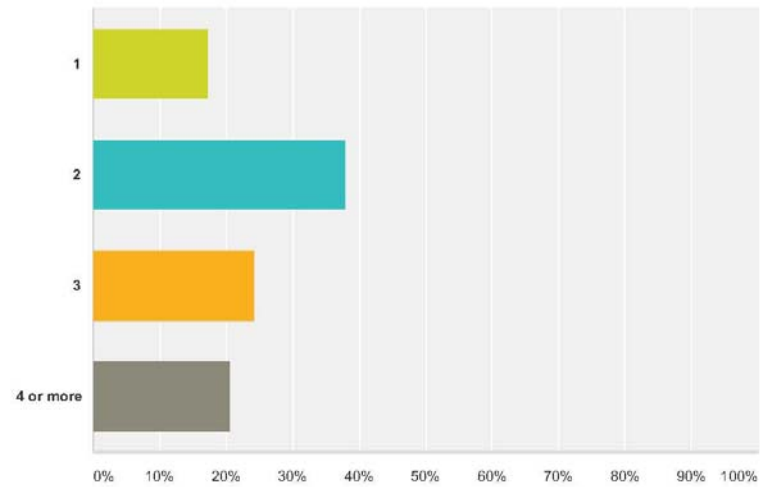
- a. Separated
- b. Within Roadway

APPENDIX C: PUBLIC PARTICIPATION SURVEY RESULTS

2040 Long Range Transportation Plan

Q1 How many people are in your household?

Answered: 29 Skipped: 1

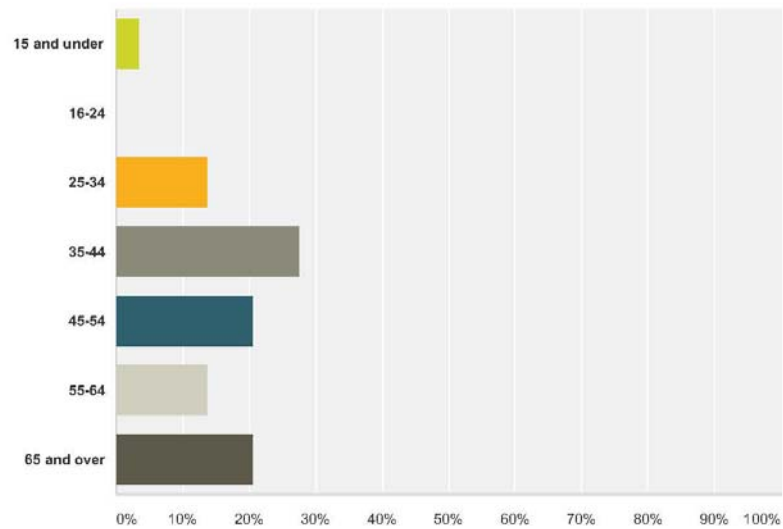


Answer Choices	Responses	
1	17.24%	5
2	37.93%	11
3	24.14%	7
4 or more	20.69%	6
Total		29

2040 Long Range Transportation Plan

Q2 In what range is your age?

Answered: 29 Skipped: 1

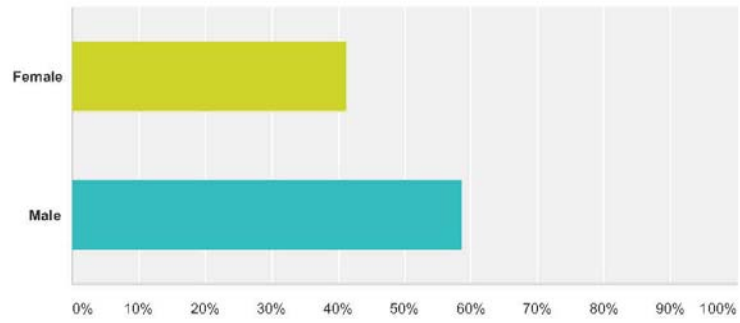


Answer Choices	Responses
15 and under	3.45% 1
16-24	0.00% 0
25-34	13.79% 4
35-44	27.59% 8
45-54	20.69% 6
55-64	13.79% 4
65 and over	20.69% 6
Total	29

2040 Long Range Transportation Plan

Q3 What is your gender?

