

CHAPTER 1

INTRODUCTION

Transportation planning has a long and productive history in Cabarrus and Rowan Counties. Much of the development of the area can be attributed to the railroad first and then Interstate 85 in later years. The origination of a multijurisdictional planning organization can be linked to the official designation by the US Census Bureau in 1980 of an “Urbanized Area” encompassing the Concord and Kannapolis area urban core. This urbanized area was located approximately 20 miles north of Charlotte and 15 miles south of Salisbury and the Yadkin River. The area encompassed the I-85 corridor in Cabarrus and Southern Rowan, which predated the incorporation of the City of Kannapolis. Due to this geographical orientation, the Cabarrus-South Rowan area formed a federally recognized Metropolitan Planning Organization (MPO) with a population density exceeding 50,000. (North Carolina currently recognizes 19 MPO's throughout the State.)

Charter members of the new MPO were Concord, Kannapolis, China Grove, Landis, Harrisburg, Rowan County, and Cabarrus County. A Memorandum of Understanding (MOU) was executed between these local jurisdictions and the North Carolina Department of Transportation (NCDOT) in January 1980. The memorandum delineated and established a Technical Coordinating Committee (TCC) with the responsibility for general technical review, guidance, and coordination of the planning process and a Transportation Advisory Committee (TAC) established to ensure coordination between the governmental entities represented. The next major milestone of growth occurred following the 2000 Census with expansion into northern Rowan County. The MPO became the Cabarrus-Rowan MPO with the addition of the rest of Cabarrus and Rowan Counties for a total of approximately 141 square miles of planning oversight. All municipal members within both counties had joined by 2006.

MPO expansion also brought new responsibilities from horizontal relationships with neighboring MPOs through the Metrolina Regional Travel Model and regulatory requirements from the US DOT and EPA for planning as a Transportation Management Area (TMA) and air quality designation under the coveted 8-hour ozone standard. The MPO initially became a TMA due to the inclusion of a portion of the Charlotte urbanized area in Cabarrus County, but was confirmed following the 2010 Census when the urbanized population grew to exceed the federal population threshold. The non-attainment status was the result of monitor violations tied to the Charlotte Air Shed dating back to the 1997 ozone standard, which was implemented in 2004 following a series of lawsuits. The region was recently re-designated attainment status in 2013 by US EPA, and another standard released in 2008 produced a non-attainment boundary that excludes a few rural townships in Cabarrus and Rowan Counties. The most significant occurrence in 2013 was the release of motor vehicle emission budgets at the MPO level for transportation conformity, including the conformity determination for the 2040 MTP. The US EPA released a new standard in 2015 and the state of NC recommended attainment for all of the counties in the Charlotte Region in the fall of 2016. On November 6, 2017, the US EPA issued a confirmation of the NC recommendation. The US EPA is not likely to revoke the 2008 standard and therefore attainment status will remain out of reach for the foreseeable future.

Map 1-1 shows the CRMPO location map

The Metropolitan Transportation Plan is based on federal requirements established and documented in the Code of Federal Regulations, Title 23, Volume 1. The primary goal of the federal requirements is to ensure that tax dollars are spent on useful, meaningful projects that are supported by the residents/taxpayers of the Cabarrus-Rowan Urban Area (CRUA). The Plan contents comply with Subpart C – Metropolitan Transportation Planning and Programming, Part 450.

As a requirement of the federal regulations, the metropolitan transportation planning process shall include the development of a Transportation Plan addressing a 20-year planning horizon, at a minimum. The Transportation Plan shall be reviewed and updated at least every four years. Also, according to

federal regulations, the Transportation Plan must address current and forecasted land use plans and projected socioeconomic data. The Transportation Plan must be approved by the MPO.

In addition, the Plan shall:

- Identify the projected transportation demand for persons and goods;
- Identify adopted Congestion Management strategies that demonstrate a systematic approach in addressing current and future transportation demand;
- Identify pedestrian and bicycle transportation facilities;
- Assess capital investment and other measures necessary to preserve the existing transportation system;
- Include design concept and scope descriptions of all existing and proposed transportation facilities in sufficient detail;
- Be a multimodal evaluation of the transportation, socioeconomic, environmental, and financial impact of the overall Plan;
- For major transportation investments for which analysis is not complete, indicate that the design concept and scope have not been fully determined and will require further analysis;
- Consider the area's comprehensive long-range land use plan and metropolitan development objectives;
- Indicate, as appropriate, proposed transportation enhancement activities; and
- Include a financial plan that demonstrates the consistency of proposed transportation investments with currently available and projected sources of revenue.

CHAPTER 2 GOALS AND OBJECTIVES

The first step in the development of the Metropolitan Transportation Plan is the development of the Metropolitan Planning Organization Goals and Objectives. A comprehensive questionnaire was developed in May 2000. The purpose of the questionnaire was to survey a cross-section of citizens throughout the Urban Area and to gauge community opinion on a broad range of transportation issues. Results of the survey helped define transportation opinions and policy preferences among urban area residents.

The opinions and preferences from the survey were used to develop goals and objectives for the 2001 MPO Transportation Plan update. This update and survey served as the foundation for identifying goals and objectives in the recently updated MPO Prospectus (spring of 2016) and 2045 MTP. Because of the depth of this survey and degree of responses, it was determined that the results were still applicable for developing the goals and objectives for the 2050 MTP. The Goals and Objectives serve as the common theme for all MPO documents and are distributed liberally at every public event and workshop. In addition, the MPO developed a survey instrument in 2021 for transportation finance and policy. It was noted that the investment in the interstate was still a priority as well as congestion relief and improved travel time were priorities of the citizens who responded. Improved public transit capacity as well as the means to pay for it were generally supported based on the specific details.

For a copy of the either survey elements and results, contact the Cabarrus-Rowan Urban Area MPO office at (704) 795-7528.

The following is a general summary of the issues and the more widely supported recommendations. The public was ready and willing to speak on the issues, and, in no particular rank order, this is what they had to say:

- The automobile is, and probably will remain, the main mode of transportation in this MPO for some time to come. People like the independence and flexibility the car provides. As can be seen later in this report, most people will pay much higher gas prices before taking an alternate form of transportation. However, many people stated that they would consider an alternative form of transportation if it met their needs.
- Consensus was not reached on exactly what needs to be done regarding transportation needs at this time. The overall feeling that emerged was that the current transportation infrastructure system has some major problems, but the situation has not yet become critical. However, with a 7- to 10-year time lag between planning and implementation, the group members strongly agreed that the problems would only be exacerbated as time goes by.

According to public opinion, there is a high desire to protect the environment and improve the existing transportation infrastructure, as opposed to building new facilities. Several traditional congestion management options received the greatest level of support, including the improvement of traffic signal timing and coordination and the widening of existing streets. However, respondents also support development/enhancement of a public transportation or mass transit system, which was the top suggestion for improving the Urban Area's transportation system. A survey in 2021 confirmed these opinions with the following goals and objectives as an interpretation of the public's preferences for long range planning in the CR MPO. A concerted effort was provided to ensure that the transportation planning is a continuous, cooperative, and comprehensive process.

Street System Goal – Develop an efficient street and highway network for the Cabarrus-Rowan Urban Area

Objective – Enhance mobility by improving the connectivity of the existing street network.

Objective – Explore improvement to the street network that will most effectively handle capacity deficiencies.

Objective – Support a safe and secure transportation system through efforts to reduce vehicular and non-vehicular crashes and points of conflict between modes of transportation.

Congestion Management Goal – Develop a local thoroughfare system that minimizes traffic congestion and maximizes system preservation

Objective – Improve traffic signal timing and coordination through intelligent transportation system measures.

Objective – Develop streets and highways with the intent of minimizing travel times and distances.

Objective – Pursue funding for the purposes of preserving and modernizing the existing system of streets and highways.

Title VI and Environmental Justice Goal – Plan and promote a transportation system that does not disproportionately impact minority and low-income populations

Objective – Assess and identify the transportation needs of minority and low-income populations.

Objective - Avoid and/or minimize disproportionately high and adverse impacts on minority and low-income populations.

Objective – Assess whether the benefits and burdens of transportation investments are fairly distributed among all populations.

Environmental Goal – Develop a transportation system, which preserves and enhances the natural and built environments

Objective – Promote better integration of land use and transportation planning.

Objective - Support multi-modal transportation projects, which preserve and complement the Urban Area’s natural features.

Objective – Promote and plan for a transportation system that increases the vehicle occupancy rates, improves mode split, and reduces traffic congestion.

Public Transportation Goal – Support efforts to improve mobility for Urban Area residents

Objective – Increase awareness of public transportation services provided by the Concord/Kannapolis Area Transit System, Salisbury Transit System, Rowan Transit System, and Cabarrus County Transportation System (CCTS). Explore additional public transportation alternatives for the Urban Area with connection to the Charlotte Metro Region.

Objective – Support any expansion plans for Salisbury Transit and Concord/Kannapolis Area Transit that will improve mobility for residents within the Urban Area. Conduct appropriate transit planning studies to evaluate the need and benefit of public transportation.

Objective – Support the efforts of the public and private stakeholders concerning possible public transit options that would benefit the Cabarrus-Rowan Urban Area.

Bicycle and Pedestrian Goal – Promote development of an integrated bicycle and pedestrian network

Objective – Pursue funding for a coordinated and comprehensive network of sidewalks and bicycle routes throughout the Urban Area.

Objective – Improve the transportation system with accommodations for bicycle and pedestrian access.

Freight Goal – Develop a transportation system that encourages safe and secure movement of freight goods within and outside the Urban Area

Objective - Maintain regionally significant streets, highways and bridges to a state of good repair to minimize truck travel times and cargo damage.

Objective – Assist regional emergency management agencies to be better prepared in the event of crashes on the freight system, and in response to hazardous material incidents.

Objective – Develop and support a freight transportation system that enhances the region’s economic position and attractiveness as a major freight hub via an integrated network of highways, railroads, and airports

The purpose of the CR MPO Public Participation Policy is to have a proactive public participation process that provides complete information, timely public notice, and full public access to MPO activities at all key stages in the decision-making process. This Policy is designed to ensure that the involvement of communities most affected by particular plans or projects are afforded ample opportunity to participate in the development of these plans and that transportation decisions will reflect public priorities.

Objectives

1. Bring a broad cross-section of the public into the public policy and transportation planning decision-making process.
2. Maintain public involvement from the early stages of the planning process through detailed project development.
3. Use different combinations of public involvement techniques to meet the diverse needs of the general public.
4. Make special efforts to increase the involvement by groups of people who do not generally participate, particularly low-income and minority populations.
5. Determine the public's knowledge of the metropolitan transportation system and the public's values and attitudes concerning transportation.
6. Ensure that technical information is available to the public in an understandable form and that all segments of the population are afforded access to this information.
7. Maximize the use of communications technology to facilitate the exchange of information, including use of the MPO web site and other electronically accessible formats (dropbox, e-mail, etc.).
8. Establish a channel for an effective feedback process.
9. Evaluate the public involvement process and procedures to assess their success at meeting requirements specified in the Bipartisan Infrastructure Bill, NEPA and the FTA/FHWA Guidance on Public Participation.

With regard to the multi-modal Metropolitan Transportation Plan, public review and participation process is designed to provide early and adequate opportunities for citizens and public officials (including elected officials) to be involved in the Cabarrus-Rowan (CR) Metropolitan Transportation Plan development. This public participation program is designed to involve all parties in the early stages of plan development and the subsequent update process. It is also designed to provide gradual progression from the general information (vision setting and formulation of goals, objectives and policies) pertaining to the plan to very specific information regarding alternatives and plan selection.

1. The Cabarrus-Rowan (CR) Metropolitan Planning Organization will provide opportunity for early and meaningful public involvement in the development and update of the MTP.
2. Proactive participation techniques will be employed to involve citizens and provide full access to information and technical data. The technique will generally include, but not be limited to: public meetings/hearings, surveys, charrettes, mass media, etc. Visualization techniques shall be utilized to enhance the public's understanding of MPO plans and programs. The techniques will be utilized in an appropriate manner when presenting and describing MPO plans and programs.
3. Information dissemination, notification of meeting, publication of proposed plans will be integral elements of the public involvement process.
4. The MPO will initiate the MTP update process as required by the FAST Act, the Clean Air Act Amendments (CAAA) and subsequent federal regulations. Elements of the Transportation Plan, and/or amendments will meet all current Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Environmental Protection Agency (EPA), and the North Carolina Department of Transportation (NCDOT) requirements.
5. The public comment period for all elements of the MTP will be for a minimum 30 day public comment period, effective from the date of the public notice publication. Written comments will be received during the comment period and will be directed to the MPO. The contact person, phone number and e-mail address will be included in the public notice.
6. Public meeting(s) will be held to: formulate a vision for the MTP development; provide the public background information on the metropolitan transportation system and other issues as well as the proposed framework of the Transportation Plan update process; and to receive citizen input.

7. All public meetings (forums) designed to solicit public comment will be held at various locations and times of day around the metropolitan area to encourage the greatest public participation. Public meetings will be held at a location which is accessible to persons with disabilities. Outreach activities will be conducted to inform minority and low-income groups and limited English-speaking groups of the opportunity for public comment. At least one-quarter of these meeting shall be held in minority and/or low income areas and within ¼ mile walk of a transit route in an easily accessible area.
8. The Cabarrus-Rowan MPO will maintain a website which shall include information on the MTP, meetings, other programs and appropriate information. The MPO staff shall post on the CR MPO website draft documents that are subject to the MPO's public review process for review and comment. Staff will also use the website to distribute information to the MPO membership.
9. The MPO shall assess the distribution of impacts on low-income and minority groups for investments identified in the MTP and publicize these findings on the MPO website.
10. The TCC will assemble all comments and forward comments to the Transportation Advisory Committee (TAC). The TAC may choose to hold a public hearing before adopting the Metropolitan Transportation Plan.
11. Any significant revision and amendment to the MTP will be subject to the public review process as outlined above.
12. The public participation component of the MTP will generally follow the same citizen input and review as outlined in this policy. Public input will be solicited to review and comment on any major MTP amendment proposal as well as analyses conducted as part of the amendment request. Adequate opportunity will be provided for public involvement in the amendment of the MTP, and any significant revisions to the MTP will also be subject to public comment period as described in # 5 of this policy.
13. The CR MPO will endeavor to involve the public at key decision points of the MTP development. Decision points are those stages where the TAC will be required to endorse or take action on particular work elements. These include, but are not limited to:
 - Formulation of vision, goals and objectives
 - Policy development
 - Review and approval of socio-economic and demographic projections
 - Review of land use information and scenarios
 - Review and determination of transportation deficiencies
 - Identification of transportation (facility) needs
 - Evaluation of alternatives and selection of preferred option
 - Development of the Financial Plan
 - Plan recommendation and adoption

For a copy of the MPO's Public Involvement Policy, contact the MPO office, at (704) 795-7528.

CHAPTER 4 REVIEW OF EXISTING AND FUTURE CONDITIONS

Introduction

The CR MPO planning officials recognized that the major factors influencing the area's transportation infrastructure needs are population, employment, and land use. In an effort to develop an effective and efficient Metropolitan Transportation Plan, accurate base year socioeconomic measures were collected to provide an acceptable and rational estimate of future growth and demand for travel. The CR MPO developed socioeconomic projections as part of the update of the Metropolitan Transportation Plan and development of the Metrolina Regional Travel Demand Model. The Urban Area encompasses two full counties and fourteen municipalities, and is divided into 529 traffic analysis zones (TAZ's). (There is a total of 3,490 TAZ's in the Metrolina Regional Travel Demand Model). The Urban Area planning boundary includes both urban and rural populations residing in areas that are expected to become urban in nature by the year 2050. Due to the non-attainment designation and regional modeling effort, all of Cabarrus and Rowan Counties are expected to become urban by 2050. However, some small parts or pockets of both counties will remain rural in nature due to the unavailability of utilities and environmentally sensitive land.

Map 4-1 shows the Urban Area Traffic Analysis Zones (TAZs)

4.1 Population and Employment Demographics

The purpose of the socioeconomic projections is to predict the amount and nature of future land use in the Urban Area and to provide the basis for future travel relationships used in the Urban Area Travel Demand Model. To plan for future transportation facilities, transportation planners must have a clear understanding of existing land uses and make rational predictions regarding future land uses.

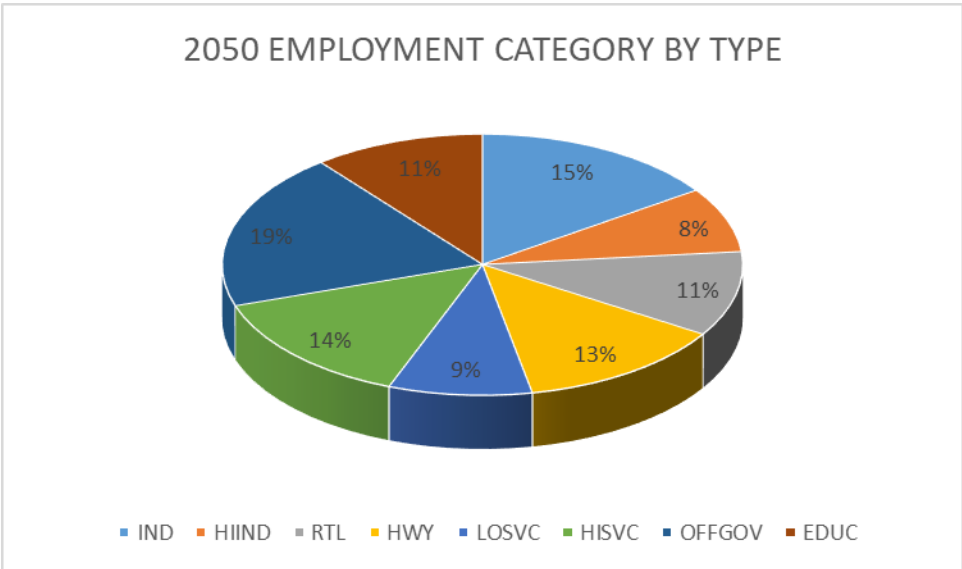
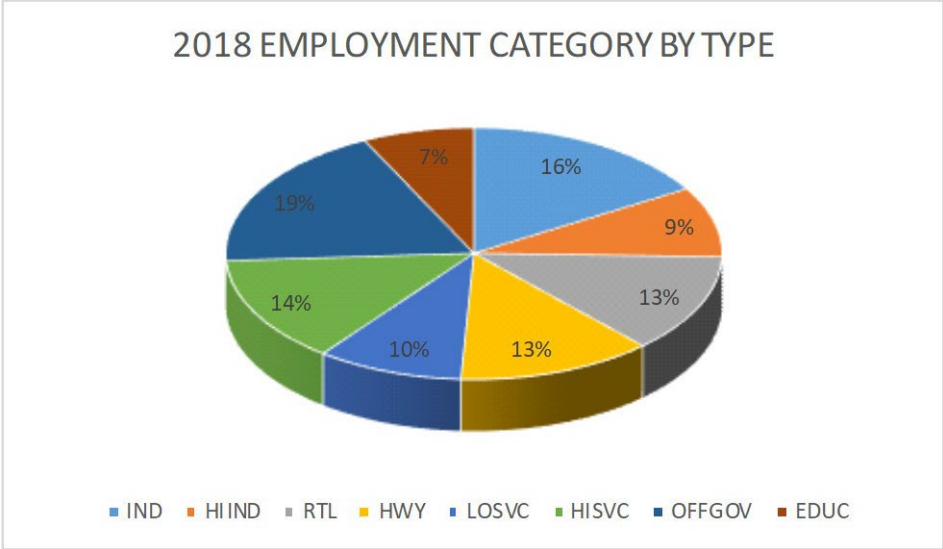
The MPO staff used 2018 as the base year for the Metropolitan Transportation Plan and updated the inventory from the 2050 MTP using a database of jobs for the Urban Area. The MPO verified 139,389 jobs and a population of 354,920 in the base year. MPO staff also updated other demographic statistics for the base year including number of households, school enrollment by 3 categories, and distribution of employment by 8 SIC categories.

A variety of sources were used to establish base year (2018) inventories for employment, which were reconciled with each other to arrive at a common set of employment data used both at the regional or county level and the TAZ level. The MPO purchased Woods and Poole employment data for the year 2018. The raw employment data was geocoded by employment address to determine any changes to the new base year 2018. MPO staff reviewed the location of the largest employers for Cabarrus and Rowan counties as well as incorporated education employment from all colleges and public elementary, middle and high schools. Through review by the local EDCs, additional verification of future employment development was identified and hard coded into the appropriate horizon years. The proportional employment (by type and total) was tabulated for each TAZ and adjusted to the regional control totals for 2025 through 2050.

As noted in previous MTP Updates, the Metrolina Regional Partners retained the services Dr. Stephen Appold to devise “top-down” employment and population projections to the year 2050.

For a copy of Dr. Appold’s Demographic and Economic Forecasts methodology and report, contact the MPO office, at (704) 795-7528.

The CR MPO is expected to experience fairly healthy population growth over the next 30 years. The population is projected to increase 19 percent by 2025, 43 percent by 2035, 63 percent by 2045, and 75 percent by 2050 for an annual growth rate around 2 percent. As for employment, the number of jobs is projected to increase by 16 percent by 2025, 34 percent by 2035, 52 percent by 2045, and 62 percent by 2050. The annual rate of growth for employment is estimated to be approximately 2 percent. The pie charts below show the change in the employment makeup for the Cabarrus-Rowan MPO. Although the shift is subtle, the economic base continues to move towards a more service based economy rather than the traditional manufacturing economy. This shift is not unique to this region, but is the result of a trend nationwide. However, it is more pronounced in the CR MPO due to the continued loss of manufacturing jobs. Emerging sectors such as service and retail will displace many manufacturing jobs that have fallen prey to international competition.



Appendices 4-2 and 4-3 illustrate the Population and Employment by TAZ for the planning area.

4.2 Land Use

The generation of traffic on a particular roadway (non-freeway) is directly related to the land use of adjacent properties. Different types of businesses generate different levels of traffic. For example, a restaurant with 30 employees would generally attract substantially more traffic consistently than an industrial park with 30 employees. Even though the industrial park has the same number of employees, the restaurant will attract more customers and trips because of the type of business. As a result, the type of land use and intensity of development along a roadway corridor will have a direct impact on the amount of traffic generated.

The CR MPO has had many changes in land use over the past decade. The primary changes in land use have occurred through rezoning and annexations. The jurisdictions within the MPO have also conducted updates of the individual Land Use Plans in response to growth and future development in the region.

The MPO and member jurisdictions along the NC 73 corridor have actively participated in the NC 73 Transportation and Land Use Corridor Plan. This effort is a coordinated land use and multi-modal transportation plan for a 35 mile corridor from Lincolnton to the Concord/Kannapolis area. The CR MPO maintains planning jurisdiction over the segment between I-85 and the joint MPO/CRTPO Boundary. The Study includes an access management strategy, various road typologies, bicycle and pedestrian accommodations, etc. As part of this study, several priority segments were identified to be funded through the State TIP at one point. It is now a partially funded project with right-of-way funds in FY 2029 in the most recent item N of the STIP.

Projected traffic along this corridor ranges from 32,000 vehicles per day in 2040 at the MPO Boundary/County Line to 40,000 vehicles per day at I-85. These estimates represent a 45 percent increase in traffic over current traffic. Future land use could include residential densities ranging from 1 to 3 units per acre with a mix of employment between the Kannapolis Parkway and I-85. More specifically, a Neighborhood Center is to be located at Poplar Tent Road and Mixed-Use Centers are to be located at NC 73/Odell School Road, I-85/NC 73 and at the Kannapolis Parkway and I-85. In addition, a village node will be located in the area around Moss Creek, in the southwest quadrant of the intersection of NC 73 and Odell School Road.

The NC 73 Study also identified future road typologies for the corridor beginning with a 4 lane urban boulevard in Mecklenburg County transitioning to a 4 lane rural parkway at the Cabarrus Crossing entrance to a 4 lane rural boulevard at Johnson Street to a 4 lane suburban boulevard at the Kannapolis Parkway through the I-85 interchange. These typologies are predicated on future traffic growth and consistency with future land use. In terms of additional infrastructure improvements to NC 73, the Study also recommends the conversion of the Poplar Tent Road intersection into a grade separated interchange and a diverging diamond interchange of NC 73 and I-85. By combining a land use vision with transportation infrastructure for NC 73, the CR MPO can ensure a functional multi-modal corridor that moves both people and traffic while maximizing both development potential and quality of life.

Development Regulations

The majority of municipalities (Concord, Kannapolis, Mt. Pleasant, and Harrisburg) in Cabarrus County have adopted a Unified Development Ordinance (UDO). The UDO has provisions for incorporating transportation facilities into the local planning process. The UDO endorses the concepts of the adopted Transportation Plan. This UDO regulates street construction by requiring the developer to meet right-of-way standards, cross-section standards, and road design standards. Pedestrian, bike, and transit facilities are also mentioned in the UDO. All regulations are designed to ensure that streets constructed by developers will fit into the overall transportation network.