Answered: 29 Skipped: 1

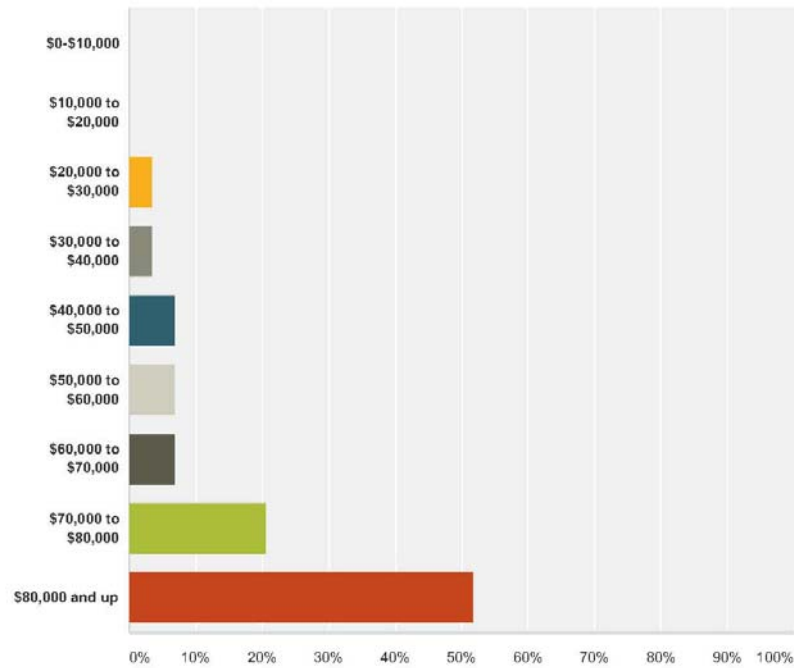


Answer Choices	Responses
Female	41.38% 12
Male	58.62% 17
Total	29

2040 Long Range Transportation Plan

Q4 What is your approximate average household income?

Answered: 29 Skipped: 1

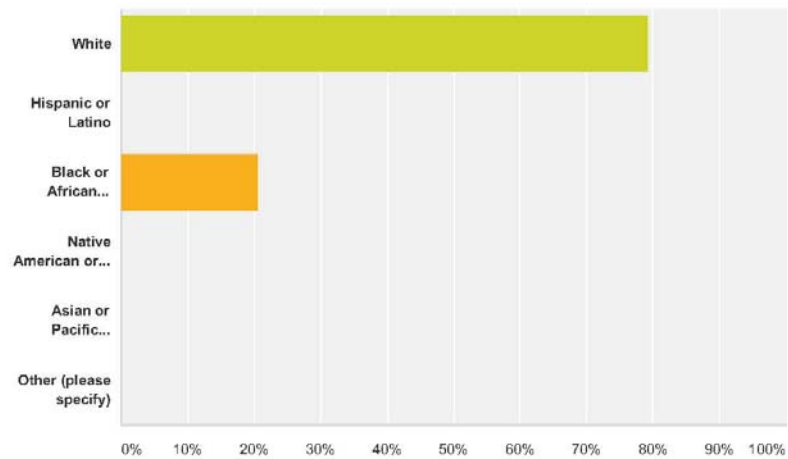


Answer Choices	Responses
\$0-\$10,000	0.00% 0
\$10,000 to \$20,000	0.00% 0
\$20,000 to \$30,000	3.45% 1
\$30,000 to \$40,000	3.45% 1
\$40,000 to \$50,000	6.90% 2
\$50,000 to \$60,000	6.90% 2
\$60,000 to \$70,000	6.90% 2
\$70,000 to \$80,000	20.69% 6
\$80,000 and up	51.72% 15
Total	29

2040 Long Range Transportation Plan

Q5 What is your race?

Answered: 23 Skipped: 1



Answer Choices	Responses	
White	79.31%	23
Hispanic or Latino	0.00%	0
Black or African American	20.69%	6
Native American or American Indian	0.00%	0
Asian or Pacific Islander	0.00%	0
Other (please specify)	0.00%	0
Total		29

2040 Long Range Transportation Plan

Q6 Please provide your street name and/or residential zip code. This will assist us in tracking the general location of where the surveys were received from.

Answered: 29 Skipped: 1

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q7 What is the zip code and address of your workplace?