As a part of the regulations, the UDO requires developers with property adjacent to a major thoroughfare to allow a larger setback to their structures than would normally be required for that district. This requirement provides adequate protection of residential properties and preserves the right-of-way for future thoroughfares. The UDO also encourages and provides standards for Transit Oriented Design and Traditional Neighborhood Design concepts.

The City of Salisbury and Rowan County have regulations within their subdivision ordinance that defers to the Comprehensive Transportation Plan. Rowan County can exert an authority to limit access and establish building setbacks on thoroughfares, while the City of Salisbury can require reservation of future rights-of-way as part of the development review process. Development regulations are an important part

of project implementation. The land use and planning authority of local government is critical to protecting corridors and in some cases to constructing roads, sidewalks, and pedestrian and transit amenities that improve mobility within the urban area.

Contact the MPO office at (704) 795-7528 for excerpts from the UDO, City of Salisbury, or Rowan County ordinances related to transportation facilities.

Economic Trends

The economic base of an area is an important factor to consider in the estimation of future traffic growth. The CR MPO has a retail and service-based economy as well as a tremendous growth in the hospitality and tourism sector (NASCAR, etc.). The NC Research Campus continues to emerge as a major player in both Cabarrus County and the Region and will spin-off thousands of jobs into the future. The Concord Regional Airport also has major expansion plans and has developed an Airport Master Plan. The total commercial service passengers for calendar 2021 was 273,077, which was 23 percent below pre-pandemic highs. The Airport area is attracting professional and technical firms that support the “Industrial Park” concept and design. Other major development contributors are University City, Charlotte Motor Speedway, and Concord Mills Mall.

The CR MPO has maintained a database of the major employers (greater than 75 employees) in the 2 county area. This database was assembled using several reputable sources of economic data and verified through random phone interviews. The distribution of employment in the 2018 base year is as follows: industrial/manufacturing represented 25 percent of the area’s employment, service jobs comprised 23 percent, retail 26 percent, education 7 percent, and office/government 19 percent.

As the economy and demographics of the area changes, so will the employment characteristics. Concord Mills Mall continues to be a regional draw for retail growth with more than 2 million square feet of floor area. Local planning staff believes that the CR MPO will experience above average retail and service growth and substantial increases in all other areas of employment by the year 2050. The projected distribution of employment in 2050 is as follows: industrial/manufacturing represented 23 percent of the area’s employment, service jobs comprised 24 percent, retail 23 percent, education 11 percent, and office/government 19 percent. This distribution indicates a shift from the traditional manufacturing sector to a more service-based local economy.

For a copy of the Socioeconomic Data for 2018, 2025, 2035, 2045, and 2050, contact the MPO office, at (704) 795-7528.

4.3 Transportation System Deficiencies

Among the transportation planning services that the Cabarrus-Rowan Metropolitan Planning Organization (CR MPO) provide to the public in Cabarrus and Rowan Counties are the identification of current needs, forecasts of future trends, and the programming of transportation facilities to improve mobility for people and goods. To effectively provide these services, the CR MPO planners must possess current information on the travel behavior of people who live, work, and travel in the Urban Area.

Highway System Deficiencies

The CR MPO, in coordination with the Metrolina Regional Partners, has developed a regional travel demand model for the Metrolina Area, which includes parts of 12 counties. The model incorporates the empirical data collected and projected for the base year of 2018 and the future year 2050. The primary focus of the model is to identify new relationships between future land use and travel. Using these relationships, the existing land use has been projected into the future for deficiency analysis and development of the Highway Element of the Metropolitan Transportation Plan.

Definitions of Capacity and Level of Service can be found in Generalized Chapters for Thoroughfare Plan Reports, Transportation Planning Division, and NCLOS, dated 1997.

The capacity of a roadway is defined as the number of vehicles that can be reasonably processed for a given level-of-service. Standard capacity values have been developed by NCDOT for different types of roadway facilities. A capacity value depends on the cross-section, number of signals, and access points along the segment of roadway. The primary performance measure for congestion is the volume-to-capacity or v/c ratio. A v/c ratio of 1 or greater indicates that the travel demand volume exceeds the available capacity of the roadway and forced flow conditions will inevitably result.

The projected development in and around the Cabarrus-Rowan area is expected to overload many of the existing facilities. The base year provides a good starting point for evaluating system deficiencies. Using the base year population and employment, the following map indicates the hour volume to capacity ratios for Rowan and Cabarrus Counties.

Map 4-6 shows those facilities that are over capacity in the base year

To identify future travel deficiencies, the 2050 socioeconomic projections discussed previously were loaded into the Regional Travel Model. All committed projects (identified as funded in the 2020-2029 TIP) and fiscally constrained projects for 2025, 2035, 2045, and 2050 were included in the analysis to reflect future conditions.

Map 4-7 shows those facilities that will still be over capacity by the year 2050 if all of the 2050 MTP project improvements are made

CHAPTER 5 TRANSPORTATION ELEMENTS

5.1 Highway Element

The Highway map is just one element of the Cabarrus-Rowan Urban Area Transportation Plan. The primary objective of the Highway map is to assure that the street system and highway improvements serve future travel desires and as those needs arise opportunities to make improvements are made available. The Cabarrus-South Rowan Thoroughfare Plan was first mutually adopted in June 1996 with an amendment in December 1998. (The rest of Rowan and Cabarrus Counties were not part of the MPO at this time). The Plan was the culmination of local and state coordination, engineering modeling analysis, and extensive public involvement. NCDOT completed a Comprehensive Transportation Plan (CTP) in 2011 (and updated in 2017, 2019, and 2021) that supplanted the Thoroughfare Plan and MPO Street Appendix.

The MPO has developed a fiscally constrained MTP that allocates projects or groups of projects by horizon year. Each table represents a horizon year as stated in NCDOT requirements. The horizon years are 2016-2025, 2026-2035, 2036-2045, and 2046-2050. These horizon years are consistent with the Regional Travel Demand Model and federal regulations in 40 CFR 93.106 (A) (1). According to these requirements, the first horizon year may be no more than 10 years from the base year.

The projects for each horizon year were selected based on the following sources:

- Current and projected funding levels / cost estimates (see Financial Plan)

- Revenue from the 2020-2029 NCDOT State Transportation Improvement Program (STIP) and the Metropolitan Transportation Improvement Program (TIP);
- Project schedules from the current 2020-2029 NCDOT TIP
- Projects deemed necessary through the Regional Travel Demand Model;
- The Cabarrus-Rowan Urban Area SPOT Priority List; and
- The 2045 Cabarrus / Rowan Metropolitan Transportation Plan
- Cabarrus County Public Transportation Master Plan

The cost of projects within each of the four horizon years must be reasonable and financially constrained, which means all projects within a horizon year must have a cost and funding source (federal, state, or local) identified within that time period. The cost did not directly address inflation, but will be addressed more clearly in the financial planning chapter.

Recommended Highway Map

The thoroughfares on the recommended map can be divided into five types of roads. They are freeways, expressways, boulevards, major thoroughfares, and minor thoroughfares. All other streets are considered collector or local streets and can be included in small area plans by the CR MPO membership.

FREEWAYS AND EXPRESSWAYS

The freeway and expressway system is intended for fast and efficient movement of large volumes of traffic in and around an urban area. Properly located freeways and expressways can help relieve overburdened radials and move traffic from one suburb to another around the central core.

There is only one controlled-access Interstate highway in the area. Interstate 85 runs north and south through the center of the urban area and the State connecting several of its urban areas. I-85 was recently widened to eight lanes through the City of Charlotte and through northern Rowan County. The remaining sections are under construction now including the remaining portion in southern Rowan. The projected traffic on I-85 for the design year warrants widening to at least eight lanes throughout the planning area. I-85 has been the top priority in the MPO for several years.

There are sixteen existing interchanges on I-85 through the planning area. Exit 68 at NC 152 was recently expanded to a full interchange to accommodate increased traffic flows. A new interchange was opened at Old Beatty Ford Road (I-3804) near Landis/China Grove to provide greater access to southeastern Rowan County. There is a five-mile stretch with 3 interchanges stretching from Lane Street to NC 152. Industrial land uses are being planned along China Grove Road increasing the potential for truck and other vehicular traffic in the area. The new interchange included a safety project (W-5516) to realign Old Beatty Ford Road with a new bridge over I-85.

A Sub-area Study Report of I-85 released in December 2000 recommended some additional improvements for the corridor between Charlotte and Concord/Kannapolis. Auxiliary lanes should be added to I-85 between I-485 and Speedway Boulevard. The ramps at the NC 73 interchange were to be improved and widened. The Report also suggests possible high occupancy vehicle lanes as far north into Cabarrus County as the US 29-601 interchange (Exit 58) as well as implementation of ITS improvements and an integrated Regional Incident Management Program. The MPO was a funding partner in the Fast Lanes Study to assess managed lanes in the Metrolina Region. I-85 from Mecklenburg County to exit 68 in Rowan County was carried into Phase III for consideration of managed lanes as part of this study. Managed lanes have been elsewhere in the Charlotte region including on I-77 north.

For a copy of the I-85 Sub-area Study Final Report or the Fast Lanes Study, contact the MPO office at (704) 795-7528.

BOULEVARDS AND MAJOR THOROUGHFARES

The boulevards and major thoroughfares are the principle traffic carriers throughout the urban area. Their primary function is to carry traffic, but they also may service abutting property. Too much property access, though, requires too many traffic signals. Too many traffic signals reduce the travel speed, capacity, and efficiency of a thoroughfare.

MINOR THOROUGHFARES

The minor thoroughfare system collects local traffic from the residential neighborhoods, commercial and industrial districts, and collector streets and distributes it to the major thoroughfare system. These streets also access abutting property more frequently than the major thoroughfare system. They cannot carry large volumes of traffic as well as the major thoroughfares can.

Appendix 5-1 illustrates the Highway Element of the MTP

Appendix 5-2 shows the Adopted CTP Street Appendix

BRIDGE REPLACEMENTS

A growing portion of the Metropolitan TIP is the bridge replacement projects. The following criteria are used to evaluate bridges when accessing federal funds:

- Sufficiency Rating must be less than 50
- Bridge must be rated as either Structurally Deficient or Functionally Obsolete
- Structure length must be longer than 20' (clear span)
- The candidate structure must not have been rehabilitated with federal funds within the previous 10 years

The criteria for state funds is much simpler and is more based on need and current level of service compared to desired level of service. There is also an expectation to improve the overall rating of the bridges in the Division. For Division managed projects, both BD (federally funded) and state funded the Division gets a candidate list from the Structures Management Unit that includes bridges that meet the federal guidelines. From this list the Division prioritizes replacement projects based on the needs throughout the Division. The Division coordinates with bridge maintenance staff to determine problem/deficient bridges and then with roadway maintenance engineers to determine any future widening needs. Next, the prioritized list is reviewed and approved by the Structures Management Unit to be programmed as a division-managed project.

For bridges listed as a B project in the STIP, the Division reviews the list of candidate bridges from the Structures Management Unit and prioritizes the list based on the Division's needs/desires. This list is then sent to the Structures Management Unit and Program Development Unit for them to evaluate the list to determine which bridges will be programmed in the next TIP cycle. The Division priorities are a key element to the decision-making process for funding.

Appendix 5-3 includes the Division 9 and 10 Bridge Replacement Schedules

5.2 Bicycle and Pedestrian Elements

Bicycle and pedestrian mobility is of particular importance to the CR MPO. An element of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the subsequent FAST Act and Bipartisan Infrastructure Bill requires that the Bicycle and Pedestrian Plan be fully integrated within an urban area's Transportation Plan. As a result of federal requirements and strong local interest, the first comprehensive bicycle and pedestrian plan for the MPO was completed in 2002. The Plan known as the Livable Community Blueprint encompassed all of Cabarrus County and the following municipalities within the CR MPO area: Concord, Kannapolis, Landis, Mt. Pleasant, China Grove, and Harrisburg. (The rest of Rowan County was not part of the MPO at the time this Plan was initiated). Cabarrus County pursued an update to this Plan thru a countywide Greenway Master Plan that was completed in the fall of 2009 and Rowan County completed a countywide plan in the summer of 2015.

The purpose of the Livable Community Blueprint (LCB) was to provide the CR MPO with a bicycle and pedestrian facilities inventory and method for implementation of improvements over the next decade. The Plan included a strong public involvement element that produced 4,000 surveys from a random sample. From these surveys, "access to safe Bicycle and Pedestrian Transportation Routes" was identified as a high priority for residents. The study defined close to 200 individual destinations that are desirable to be linked by bicycle or pedestrian routes and over 200 miles of on-road and off-road routes. The Plan was necessary to identify desirable bicycle and pedestrian projects within the urban area, which may be eligible for funding under the Metropolitan Transportation Improvement Program or other State and Federal funding programs. A total of \$5,639,858 of bicycle and pedestrian projects was highlighted by this study. This figure did not include land acquisition or design and engineering estimates, which can be costly.

Appendix 5-4 is the Inventory of the Livable Community Blueprint

For additional information and a list of all proposed bicycle and pedestrian projects in the Planning Area, please refer to the Livable Communities Blueprint, Carolina Thread Trail Master Plan, and NCDOT Statewide Bike Route Map.

Figure 5-1 is the Typical Cross Sections for Bike and Pedestrian Lanes

The State TIP identifies two types of bicycle projects: independent and incidental. Independent or Enhancement projects are stand-alone bicycle and pedestrian facilities. Incidental projects are improvements tied to specific TIP road projects. An example of an incidental project would be the NC 49 widening in the Town of Harrisburg where the Town requested that NCDOT build sidewalks as part of the widening project. With the adoption of the Strategic Transportation Initiative (STI), NCDOT will be closely monitoring the state matching provision for non-highway capital projects. With that said, all independent

bicycle and pedestrian projects will be scored and ranked locally with other modes under the Division Tier (only) list of projects.

The current 2020-2029 Transportation Improvement Program identifies seven independent bicycle and pedestrian projects in the CR MPO. The projects are listed below:

Independent Projects:

TIP# EB-5732 - consists of a sidewalk on both sides of Bruton Smith Blvd and Concord Mills Blvd including a portion of Weddington Road.

TIP# EB-5902 – consists of downtown pedestrian signal upgrades.

TIP# EB-5903 – consists of a sidewalk on Union Street.

TIP# EB-5619 – consists of a greenway near Catawba College.

TIP# EB-5861 – consists of a greenway along US 29 to the Yadkin River.

TIP# EB-5844 – consists of a sidewalk along Little Texas Road.

TIP# EB-5821 – consists of a sidewalk along North Main Street in Kannapolis.

The CR MPO developed and adopted criteria for ranking bicycle and pedestrian projects in 2004. This criteria is based on 8 measures that range from percent of right-of-way owned to amount of project design complete. Each of the 8 measures was given a point total based on level of importance and relative rank. Points could range from 1 to 25 depending on the scored measure. The purpose of this criteria and point totals was to highlight the projects that were most feasible and generated the most utility within the community.

With the last STIP, the CR MPO evaluated a total of 2 projects that were submitted to NCDOT for the 2020-2029 STIP. The projects are as follows:

MPO Bicycle/Pedestrian List

1. Town Creek Greenway – Town of East Spencer
2. N. Main Street Sidewalk – City of Kannapolis

Appendix 5-5 includes the CR MPO Bicycle and Pedestrian Priorities and the criteria used to rank these projects.

Due to the non-attainment designation for Cabarrus and Rowan Counties, NCDOT has suballocated approximately \$10 million to the MPO for Congestion Mitigation and Air Quality Improvement (CMAQ) projects. These funds are limited to projects that reduce vehicle emissions and improve air quality, which is consistent with most bicycle and pedestrian projects. The CR MPO identified and endorsed 16 bicycle or pedestrian projects that would be funded through CMAQ program. Four of these projects remain in the 2020-2029 STIP for implementation.

Appendix 5-6 includes the CR MPO CMAQ Bicycle and Pedestrian Project Proposals

In addition, there are local initiatives to improve bicycle and pedestrian connectivity. The City of Concord maintains a Pedestrian Improvement Program (PIP) that is funded through the 2 cent property tax levied by the City for transportation projects. The PIP serves as a direct way to build and leverage additional public and private funds for pedestrian improvements in new and existing development. Several CR MPO jurisdictions including the City of Concord are also beginning to use their development review authority to promote more pedestrian-friendly development. In Cabarrus County, the Unified Development Ordinance has integrated sidewalk requirements into its local development regulations. Concrete sidewalks are required along major and minor thoroughfares and frontage streets identified on the Cabarrus-Rowan Transportation Plan. The City of Salisbury and Town of Granite Quarry in Rowan County also require sidewalks in all new development projects within their planning jurisdiction. In 2021, the City of Salisbury was selected as one of 2 communities across the state for a Local Pedestrian Safety Initiative in an urbanized MPO area. This Initiative will 1) collect data and describe risk, 2) assess conditions and prioritize problems, and 3) develop countermeasures and recommendations. The pedestrian crash rate in Salisbury is 5.65, which is higher than cities of similar size in NC. The East Innes Street corridor has been identified as having a high crash density as part of this Initiative, which should be complete in the spring of 2022.

5.3 Freight and Rail Transportation Element

Regional Strategic Freight Network

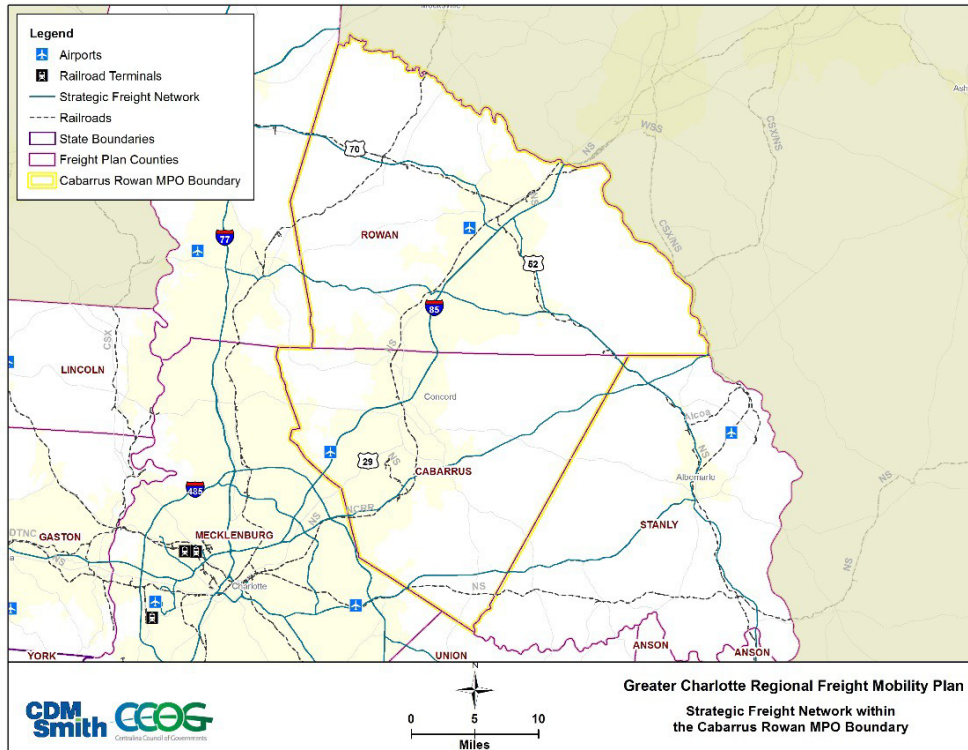
A key element of Freight Planning is the identification of the regional Strategic Freight Network (SFN). By definition, a SFN is a system of infrastructure critical to the successful movement of freight. For the Freight Plan, this SFN serves as the network around which the region currently moves freight and plans to continue to support safe, efficient movement of freight into the forecast plan years. Many recommendations related to infrastructure improvements are limited to the SFN. With consideration of limited resources for infrastructure projects, the Freight Plan focuses on this network identified as critical to the CR MPO and Greater Charlotte Region.

Illustrated in **Figure 0.1** and **Figure 0.2**, the CR MPO SFN encompasses all modes of freight moving transportation. In partnership with the Coordinating Committee, the following criteria were used to finalize the roadway and other modal components of the SFN:

- **Highways**
 - Those on the National Multimodal Freight System (NMFS) and/or all Interstates
 - Those designated as truck routes by NCDOT
 - Approved Intermodal Connectors on the National Highway System
 - Those identified by planning agencies as critical to local freight movement
- **Railroads**
 - All active freight railroads
 - All active intermodal rail terminals
- **Aviation**

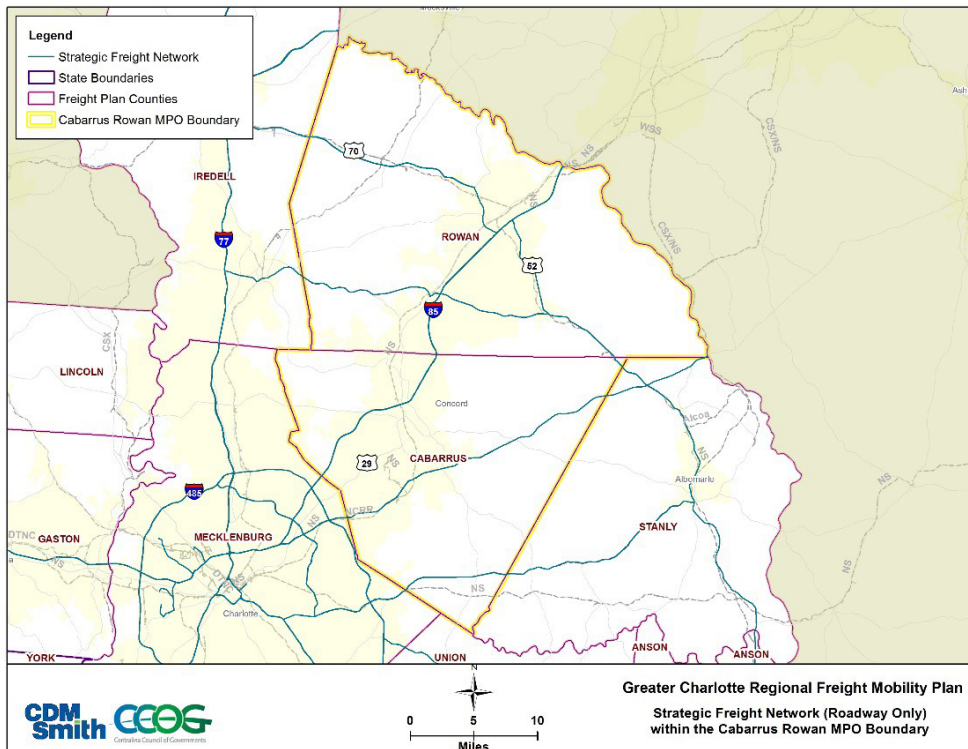
- All commercial service airports

Figure 0.1: Strategic Freight Network in the CRMPO



Source: NCDOT and SCDOT

Figure 0.2: Strategic Freight Network (Roadways Only)



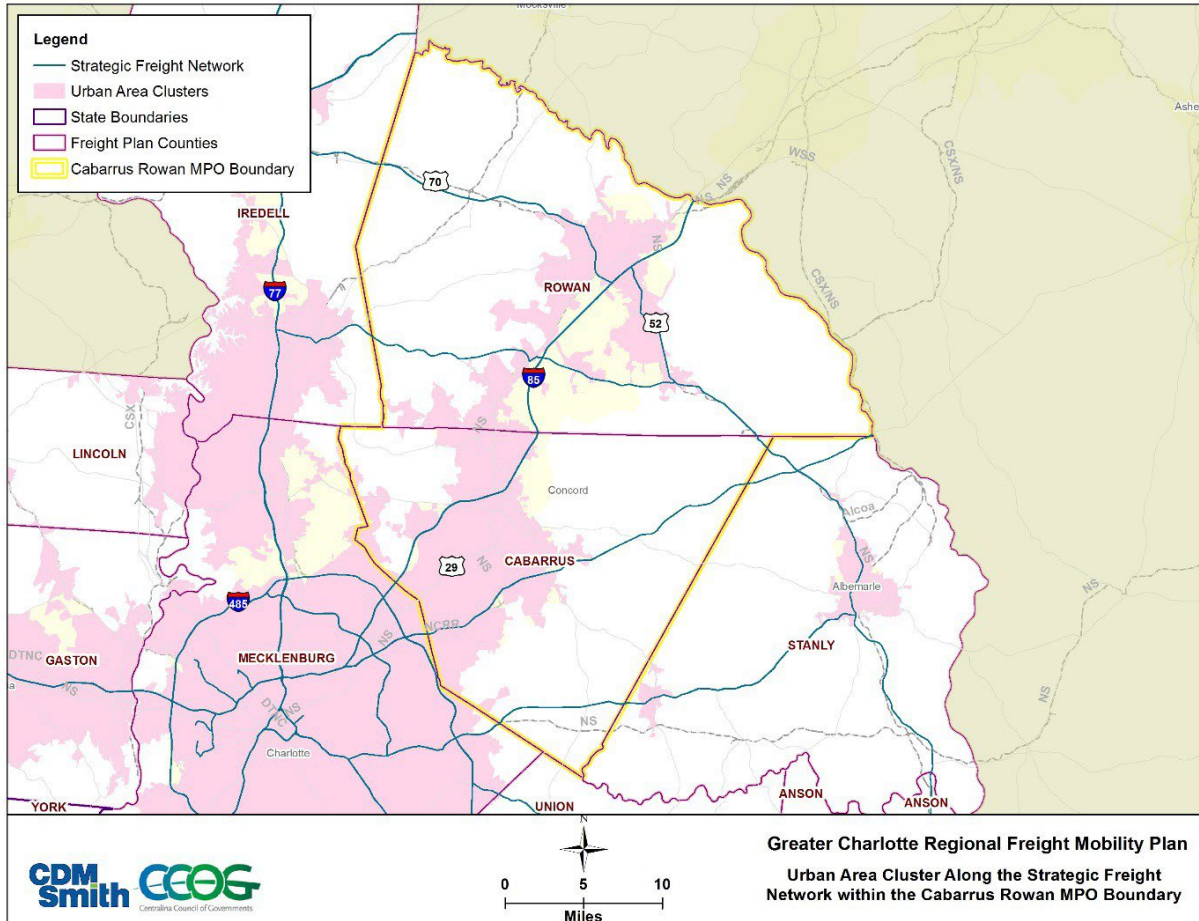
Source: NCDOT and SCDOT

Critical Rural and Urban Freight Corridors

According to the latest available guidance from USDOT, Fast Act Section 1116 [Critical Urban Freight Corridor (CUFC) and Critical Rural Freight Corridor (CRFC) Guidance] and based on coordination with the state DOTs, the

Freight Plan presents the following data on suggested facilities for inclusion in the state level CUFC/CRFC designations. **Figure 0.3** illustrates the SFN within the CRMPO region (roadways only) broken out by urban and rural land use designation, based on 2010 Census Urban and Rural classification data. These roadway segments are provided for consideration in the state designated multimodal critical rural and urban freight corridors yet to be determined. Further detail on the CUFCs and CRFCs are included in the Final Plan, **Table 2.4**.

Figure 0.3: Strategic Freight Network (Roadways Only) and Urban Area Clusters in Cabarrus Rowan MPO Region



Source: 2010 Census Urban and Rural classification data, NCDOT, and SCDOT

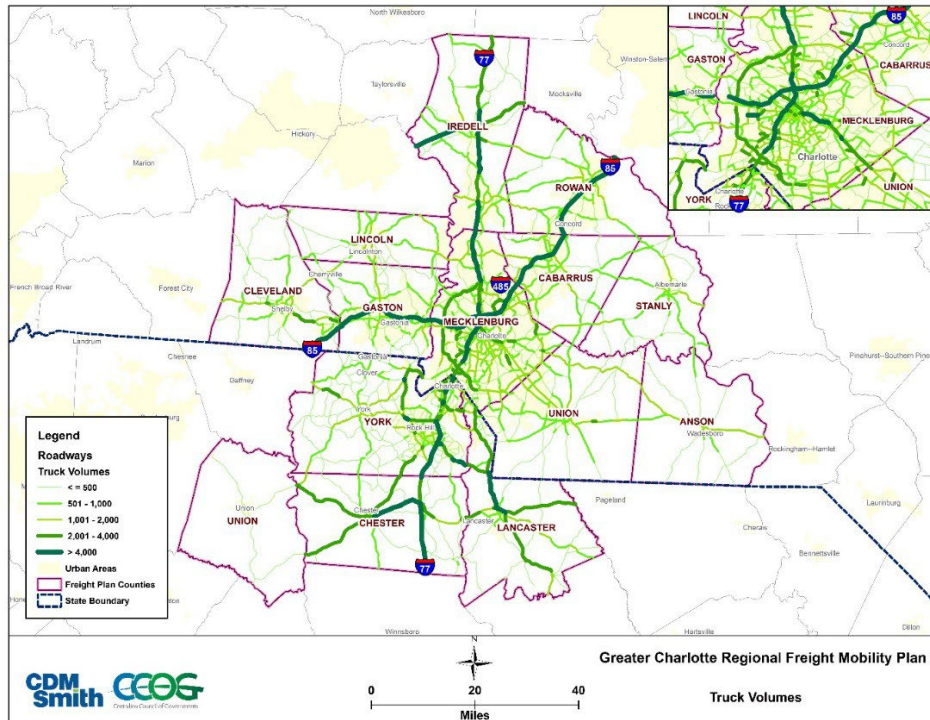
Existing Conditions within the Cabarrus Rowan MPO

The existing conditions analysis provided a compilation of data on the transportation infrastructure system for the Greater Charlotte Bi-State region. Highlights, by mode, are provided at a regional level with additional detail for the CRMPO region.

Trucking

The interstates carry the bulk of the region’s daily truck traffic as shown in **Figure 0.4**. I-85 and I-77 constitute the most critical freight corridors throughout the region. Other roadways that play a critical role in the movement of truck freight are I-485, US 74, US 321, NC 160 (near the Charlotte-Douglas airport), and SC 9 through Chester and Lancaster, SC.

Figure 0.4: Regional Truck Average Daily Truck Volumes (2012)

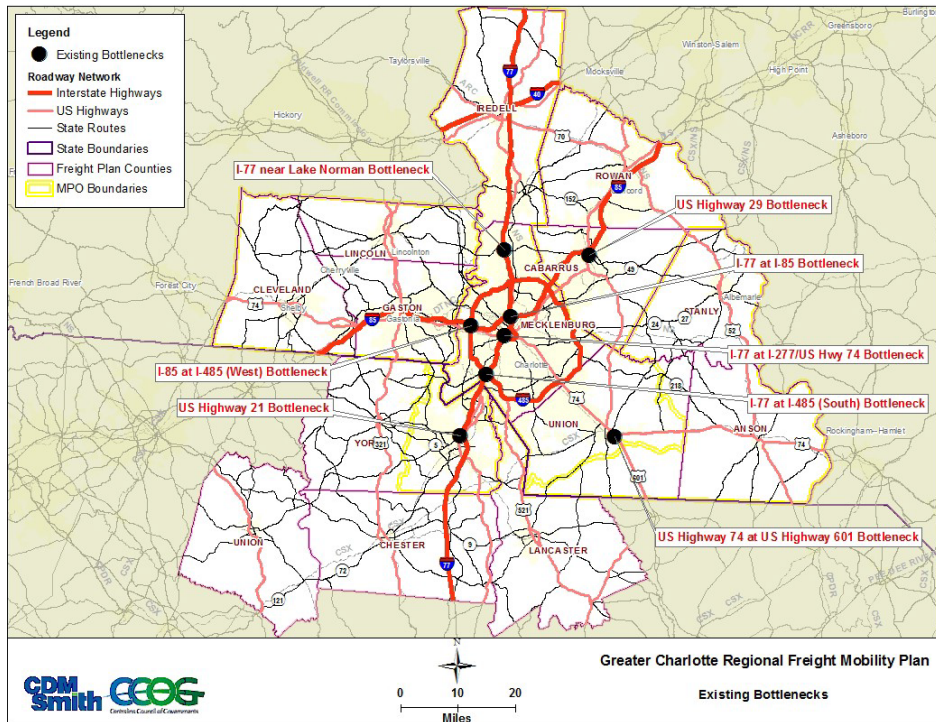


Source: NCDOT and SCDOT

Delay, safety, and access issues raise costs for shippers, carriers, manufacturers and consumers alike. **Figure 0.5** shows the only truck related bottlenecks identified within the freight transportation system in the CRMPO is in the corridor of US 29 near I-85. In addition to this segment of the SFN within the CRMPO currently defined as bottlenecks, some segments also present some challenges for the trucking of goods in terms of bridge conditions and safety.

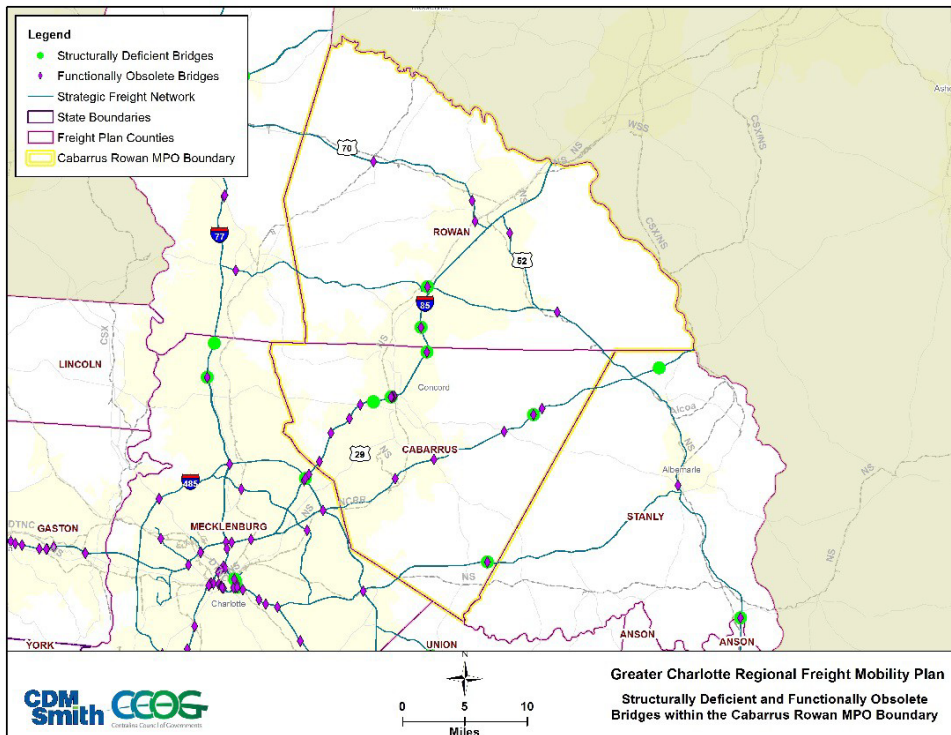
Functionally obsolete bridges are bridges that no longer meet the current standards, such as narrow lanes or low load-carrying capacity. These bridges have not been designed for the current loads/trucks that currently traverse the freight highway system. Structurally deficient bridges require significant maintenance, rehabilitation or replacement and are unable to carry certain freight loads. For these reasons, they can serve as constraints to the freight highway network and are therefore important to include in freight network analyses. **Figure 0.6** illustrates the 19 functionally obsolete and seven structurally deficient bridges in the CRMPO Region. These existing conditions of highway performance, safety and bridge conditions are important to identify as they can limit the mobility of freight-carrying vehicles, particularly if they are attempting to carry oversize or overweight cargo.

Figure 0.5: Regional Truck Bottlenecks in Relation to Cabarrus Rowan MPO



Source: American Transportation Research Institute (ATRI), October 2015

Figure 0.6: Structurally Deficient and Functionally Obsolete Bridges in the Cabarrus Rowan MPO



Source: NCDOT and SCDOT

Figure 0.7 illustrates commercial vehicle crash hotspots from 2009 to 2013. Corridors with slightly higher than medium densities of crashes involving commercial vehicles include I-85, as well near the interchange of I-85 and US 70 and US 52.

Figure 0.7: Commercial Vehicle Crash Hotspots (2009-2013)

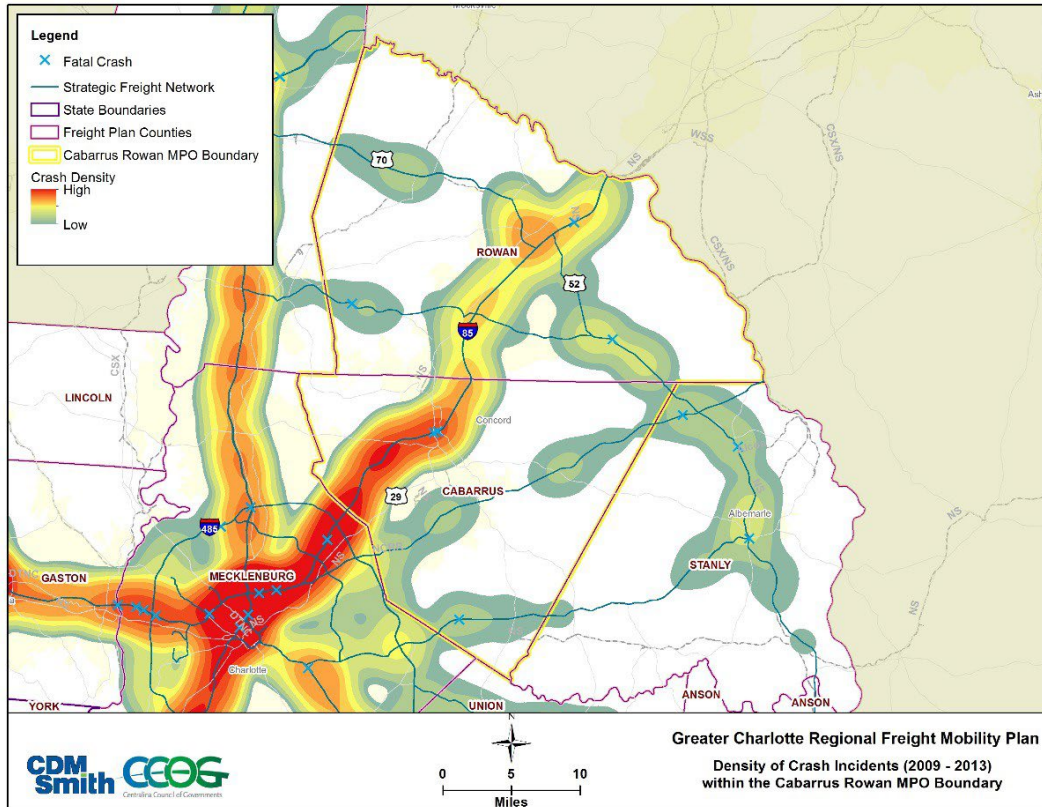
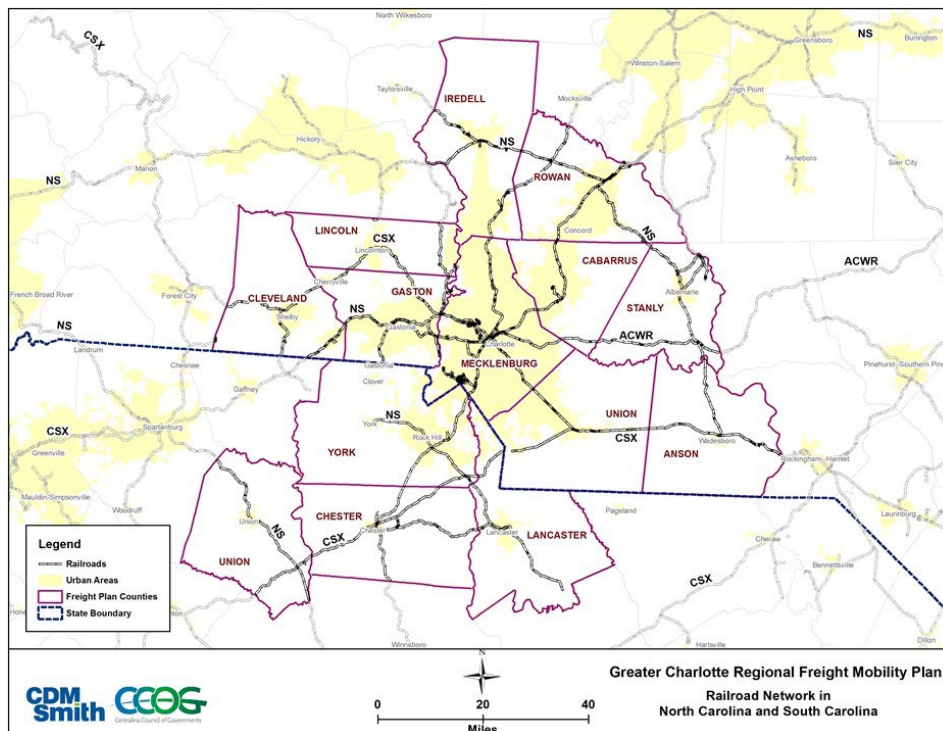


Figure 0.8: Greater Charlotte Regional Rail Network

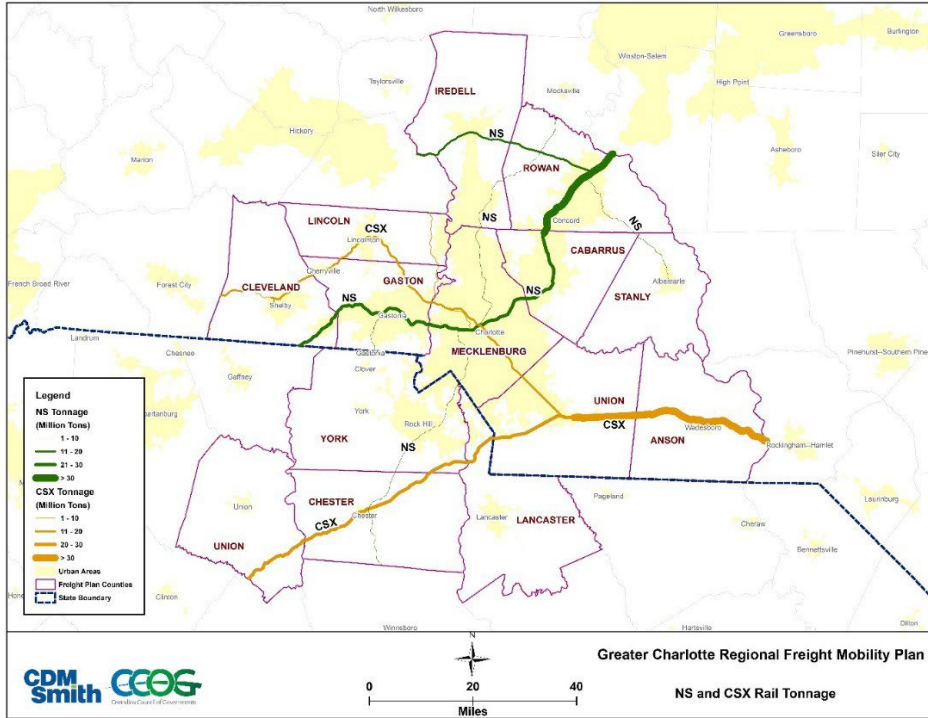


Source: National Transportation Atlas Database, 2015

Within the greater Charlotte Region there are a number of key railroad corridors and facilities. Both NS and CSXT have key rail corridors and intermodal yards. For NS, the Main Line operating through Kannapolis, Charlotte and Gastonia serving the Charlotte-Douglas International Airport's Intermodal Yard is one of the busier corridors along the east coast. The CSXT SE Line connects to the Port of Wilmington and Hamlet Yard. **Figure 0.9** shows the regional Class I rail annual volumes. Grains, Coal and chemicals make up the bulk of the regional rail tonnage (**Figure 0.10**). Over 5 percent of all freight moves by rail in the region.

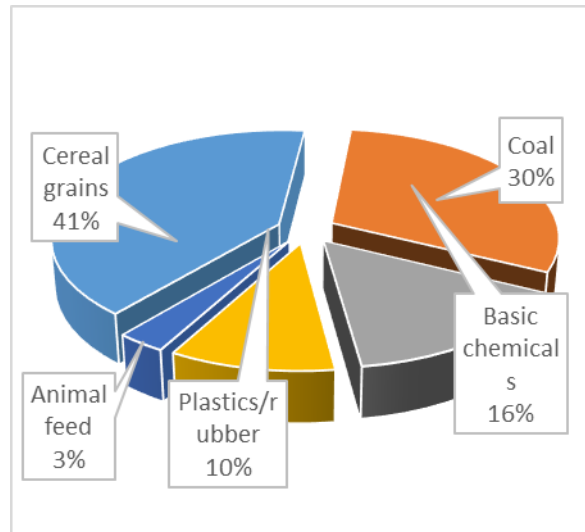
Within the CRMPO, NS and ACWR are the principal rail facilities providing access to the larger network of railroads. Local planners need to consider this for land use planning around the alignment, and transportation planners must consider the access limitations and safety concerns near these rail freight corridors.

Figure 0.9: Regional Class I Annual Rail Freight Volumes (2014)



Source: NCDOT

Figure 0.10: Regional Rail Freight Top Commodities (By Weight)



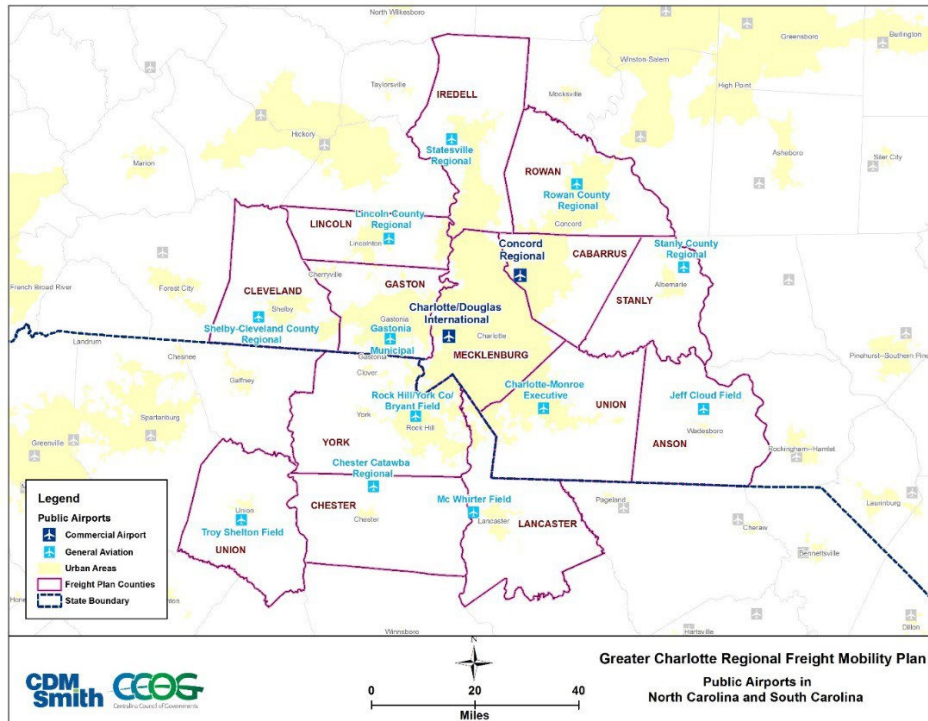
Source: FAF4

Source: NCDOT and WSP|Parsons Brinckerhoff

Air Cargo

There are two commercial service airports and twelve general aviation airports located in the Greater Charlotte Region. The two commercial service airports are Charlotte-Douglas International Airport (CLT) and Concord- Padgett Regional. CLT handles virtually all air cargo in the Greater Charlotte Region. **Figure 0.11** illustrates the airports in the Greater Charlotte Region.

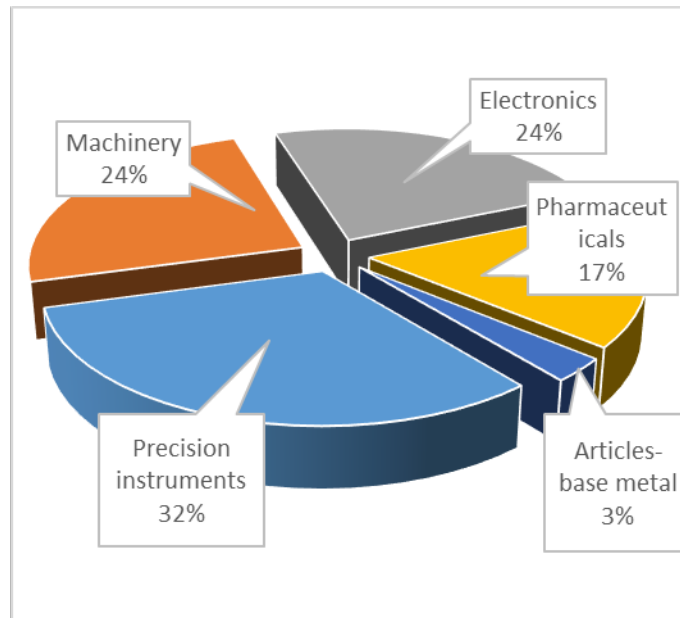
Figure 0.11: Greater Charlotte Regional Public Airports



Source: Federal Aviation Administration

Though small in volume, airborne freight has by far the highest value per ton of any mode. Typical commodities include goods from the pharmaceutical, automotive, and high-tech manufacturing sectors as well as the consumer parcel delivery services, as illustrated in **Figure 0.12**. Moving goods by air is expensive and the industry responds to the forces of supply and demand. This is not unique to the region but an industry wide trend. Concord-Padgett Regional commercial airport and the Mid-Carolina (formerly Rowan County) Regional general aviation airport serve CRMPO. Similar to railroads, intermodal connectivity should be maintained and supported, consistent with the recommendations of the Freight Plan.

Figure 0.12: Regional Air Cargo Top Commodities (By Value)



Source: FAF4

Existing Passenger Service

The State of North Carolina, which sponsors two Amtrak-operated passenger trains in the CR MPO area, provides passenger service: The Piedmont and the Carolinian.