Answered: 29 Skipped: 1

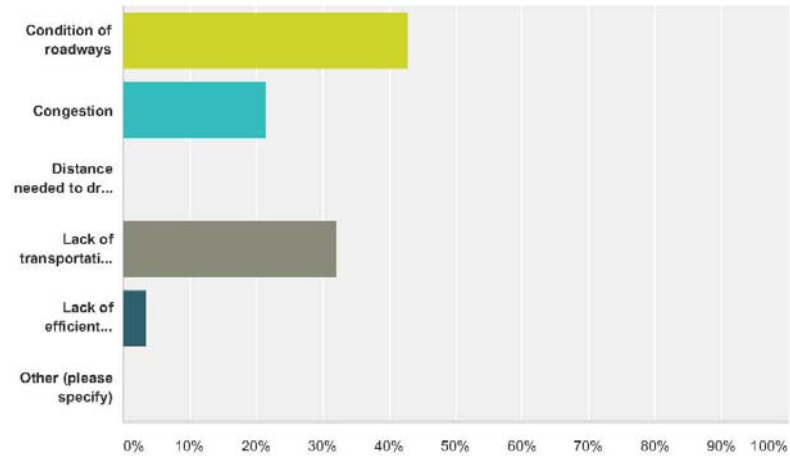
7 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q8 Which of the following do you consider to be the area's most important transportation issue?

Answered: 28 Skipped: 2

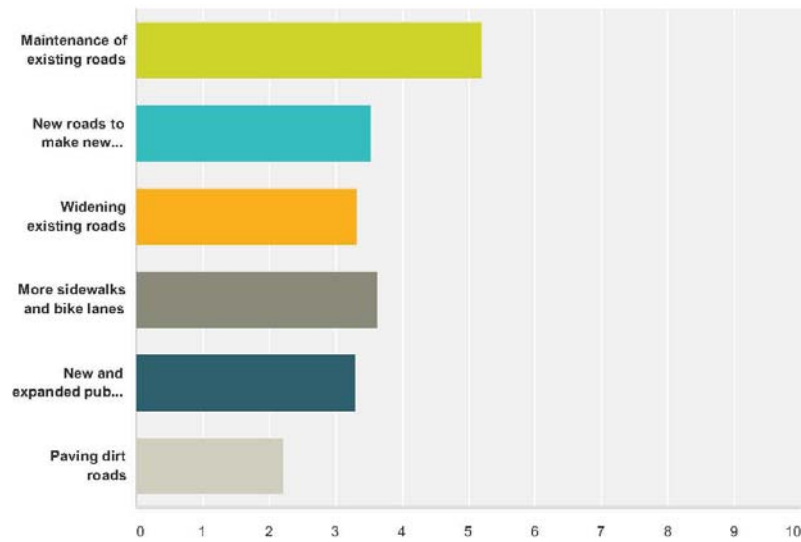


Answer Choices	Responses	
Condition of roadways	42.86%	12
Congestion	21.43%	6
Distance needed to drive to various destinations	0.00%	0
Lack of transportation choices (public transit, biking, walking)	32.14%	9
Lack of efficient street connectivity (between home and work)	3.57%	1
Other (please specify)	0.00%	0
Total		28

2040 Long Range Transportation Plan

Q9 Please rank the roadway/mobility improvements from 1 to 6 with 1 being the most important and 6 being the least important?