Map 5-1 shows existing rail lines

The Piedmont makes three daily round trips between Raleigh and Charlotte by way of Kannapolis and Salisbury. The State owns and contracts for maintenance of the equipment for the Piedmont and contracts with Amtrak for operations of the train. The Carolinian makes one daily trip each way between Charlotte and New York City by way of Kannapolis and Salisbury. The Carolinian uses Amtrak equipment and is Amtrak-maintained.

Both Depots in Kannapolis and Salisbury serve as focal points of the downtowns and central business districts. The Kannapolis Depot has undergone improvements to become a first class hub for passenger rail. The Rider Transit System also maintains a bus stop at this Depot providing daily bus service Monday thru Sunday. The Salisbury Depot has become a tourist and business attraction as a staple in the redeveloped downtown area. Salisbury Transit also provides local bus service in close proximity to the Depot on a regular schedule Monday thru Saturday. A new Depot is scheduled to be built in the Town of Harrisburg soon.

Piedmont High-Speed Corridor

The NCDOT Rail Division, in conjunction with the North Carolina Railroad and Norfolk Southern, has plans to improve the busy (freight and passenger) Raleigh to Charlotte rail corridor to reduce travel time for both freight and passenger trains. The goal was to implement two-hour passenger service between

the two major cities by 2010. In September 1997, a detailed evaluation of the Piedmont High-Speed Corridor (PHSC) was presented in the Piedmont High-Speed Corridor Rail Study Status Report

The PHSC is a 477-mile federally designated high-speed rail corridor running from Washington, D.C. through Richmond, VA; Raleigh; Greensboro; Kannapolis; and on to Charlotte, NC. The report indicated that the potential for ridership and revenue along the PHSC would be greater than any other illustrative high-speed route in the United States.

Because of the studies, this corridor has been designated as one of eight national rail corridors currently identified for improvements to high-speed status under the previous FAST Act. This effort has rightfully led to the adoption of a NCDOT resolution to protect the integrity of the PHSC. The approved resolution endorses the concept of providing better separation between vehicle and train movements at existing and proposed crossings of the rail corridor, which improves safety. Additionally, traffic separation studies have been performed by NCDOT within individual jurisdictions in the Urban Area. These studies have identified which crossings need to be closed or improved. The purpose of these closings is to assist in reducing train travel time to two hours between Raleigh and Charlotte. The resolution lists the following directives:

That any new intersection of the Federally-Designated High-Speed Rail Corridor be grade-separated and supports the closure of redundant and/or unsafe highway/rail at-grade crossings on this route;

That municipalities be encouraged to implement crossing consolidation projects; and

The Department (NCDOT) will make every effort to provide grade-separated alternatives to enhanced warning or traffic control devices (four-quadrant gates, median barriers, longer gate arms, and intelligent signal systems) as a part of the widening of existing highway/rail at-grade crossings. The Division 9 TIP Priority List included the following grade separation projects: Kimball Road, Peeler Road, Klumac Road, and Long Ferry Road. Three of these projects were funded in the STIP: Kimball Road, Peeler Road, and Klumac Road through the American Recovery and Reinvestment Act (ARRA), but the other one remained unfunded at the present time. The City of Kannapolis has also given priority to a grade separation at Rogers Lake Road, scheduled for construction in FY 2020, as well as at 22nd Street. A new grade separation was scheduled for construction as part of the I-85 widening project at Winecoff School Road. The City of Kannapolis staff has long lobbied NCDOT for this project. Replacement of additional at-grade crossings with grade separated structures will be evaluated and considered through the planning and engineering process.

Potential North Carolina Commuter Rail Service

The NCDOT Rail Division in January 1999 conducted a study that addressed the need for commuter rail service. The purpose of the study was to identify potential rail commuter corridors throughout the State that would serve a sizeable suburban population with a substantial central city.

Future commuter / passenger rail planning in the Urban Area may be part of the Charlotte Transit System's long term vision. The Blue Line Extension is a major "spine" of the light rail system stretching between I-485 and UNCC. This line and extension connects with downtown Charlotte running parallel to US Highway 29. The extension from UNCC could cross I-485 one day and continue past the Charlotte

Motor Speedway and potentially to the Concord Mills Mall complex or the Grounds at Concord. In the interim, Rider Transit has implemented an express bus route to the end of the LYNX/Blue Line Extension.

For a copy of the commuter rail study and additional information regarding the Rail Improvement Program, contact the NCDOT Rail Division at (919) 733-4713, or visit their web- site at www.bytrain.org.

5.4 Public Transportation Element

Concord/Kannapolis Area Transit

The cities of Concord and Kannapolis began a fixed route transit service in April of 2004 almost 20 years ago. The RIDER Transit System is a joint partnership between the two cities, FTA and NC DOT. The Concord Kannapolis Transit Commission (CKTC) manages the system. Two elected officials from each municipality serve on the Commission while each Mayor rotates annually as the CKTC Chairman. RIDER operates seven routes each weekday from 5:30 AM to 8:30 PM, and Saturdays & Sundays (added Fall 2013) from 8:30 AM to 8:30 PM. Ridership data indicates an average 1,300 trips per weekday, 900 on Saturdays, and 800 on Sundays. Total ridership for FY 21 was 336,512. The service is operated by a private service provider TransDev, which includes all maintenance and operations and associated personnel, of RIDER. In 2010 the Rider Transit Center opened, located at 3600 S. Ridge Avenue in Concord. This is the main transfer hub and operations center for RIDER operations.

The eight routes operate on sixty (60) minute headways and meet each hour at the central RIDER hub located in Concord in the AM and late PM, and seventy-five (75) minute headways in the afternoon. The system operates with a \$1.25 fare and also offers a reduce fare of \$.60 to seniors, students, Medicare card holders and disabled citizens. The Charlotte Area Transit System Northeast Blue Line Light Rail Transit System opened in 2018 and RIDER partnered with CATS to connect to the Blue Line Extension with a new, 7 day a week, all day regional express service known as the CCX.

Map 5-4 shows the existing Rider Transit Routes

In 2020, Rider partnered with Cabarrus County on a new county wide Long Range Public Transportation Master Plan. This plan would create a seamless singular system to meet the mobility needs of all Cabarrus County residents as well as the northern section of Kannapolis. The Plan marries the growth needs of Cabarrus County (doubled over the past 30 years) with the levels of transit service and investment over the next 20 years. The Plan states unequivocally that “without the proposed one cent dedicated sales tax, Value Capture and other means of generating revenue, very little outlined by the plan can be achieved and transit will continue to serve only a fraction of the community”. The 2050 MTP has assumed the implementation and schedule of this Master Plan as well as the financial tools to make it a reality!

Public Transit in Cabarrus County Today

- Two separate, disconnected systems
- Unserved areas and underserved areas
- 38 Vehicles (10 buses, 28 Demand Response)

- 92 employees
- \$7.71M annual budget (combined)
- ~525,000 passenger trips annually
- 60-75 minute frequency (at or below minimum acceptable U.S. transit industry stands)

Public Transit in Cabarrus County after full plan implementation (The Vision)

- One system
- No unserved areas
- 194 vehicles (108 buses, 86 Demand Response)
- 559 employees
- \$70.56M annual budget (Plan Year 20)
- 6,400,000 to 6,900,000 passenger trips annually – not including HCT
- High Capacity Transit (one or more modes)
- World Class Level Transit Service

For a copy of the Cabarrus County Long Range Public Transportation Master Plan, please visit the CK Rider website at www.ckrider.com.

Salisbury Transit

Salisbury City Council governs the Salisbury Transit System. Since the 1970's, the City has provided transit service in the cities of Salisbury, Spencer, and East Spencer. The Salisbury Transit Department is responsible for all transit services in the City. The City provides the fixed-route bus transit service and the ADA complementary paratransit service. The transit service area population is approximately 38,637 persons.

The City's fixed-route bus service has three local routes and two express routes. Each of three local routes departs and arrives at a transfer site in downtown Salisbury. Service is provided 6:00 a.m. to 7:04 p.m. Monday thru Friday; 9:30 a.m. to 3:20 p.m. on Saturdays. From early August through mid-May, two weekend express bus routes provide service from 3:20 p.m. to 11:15 p.m. on Fridays and Saturdays, and from 9:55 a.m. to 7:15 p.m. on Sundays. The base fare is \$1.00, with a half fare of \$0.50 for senior citizens, persons with disabilities, and Medicare card holders.

The City's ADA complementary paratransit service on the same days and hours as the City's fixed route service. The fare for this service is \$2.00. The City operates a fleet of six FTA-funded vehicles for its fixed route service. All of these vehicles were obtained with Section 5311 funds thru NCDOT. The ADA complementary paratransit service is operated with cut-a-way vehicles which were purchased with Section 5339 funds.

The City operates from a single maintenance and administration facility at 300 West Franklin Street. This facility was funded with FTA assistance through NCDOT. The downtown transfer site consists of three bus shelters with amenities that were also funded with Section 5311 funds.

Annual Operating Statistic	Fixed-Route Service	ADA Complementary Paratransit Service
Unlinked Passengers	113,938	8,095
Revenue Hours	10,062	7,027

Map 5-5 shows the existing Salisbury Transit Routes

In 2018, Salisbury Transit conducted a 20-year long-range public transportation master plan. The planning study was to provide analysis and recommendations to improve the STS service coordination, financial position, operational functionality and service delivery of both fixed route and complimentary ADA paratransit service operating within the service area. Through the study process it was determined that a 20-year comprehensive plan would need to include some county and out-of-county service to address the growing regional population and need for improved connective mobility options.

The master plan identified the following service related issues:

- The need to provide more frequent and service schedules
- The need to create new schedules to connect with other routes other than at the Depot Transfer Site location
- Expand connective service to areas within the city limits
- Technology challenges
- Implement a mobile ride tracker system
- Update the fare collection process
- Serve the local colleges with an Uber/Lyft-type service delivery model
- Address new vehicle types and how these vehicles could be deployed to provide zonal, microtransit service
- Improve the existing transfer location and work with both Greyhound and Amtrak for improved coordination
- Create local partnerships and seek to achieve a dedicated local funding source

For a copy of the Salisbury Transit Long Range Public Transportation Master Plan, please visit the City of Salisbury website at www.salisburync.gov/Government/Transit.

Rowan Transit

The Rowan Transit System (RTS) was established in January of 1988 for the purposes of consolidating human services vehicles under one administrative unit that manages the entire fleet. The RTS mission addresses a variety of non-emergency public transportation services that are targeted towards life sustaining services including: human service agencies, medical access for rural general public passengers, dialysis centers, and Medicaid transportation.

The rural general public service is called RITA, which stands for Rowan Individual Transportation Assistance. RITA operates in a demand/response mode using grants that subsidizing services for seniors, disabled, and rural general public passengers. The majority of RITA trips are in county with the occasional exception of South Rowan residents who often have medical and personal business in the adjacent towns of Kannapolis and Concord in Cabarrus County. RITA services are rationed to the amount of funding that is available for each fiscal year. Each area of the county has access to RITA one day per week.

RTS has an Advisory Committee of between six to nine members appointed by the Board of Commissioners. User agencies include the Department of Social Service, Health Department, Parks and Recreation, Adult Day Care Center, Senior Center and Rowan Vocational Opportunities. There are also four at large member positions.

In the past Rowan County utilized a private transportation management company for the operational side. On October 1st, 2020 RTS moved to a full in-house operation with all drivers and dispatchers employed by the County. The system continues to use a rate per mile charge with a built-in adjustment to account for variable prices in fuel. The per mile rate at the time of this report is \$2.50 (fully allocated cost). RTS has an active fleet of 28 vehicles traveling approximately 500,000 miles per year providing over 45,000 trips per year.

Cabarrus County Transportation

CCTS has been serving the residents of Cabarrus County since 1988 by interfacing with large number of core agencies to provide both public and human service transportation. Individual agencies work with CCTS to certify clients who require trips to various appointments.

Over the years CCTS has seen a tremendous increase in demand for it's services, DSS, Aging, and Cabarrus Vocational Opportunities all just a few of the agencies that partner with CCTS to meet the needs of their clients.

In 2004, Cabarrus County took steps to bring transportation services in-house by becoming a Community Transportation Provider. This was the first step in realizing its goal to provide solutions for the overall transportation system in Cabarrus County. In the years since this transition, Cabarrus County Transportation Services (CCTS) has seen a demand for its services increase in many areas. In the 2020-2021 Budget year, CCTS provided 49,946. A considerable drop to due the pandemic.

Even as CCTS experiences increased demand for services from the community, it has developed a service model that effectively and efficiently services the needs of those in Cabarrus County who require point-to-point transportation services. CCTS has now reached a juncture in its growth that necessitates the agency begin looking at more conducive service types to continue to respond to demand and maximize available resources. CCTS was awarded the Federal 5310 Grant through the City of Concord in October 2016. CCTS is now a Large Urban System and will begin receiving Federal Section 5307 Funds.

Cabarrus County Transportation Services is governed by the Cabarrus County Board of Commissioners with a Transportation Advisory Board consisting of representatives of local governments, social service agencies, schools and the general public.

Public Transportation Operations / Planning Activities

With the release of the 2010 Census data, Rider Transit was moved into the status of a Large Urban Transit System and is now a direct recipient of 5307 and 5339 funds from FTA. Up to 80% of bus and bus facility capital projects, FTA capital and transit-planning studies are funded with Section 5307 funds, along with a 10% State match (when available) and a 10%-20% local government match. Up to 75% of 5307 Federal funds can be used to cover the net cost of urban public transportation services for systems operating less than 50 vehicles at peak service (Rider currently operates 8 beginning in 2018). The State provides assistance for the operation of services through the State Maintenance Assistance Program (SMAP), which is allocated on the basis of number of passengers, number of service hours, amount of fares and local government support and an equity share. The City of Concord and the City of Kannapolis are the current funding partners for the necessary local match for each grant.

The City of Concord provided local funds to support the operation of the peak hour Concord Express to Charlotte, which began on February 1, 1999. Passengers were charged \$4.40 for each trip, which resulted in a farebox recovery of about 20 percent of the total cost. The initial service was funded with a grant from the Public Transportation Division of the NCDOT and the cities of Concord and Charlotte. As the grant expired, net costs were split between Concord and Charlotte, with each paying 50 percent of the net operating costs. The service was run by Charlotte Area Transit Service, which provided 4 trips in the morning peak and 4 trips in the afternoon/early evening. Ridership peaked in 2008 with 106,688 annual trips. This service was replaced by the new CCX Express service to the CATS J.W. Clay Station or LYNX/Blue Line Light Rail Extension in March 2018. This new service runs 7 days a week, and matches the local service schedule and fare structure of RIDER's other 7 local bus routes.

Public Transportation Funding Programs in the Urban Area

Section 5307 Urbanized Funds – City of Concord, City of Salisbury, Rowan County, and Cabarrus County

The City of Concord is the designated recipient for these funds and apportions to the 4 urban systems in the UZA based on a mutually agreed upon formula/agreement. Based on the approved Interlocal Agreement, Concord and Kannapolis share in the payment of the local match to manage and operate the RIDER Transit System. The Concord Kannapolis Transit Commission (CKTC) is the governing body for RIDER operations. The City of Salisbury is a direct recipient of Section 5307 funds. Rowan County and Cabarrus County also receive Section 5307 funds through an arrangement with NCDOT. The NCDOT has indicated that this arrangement may be transitioned in 2022 to the County systems. The County Commissioners are the governing bodies for these systems.

Section 5339 Bus and Bus Facilities Grant – City of Concord

The City of Concord is the designated recipient for these funds and apportions to the 4 urban systems in the UZA based on a mutually agreed upon formula/agreement. The funds address urban capital needs in the UZA for the 4 transit systems. Local matching funds are provided by the respective local government entity.

Section 5310 Enhanced Mobility Urban Grant – City of Concord

These funds are targeted for urban senior transportation and individuals with disabilities transportation options, which exceed the ADA requirements. The City of Concord is the designated recipient for these funds and administers this program through a competitive grant selections process.

Section 5303 Transit Planning Grant – City of Concord

These funds are used for transit administration and planning for the RIDER system. The local match is shared between the City of Concord and the City of Kannapolis.

Section 5307 Transit Funds – City of Salisbury

In 2015, The City became a direct recipient of FTA Section 5307 funds. Prior to that time, the City received Section 5311 funds through the North Carolina Department of Transportation (NCDOT). Capital items are funded at 80 percent, operation items at 50 percent. The State provides assistance for operations through the State Maintenance Assistance Program (SMAP), which is allocated on the basis of number of passengers, number of service hours, amount of fares and local government match. Salisbury Transit also provides ADA Paratransit service.

Section 5303 Transit Planning Grant – City of Salisbury

These funds are used for transit administration and planning. The local match is provided by Salisbury.

Congestion Mitigation and Air Quality Improvement Funds – Cabarrus-Rowan MPO

The Cabarrus-Rowan MPO is scheduled to receive at least \$1 million per year from NCDOT for projects that improve traffic congestion and air quality. Transit services/expansions qualify for this program. With this allocation, the Cabarrus-Rowan MPO provided funding for the following 4 projects beginning in 2004:

- Express peak hour transit service between downtown Kannapolis and downtown Salisbury with stops in southern Rowan. Service was operated by the Rowan Transit System.
- Free transit service during Ozone Action Days in Salisbury
- Saturday and Sunday service for the Rider bus system in Concord and Kannapolis
- Free transit service on the Rider bus system during the Race Weeks at Charlotte Motor Speedway

These projects represented over 14 percent of the total allocation during the initial years of the CMAQ allocation. Each CMAQ Transit project has boosted transit ridership for each of 2 fixed route systems and 2 county providers. We hope to continue these types of CMAQ initiatives with future allocations to the CR MPO, pending local participation.

Rowan Transit Funding

With support of the MPO's Transportation Advisory Committee (TAC), the Rowan Transit System (RTS) submits an annual Community Transportation Program (CTP) application to the NC Public Transportation Division. The Rowan County Board of commissioners is the official applicant for these funds. The annual CTP application requests grant support for administrative costs under 5311, 5310 State/Rural funding to support transportation for Rowan Vocational Opportunities, Trinity Living Center and increasing demand for dialysis transportation (no local match), and 5310 Federal/Urban in support of preventative maintenance of the fleet.

The FY 23 application will apply for an estimated \$250,300 in administrative funds, \$211,520 in capital funds and \$385,000 in operating funds. Transportation program grants require a 15 percent local match for Administrative and 10 percent local match for Capital funds and 50 percent match for Operating funds. Each program project period is for July 1, 2022 to June 30, 2023.

RTS also submits an annual application for Rural Operating Assistance Program (ROAP). In FY22 the NC Board of Transportation released the application indicating Rowan County is eligible for \$252,187:

- Elderly & Disabled Transportation Program (EDTAP) \$117,907
- Employment Transportation Assistance \$36,865
- Rural General Public Program (RGP) \$97,424

EDTAP has no local match requirement and provides additional transportation for Elderly & Disabled (RTS retains majority of these funds for operations and Trinity Living Center and Therapeutic Recreation are sub-allocations determined with the input from the TAC).

Employment Transportation is also 100 percent grant funding, and is utilized specifically for transportation to work and/or other qualifying employment related destinations. The RGP portion requires a local match of 10 percent, therefore \$10,825 will be requested from the County as part of the FY 22 application. These funds must be used to provide general public transportation for rural county residents who travel to any public destination. RGP is used for our RITA service. Passengers are picked up at their home for life sustaining trips to doctors, pharmacies, grocery shopping, public agency appointments, and dialysis. Public passengers under 60 years of age pay a \$2.00 fare that goes towards the program match. The balance of matching funds from the county is in the approved RTS Operating Budget.

Cabarrus County Transportation Funding

Cabarrus County Transit System submits an annual Community Transportation Program (CTP) application to the NC Public Transportation Division. The CTP funding incorporates the Federal Section 5310 and 5311 programs and the State Rural Capital Program into a single application package. The Official applicant agency is the Cabarrus County Board of Commissioners.

CCTS submits an annual application for Rural Operating Assistance Program funds often referred to as the ROAP application. In FY 22 the NC Board of Transportation awarded the following grants:

- Elderly & Disabled Transportation Program (EDTAP) \$111,989
- Work First Employment Transportation Assistance \$46,635
- Rural General Public Program (RGP) \$77,960

EDTAP and Work First require no local matching. The RGP funds require a 10 percent local match which is derived from passenger fares and County match.

Future Urban Service and Study

The Charlotte Regional Authority for Transportation (CRAFT) has been formed by the regional MPO agencies. CRAFT was created by resolution by all four TAC bodies and includes the four MPOs in the Metrolina region: Cabarrus/Rowan, Gaston/Lincoln/Cleveland, Charlotte (Mecklenburg/Union/Iredell), and the Rock Hill-Ft. Mill (SC) Urban Area. CRAFT's role is to enhance communication among local and regional entities, promote awareness of regional concerns, and to provide an educational forum in the Charlotte metropolitan bi-state region that addresses significant common issues.

One goal of CRAFT is to evaluate mobility options throughout the metro region and into South Carolina. In recent times, the Cabarrus-Rowan MPO jointly funded the Connect Beyond Study to look at transportation options in the region and for the existing Charlotte Area Transit System (CATS). CATS currently provides regional bus service to surrounding counties with the exception of the CCX which is jointly funded and operated by CK Rider Transit to connect to the JW Clay Station of the LYNX/Blue Line Extension. In addition, the Cabarrus-Rowan MPO was previously a partner in a regional study to evaluate HOV/HOT lanes on I-85, which would make express bus service more competitive from a time standpoint with the single occupant vehicle. This study known as the Fast Lanes Study was completed in 2009 and the City of Charlotte has progressed into 2 additional phases of the study that includes federal funding through the FHWA Value Pricing Program. In addition to bus service, the future extension of the LYNX/Blue Line Extension will shape cross commuting behavior in Cabarrus and to the rest of the Metrolina Region including the proposed LYNX/Silver Line to Charlotte-Douglas Airport.

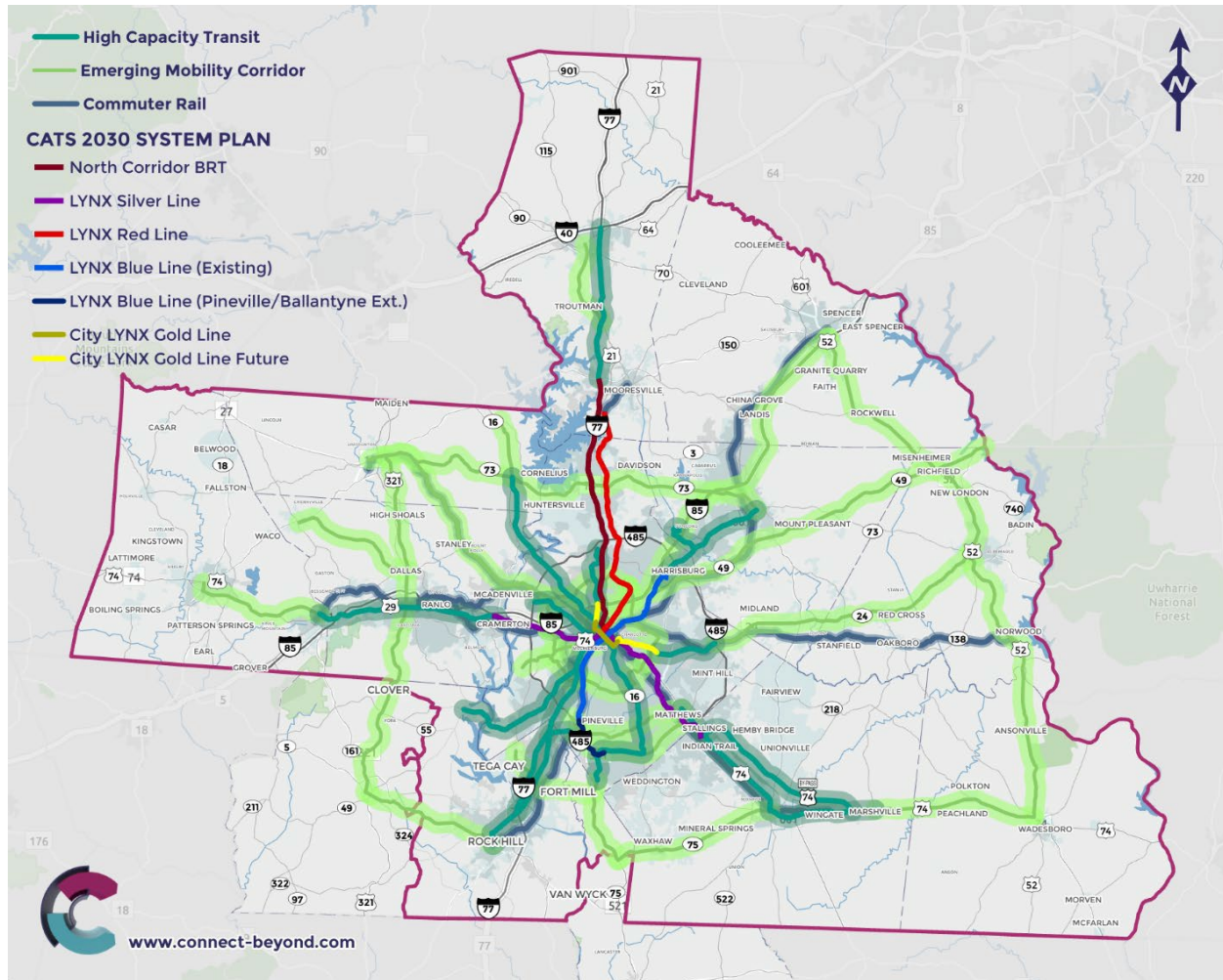
In 2021, the MPO partnered with the other MPOs and transit agencies in the region on a transit plan known as Connect Beyond to create a total mobility network. This network would provide residents and visitors with a variety of alternative mobility options to travel seamlessly around the 12-county region. A total mobility network would help improve transportation choice and enhance mobility for everyone in the region, creating a shared regional transit vision. A key component of this study was the identification of High Capacity Transit (HCT) Corridors. HCT is a form of public transit that offers more passenger capacity and operates at higher speeds with fewer stops than traditional local bus services. A total of 13 HCT corridors were identified in this study with many extending beyond the Mecklenburg County line. These corridors were evaluated through a 2 step process that included a Level 1 corridor evaluation and a Level 2 regional analysis. The main objective of the Level 1 step was to assess each candidate corridors' readiness (or preparedness) for HCT service. Both qualitative and quantitative measures were used to evaluate the corridors and assign a score for each criterion with an overall score. The Level 2 step used the regional travel demand model data and the findings from the Travel Market Analysis to project travel demand and future roadway capacities, population and employment growth trends, and considered where transit services could be most successful based on traditional transit planning performance indicators that created a picture of where HCT could be most effective. As an example, the Travel Market Analysis indicated that there was about a 40 percent capture rate of home based worktrips between the "Northeast Charlotte" market and the "Cox Mill" market, which was the 8th highest external trip volume outside Mecklenburg County. In comparison, the capture rate is projected at 14 percent between the "Airport" market and the "Belmont" market in Gaston County.