Answered: 28 Skipped: 2

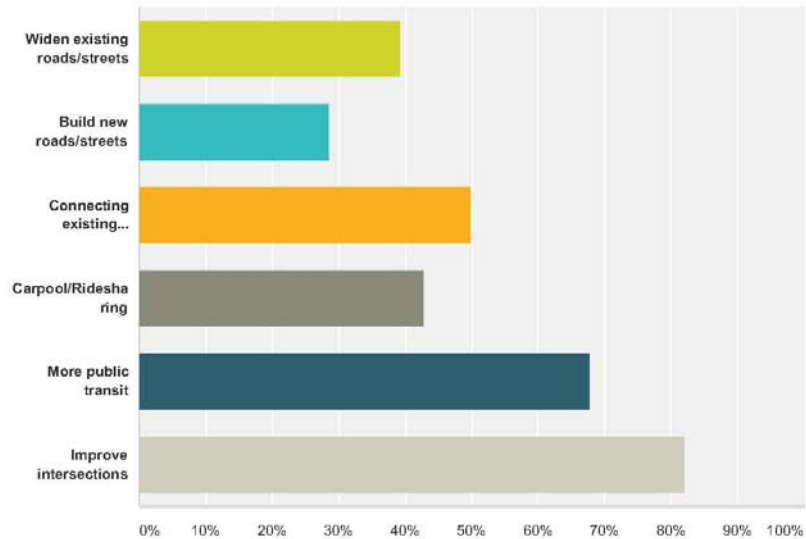


	1	2	3	4	5	6	Total	Score
Maintenance of existing roads	53.85% 14	15.38% 4	26.92% 7	3.85% 1	0.00% 0	0.00% 0	26	5.19
New roads to make new connections	4.00% 1	20.00% 5	16.00% 4	44.00% 11	16.00% 4	0.00% 0	25	3.52
Widening existing roads	10.71% 3	14.29% 4	28.57% 8	7.14% 2	21.43% 6	17.86% 5	28	3.32
More sidewalks and bike lanes	14.81% 4	22.22% 6	22.22% 6	7.41% 2	18.52% 5	14.81% 4	27	3.63
New and expanded public transportation	18.52% 5	14.81% 4	7.41% 2	11.11% 3	33.33% 9	14.81% 4	27	3.30
Paving dirt roads	0.00% 0	14.81% 4	0.00% 0	25.93% 7	11.11% 3	48.15% 13	27	2.22

2040 Long Range Transportation Plan

Q10 Which strategies listed below should be used to improve the street/roadway network so that travel would be easier and roadways less congested? You may choose more than one.

Answered: 28 Skipped: 2

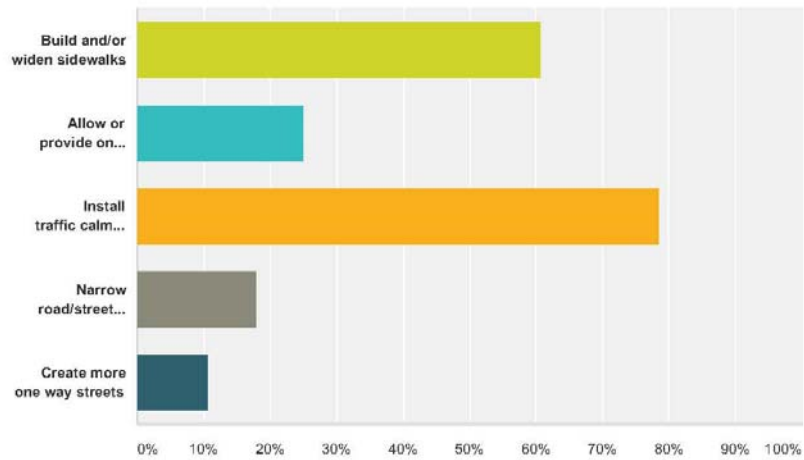


Answer Choices	Responses
Widen existing roads/streets	39.29% 11
Build new roads/streets	28.57% 8
Connecting existing roads/streets	50.00% 14
Carpool/Ridesharing	42.86% 12
More public transit	67.86% 19
Improve intersections	82.14% 23
Total Respondents: 28	

2040 Long Range Transportation Plan

Q11 Which strategies listed below should be used to improve safety and slow traffic?

Answered: 28 Skipped: 2

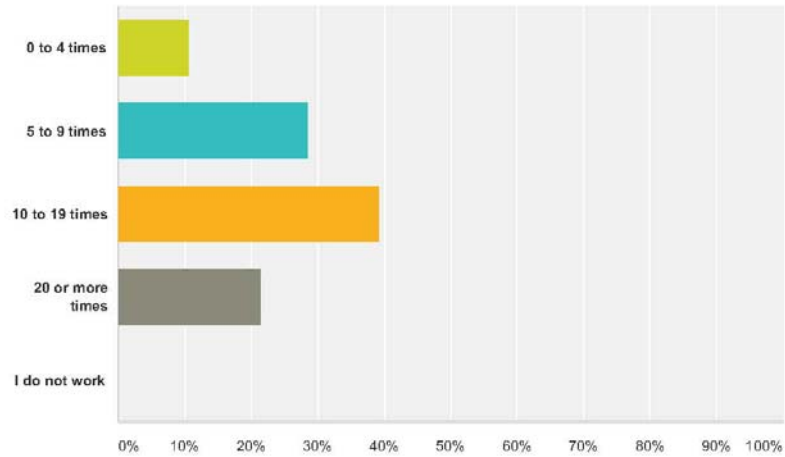


Answer Choices	Responses	
Build and/or widen sidewalks	60.71%	17
Allow or provide on street parking	25.00%	7
Install traffic calming devices: street trees, roundabouts, bulb outs	78.57%	22
Narrow road/street lanes	17.86%	5
Create more one way streets	10.71%	3
Total Respondents: 28		

2040 Long Range Transportation Plan

Q12 On average, how many times a week do you drive (round trip) a private automobile to work, school, run errands?