For a copy of the Travel Market Analysis, contact the MPO office at (704) 795-7528.

One of the main performance indicators was evaluating the relationship between vehicle travel volumes and roadway operating capacity or volume to capacity ratios. Connect Beyond identified candidate corridors that could help offset increased travel demand by implementing these new or enhanced HCT solutions. One of the key HCT corridor recommendations emerging from this process was Highway 29 North or Recommended HCT Corridor I. This corridor would extend service from the current LYNX Blue Line terminus north of UNCC into Cabarrus County. Two route options are possible: an extension to the Concord-Padgett Regional Airport and/or an extension into downtown Concord. This corridor had an overall composite score of "medium" in the Connect Beyond study. (It scored "high" in 3 of 10 criteria for the Level 1 part.) Nine other HCT corridors scored in this range in the region, with 7 of those corridors extending outside Mecklenburg County. In January 2021, the MPO adopted a Comprehensive Transportation Plan (CTP) amendment to include the Highway 29 North HCT corridor, or include a Fixed Guideway element of the MPO's Public Transportation and Rail map for the first time ever. In addition, the Financial Plan for this MTP includes revenue beginning in the year 2046 to begin operation of fixed guideway service to the Charlotte Motor Speedway complex as an initial step. This service would

supplement or possibly replace the current CCX connection to the LYNX Blue Line. Most importantly, the region's Metropolitan Commission (MTC) of CATS adopted the regional map of HCT corridors as part of the overall Connect Beyond Study in October 2021 (Figure 3). Additional study will be required of the Highway 29 North HCT as was originally intended in 2002 before the MTC's decision to terminate the Blue Line Extension south of I-485 due to cost savings.

Figure 13: CONNECT Beyond Mobility Corridors



Implementation of HCT corridors using bus rapid transit or rail technologies (streetcar, light rail, commuter rail, heavy rail) can be funded in part by the Federal Transit Administration's (FTA) Capital Investment Grants (CIG) program. Prior to applying for funding, a local government or transit agency must conduct an alternative analysis to select a locally preferred alternative identifying the corridor and mode type to advance through the CIG process. The alternatives analysis is a technical analysis that looks at demographic, employment, and ridership forecasts; it also involves an extensive public involvement process. After approval of the CIG program funding, Federal transit law requires transit agencies to complete a series of steps over several years. For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – Project Development and Engineering. For Small Starts projects, the law requires completion of one phase in advance of receipt of a construction grant agreement – Project Development. Figure 5 outlines the planning process for HCT corridors seeking FTA CIG funding, with additional details of essential actions within each phase outlined in Table 1. Notably, public engagement and agency coordination are required throughout the entire CIG process.

Figure 14: Planning Process for HCT Corridors

Steps for Implementation

FTA Capital Investment Grant Process for New Starts



Table 1: Essential Actions in Each CIG Phase

Phase	Essential Action
Planning & Programming (Alternatives Analysis)	<ul style="list-style-type: none"> • Complete Alternatives Analysis <ul style="list-style-type: none"> • Select Locally Preferred Alternative • FTA guidance / Travel Demand Forecast • Adopting Locally Preferred Alternative into fiscally constrained Long Range Transportation Plan
NEPA (30% Engineering)	<ul style="list-style-type: none"> • Gain Commitments of non-New Starts funding • Complete sufficient engineering and design
Final Engineering	<ul style="list-style-type: none"> • Complete engineering design plans • Complete 3rd Party Agreements • Recommended for Construction Grant Agreement
Construction	<ul style="list-style-type: none"> • Construct HCT line • Complete any required Operating and Maintenance Agreements • Final systems testing
Initiate Revenue Service	<ul style="list-style-type: none"> • Complete vehicle testing

For a HCT Corridor, the MPO or transit agency would need to initiate the local planning process outlined above, adopt a locally preferred alternative into the long-range plan, and apply for FTA funding. In addition to the other criteria, corridors will need to demonstrate strong ridership forecasts to make the investment a strong candidate in the very competitive CIG process. As such, a key first step to bring a HCT corridor to life is to build up transit ridership in the identified corridors by implementing new express and local bus services like the CCX.

For a copy of the Connect Beyond Regional Plan, contact the MPO office at (704) 795-7528.

5.5 Aviation Element

Concord-Padgett Regional Airport

The Concord-Padgett Regional Airport (CPRA), owned by the City of Concord, is ranked as the 3rd busiest towered airport in North Carolina. In 2020 the operations at the airport totaled 71,882 of which 2331 were air carrier operations and 6,001 were air taxi operations and 50,662 were classified as transient aircraft operations. Concord-Padgett Regional is a FAA certified Part 139 Class I airport with Index C firefighting and rescue capability. The Concord-Padgett Regional Airport is an important local development tool for economic development and has an estimated annualized economic impact on the Cabarrus County regional economy of over \$831 million and supports over 5,000 jobs.

Map 5-7 shows the Concord-Padgett Regional Airport

The CPRA is home to several corporations, NASCAR racing teams, and 170 privately owned aircraft. The main entrance is located on Derita Road. The CPRA is primarily accessed from Exit 49 and 52 off I- 85 at Poplar Tent Road or Concord Mills Blvd or Exit 28 from I-485. Land development and economic growth around the CPRA consists of industrial, commercial, and motorsports related organizations.

Airport revenue is generated by the renting of hangar space, office space, ramp space, ground services, pilot supplies, the sale of aviation fuel, and by fees and from landings, services, and parking.

In 2013 CPRA received an FAA Part 139 Class I Airport Operating Certificate and was reclassified from a general aviation airport to a Non-Hub Primary Commercial Airport that allows scheduled airlines to service the airport. In December 2013, Allegiant Airlines began scheduled passenger service with twice weekly service to the Orlando Sanford International Airport with 166 passenger MD-80 aircraft. That service proved to be sustainable and in 2015-2016 the City of Concord, NCDOT, and FAA made infrastructure investments in airline passenger facilities that included a large aircraft parking apron, 32,000 square foot two gate terminal building, entrance roadway, and a 700-space parking garage. Allegiant has utilized these new facilities and expanded their service at CPRA to over 30 weekly flights to nine non-stop destinations with 177 passenger Airbus A-320 aircraft. These flights continue to average over 75% of capacity.

The airport is also utilized by many general aviation users including private aircraft owners, corporations, and flight schools. NASCAR race teams continue to be important airport users. UNCC sports teams now regularly use commercial charter services out of CPRA to away games around the country.

In 2019 the airport celebrated its 25th Anniversary and City Council passed a resolution changing the name of the airport to Concord-Padgett Regional Airport in honor of long-time Concord mayor Scott Padgett.

CPRA has made numerous airfield improvements, including lengthening and strengthening the runway and aircraft parking areas to accommodate larger aircraft and in facilities that expand the airport's capacity. In 2019, the airport completed a Master Plan update that will guide a new round of airfield improvements including a runway widening, apron expansion, and fuel storage tank area expansion.

Because of its close proximity to I-85, I-485, Charlotte Motor Speedway at Concord, Charlotte Metro area, and the North Carolina Research Campus, CPRA remains attractive to corporations in the CR MPO area.

The MPO Transportation Plan includes the widening of Derita Road and adding traffic signals to accommodate the current and future growth of the CR MPO area. Upon the completion of the widening of Derita Road (TIP# U-4910), the street network should improve access and mobility around the CPRA facility.

Mid-Carolina Regional Airport

The Mid-Carolina Regional Airport (RUQ) is a general aviation airport located in the heart of the highest populated corridor of the Piedmont region, RUQs proximity to I-85, I-77 and I-40 offers convenient access to Charlotte, Winston-Salem, Greensboro and High Point. The completed widening project of Interstate 85 in Rowan County to eight lanes provides even more efficient travel from surrounding communities to the airport. The population within 30 minutes of the airport is now over 480,000.

The airport and FBO are operated maintained, and preserved by Rowan County for the benefit of the community and all airport users. RUQ provides a cost-effective environment for air transportation while contributing to and generating economic benefit by acting as a gateway to Rowan County. The airport strives to be self-sufficient with revenues generated from leasing hangars, tie-down spaces, ground services, sale of fuel, and other airport related services.

Map 5-8 shows the *Mid-Carolina Regional Airport*

The RUQ offers a 5500' X 100' newly resurfaced (crowned and grooved) runway, with ILS/RNAV and approaches, and a full-length taxiway in support of corporate, military and private aviation. In addition to flight operations the airport is home to compatible business uses, such as flight training, skydiving, aircraft maintenance, avionics installation and aircraft refinishing (paint & upholstery). The North Carolina Highway Patrol Flight Operations as well as the North Carolina Army National Guard's Army Aviation Support Facility are based at RUQ. As of the time of this report the airport has over 90 based aircraft, including corporate flight operations for Food Lion and Shoe Show. There are more than 51,000 aircraft operations per year. The economic impact of RUQ in 2021 is \$146 million, which includes: 850 jobs supported, \$5.2 million in tax revenue and \$43.2 million in personal income.

The current widening project of Interstate 85 in Rowan County to eight lanes will provide easier accessibility from surrounding communities to the MCRA, including the Greensboro/Winston-Salem/High Point and Charlotte Metro regions.

Private Transport

There are approximately sixteen (16) taxicab companies operating in the MPO planning area. These privately owned companies provide on-demand and client based transportation services. Various fares are charged on a per mile basis. Local governing boards oversee and regulate certain fees and service areas on a license basis.

CHAPTER 6 SAFETY AND SECURITY

Safety has long been a primary concern of transportation system management, maintenance, and system expansion. SAFETEA-LU placed a greater emphasis on safety at the planning systems (MTP) level with essentially 3 components: under 23 CFR 450.306(a)(3) that MPO's increase the security of the transportation system for motorized and non-motorized users; 23 CFR 450.306(h) that the metropolitan transportation planning process should be consistent with the Strategic Highway Safety Plan, as specified in 23 USC 148, and other transit safety and security planning and review processes, plans, and programs as appropriate; and 23 CFR 450.322(h) that the metropolitan transportation plan should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPO contained in the Strategic Highway Safety Plan required under 23 USC 148. The goal of the Strategic Highway Safety Plan is to reduce the number of fatalities and to decrease the economic impact from highway-related crashes. As projects are planned and developed, elements from the SHSP should be incorporated and linked back to the planning systems level in the CR MPO.

Such improvements are reflected in the Transportation Improvement Program as well as in the day-to-day work of field operations. Within the 2020-2029 TIP, NCDOT has the following spot safety projects programmed for the CR MPO:

- NC 801 at Parks Road – Realign intersection and turn lanes
- Old Beatty Ford Road – Widen lanes and install rumble strips
- Old Beatty Ford Road – Relocation with new bridge of I-85
- Stokes Ferry Road and Oddie Road – Intersection improvements
- Poplar Tent Road and US 29 – Intersection improvements
- Poplar Tent Road and Eva Drive/Rock Hill Church Road – Intersection improvements
- NC 3 and Odell School Road – Intersection/Roundabout improvements
- Lane Street and Jackson Park Road – Intersection improvements
- NC 24/27 and Bethel School Road – Intersection improvements
- Old Concord/Salisbury Road and Irish Potato Road – Intersection/Roundabout improvements

US 29 and NC 152 – Intersection improvements
Cannon Farm Road and NC 153 – Intersection/Roundabout improvements
Heilig Road and Faith Road – Intersection improvements
Old Beatty Ford Road and US 29 – Intersection improvements
Old Beatty Ford Road and Lentz Road/Lower Stone Church Road – Intersection improvements
Jake Alexander Blvd and Morlan Park Road – Intersection improvements
Brenner Avenue and Jake Alexander Blvd – Intersection/Roundabout improvements

The Cabarrus-Rowan Congestion Management Process (CMP) examines the current and planned future roadway network, identifies causes of congestion, and explores options for reducing congestion. In addition to examining capacity constraints, it identifies methodologies for improving system efficiency and providing modal choices. Safety is a consideration in the CMP, partly because roadway incidents are a significant source of traffic congestion. NCDOT implements a regional safety program through coordination between Division 9 and 10, the office of the Area Traffic Engineer, law enforcement, and the Cities of Salisbury, Kannapolis, and Concord. The CMP and MTP recommend continued use of incident management patrols, coordination with law enforcement agencies, and implementation of safety and mobility projects by the MPO and the NCDOT to respond to safety trends and issues. Additional MPO and NCDOT strategies aimed at increasing the efficiency of the transportation system without adding additional capacity to the roadways include:

- expansion of transit operations
- Advance Traveler Information Systems and Variable Message Signs (VMS)
- improvements to the Concord and Salisbury Signal Systems

Safety can be measured in a number of ways. Transportation Planners tend to think about safety in terms of specific roadways. It is also important to understand the overall safety conditions of the system of roadways. The NC Department of Motor Vehicles (DMV) collects many types of safety and accident attributes at the county and municipal level. The Cabarrus-Rowan MPO is fortunate that the planning boundary coincides with the county lines for Rowan and Cabarrus, and there are 4 municipalities with over 10,000 in population in the MPO. Moreover, NCDOT provides rankings to show relative progress of safety initiatives within counties and cities in comparison to their jurisdictional cohorts. For example, by combining a number of factors such as crash severity, crash rates based on population, registered vehicles, and estimated vehicle miles traveled, NCDOT projected that Rowan County went from a ranking of 42nd in 2007 to a ranking of 62nd in 2012 to 46th in 2016 to 32nd in 2020 among the 100 counties in NC. Cabarrus showed slight decline from 75th in '07 to 66th in '12 to 55th in 2016 to 62nd in 2020. For those same factors, NCDOT ranked the City of Salisbury at 16th among municipalities greater than 10,000 in 2020, down to 10th in 2016, up from 22nd in 2012 and 17th in 2007. The City of Concord actually increased from 21st to 13th in 2012 and down to 26th in 2016 to 25th in 2020 and the City of Kannapolis improved slightly from 36th to 40th in '12 to 45th in 2016 down to 32nd in 2020. It should be noted that a lower rank is actually a positive indication that a city or county's safety trends are improving relative to the overall population.

With respect to measuring safety on specific roadways and intersections, NCDOT provides a wealth of data on crashes and accidents. Some of the NCDOT safety measures include accident rates, the severity index, and exposure. The 1990 NCDOT "Traffic Accident Analysis Manual" defines a severity index with a formula that is used to measure the mix of accident severity in a group of accidents at a specific location. The severity index is unique to a particular intersection and can be used to calculate the EPDO Index (Equivalent Property-Damage-Only Index). This index is more relevant to comparing intersections or corridors because it includes the vehicle exposure measure or number of times vehicles are exposed to the paths of other vehicles' paths. The severity index for NCDOT Division 10 is 3.65 and 3.95 for NCDOT Division 9. These numbers represent an average of accident severity for the larger regions that include the 2 counties of the Cabarrus-Rowan MPO. Surrounding urban areas in the Metrolina Region have used the EPDO Index to define and highlight high accident locations. An index

score of 360 translates to an unusually high number of accidents that resulted in relatively large amounts of property damage. The MPO requested accident data on several key intersections within the Urban Area and has ranked them accordingly.

Table 6-1 lists the key intersections as recommended by MPO jurisdictions with several performance measures

Local Measures

In order to assist the state of North Carolina in meeting its goal of reducing the number of fatalities and decreasing the economic impact from crashes, jurisdictions within the CR MPO are pursuing a number of initiatives including additional street lighting, crosswalks and pedestrian signals, bicycle and pedestrian signage, sidewalk construction, access management, and median installation. A couple of the towns are currently pursuing Safe Routes to Schools (SRTS) funding through the NCDOT Division offices to enhance pedestrian safety for elementary school children. In addition, several cities have agreed to close-at-grade railroad crossings, planning and construction for grade separated crossings, and improvements to existing at-grade railroad crossings as part of the North Carolina Sealed Corridor Program. All of these local measures are intended to reduce potential conflicts and avoid future crashes and fatalities, which is consistent with the State's overall safety goal. The 2050 MTP will further support this goal by carrying many of these local measures into project development and implementation. Safety is often a hidden and immeasurable cost to the transportation system that can be borne by consumers of all modes of transportation. Conversely, investment in safety measures can result in hidden and immeasurable benefits to those same consumers. The CR MPO will continue to partner locally or with NCDOT in those efforts that will enhance safer roads, routes, crossings, etc. and ultimately reduce crashes system wide.

Security

Highway

The Strategic Highway Network (STRAHNET) system of public highways provides access, continuity, and emergency transportation of military personnel and equipment. The 61,000-mile system, designated by the Federal Highway Administration in partnership with Department of Defense, comprises about 45,400 miles of Interstate and defense highways and 15,600 miles of other highways. STRAHNET is complemented by about 1,700 miles of connectors—additional highway routes linking more than 200 military installations and ports to the network. Most large military convoys use the Strategic Highway Network. STRAHNET roadways are designated for use in times of rapid mobilization and deployment of armed forces. In the Cabarrus-Rowan Urban Area there is one STRAHNET route: I-85. This route has been listed in the MPO's Local Priority List for improvement by NCDOT thru the TIP. The MPO and City of Concord staff have participated in the Cabarrus County Highway Incident Team meetings where representatives from the local Emergency Management Systems, police and fire departments, and NCDOT Incident Management Assistance Program (IMAP) to discuss accidents, disasters, and major events at Charlotte Motor Speedway. During the major races (fall and spring) at the Speedway, special evacuation plans are devised and implemented to accommodate the huge flow of traffic accessing and departing the Speedway complex. In addition to these plans, intersection improvements and TIP capacity projects, the MPO should consider the following recommendations for improving security on the MPO's streets and highways.

Recommendations

1. Reduce the number of fatalities and decrease the economic impact from highway-related accidents

2. Continue use of incident management patrols, coordination with law enforcement agencies, and implementation of safety and mobility projects by the municipalities and the NCDOT to respond to safety trends and issues.

Transit

Authority for emergency response activities and the use of community resources and services to respond to large scale emergencies is granted by various legislation that includes the Robert T. Stafford Disaster and Emergency Assistance Act (Federal Level), North Carolina General Statute 166A Emergency Management Act (State Level), Cabarrus County Emergency Operations Plan (County Level) and Concord City Code.

The purpose of the CK Rider Emergency Action Plan is to identify how CK Rider will work with local government's emergency operations and procedures. The plan will detail CK Rider's framework for response to disasters based on the management concepts contained within the National Incident Management System.

The National Incident Command System (NIMS) is intended to standardize response to emergencies involving City Departments and other jurisdictions or multiple agencies. The system is intended to be flexible and adaptable to the needs of all emergency responders. Emergency response agencies use basic principles and components of emergency management, including the Incident Command System, multi-agency or inter-agency coordination and established mutual aid systems.

NIMS is a nationally used, standardized, on-scene emergency management concept which allows incidents of all sizes to be organized in a common structure regardless of jurisdictional boundaries. NIMS uses standard incident command structures (ICS, Multi-agency Coordination, and Public Information) to provide the national framework for incident response.

All jurisdictions served by CK Rider, use the incident command system. In order for ICS to be used at all incidents, the first emergency responder on scene will always take the following basic actions:

- establish the Incident Command Post, (ICP);
- size up the incident;
- determine the ICS organization elements required;
- request additional resources necessary to mitigate the incident;
- delegate authority within the ICS organizational structure; and
- develop the Incident Action Plan, incorporating the incident objectives and strategies.

Incident Command System Functions

The five functions of the ICS organization are *command, operations, planning, logistics, and administration*. *Command* is responsible for directing, ordering, and/or controlling resources by virtue of explicit legal, agency or delegated authority. *Operations* is responsible for the coordinated tactical response of all field operations through an Incident Action Plan. *Planning* is responsible for the collection, evaluation, documentation, and use of information about the development of the incident. *Logistics* is responsible for resources and materials in support of the incident. *Finance/Administration* is responsible for all financial and cost analysis aspects of the incident, and/or administrative functions.

Principles

NIMS can be used to manage incidents of all sizes. The organizational structure adapts to any emergency or incident to which emergency response agencies would expect to respond. The system can grow as an incident grows or contract as the incident needs decrease. The system has basic components in organization, terminology and procedures.

Unified Command

This form of ICS allows all agencies with responsibility for the incident to manage an incident by establishing a common set of incident objectives and strategies.

Span-of-Control

Manageable span-of-control within ICS is a limitation on the number of personnel who can effectively be supervised or directed by an individual supervisor. The ordinary span-of-control range is between three and seven personnel.

Pre-designated Incident Facilities

These are a common set of titles given to different facilities used in managing an incident such as command post, staging, or heli-spot. The determination of the types and locations of facilities to be used will be based upon the requirements of the incident.

Transit-Related Roles in Local Emergency Management

During a local disaster or emergency, CK Rider Transport may be called upon to fulfill various functions. The majority of these will be coordinated through the Transportation Emergency Support Function section of the EOC. These functions can include:

- Evacuation of local residents during flooding, fires, hazardous material spills, bomb threats, or other emergency conditions.
- Transportation of citizens during mass inoculations;
- Transport of emergency workers and volunteers to and from an emergency staging site;
- Use of air conditioned/heated buses as temporary shelters/respice facilities for emergency workers and victims, especially valuable during a fire or hazardous-material response effort;
- Monitoring of road conditions; determine safe travel routes,
- Windshield damage surveys
- Providing supplemental vehicles for police or other local agency
- Providing transportation for testing and vaccinations during COVID

The individual nature of a disaster prevents this list from being all-inclusive, nor does it indicate that CK Rider will be able to perform these missions during all emergencies. CK Rider will need to assess its resources, capabilities, and the potential needs and hazards that are likely to be faced within the cities it serves. Working with local governments and emergency response personnel, CK Rider can determine the function that they are best able to fulfill.

Basically, CK Rider will be asked to provide assistance in minor emergencies or those which have little or no effect on the normal level of service and those situations of a greater magnitude which result in service disruptions. Each situation will have different implications on CK Rider's internal priorities. In most situations, the continued safety and operation of the system will take precedence, though if CKRider is not operating more resources will be available.

Recommendations

The City of Concord and CK Rider Transportation partner in the Transit Watch Program, a new public awareness and education campaign patterned after the successful "Neighborhood Watch" program initiated in our community. Promoting transit as a community partner and safe haven, Transit Watch targets transit employees, passengers and neighborhood residents with a call for active involvement in staying alert and working together to maintain a safe transit environment.

The Transit Watch program is part of a nationwide initiative developed by the U.S. Department of Transportation's Federal Transit Administration (FTA). In structuring the program, the FTA worked with industry partners, including the American Public Transportation Association (APTA), the Community Transportation Association of America (CTAA), the Amalgamated Transit Union (ATU), and the Transportation Security Administration (TSA).

The program will consist of signs in strategic locations throughout the public transit system, such as businesses served, city web page, and at selected bus stops. Brochures will also be available system wide for free distribution to riders as well as the general public.

Additionally, the Transit Watch brochure includes the following detailed information:

- How to identify a suspicious package
- How to identify suspicious behavior or activities
- What to do in the event of a transit emergency or evacuation
- Personal emergency numbers and contacts for quick reference
- Overall emergency preparedness tips for individuals and families

All CK Rider transit revenue service vehicles are equipped with onboard digital audio and video surveillance systems, with 9-10 cameras providing full coverage both inside and outside each vehicle. This system can be access in real time, or stored video can be removed from each vehicle at a later time and downloaded for viewing and assessment. This system contributes significantly to the safety & security of the customers that use CK Rider. The MPO is in the process of replacing the CK Rider fleet thru the STBGP direct allocation funds.

CHAPTER 7 PERFORMANCE-BASED PLANNING MEASURES

Federal statutes 23 CFR 490 and 23 CFR 450 detail regulations that State DOT's and MPO's must follow regarding the inclusion of performance measures into the planning process, and implementation and details of the performance management process (targets, measures, etc.). Since the Federal regulations were issued in three separate rulemakings, the performance measures can broadly be grouped into 3 categories: 1) Safety 2) Pavement/Bridge, and 3) CMAQ, Reliability, and Freight.

There are 5 targets for safety-related performance measures that were recently submitted as part of NCDOT's yearly Highway Safety Improvement Program annual report. This report was submitted to FHWA on August 31, 2017, and included the 5 safety-related measures: 1) Number of fatalities, 2) Fatality Rate (per 100 million VMT), 3) Number of Serious Injuries, 4) Serious Injury Rate (per 100 million VMT), and 5) Number of Non-motorized (Pedestrians + Bicyclists) Fatalities and Serious Injuries. MPO staff participated in the collaborative effort to establish NCDOT's 2018 safety targets for these measures during the Safety Target Setting Coordination Training Workshop held in March, 2017. During this workshop the State discussed a coordination and collaboration process between NCDOT and the MPO's.

Per section 490.209 (c), MPO's had 180 days from August 31, 2017 to establish a target by either:

- a) Agreeing to plan and program projects so that they contribute toward the accomplishment of NCDOT's safety target for that performance measure; or
- b) Committing to a quantifiable target for that performance measure for your metropolitan planning area.

The NCDOT's 2018 Safety Targets were as follows:

Highway Safety Improvement Program (HSIP)

- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce total fatalities by 5.10 percent each year from 1,340.6 (2012-2016 average) to 1,207.3 (2014-2018 average) by December 31, 2018.

- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the fatality rate by 4.75 percent each year from 1.228 (2012-2016 average) to 1.114 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce total serious injuries by 5.10 percent each year from 2,399.8 (2012-2016 average) to 2,161.2 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the serious injury rate by 4.75 percent each year from 2.191 (2012-2016 average) to 1.988 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the total non-motorized fatalities and serious injuries by 5.30 percent each year from 438.8 (2012-2016 average) to 393.5 (2014-2018 average) by December 31, 2018.

Since 2018, there have been several iterations of the highway safety performance measures. The most recent version was adopted on January 26, 2022.

- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce total fatalities by 12.17 percent each year from 1,428.8 (2016-2020 average) to 1,254.9 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the fatality rate by 13.78 percent each year from 1.226 (2016-2020 average) to 1.057 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce total serious injuries by 19.79 percent each year from 4,410.2 (2016-2020 average) to 3,537.6 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the serious injury rate by 21.68 percent each year from 3.782 (2016-2020 average) to 2.962 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the total nonmotorized fatalities and serious injuries by 17.93 percent each year from 592.2 (2016-2020 average) to 486.0 (2018-2022 average) by December 31, 2022.

Due to the inclusion of a small portion of the Charlotte UZA in Cabarrus County, the MPO is required to adopt a regional CMAQ Performance Plan, which was originally drafted by NCDOT. State DOTs are required to submit the CMAQ Performance Plan to FHWA when submitting their biennial performance reports. NCDOT's first biennial report was due on October 1, 2018. The Federal 23 CFR Part 490 also required State DOTs to set targets for interstate and non-interstate National Highway system (NHS) pavement condition, NHS bridge condition, travel time reliability, freight reliability, as well as the emissions reduction. These performance measures inclusive of CMAQ, are below:

Performance Measure	2 Year Target 1/1/2018 – 12/31/2019	4 Year Target 1/1/2018 – 12/31/2021
Interstate Pavement Condition (Good)		37.0 %
Interstate Pavement Condition (Poor)		2.2 %
Non-Interstate NHS Pavement Condition (Good)	27.0%	21.0%
Non-Interstate NHS Pavement Condition (Poor)	4.2%	4.7%
NHS Bridge Condition (Good)	33.0%	30.0%
NHS Bridge Condition (Poor)	8.0%	9.0%
Interstate Level of Travel Time Reliability	80.0%	75.0%

Non-Interstate NHS Level of Travel Time Reliability		70.0%
Interstate Truck Travel Time Reliability	1.65	1.70
CMAQ – Percent of Non-Single Occupant Vehicle (SOV) travel	21.0%	21.0%
CMAQ – Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita		34.0
CMAQ - On-Road Emission Reduction from CMAQ Projects	VOC: 0.252 kg/day NOx: 2.360 kg/day	VOC: 0.504 kg/day NOx: 4.720 kg/day

Transit

In addition, the MPO is required to approve safety plans from the Concord Kannapolis (CK) Rider Area Transit System and the Salisbury Transit System. The Public Transportation Agency Safety Plan (PTASP) final rule (49 C.F.R. Part 673) requires certain operators of public transportation systems that are recipients, or subrecipients of FTA grant funds to develop safety plans that include the processes and procedures necessary for implementing Safety Management Systems (SMS). CK Rider and Salisbury Transit opted in to the NCDOT Safety Plan, choosing to draft and certify their PTASP under NCDOT's framework and requirements as they are allowed by FTA to do as a small (less than 100 bus) public transportation provider. Approval of the System Safety Plans by the MPO was required in order for NCDOT to certify them. The Transit System Safety Performance Targets are below:

Transit Safety Performance Targets

Mode of Transit Service	Fatalities (Total)	Fatalities (Per 100k VRM)	Serious Injuries (Total)	Serious Injuries (Per 100k VRM)	Safety Events (Total)	Safety Events (Per 100K VRM)	System Reliability
Concord-Kannapolis Area Transit System							
Fixed Route Bus	0	0	0	0	11	1.54	100,000
Demand Response	0	0	2	1.91	3	2.87	100,000
Salisbury Transit System							
Mode of Transit Service	Fatalities (Total)	Fatalities (Per 100k)	Serious Injuries	Serious Injuries (Per 100k VRM)	Safety Events	Safety Events (Per 100K VRM)	System Reliability
Fixed Route Bus	0	0	1	.1	1	.1	34,524.25
Demand Response	0	0	1	.1	1	.1	0.00

Moreover, beginning in 2016 FTA grantees were required by the Final Rule for Transit Asset Management (CFR Part 625) to develop a transit asset management (TAM) plan for their public transportation assets (including vehicles, facilities, equipment, and other infrastructure). Rider Transit, Rowan Transit, and Cabarrus County Transportation were eligible, and opted to join NCDOT's Public Transportation Division's Group TAM Plan. Within NCDOT's Group Plan, performance targets were set which were used by the systems' as a planning tool for predicting when assets should be replaced to maintain safety and reliability through a state of Good Repair. The adopted TAM Plan targets are listed below:

Asset Category - Performance Measure	Asset Class	Useful Life Benchmark	2019 Target
REVENUE VEHICLES			
Age - % of revenue	AO - Automobile	8	20%

vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	BU – Bus	14	20%
	CU - Cutaway Bus	10	20%
	MB - Mini-bus	10	20%
	MV - Mini-van	8	20%
	SV - Sport Utility Vehicle	8	20%
	VN – Van	8	20%
	Other	8	20%
EQUIPMENT			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	8	20%
	Steel Wheel Vehicles	8	20%
	Trucks and other Rubber Tire Vehicles	8	20%
	Maintenance Equipment	Agency Determined	20%
	Computer Software	Agency Determined	20%

	Custom 1	Agency Determined	20%
FACILITIES			
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	N/A	20%
	Maintenance	N/A	20%
	Parking Structures	N/A	20%
	Passenger Facilities .	N/A	20%
	Shelter	N/A	20%
	Storage	N/A	20%
	Custom 1	N/A	20%

CHAPTER 8 FINANCIAL PLAN

Introduction

In accordance with federal requirements, a Financial Plan should demonstrate how the adopted Metropolitan Transportation Plan can be implemented, indicate resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommend additional financing strategies for needed projects and programs.

By requiring Financial Plans, the federal intent is for local and state officials to consider how funding can be generated in the future to construct or carryout the recommended projects. Evaluating financial resources is an integral part of the transportation planning process and often defines the policy choices available to the Transportation Advisory Committee (TAC) of the MPO. One of the most critical elements of any plan is to make sure that adequate funds are available to construct the recommended projects. If adequate funds are not available, the project list should be reduced or new revenue sources identified.

8.1 Overview of Existing Financial Sources

This section presents the financial resources that are presently utilized in the MPO planning area and the sustainability of those funds long term. Primarily, the CR MPO relies on federal and state revenues to fund their immediate transportation needs. The majority of transportation revenue is linked to the gasoline taxes levied by the state and federal governments. Federal funds are collected and distributed to federal highway, railway, and transit programs. The State of North Carolina receives funds based upon eligible projects and funding formulas dictated by legislation.

The Highway Fund and Highway Trust Fund are the sources of funding for most of the programs in the Urban Area. These funds can be used for constructing new highways, widening existing facilities, intermodal programs, and development of mass transit. Powell Bill funds are primarily used for the maintenance of the existing local road network and may also be used for sidewalk improvements. The NCDOT Maintenance or Secondary Roads Paving Program allocates funding to each NCDOT Division for the purpose of upgrading those secondary State-maintained roads determined deficient by NCDOT. The list of these roads is presented annually to the respective County Commission's since most of the roads are outside of the municipalities.

Over the next ten years (based on the current State Transportation Improvement Program (STIP) the CR MPO can expect to receive approximately \$49 million annually from State and Federal sources. Beginning in 2036, this annual allocation will increase slightly to \$53.5 million annually due to the growth in population for Division 9 and 10 under the new STI funding formula. The MPO used calculations from the 2050 NCMOVES Statewide Plan to estimate revenues in 2045 and 2050.

Table 8-1 lists the total estimated State Formula revenue by horizon year for the Urban Area.

Powell Bill funds are monies returned to eligible cities and towns by NCDOT for maintaining, repairing, constructing, reconstructing, or widening of municipal streets. Additionally, the funding can be used for the planning, construction, and maintenance of sidewalks and bikeways located within the rights-of-way of public street and highways. The amount of Powell Bill funds received is based upon two criteria: the number of miles of streets to be maintained and the municipality's population. The source of the Powell Bill funds is the gasoline tax imposed by the State on users of the highway system. Municipalities within the Cabarrus-Rowan MPO are projected to receive approximately \$10 million annually over the next 25 years. This estimate is based on historical trend of the Powell Bill funds forecasted to the year 2050.

Table 8-2 lists the annual Powell Bill revenue based on current expenditures provided by NCDOT.

NCDOT also provides funding for maintaining and paving secondary roads to both Rowan and Cabarrus Counties. Each county must review a list of roads that are scheduled for improvements by NCDOT over the next year. These improvements do not include general widening/capacity improvements. The Cabarrus-Rowan MPO is projected to receive approximately \$37 million annually over the next 25 years. This estimate is based on historical trend of the NCDOT Maintenance Program forecasted to the year 2050.

Table 8-3 lists the annual Maintenance Revenues based on current expenditures provided by NCDOT.

8.2 Financial Projections and Calculations

The following section presents an assessment and analysis of available funds for the CR MPO Transportation Plan from current sources. NCDOT has provided funding projections for state and federal funds. The methodology includes:

- Forecast of Federal and State Strategic Investment Formula Funds
- Forecast of Maintenance Revenue
- Forecast of Powell Bill Revenue

The methodology for calculating the Strategic Investment Formula funds is listed below:

The Strategic Mobility Formula replaces the state's outdated Equity Formula, which was implemented in 1989 and had not provided sufficient flexibility to meet North Carolina's current needs. NCDOT's previous 10-year plan included 260 projects and created 240,000 jobs. The new formula would fund at least 478 projects and create more than 292,000 jobs over the next 10 years. The Strategic Mobility Formula takes a tiered approach to funding transportation improvements, with the statewide level receiving 40 percent of available funding (\$8.2 billion), the regional level receiving 30 percent of available funding (\$6.1 billion) and the division level also receiving 30 percent of available funding (\$6.1 billion) over the next 10 years. The new formula was fully implemented on July 1, 2015. Projects funded for construction before then will proceed as scheduled; projects slated after that time will be ranked and programmed according to the new formula.

For the MPO's MTP, the revenue for the first horizon year 2025 is consistent with the 2020-2029 State TIP. Project schedules were adjusted to coincide with completion dates projected through the 2020-2029 STIP. As part of the previous STIP, NCDOT decided to fund the widening of I-85 (I-3803) in Cabarrus County with Trust Fund and GARVEE Bonds, which allows NCDOT to leverage more debt by borrowing against future federal revenues. The CR MPO was projecting an annual payout of about \$4.5 million annually over the next 20 years to retire the debt (\$103 million) on this project through the TIP/Equity Formula funds in NCDOT Division 10. However, the STI eliminated the pay back on GARVEE funds, so this liability is no longer a factor in the MPO's Financial Plan.

Moreover, the NCDOT has historically provided to the NC MPOs annual statewide projections for construction expenditures. These projections included a very modest inflation factor over time, averaging less than 1 percent a year. (The NCDOT Board is re-considering this number as inflation has become a real factor for estimating project costs.) Each MPO would determine how to allocate these funds from the state level to the region, division, and county level. Beginning in the summer of 2015, all projects will be evaluated as part of a three tier system: statewide, regional and division. (As indicated for a 10 year increment, the MPO assumed \$6.1 billion statewide for regional tier projects and \$6.1 billion statewide for division tier projects.) In order to allocate revenue between 2018 and 2050, the CR MPO assumed that the new formula would translate a fair share of funds from the state level to each county in the state based on population and equal share for the regional tier and division tier projects. (The CR MPO only has a few legitimate highway projects that would qualify for the portion of funds allocated to the statewide tier.) The CR MPO used the average population for each county (based on projections from the Office of State Planning) for each of the horizon years (2025, 2035, 2045, and 2050) as a basis for determining the available funds by tier and county. The CR MPO calculated these funds for each of the counties within both NCDOT Divisions, so that a regional allocation could be obtained for the surrounding counties in neighboring MPOs. The CR MPO forecasted Maintenance and Powell Bill revenue by using historical data and the forecast function in Microsoft Excel. A 1 percent contingency factor was added to the NCDOT Maintenance Program for Non-Roadway Maintenance i.e. lighting, traffic signals, traffic cameras, etc.

Table 8-4 provides a summary of estimated State and Federal Revenues for the CR MPO.

8.3 Project Cost Estimates

Cost estimates for all projects identified on the Metropolitan Transportation Plan were developed by using a cost spreadsheet provided by the NCDOT, TIP Unit. The cost figures accounted for specific project-related items including:

- New roadways based on cross section (i.e., number of lanes, median, curb and gutter, shoulders, structures, etc.);
- Widening existing facilities;
- New bridges or grade separations;
- Bridge widenings;

- Preliminary engineering; and
- Inflation, overhead, administration, and contingency.

Tables 8-5, 8-6, 8-7, and 8-8 included all Transportation Plan projects by Horizon Year (2025, 2035, 2045, and 2050) and the project termini, length, existing cross-section, ultimate cross-section, and estimated total cost.

In addition, the MPO did not program the full allocation by horizon year in order to account for a substantial decreased buying power over time. Therefore, spending was constrained (by horizon year) to balance against inflationary costs. The 2050 horizon year is particularly lean with only 4 projects complete and open for traffic during this time period. Moreover, a percentage of the project cost was dedicated to miscellaneous contract expenses and to contingency expenses. By contrast, the 2045 Horizon Year is bolstered by the financial commitments and cost estimates in the 2020-2029 State TIP.

8.4 Additional Funding Sources and Conclusion

This section outlines the current local funds used for capital road projects and road maintenance. A factor not included in the overall revenue projections is local revenue and transit subsidies. Several MPO member jurisdictions program transportation projects through their respective municipal budgets. The City of Concord has a 2 cent tax on real property to pay for transportation projects such as sidewalks and intersection improvements. This tax is projected to generate approximately \$4 million annually by the year 2050. The City of Concord has a \$5 vehicle license tax and the City of Kannapolis has a \$25 vehicle license tax that is used to supplement expenses for the local Rider Transit System. These fees are projected to generate approximately \$1.8 million annually for the 2 cities for Rider by 2050. The City of Salisbury collects a \$5 vehicle license tax for their local transit system, which is projected to generate \$162,000 annually by 2050. The City of Salisbury and the City of Concord also receive grant funds for operating the 2 fixed route transit systems in the MPO: Rider and Salisbury Transit. In addition to these funds, the State and Federal government provide a large amount of subsidies required to maintain and operate urban transit services. The operations grant alone is projected to produce over \$4 million annually by the year 2050. These funds are contingent upon annual grant allocations from the State and Federal governments and can fluctuate depending upon state and federal policy. In addition, the inclusion of the financial assumptions from the Long Range Public Transportation Master Plan (LRPTM) for Cabarrus County provide the following projected revenues for the service expansions to Rider Transit.

Total 20 Year Plan Projected Revenue

1 Cent Sales Tax Adjusted (beg. 2026)	\$783,266,087
Federal Allocation Adjusted	\$49,996,934

State Allocation Adjusted	\$15,707,459
Current Annual Farebox from Rider	\$50,246,582
Current Annual CCTS Reimbursements	<u>\$31,398,707</u>
<i>Total Revenue</i>	<i>\$930,615,772</i>

The 2050 MTP has adjusted these numbers to cover the remaining horizon years of this plan. Some form of High Capacity Transit into Cabarrus County could begin as early as 2046 pending additional sales tax revenue to extend the LYNX/Blue Line out of Mecklenburg County.

Table 8-9, 8-10, 8-11, 8-12, and 8-13 provide a summary of estimated Local and Federal Transit Revenues for the CR MPO.

Finally, private development can be a large contributor to the transportation system through exactions. Through diligent planning and earlier project identification, regulations, policies, and procedures could be developed to protect future thoroughfare corridors and require contributions from developers when the property is subdivided. These measures would reduce the cost of ROW and would require (in some cases) the developer to make improvements to the roadway that would result in a lower cost when the improvement is actually constructed. To accomplish this goal, it will take a cooperative effort between local planning staff, NCDOT Division staff, and the development community. The MPO facilitated the development and completion of the Comprehensive Transportation Plan Highway map and Index as tools to assist in this endeavor. Often overlooked in MPO plans is the NCDOT Street and Driveway Access Permitting process which is the portal for establishing the need for a Traffic Impact Study (TIS). The TIS is the tool for determining the level of improvements required of the prospective property owner(s) or developer and can be submitted with a site plan in order to satisfy requirements toward NCDOT granting access to the street system in the form of a permit. The permitting process includes other items such as bonding, inspection/verification, or a plan of record. Over time these local and division tools will hopefully reduce the right-of-way costs and construct more affordable infrastructure for the area's streets and highways.

Appendix 8-2 includes an overview of the NCDOT Street and Driveway Access Permit Process

CHAPTER 9 CONGESTION MANAGEMENT PROCESS

The Cabarrus-Rowan MPO (CRMPO) is designated by the Federal Highway Administration as a Transportation Management Area (TMA). Under this designation, the CRMPO must maintain a Congestion Management Process (CMP) that will address

the area's congested corridors. The CMP plays a key role in identifying strategies and projects that will assist in reducing congestion and improving air quality in the region.

9.1 Objective

The objective of the CRMPO CMP is to measure and manage congestion of the current and future transportation system through data collection, travel demand modeling, and highway capacity analysis.

Goals

The following goals are outlined in the Metropolitan Transportation Plan (MTP) and the Prospectus and should be applicable to efforts to reduce congestion and implement the CMP.

Highway System Goal – Develop an efficient street and highway network for the Cabarrus-Rowan Urban Area

Congestion Management Goal – Develop a local thoroughfare system that minimizes traffic congestion and maximizes system preservation

Bicycle and Pedestrian Goal – Promote development of an integrated bicycle and pedestrian network

Environmental Goal – Develop a transportation system, which preserves and enhances the natural and built environments

Title VI and Environmental Justice Goal – Promote a transportation system that does not disproportionately impact minority and low-income populations.

Public Transportation Goal – Support efforts to improve mobility for Urban Area residents

Freight Goal – Develop a transportation system that encourages safe and secure movement of freight goods within and outside the Urban Area

Process

The following steps should be followed in order to achieve the objective and meet the goals of the CRMPO CMP:

- 1) Define congestion for the existing transportation network;

- 2) Evaluation and monitoring of the operational performance of the transportation network;
- 3) Identification of congested corridors;
- 4) Evaluation and identification of appropriate strategies to alleviate congestion;
- 5) Implementation of appropriate congestion management or mobility enhancement strategies;
- 6) Evaluation of the effectiveness of implemented strategies.

Defining Congestion

Fortunately, the CR MPO has minimal congestion at best outside of the urban core in Cabarrus County. Congestion does increase on the periphery towards the Charlotte Metro area, but is primarily a function of peak hour work trips into and out of Mecklenburg County. Nonetheless, it is important to define and understand what is meant by congestion and impeded travel. The Transportation Research Board has defined congestion as “travel time or delay in excess of that normally incurred under light or free-flow travel conditions.” There are two types of congestion: 1) recurring congestion that tends to be concentrated into short time periods that are predictable in pattern of time, location, and duration such as “rush hour” and is caused from excessive traffic volumes resulting in reduced speed and flow rate within the system; and 2) non-recurring congestion caused by unforeseen incidents (road accidents, spills, and stalls) which affect driver behavior and can be less predictable. The CMP will produce data related to both of these types of congestion. The Metrolina Regional Travel Demand Model produces volume to capacity ratios for peak hour travel i.e. “rush hour” in the AM and PM. NCDOT captures incidents and accidents through law enforcement reports of crashes. (It is estimated that 60 percent of traffic delay is caused by incidents in a typical urban area).

The CMP is “a systematic process that provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods to levels that meet state and local needs.” The operative word in this phrase is systematic and a CMP must serve as a consistent ongoing evaluation of congestion and mobility to be completely effective. Another important concept is the value or tolerance for some congestion within the urban area. Not all congestion is bad, particularly as it relates to influence on the shift in mode choice or transit attractiveness. Hence, the acceptable system performance may vary by transportation mode, time of day, or facility type. The CMP establishes criteria or parameters for locally acceptable standards of mobility in terms of travel time or delay. These parameters set the framework for monitoring/tracking the progress of congestion from a system or corridor level, which is followed by strategies and actions to meet those standards.

9.2 Evaluation of Network Performance

One of the best tools at the MPO’s disposal to evaluate the street network’s performance is the Metrolina Regional Travel Demand Model. This Model includes a host of congestion measures for both the base year and future year(s). The primary

performance measure for congestion is the level of traffic volume versus the total capacity of the facility i.e. volume-to-capacity or v/c ratio. The v/c ratio provides an indication of whether the road or street is experiencing free flow travel or excess capacity or whether the road or street is deficient or congested with excess travel or vehicles. A v/c ratio of 1.1 or greater indicates that the travel demand volume exceeds the available capacity of the roadway and forced flow conditions will inevitably result. The Highway Capacity Manual defines congestion in terms of level of service (LOS) ranging from A to F. The v/c ratios in the Regional Travel Model would roughly equate to the following LOS levels:

LOS A = v/c - 0 to .4

LOS B = v/c - .4 to .6

LOS C = v/c - .6 to .85

LOS D = v/c - .85 to 1.1

LOS E = v/c - 1.1 to 1.25

LOS F = v/c > 1.25

Table 9-2 lists the congested corridors as recommended by MPO jurisdictions with several performance measures

9.3 Strategies

The CRMPO has identified the following strategies for managing congestion along corridors in the transportation network. As the initial study only evaluated a relatively small sample of the thoroughfares in the network, only a few strategies were identified. As the CMP grows over time to become an integral process for the MTP and subsequent project planning, these strategies can grow into a more aggressive program with historical quantitative data to track their progress. One overall goal of the CMP will be to identify and measure strategies on corridors that consistently score at a LOS F (which is rare particularly in the northern half of the MPO area) and hopefully improve to a better level of service in the future.

- 1) Access Management – Manage access along major corridors with well-spaced driveways and connectivity between adjacent developments, and intersections designed to improve capacity and channel turning movements.
- 2) Intelligent Transportation Systems – Use of dynamic message signs to relay travel and roadway conditions to motorists on the interstate. Use of incident management to clear intersections and major roadways of congestion caused by accidents.