Answered: 28 Skipped: 2

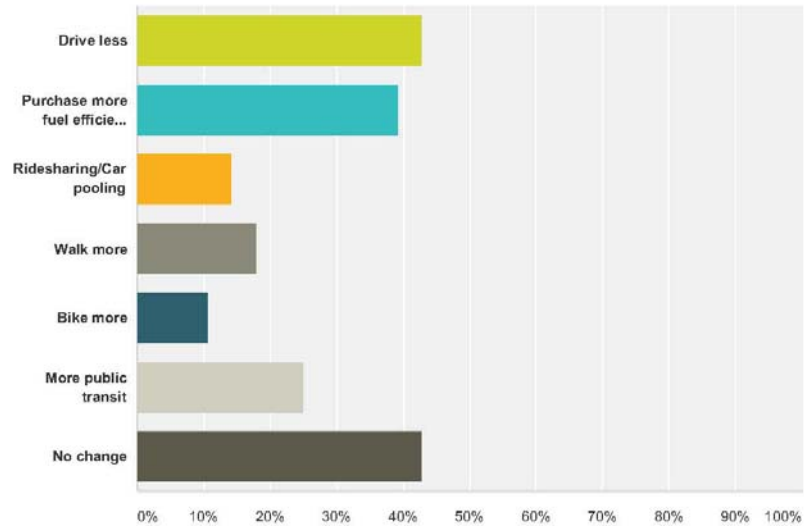


Answer Choices	Responses
0 to 4 times	10.71% 3
5 to 9 times	28.57% 8
10 to 19 times	39.29% 11
20 or more times	21.43% 6
I do not work	0.00% 0
Total	28

2040 Long Range Transportation Plan

Q13 How will increased fuel prices change your driving habits? You may choose more than one answer?

Answered: 28 Skipped: 2

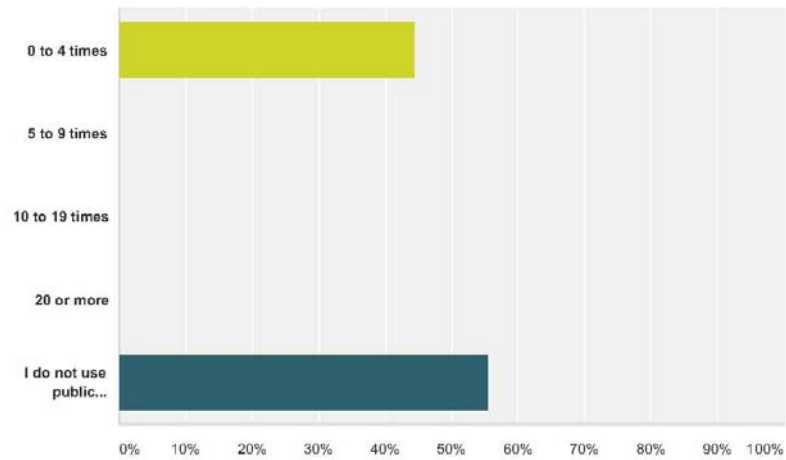


Answer Choices	Responses
Drive less	42.86% 12
Purchase more fuel efficient car	39.29% 11
Ridesharing/Car pooling	14.29% 4
Walk more	17.86% 5
Bike more	10.71% 3
More public transit	25.00% 7
No change	42.86% 12
Total Respondents: 28	

2040 Long Range Transportation Plan

Q14 How many times a month do you ride public transportation?