- 3) Roadway System Operational Improvements – Improve traffic signal coordination and intersection design to improve capacity and channel turning movements.
- 4) Public Transit Operational and Capital Improvements – Additional bus routes and parking space management to promote increased transit ridership.
- 5) Mass Transit Operational and Capital Improvements – Improve functional operation of regional express transit to the Charlotte urban core through evaluation of CCX and it's connectivity to the end of the LYNX/Blue Line Extension. Evaluate connection between Salisbury Transit and Concord/Kannapolis Area Transit Bus Center.
- 6) Highway Capacity – Addition of lanes, interchanges, or connecting facilities to the existing street network.
- 7) Non-motorized Transportation Improvements – Addition of bike lanes, sidewalks, and greenways to supplement the street network.
- 8) Special Event Congestion – Developing innovative measures to address congestion due to recurring large scale special events (i.e. Lowe's Motor Speedway Races).

Implementation

Current CMP Strategies In Place

- 1) Concord Charlotte Express (CCX) Service
- 2) Incident Management Assistance Program – I-85
- 3) Dynamic Message Signs – I-85
- 4) NCDOT's Traveler Information Management System
- 5) CATS vanpool
- 6) Salisbury Transit System
- 7) Concord/Kannapolis Area Transit System
- 8) NCDOT and City of Salisbury Traffic Cameras - www.salisburync.gov/trafficcams
- 9) Traffic signal coordination – City of Concord and City of Salisbury
- 10) Train station in Salisbury and Kannapolis for High Speed Rail

The implementation schedule will be spread across the horizon years of the Long Range Transportation Plan.

- Short-term (0-8 years):
 - TIP and MTP Project Selection consistency
 - Optimization of traffic signal system
 - Coordination of Concord/Kannapolis Transit (CKTS) with CCX schedule
 - Opening of the permanent bus transfer facility in Concord/Kannapolis that will be accessible by rail
 - TIP Project Development – bus, bicycle, and pedestrian facilities
 - Public/private partnerships in the urbanized area
 - Review parking standards for potential transit destinations
 - Intersection improvements to Poplar Tent and US 29 - CMAQ
 - Intersection improvements to US 601 and NC 3 - CMAQ

Salisbury Traffic Signal System Upgrade – CMAQ
Express bus connections to regional rail system

- Mid-term (9-18 years):
Expansion of Concord/Kannapolis and Salisbury transit service to reach underserved areas
Implementation of Regional ITS Program developed by NCDOT including surveillance cameras, changeable message signs, etc.
Local government carpool and bus incentive program
New Harrisburg Amtrak station
- Long-term (19-28 years)
Regional light rail connection to CATS Blue Line Extension
High Occupancy Toll (HOT) Lanes on I-85
Ramp Metering beyond Mecklenburg County

Recommended Strategies for Select Corridors

Corridor Segment	Alternative Strategies	2045 Recommended Strategy	Implement. Schedule
Branchview Dr. from Corban Ave N. to City Limits at I-85	Improved traffic signal coordination; intersection improvements; access management	Additional physical capacity; intersection improvements	Future Need identified in MPO Street Appendix
Brookwood Ave. NE from Church St. N to Branchview Dr.	Improved traffic signal coordination; intersection improvements; access management	Improved traffic signal coordination	Corridor Study completed by City of Concord
Cabarrus Ave. W from US Hwy 601 to US Hwy 29	Improved traffic signal coordination; intersection improvements; access management	Additional physical capacity; intersection improvements	Future Need identified in MPO Street Appendix
Cannon Blvd. From Concord City Limits to Rowan Co. Line	Improved traffic signal coordination; intersection improvements; access management; transit service	Improved traffic signal coordination	Future Need identified in MPO Street Appendix
Cochran Rd. from Roberta Rd. to Pitts School Rd.	Improved traffic signal coordination; intersection improvements; improvements to Pitt School Rd and Westside Bypass	Improved traffic signal coordination; improvements to Pitts School Rd and Westside Bypass	Future Need identified in MPO Street Appendix
Country Club Dr. NE from US Hwy 29 to Branchview Dr.	Improved traffic signal coordination; intersection improvements; access management	Improved traffic signal coordination; intersection improvements	Future Need identified in MPO Street Appendix
Dale Earnhardt Blvd. From Main St. to Cannon Blvd.	Improved traffic signal coordination; intersection improvements; access management	Improved traffic signal coordination; access management	Coordination to be studied and improved
NC Hwy 73 from Trinity Church Rd West to the City Limits	Improved traffic signal coordination; intersection improvements; access management	Additional physical capacity; intersection improvements	Access Management Study completed by NCDOT

I-85 from Concord Mills Blvd. To Rowan Co. Line	Special event transit service; access management at interchange ramps; express bus service; IMAP; ITS, ramp metering, managed lanes, flyover at exit 49	Additional physical capacity; access management at interchange ramps; IMAP; ITS	Funded TIP project
So. Main St. from Dale Earnhardt Blvd South to City Limits	Improved traffic signal coordination; intersection improvements; access management; transit service	Additional physical capacity; intersection improvements; access management; transit service	Future Need identified in MPO Street Appendix
US Hwy 601 from Miami Church Road to NC Hwy 49	Improved traffic signal coordination; intersection improvements; access management	Additional physical capacity; intersection improvements	Future Need identified in MPO Street Appendix

9.4 Evaluation and Time Frame

The evaluation of these strategies originated with the development of the 2035 MTP. As most of these strategies are long term in nature, it will require most of the life of the 2050 MTP to complete them. Timing and financing are the primary obstacles to implementation. The state and federal governments do not provide the necessary funding to appropriately address congestion on a comprehensive basis, nor have the local jurisdictions been able to adequately address concurrency of infrastructure with changes in land use. MPO and technical staff typically address congested hot spots in a piecemeal fashion as more high profile projects such as the interstate widening garners most of the attention. As funds become available either through discretionary grants, private sector participation, or the development review process, the schedule for implementing particular strategies may be truncated or hastened. With the growing funding “gap” in the fiscally constrained part of this MTP, it will be very difficult to program surface transportation program (STP) funds to address these needs. In fact, the immediate future (10 plus years) for any federal or state funds allocated to the Cabarrus-Rowan MPO has been delayed by funding shortfalls at the state level, so it may take several iterations of the MTP before these projects become fiscally implementable projects.

9.5 Monitoring and Update

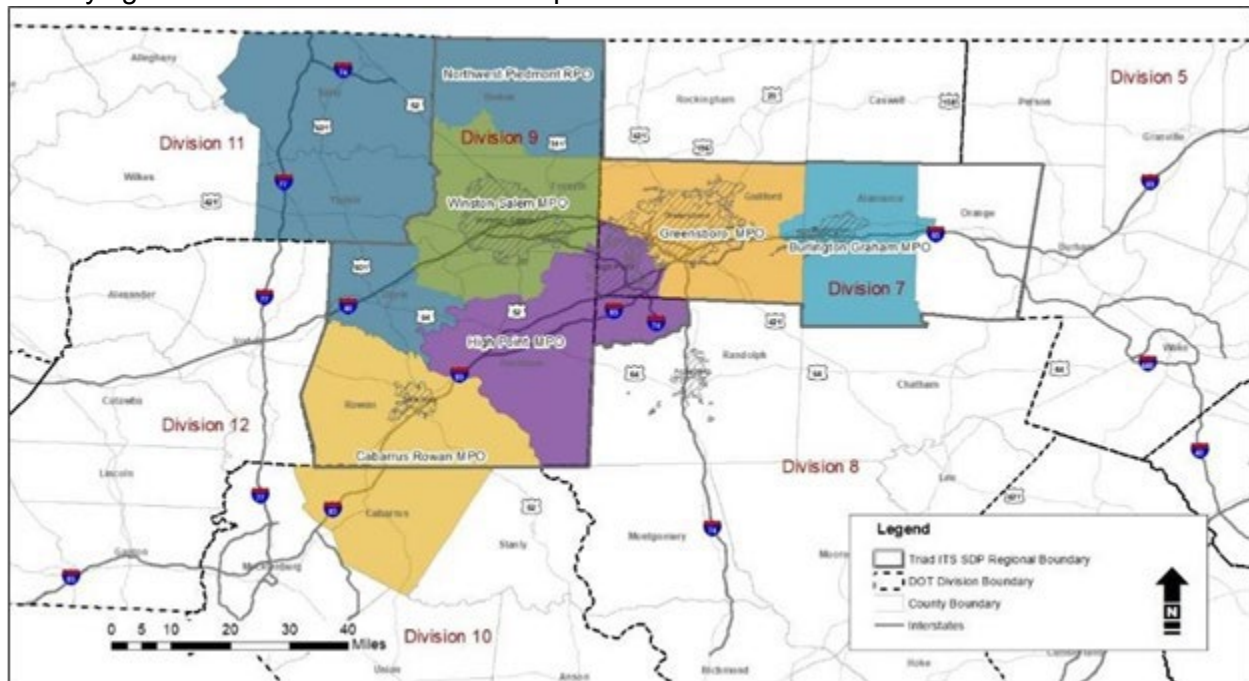
The CMP will require an ongoing program of data collection to identify and monitor system problems, identify system deficiencies, analyze alternative solutions, and measure the effectiveness of congestion management strategies and actions. This program can serve to inform the project selection process by the MPO for the MTP and Metropolitan TIP. Projects with high congestion measures should intuitively rise to the top. I-85 has been the top priority of the MPO and continues to serve as the critical link to the rest of the Metrolina Region.

The MPO will continue to evaluate congestion criteria and their effectiveness in conveying congestion levels and overall delay. MPO staff compiles information on intersections and travel delay. (As to be expected, several of the intersections overlap with the list of congested corridors.) To further analyze the congested corridors, the MPO will need to incorporate more extensive performance measures such as traveltime data as provided by the RITIS software. The network will also be re-examined through subsequent accident data and Regional Model updates.

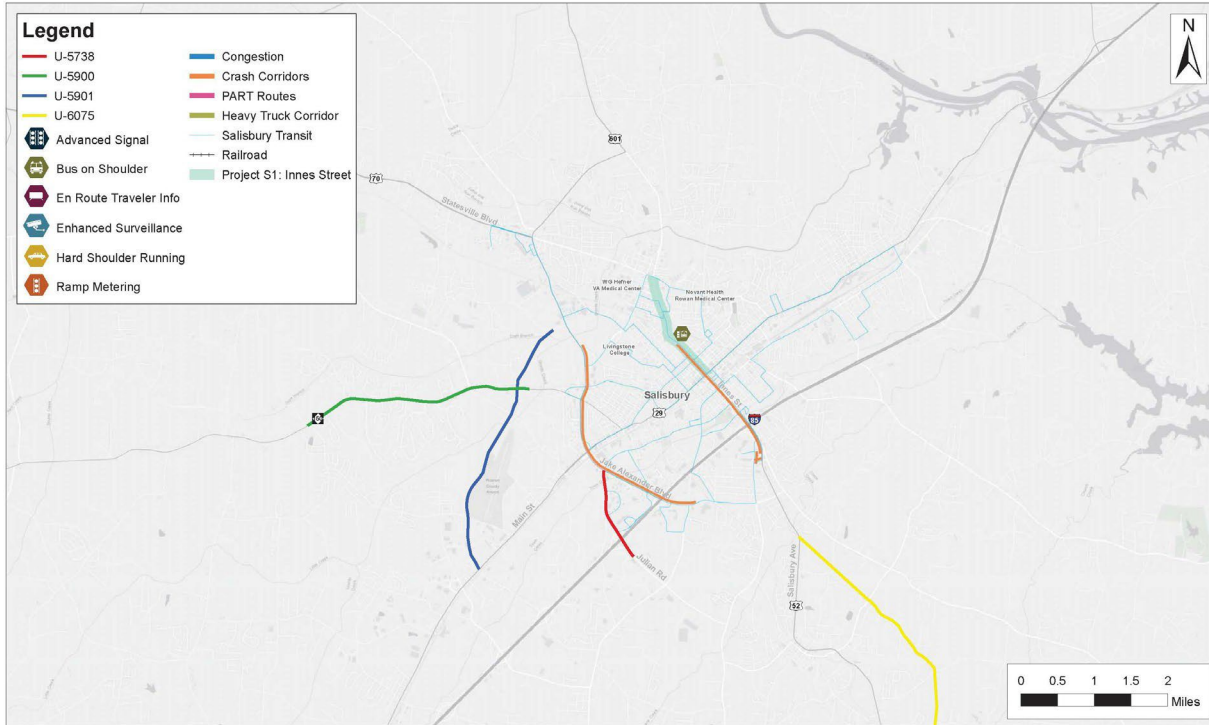
TRIAD REGIONAL ITS STRATEGIC DEPLOYMENT PLAN

The Triad Regional ITS Strategic Deployment Plan provided stakeholders with the tools to identify, prioritize, and implement projects that address regional needs. In addition, the SDP included the Triad Regional ITS Architecture which aligned with the National ITS Architecture Version 8.3. The SDP development defined regional goals for the Triad Region and applied the framework of a Capability Maturity Model (CMM) assessment to define gaps based on the existing conditions and the regional goals.

Figure 1 presents the geographic and jurisdictional boundaries for the purposes of identifying stakeholders in the SDP development.



A technology-agnostic project development strategy was applied to accommodate future fiscal budgets without committing to a specifically prescribed technology solution. The SDP recommended transit signal prioritization for Innes Street from Statesville Blvd to US 29, which would cost about \$500,000. A map of the Salisbury/Rowan projects considered for inclusion in the SDP is provided below:



For a copy of the Triad Regional ITS Strategic Deployment Plan document, contact the MPO office at (704) 795-7528.

CHAPTER 10 ENVIRONMENTAL RESOURCE EVALUATION

A past federal transportation bill, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or “SAFETEA-LU”, included planning requirements for MPO consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies, which was continued in the FAST Act and the Bipartisan Infrastructure Bill. This consultation was to include a general discussion on possible environmental mitigation activities that could be incorporated into transportation projects identified for this plan.

Since the transportation planning activities of the MPO are regional in scope, the environmental mitigation discussion would not focus on each individual project within the Transportation Plan but would rather offer a summary of environmentally sensitive areas to be aware of, the analyses conducted by the MPO to identify potential conflicts of planned projects, and mitigation strategies that could be considered in an effort to minimize any negative effect that a project may have on an environmentally sensitive area.

Specifically, SAFETEA-LU directed State DOTs and MPOs to include in their long range transportation plans and transportation improvement programs (TIP) “a discussion of the environmental mitigation activities and potential areas to carry out these activities,

including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion shall be developed in consultation with federal, state and tribal land management, wildlife and regulatory agencies."

In order to meet these requirements, it was essential to know how Federal regulations actually define mitigation:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments. (Source: 40 CFR 1508.20)

Identifying Sensitive Areas

There are numerous environmentally sensitive areas found throughout the Cabarrus-Rowan MPO area. Many areas are too small or too numerous to map at a regional level and can only be clearly identified through a project level analysis. Some areas are yet to be identified and will only become known once a project level analysis is completed, such as caves, sinkholes, and wetlands. When a project is ready to move from the Transportation Plan into the design / engineering phases, the project sponsor will conduct any necessary analysis as required by state and federal regulations to determine the type and location of environmentally sensitive areas within the project study area.

In developing project lists for the MTP, the Cabarrus-Rowan MPO conducted a top level analysis to determine the potential need for future environmental mitigation. Specifically, the Cabarrus-Rowan MPO looked at proposed project locations throughout the region to determine their proximity to natural or socio-cultural resources. That analysis provided early guidance to project sponsors to develop mitigation strategies.

The following maps identify the various sensitive natural and community resources as well as the fiscally constrained projects for the 2050 MTP.

Map 10-1 shows the various sensitive natural resources

Map 10-2 shows the various sensitive community resources

Table 10-1 is an impact matrix for highway projects and sensitive natural and community resources

Environmental Mitigation Activities

The Cabarrus-Rowan MPO is committed to considering the effects of transportation projects on the natural and built environments in order to preserve the quality of life. In doing so, the MPO recognizes that not every project will require the same type and/ or level of mitigation. Some projects such as new roadways and roadway widenings involve major construction with considerable earth disturbance. Others like intersection improvements, street lighting, and resurfacing projects involve minor construction and might have minimal, if any, earth disturbance. The mitigation efforts used for a project should be dependant upon how severe the impact on environmentally sensitive areas is expected to be. The following four step process is used to determine the type of mitigation strategy to apply for any given project:

1. Identify environmentally sensitive areas throughout the planning area;
2. Determine how and to what extent projects could impact these environmentally sensitive areas; and
3. Develop toolbox of appropriate mitigation strategies to lessen the impact these projects have on the environmentally sensitive areas.
4. Apply the mitigation strategies, where appropriate, in assessing project alternatives and funding scenarios for plans and programs

To the extent possible, transportation projects are minimized off-site disturbance in sensitive areas and develop strategies to preserve air and water quality, limit tree removal, minimize grading and other earth disturbance, provide erosion and sediment control, and limit noise and vibration. Where feasible, alternative designs or alignments are developed that should help lessen the project's impact on environmentally sensitive areas.

The four step mitigation planning process is designed to solicit public input and offer alternative designs or alignments and mitigation strategies for comment by the environmental review agencies, MPO, and local governments. For major construction projects, such as new roadways, or for projects that may have a region-wide environmental impact, a context sensitive solutions' process is considered in which considerable public participation and alternative design solutions are used to lessen the impact of the project.

The table below details mitigation activities and measures that could be considered and evaluated when avoiding environmental impacts is not completely feasible. Many of the measures are considered by the MPO during the project development phase. Measures considered include construction of sidewalks and bicycle lanes, design modifications to reduce community impacts, and requests for noise barriers and landscaping to reduce audio and visual impacts.

Impacts	Mitigation Measures
Air Quality	Designate Pedestrian/Transit Oriented Development Areas Adopt Local Air Quality Mitigation Fee Program Develop energy efficient incentive Programs Adopt air quality enhancing design guidelines Fund TCM Program
Archaeological	Archaeological Excavation Design Modifications to avoid area Educational Activities
Community Impacts	Bridge Community Sidewalks Bike Lanes Develop recreational areas Traffic Calming Oral History Project
Farmland	Protect one to one farmland acre for every acre converted Agricultural conservation easement on farmland Compensation
Fragmented Animal Habitats	Construct overpasses with vegetation Construct underpasses, such as culverts and viaducts Other design measures to minimize potential fragmenting of animal habitats
Historic Sites	Relocation of Historical Property Design Modification Landscaping to reduce visual impacts Photo documentation Historic archival recording to present historic information to the public
Light Impacts	Lens Color Direction of lighting Low Level lighting
Noise	Depressed Roads Noise Barriers Planting Trees Construct Tunnels
Park Impacts	Construct bike/pedestrian pathways Dedicate land Compensation for park dedication fees Replace impaired functions
Streams	Stream restoration Vegetative buffer zones Strict erosion and sedimentation control measures Consider best practices for stormwater management
Threatened & Endangered Species	Preservation Enhancement or restoration of degraded habitat Creation of new habitats Establishment of Buffer areas around existing habitats Modifications of land use practices

	Restrictions on land access
Viewshed Impacts	Vegetation and Landscaping Screening Buffers Earthen Berms Camouflage Lighting
Wetlands	Compensation Wetland Restoration Creation of new wetlands Strict erosion and sedimentation control measures

In addition to these activities, the Cabarrus-Rowan MPO will use the NCDENR Ecosystem Enhancement Program (EEP) as a resource for protecting and enhancing water quality and any applicable habitat plan. The mission of the EEP is *“to restore, enhance, preserve and protect the functions associated with wetlands, streams, and riparian area including but not limited to those necessary for the restoration, maintenance and protection of water quality and riparian habitats throughout North Carolina”*. This mission can be met through such mechanisms as watershed restoration plans, watershed needs assessments, mitigation sites, mitigation plan reporting, and schedules for providing compensatory mitigation. NCDOT has already begun to delineate mitigation costs for TIP projects from the overall right-of-way cost. For example, the I-85 widening (I-3803) in Cabarrus County had approximately \$5 million in funding for mitigation activities. The US EPA also promotes the “Green Highways Partnership” which integrates transportation functionality and ecological sustainability through the use of permeable construction materials that can be recycled and designed with the intent of protecting habitats and ecosystems. The Cabarrus-Rowan MPO will identify opportunities to evaluate this concept in tandem with NCDOT highway planners and designers for the purposes of making future roadway projects more environmentally-friendly.

Moreover, the NC Wildlife Resources Commission (WRC) has released guidance for mitigating cumulative impacts to aquatic and terrestrial wildlife resources, which include 100 foot buffers on perennial streams and 50 foot buffers along intermittent streams and wetlands. In addition, they recommend that local governments prohibit commercial and residential development within the 100 year floodplain and provide sufficient open space to effectively reduce impervious surface. Public lands make up less than 5 percent of the Yadkin-Pee Dee basin, which covers the CR MPO area. The NC WRC Wildlife Action Plan recommends protection of large tracts (greater than 500 acres) to protect large core areas of forested land. The Cabarrus-Rowan MPO will attempt to avoid these lands as practice in planning future thoroughfares as well as projecting future TAZ level demographic growth for the Travel Model. On-going coordination with local agencies is an evolving process as they become more aware of the MPO plans and programs and the MPO becomes more aware of their goals and mission. A problem exists in that most local agencies move at a much faster pace than the plans and programs of the MPO, so there is some concern that it may be difficult to retain their

interest/participation. The MPO can endeavor to receive up-to-date data layers from these local agencies for the purposes of avoiding any future conflicts.

Resource Agency Consultation and Review

The Cabarrus-Rowan MPO is committed to involving environmental review agencies, local governments, and the public in the transportation project planning process. In doing so, the Cabarrus-Rowan MPO has provided a consensus process for obtaining input from the environmental review agencies to strengthen the development of this MTP. This process is detailed below.

Cabarrus-Rowan MPO Consultation Process

The purpose of this Consultation Process is to plan and develop a transportation system which preserves and enhances the natural and built environment(s) of our community.

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 23 CFR 450.322.

The Cabarrus-Rowan MPO will strive to include the participation of the resource agencies throughout the development of the Metropolitan Transportation Plan (MTP). This consultation plan is being developed for the MTP as follows:

- During the development of the MTP, state and federal resource agencies listed in Appendix (A) as well as any relevant local resource agencies will be contacted to provide input prior to the Cabarrus-Rowan MPO board making decisions during the following plan milestones:
 - Development of the goals and objectives
 - Development of evaluation criteria
 - Development of tools and data needed
 - Development of base year data
 - Development of future year data
 - Development of the draft plan
 - Adoption of the final plan
- The Cabarrus-Rowan MPO will compare the current long range transportation plan in development to available maps, inventories, plans, policies and strategies as listed by the agency contacts. The MPO will document in writing the comparison of plans and provide to the resource agencies for review and comment prior to any decision points that might rely upon said data.
- The Cabarrus-Rowan MPO will provide the resource agencies with a schedule for the development of the MTP that details tasks and timeframe for the update including decision points where agencies will be asked for their feedback.
- The Cabarrus-Rowan MPO will use the US Postal Service, e-mail, website, telephone or conference call, private face-to-face and public meetings to ensure that the MTP process is accessible to resource agencies.
- In addition, the Cabarrus-Rowan MPO will provide written notice to the resource agencies of upcoming public review meetings or public comment periods being held on the draft and final MTP and Air Quality Conformity process.

- Amendments to the MTP requiring an air quality conformity determination and/or analysis (additions or deletions of regionally significant projects) will follow the same consultation notification as listed above.
- Resource agency comments, MPO responses, and changes to the MTP as a result of the comments will be posted on the Cabarrus-Rowan MPOs website, made available upon request, and published in an appendix to the MTP.

Additional Agency Consultation

NC State Historic Preservation Office

In addition to working with the NCSHPO, the Cabarrus-Rowan MPO will work with the local Historic Properties Districts and Commissions in Concord and Salisbury to obtain GIS mapping of historical sites and areas. The MPO will ask the local HPDs and HPCs to review and comment on the MTP.

Salisbury Historic Preservation Commission

The Historic Preservation Commission is responsible for receiving and approving certificates of appropriateness for structures within local historic districts as well as recommending to the Salisbury City Council areas to be designated by ordinance as local historic districts. The City of Salisbury has ten historic districts listed on the National Register with five of those areas designated as local districts. The MPO will ask the Salisbury HPC to review and comment on the MTP.

Concord Historic Preservation Commission

The Historic District Commission was established in order to promote, enhance and preserve the character of the district, and to administer the Commission's Ordinance. The City of Concord has three historic districts. The MPO will ask the Concord HPC to review and comment on the MTP.