Answered: 27 Skipped: 3

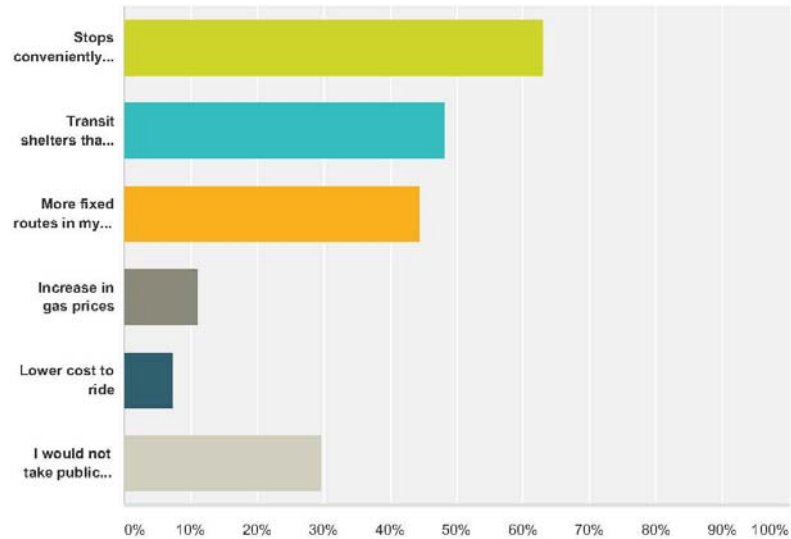


Answer Choices	Responses	
0 to 4 times	44.44%	12
5 to 9 times	0.00%	0
10 to 19 times	0.00%	0
20 or more	0.00%	0
I do not use public transportation	55.56%	15
Total		27

2040 Long Range Transportation Plan

Q15 What would motivate you to take public transportation? You may choose more than one.

Answered: 27 Skipped: 3

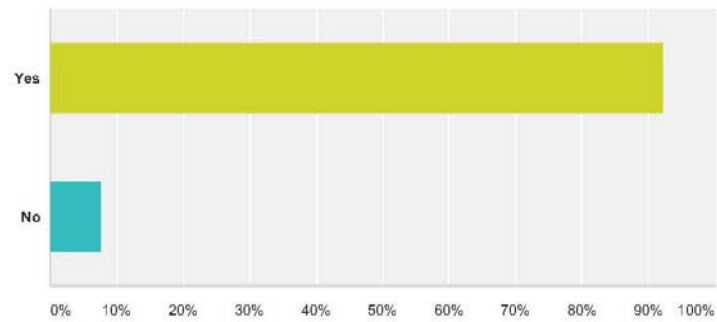


Answer Choices	Responses	
Stops conveniently near my destination	62.96%	17
Transit shelters that are safe and sheltered	48.15%	13
More fixed routes in my community	44.44%	12
Increase in gas prices	11.11%	3
Lower cost to ride	7.41%	2
I would not take public transportation	29.63%	8
Total Respondents: 27		

2040 Long Range Transportation Plan

Q16 Would you support a policy to connect commercial, office, and retail parking lots to reduce the need to drive on major roadways?

Answered: 26 Skipped: 4

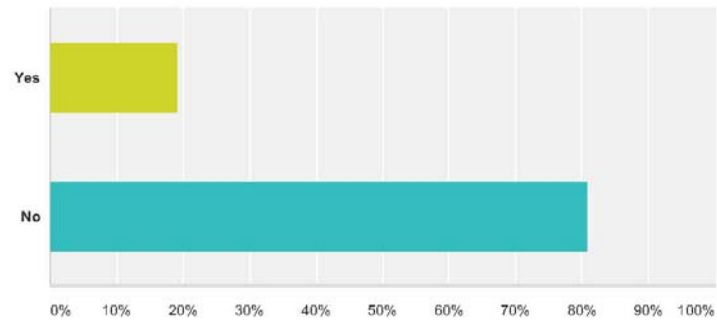


Answer Choices	Responses	
Yes	92.31%	24
No	7.69%	2
Total		26

2040 Long Range Transportation Plan

Q17 Do you feel the existing roadway system is adequately maintained?

Answered: 26 Skipped: 4

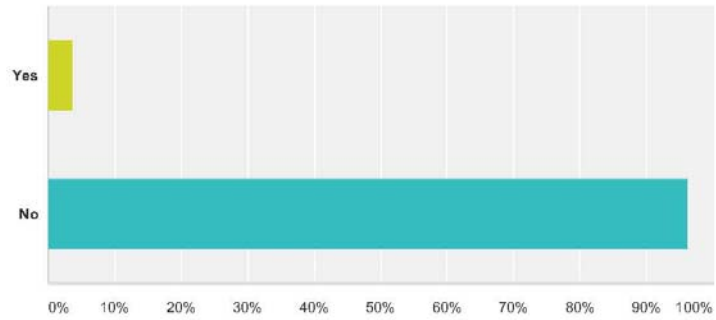


Answer Choices	Responses
Yes	19.23% 5
No	80.77% 21
Total	26

2040 Long Range Transportation Plan

Q18 Do you feel that there is adequate road, sidewalks, and bike lanes to accommodate growth?

Answered: 27 Skipped: 3



Answer Choices	Responses	
Yes	3.70%	1
No	96.30%	26
Total		27

2040 Long Range Transportation Plan

Q19 Please list road and intersections that you feel need to be improved and what is needed.

Answered: 20 Skipped: 10

19 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q20 Where would you like to see future job growth areas? Please provide the city, town, county and directional description? (Example: Richland County, Northeast)

Answered: 23 Skipped: 7

20 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q21 Where would you like to see future residential growth areas? Please provide the city, town, county and directional description? (Example: Kershaw County, Near City of Camden)

Answered: 16 Skipped: 14

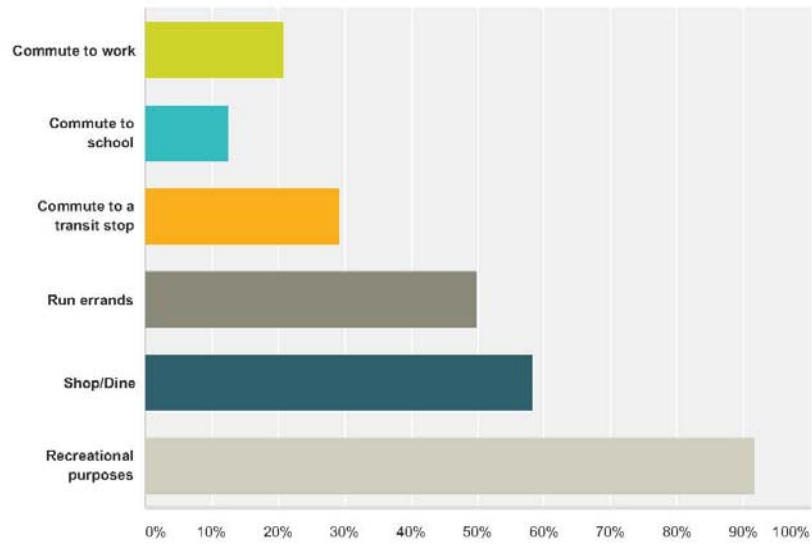
21 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q22 Check all the trips below that you might make by walking or biking?

Answered: 24 Skipped: 6



Answer Choices	Responses
Commute to work	20.83% 5
Commute to school	12.50% 3
Commute to a transit stop	29.17% 7
Run errands	50.00% 12
Shop/Dine	58.33% 14
Recreational purposes	91.67% 22
Total Respondents: 24	

2040 Long Range Transportation Plan

**Q23 What roads/streets would you like to
have bike lanes on?**

Answered: 20 Skipped: 10

23 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q24 What road/streets would you like to have sidewalks on?

Answered: 18 Skipped: 12

24 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q25 Where would you like to see greenways developed?

Answered: 15 Skipped: 15

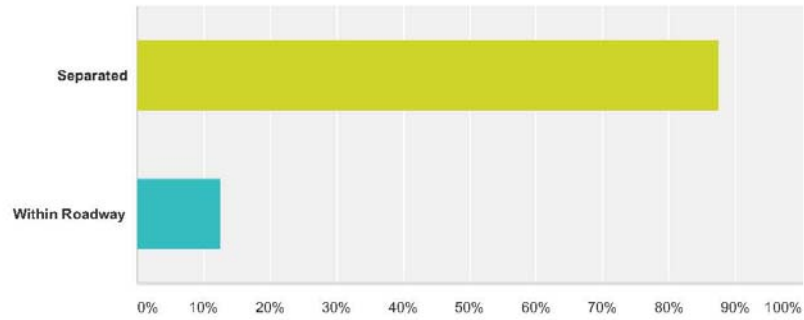
25 / 26

Please be advised that these results can only be seen on the individual responses.

2040 Long Range Transportation Plan

Q26 Where would you prefer to have a bike lane, separated from the roadway or within the roadway?

Answered: 24 Skipped: 6



Answer Choices	Responses	
Separated	87.50%	21
Within Roadway	12.50%	3
Total		24