Agency	Division of Agency	Contact Information	Available Data	Format / Location
N.C. Department of Agriculture and Consumer Services (NC DA&CS)	Environmental Programs Division/ Farmland Preservation	Maximilian (Max) Merrill Env. Program Specialist 1035 Mail Service Center, Raleigh, NC 27699 maximilian.merrill@ncagr.gov 919-733-7125	Livestock Operation Site, Soils, Historical Farm Sites, Land Cover data	Contact person- Emergency Program
N.C. Department of Cultural Resources (DCR)	State Historic Preservation Office (SHPO) Office of State Archeology (OSA)	Sarah McBride Preservation Specialist for Transportation Projects Renee Gledhill-Earley Environmental Review Coordinator 4617 Mail Service Center, Raleigh, NC 27699 renee.gledhill-earley@ncdcr.gov 919-807-6579 Dolores Hall Deputy State Archaeologist dolores.hall@ncdcr.gov 919-807-6553	Historic Properties and Archeological Sites	USGS Quad Maps Available in SHPO and OSA Offices by appointment
N.C. Department of Environment and Natural resources (DENR)	CGIA	David Giordano NC OneMap Database Administrator 1601 Mail Service Center, Raleigh, NC 27699 david.giordano@ncdenr.gov 919-733-2090 or 919-715-3770	NC OneMap GIS Database	http://www.nconemap.net

NCDENR- Division of Water Quality	DWQ / Transportation Permitting Unit	Dave Wanucha 450 W Hanes Mill Rd Ste 300 Winston-Salem, NC 27105-7407 Dave.wanucha@ncdenr.gov 336-776-9703 Alan Johnson 610 East Center Ave. Suite 301 Mooresville, NC 28115 alan.johnson@ncdenr.gov 704-663-1699 ext. 2190		Contact person
N.C. Department of Crime Control & Public Safety	Division of Emergency Management	Michael Sprayberry Director 4713 Mail Service Center, Raleigh, NC 27699 msprayberry@ncem.org 919-825-2291	Homeland Security	
US Environmental Protection Agency (EPA)	Region 4, Environmental Information Services Branch	Amanetta Somerville Program Analyst Sam Nunn Atlanta Federal Center 61 Forsyth Street, S.W., Suite 17T50 Atlanta, GA 30303 somerville.amanetta@epa.gov 404-562-8282	Southeastern Ecological Framework and Region 4 Atlas	http://www.epa.gov/region4/gis or http://geobook.sain.utk.edu
US Environmental Protection Agency (EPA)	Region 4, NEPA Program, Raleigh Office	Ntale Kajumba 61 Forsyth Street, S.W., Suite 17T50 Atlanta, GA 30303 kajumba.ntale@epa.gov 404-562-9025	NEPA compliance and cross-cutting issues (e.g. CERCLA& RCRA sites)	http://www.epa.gov/compliance/resources/faqs/nepa/index.html

US Fish & Wildlife Service (USFWS)	NC Field Offices (Raleigh), Ecological Services	Asheville Field Office - Ecological Services - Marella Buncick 160 Zillicoa St. Asheville, NC 28801 marella_buncick@fws.gov 828-258-3939 x 237	1. Priority natural communities & habitat 2. Info on federally listed species (by county) 3. Species recovery plans	1. Contact Person 2. http://www.fws.gov/southeast/es/ 3. http://www.fws.gov/southeast/es/
NC Wildlife Resources Commission (WRC)	Inland fisheries-habitat conservation	Marla Chambers NC Wildlife Resources Commission 12275 Swift Rd. Oakboro, NC 28129 marla.chambers@ncwildlife.org 704-982-9181	Eastern DOT Projects Coordination/ Contact; Wildlife Action Plans	http://www.ncwildlife.org/
Federal Highway Administration (FHWA)	NC Division Office Planning & Program Development Unit	Loretta Barren loretta.barren@dot.gov 310 New Bern Avenue, Suite 410, Raleigh, NC 27601 919-707-7025	Legislation/ evidence, Peer exchange programs, linking planning & NEPA, CSS tools, Funding options / opportunities, air quality	Contact person

North Carolina Department of Transportation	Transportation Planning Branch	MPO Coordinators 1554 Mail Service Center, Raleigh, NC 27699 Roger Castillo - rcastillo@ncdot.gov (and others)		
Federal Transit Authority	Region 4 Administrator	Tajsha LaShore FTA Region IV 230 Peachtree Street, Suite 800 Atlanta, GA 30303 404-865-5606 Tajsha.LaShore@dot.gov		
US Army Corp of Engineers (USACE)	USAED, Wilmington District, Regulatory Division	Eric Alsmeyer 3331 Heritage Trade Drive, Suite 105 Wake Forest, NC 27587 919-554-4884 x23 John.T.Thomas.Jr@saw02.usace.army.mil 919-876-8441 x 25 Steven Kichefski 151 Patton Ave. Room 208 Asheville, NC 28801-5006 Steven.L.Kichefski@saw02.usace.army.mil	Army permit requirements and wetland information	www.saw.usace.army.mil/wetlands

Appendix 10-1 includes additional documented consultation, coordination, and outreach.

Chapter 11 Environmental Justice and Traditionally Underserved Populations

Background

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994) is a product of Title VI of the Civil Rights Act of 1964 and the Stafford Act (1974). Title VI prohibits discrimination on the basis of race, color, and national origin and Stafford Act prohibits discrimination based on distribution of benefits based on income. Executive Order 12898 and the US DOT Order on Environmental Justice address persons belonging to the following groups: blacks, Hispanics, Asian Americans, and American Indians, Alaskan Natives, and low-income (persons with household income below the US Department of Health and Human Services poverty guidelines). The Cabarrus-Rowan MPO has mapped these populations using 2015 – 2019 American Community Survey data and factored their geographic concentrations in the development of the 2050 MTP. Federal guidance for MPOs when developing the MTP includes the evaluation of transportation projects to determine that they do not burden environmental justice areas when compared to the overall network of current and committed future projects. The Cabarrus Rowan MPO uses the results of environmental justice mapping and analysis to inform their decisions when selecting the projects that are included in the MTP, the Strategic Priority process and the Metropolitan Transportation Improvement Program.

Federal Executive Order 12898 sets out requirements for transportation and Environmental Justice. Even though the term “environmental justice” is not in federal legislation, the concept and its application have been developed through a succession of court cases, federal regulations and memoranda, and Executive Orders.

Environment Justice seeks to ensure the disadvantaged:

- 1) have access to the decision-making process;
- 2) realize benefits from investments that are commensurate with the population as a whole;
- 3) do not shoulder a disproportionate share of the negative effects and burden resulting from the implementation of transportation projects;
- 4) Do not incur a disproportionate share of the financial cost.

The primary intent is to demonstrate that minority and low-income communities would not be disproportionately affected in an adverse manner under the MTP. The Environmental Justice requirements also influence public involvement, and these requirements are satisfied under the MPO’s Public Participation Plan and the additional outreach steps taken for the MTP public involvement efforts in minority and low-income communities.

Environmental Justice is a concept intended to avoid the use of federal funds for projects, programs, or other activities that generate disproportionate or discriminatory adverse impacts on minority or low-income populations. Environmental justice requires the MPO to examine the allocation of benefits and burdens, historically and currently, and planned for the future; to ensure that minority and low-income communities are

treated equitably in the provision of transportation services and projects; and to provide full participation for minority and low-income communities to advise the MPO during its planning and decision-making process.

This effort is consistent with Title VI of the 1964 Civil Rights Act, and is promoted by the U.S. Department of Transportation (USDOT) as an integral part of the long-range transportation planning process, as well as individual project planning and design. The environmental justice assessment incorporated in the MTP update is based on three basic principles, derived from guidance issued by the USDOT:

- The planning process should minimize, mitigate, or avoid environmental impacts (including economic, social, and human health impacts) that affect minority and low-income populations with disproportionate severity.
- The benefits intended to result from the transportation planning process should not be delayed, reduced, or denied to minority and low income populations.
- Any community potentially affected by outcomes of the transportation planning process should be provided with the opportunity for complete and equitable participation in decision-making

Access to the Decision-making Process

The MPO endeavors to develop and carry out a public involvement process that not only reduces obstacles to participation by minority and low-income communities, but also actively seeks out their input. Elements of the MTP are available online and at public venues such as planning departments and county offices. Notices of the public review periods are published in local newspapers and sent by email to community groups, neighborhood associations, and government agencies. Public meetings are held with minority and low-income focus groups in the majority minority community of East Spencer, Centerview Neighborhood Association in Kannapolis, and the Logan Community Center in Concord to obtain feedback on elements of the MTP including goals and objectives, financial projections, and project priorities.

Plan or Project Benefits

The investments in transportation infrastructure included in this MTP will benefit the MPO's population in several ways including increased mobility, safety, time savings, and economic development/opportunity. People in poorer households without a reliable vehicle, or with no vehicle at all, have a reduced level of mobility and access to jobs. On average, minorities are more dependent on transit, have higher occupancy levels in automobiles through carpooling or car sharing, and have lower levels of vehicle ownership. A high percentage of African-American, Hispanic, and Asian households have no vehicle and are more frequent users of alternative modes of transportation.

The transit service planned in the 2050 MTP will disproportionately benefit low-income populations that do not have access or financial means for personal vehicles and/or the disabled who may not be able to operate a vehicle. The CR MPO currently has 3 transit operators in the area with all of them providing fixed route service of some form. All of

them provide targeted service to these populations either through stop placement, route location, or door-to-door service. The minority and low income (MLI) population mapping for CR MPO shows good transit service coverage in relation to both MLI census block areas and zero vehicle ownership populations. However, the Hispanic population is more dispersed geographically and not clustered near transit route service. Transit dependent MLI populations in the outer county areas (northwest in Rowan and northwest of Kannapolis, east of 85 and south along the county line in Cabarrus) have fewer options for mobility.

The Salisbury Transit and Rider Transit service providers have taken additional steps in the past four years to reach out to the Spanish language community and provide additional service and new stops in low-income communities. Salisbury Transit staff have previously met with Hispanic community leaders and groups to introduce and promote transit services along with the Language Line Solutions which is available to assist with translations of all types of documents and materials on various platforms. Bus route schedules and other informational flyers are printed in the preferred language upon request. In addition, bilingual City staff is available to assist with interpretation and access to the system.

Recent fixed route service added by Salisbury Transit include added stops to the Greyhound bus station and extending Route 2 to the Lash Drive Community. Stops were included at Crosswinds, Fleming Heights, Lakewood Apts., Food Lion on Statesville Boulevard and service extended to accommodate new businesses, I. E. Wallace Commons Shopping Center, medical facilities on Julian Road, Jake Alexander Boulevard, the Morlan Park area, Lincolnton Road, and multi-family communities such as the Salisbury Village Apartments.

Rider Transit bus schedules and route maps are printed in Spanish and important notices, particularly related to service changes and holiday schedules are posted in both English and Spanish. The web site is fully translatable into many languages, including Spanish. Numerous social media campaigns have been published in both English and Spanish. The Rider customer service team has access to a language translation service, in which a live representative is available by phone or webcam for instant translation services. The customer service team uses a set of "I speak" cards to determine what language the person speaks/understands. Electronic voice translators have been installed on each bus so that operators can communicate with non-English speaking customers.

Rider Transit added Sunday service in 2013, directly operates ADA Paratransit services and added a new Rider Express service to the end of the LYNX/Blue Line Extension at the J.W. Clay Station in the spring of 2018.

Rider Transit is working to ensure that all new stops, or stops being improved, are ADA accessible and has recently implemented new NCDOT approved bus stop standards. In 2017, Rider Transit did a full assessment of every stop in the system, ranking them in order in terms of the current level of accessibility, and created a transition plan to

continue to make the system more accessible in the coming years. Older stops that need improvements are prioritized by stop usage. When new stops are added to the system, a concrete pad and/or sidewalks, or a hard level surface with connectivity to the common means of egress are installed.

Rider Transit has added real time information in Google Mapping, as well as rolled out a new transit app (PassioGO!). Both allow additional freedom of mobility for all passengers, including those with disabilities, particularly by allowing directions to every stop in the system to be mapped and, if needed the directions read out to assist passengers getting to and from bus stops. The Rider website has been refreshed and updated to make it more ADA accessible to web reading tools for passengers with disabilities. Rider has also added free Wi-Fi access at the Rider Transit Center, and upgraded the free Wi-Fi on all our passenger carrying vehicles to help improve internet connectivity and access to information for all passengers. Rider has eliminated our paper pass/ticket system for ADA Paratransit passengers, replacing it with a new digital fare system that allows passengers to either use a reloadable smart card, or their phone to purchase ADA Paratransit trips, with a lower cost threshold and the ability to purchase rides 24/7/365. Whenever new stops are added to the system, Rider staff makes sure that they have a concrete pad and/or sidewalks, or at least a hard level surface, with connectivity to the common means of egress. Rider staff continues to reference the 2017 document that ranks every stop in terms of the current level of accessibility, and provides a transition plan to continue to make the Rider Transit system more accessible in the future years.

For safety and security, all stops with 6 to 9.99 average daily ridership are scheduled for seating and solar lighting and stops with 10.0 or more riders per day are scheduled to receive a shelter, seating, trash can and solar lighting. Shelters are designed to accommodate a mobility device adjacent to the fixed seating. Although there is no stop level surveillance, all the buses are equipped with both internal and external cameras providing 360 degree external coverage around the bus while on route. Rider is currently in the site design process of an amenity installation plan. When complete (anticipated at the end of 2022), 80 of our 266 bus stop sites (or 30 percent) will be equipped with amenities.

As the CR MPO grows more densely populated, transit service will become more efficient and accessible. The recent implementation of daytime service connecting from the Rider Transit Center to the J.W. Clay light rail station near the University of North Carolina Charlotte campus opens up job, education, and service opportunities to transit dependent populations in the CR MPO area. The growth in private transportation network companies (TNC) such as Uber and Lyft have begun to provide affordable, on-demand, door to door service in communities across the US for households without vehicles. The future of these TNCs includes both shared use and autonomous vehicle services that will provide first and last mile accessibility to open mobility to more of the transportation challenged population.

In addition, the MPO members are beginning to invest in the pedestrian network for the urban/municipal core, which will also assist in the mobility of the low income and

disabled. The MPO has expressed by resolution its' support of pedestrian facilities in all new TIP projects, so newly constructed infrastructure will not be built as a barrier to populations or groups that disproportionately rely on a municipal sidewalk system as a mode of transportation to access transit, medical, shopping, and other services.

Negative Impacts

Individual projects in the 2050 MTP may have potential negative impacts that will be studied more in depth during the project development and design. Although many impacts can be mitigated through context sensitive design, some impacts are unavoidable due to the conflict between providing increased capacity and mobility with encroachment onto private property. Often, a project's net impact is not always entirely clear and can be perceived differently by neighbors in the same block. Some projects increase property values, mobility, and economic development while resulting in changes to neighborhood character, land use, or relocation. MPO staff did limit the scope of several projects such as the US 52 relocation to reduce the potential impacts to neighborhoods and businesses. There are very few highway projects (if any) in the 2050 MTP that will impact historically underserved areas either positively or negatively. Most minority and low-income areas are served by a grid street pattern where traffic is dispersed evenly without the need for additional capacity. Although it is difficult at this stage of project development to conclusively pinpoint the overall impact of the transportation projects in this Plan, there is no systematic effort to shift the burden or cost disproportionately upon minority or low-income populations.

Analysis and Evaluation

As part of this MTP update, the Cabarrus-Rowan MPO has identified the geographic distribution of low-income and minority populations using 2015-2019 American Community Survey data in order to assess the effects of various transportation investments in the plan. Evaluating the distribution of transportation projects and expenditures in transportation plans exhibits whether funding is equitably allocated between Environmental Justice areas and non-Environmental Justice Census block groups. It must be stressed that the environmental justice screening conducted for this study is not intended to quantify specific impacts. As described above, it is intended to guide the development of a plan that is equitable in terms of both costs and benefits. In addition, a critical purpose of this screening is the identification of projects in the MTP that have the potential to affect communities of special interest. When individual studies begin as part of project implementation, more detailed analyses, including field surveys and additional public outreach, will be needed to identify and minimize specific community impacts on a project-by-project basis.

The following methodology was used to identify communities subject to environmental justice screening. Block group data from the recently released 2015-2019 American Community Survey was used to establish areas of low-income and minority population concentrations. Based on comments from a previous federal Certification Review, the population groups analyzed were expanded. The distributions of populations of interest

(African-American, Hispanic, Asian, Native American, and low-income persons) were calculated within each block group. If individuals from any one of these categories in a particular block group comprised more than the percentage overall for Cabarrus and Rowan Counties, they were flagged for analysis for that demographic category. For example, 16.9% of Rowan County's total population is African American and 19.6% for Cabarrus; therefore any block group with more than 16.9% African American for Rowan and 19.6% for Cabarrus were flagged. Other targets were 9.4% for Hispanics for Rowan County and 11.1% for Cabarrus County, 1.2% for Asians for Rowan and 4.7% for Cabarrus. The low income population was based on the Federal Poverty Rate with the average of 7.9% for Cabarrus County and 13.9% for Rowan County.

Thematic maps were prepared to graphically depict concentrations of each population group by block group. Block groups were shaded to represent concentrations of populations with natural breaks adjusted to highlight populations at or near the target percentage. When overlaid with proposed roadway projects, these maps provided a useful tool for analyzing and communicating impacts. Additional mapping provided in the 2050 MTP includes identifying the Hispanic population and block groups with zero vehicle ownership in relation to transit and roadway projects. An additional map was created for total minorities (African American, Asian, Hispanic, and Native American) and low-income population to target "hot spots" of disadvantaged populations for analysis. The county-wide percentage of minorities is 27.6% for Cabarrus County and 20.6% for Rowan County, and the poverty percentages are 7.9% for Cabarrus County and 13.9% for Rowan County.

Appendix 11-1 displays the low-income and minority populations (2015-2019 American Community Survey) and the future highway projects.

Appendix 11-2 displays the low-income and minority populations (2015-2019 American Community Survey) and past highway projects.

Appendix 11-3 displays the low-income and minority populations (2015-2019 American Community Survey) and current transit system projects.

Appendix 11-4 displays the zero vehicle ownership (2015-2019 American Community Survey) and the future highway projects and current transit system projects.

Appendix 11-5 displays a composite of minority and low income populations (2015-2019 American Community Survey) and future projects.

Appendix 11-6 displays a composite of minority and low income populations (2015-2019 American Community Survey) and current transit with bicycle and pedestrian crash data (NCDOT Bicycle and Pedestrian crash data 2015-2019).

Appendix 11-7 displays the minority owned business clusters (2016) and future projects.

Analysis of Transportation Projects and Funding Within Minority and Low Income Areas

An analysis of the 2015-2019 American Community Survey data on minority and low-income populations indicated a number of areas of impact relating to environmental justice in the Cabarrus-Rowan MPO. These areas were mapped and a qualitative assessment was performed on the projects that directly affect those Census Block Groups through multi-modal transportation investment. This analysis was performed to determine the level of community impact and system access that these areas might receive in terms of transportation spending and equity of service as part of the 2050 MTP. Detailed analysis of land use and community features was cross-checked through the use of aeriels, local planning information and ground verification. The 2050 MTP roadway projects and other Federal, State and local projects within or adjacent to minority, low-income, composite minority and low income, Hispanic, and zero vehicle populations have been listed in Table 10-1 - 2050 MTP Projects in CR MPO Minority, Low Income and Zero Vehicle Areas. The identification of project impacts on minority, low income and zero vehicle ownership census blocks captured all areas with the potential to affect communities at or near the County threshold averages. These projects have been identified for additional outreach, study, and project assessment including future identification of bicycle and pedestrian safety issues.

Identifying and Measuring Benefits and Burdens

Current studies and guidance on Environmental Justice offer multiple measures to evaluate benefits and burdens of transportation projects and programs to MLI populations through the collection of data and the use of spatial analysis tools. The following list of performance measures includes ones that the Cabarrus Rowan MPO would study to provide direction on how to improve access to opportunity and to mitigate adverse impacts on disadvantaged communities.

Mobility, Accessibility and Equity

- Evaluate transit service frequency, coverage, accessibility, and travel times by using transit planning data and demographic tools such as Remix with a ¼ mile buffer from transit service in relation to the minority and low income communities to evaluate accessibility to employment and educational opportunities, medical facilities, grocery stores and community services.
- Evaluate transit stops and access points to transit service for ADA compliance including curbing ramps and safe landing zones.
- Identify zero vehicle ownership data and map with MLI populations for project selection criteria and additional outreach.

Safety and Security

- Comparison of crash data for vehicles, pedestrians and bicyclists in MLI areas compared to statewide and national averages.
- Evaluation of safe access to schools, parks and shopping in minority and low-income communities.

- Evaluate transit stops and facilities for safety and security including sight lines and lighting.

Public Outreach, Community Engagement and EJ training

- Frequent outreach to the minority communities through workshops and community meetings.
- Create an informal advisory forum with civic and religious leaders to foster one on one small group dialogue to discuss transportation issues, concerns, processes and projects.
- MPO staff will seek out and participate training and peer exchanges to continuously develop better methodologies and benefit from the transfer of information so projects can be planned and implemented to improve access to opportunity for underserved and transportation distressed populations.

CHAPTER 12 TEN PLANNING FACTORS

As a requirement of federal regulations, the following is a discussion of the eight planning factors included in the Transportation Plan. The primary objective of the Transportation Plan is to provide a comprehensive review of existing and proposed transportation needs for the Urban Area over a 25-year horizon. The Plan should incorporate all aspects of transportation including modal characteristics and infrastructure needs and priorities. In doing so, the Plan will /shall:

- **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.** This planning factor is achieved by identifying existing and future transportation needs and prioritizing those needs. The Highway Element is one such component that identifies the needs for increasing highway capacity. The CR MPO will continue to work with NCDOT and FHWA to enhance the Urban Area Transportation System. Federal and State funding programs are continuously evaluated by the CR MPO for consideration to fund its transportation planning and capital improvements. The past implementation of the South Rowan Express, East Rowan Express, Cabarrus Links, and support for the Concord/Kannapolis Area Transit and Salisbury Transit Systems provided connections between transit- dependent residents and economic opportunities, which improves the vitality of the area. The two airports also provide growing economic development opportunities within the CR MPO as Concord-Padgett Regional has initiated commercial air service this past year.
- **Increases the safety of the transportation system for motorized and non-motorized users.** Bicycle and pedestrian planning efforts are one means through which CR MPO accomplishes this planning factor. The funding of bicycle and pedestrian facilities is an objective of the MPO

Committee(s). Considerable planning efforts have been expended to develop a comprehensive bicycle and pedestrian plan that identifies potential funding programs. These programs may include Powell Billfunds, NCDOT division funds, SRTS funds, CMAQ funds, Enhancement Grant funds, STBGP, and other federal programs. Bicycle and pedestrian projects can also be funded through the TIP/STI process as incidental projects. Specific goals have been identified that will enhance the existing bicycle and pedestrian system, thereby reducing the potential conflict between vehicles and pedestrians.

- **Increases the security of the transportation system for motorized and non-motorized users.** The Rider Transit system is working on many ways to enhance security through its operations procedures for emergency evacuations. In addition, several major highways including NC 49, NC 73, and I-85 provide the routes to transport citizens in the case of a natural or man-made disaster. Member jurisdictions of the CR MPO provide law enforcement and EMS to secure the ingress and egress of participants' at large events and gatherings such as NASCAR races at Charlotte Motor Speedway, events at the NC Transportation Museum, Rowan County and Cabarrus County Fairs, Cheerwine Festival, and other municipal sponsored-street festivals. In the post 9/11 world, these events have become important ventures for collaborating between various levels of state and local government. The MPO can partner with NCDOT to plan and coordinate security at a multi-jurisdictional level to secure the mobility of motorized and non-motorized participants.
- **Increases the accessibility and mobility options available to people and for freight.** An example of increasing accessibility and mobility options within the Urban Area is the transportation service provided by CCTS, RTS, CCX, Rider, and Salisbury Transit. The CCX provides connections between metropolitan areas and access to the major employment market. The CR MPO also coordinates with the trucking industry to determine future corridor improvements for the movement of area freight within or outside the area. Linkages can be made to the rail line through the CR MPO as well as the Rail Yard in the Charlotte Metro area.
- **Protects and enhances the environment, promotes energy conservation, improves the quality of life and promotes consistency between transportation improvements and State and local planned growth and economic development patterns.** This planning factor is achieved by including preliminary engineering and planning efforts in the development of transportation projects. An effective example is the corridor planning process within several thoroughfare corridors, which has been conceptualized on the CTP map. By including the projects in a

planning process it will help identify potential social and environmental conflicts. The NC 73 Transportation/Land Use Corridor Plan is a multi-jurisdictional approach to corridor planning with land use scenarios that can complement the future transportation infrastructure. MPO members are beginning to take advantage of special study funds thru the MPO to further evaluate tools and techniques to improve mobility within corridors such as the US 29 Corridor Study and Long Ferry Road Corridor Study.

- **Enhances the integration and connectivity of the transportation system, across and between modes, for people and freight.** Continuous planning efforts have been supported by the CR MPO to achieve an efficient multi-modal Transportation Plan. Enhancements to the existing bicycle and pedestrian facilities will be greatly improved through future planning and programming efforts. Additional work will include pursuing alternative funding measures for multi-modal projects. The CR MPO has used the CMAQ program to fund projects that connect multiple modes and create a seamless transportation system. A bigger resource is the STBGP program that is funding an array of modes and needs within the MPO area.
- **Promotes efficient system management and operation.** This planning factor is accomplished by providing a continuous and comprehensive needs' assessment of the transportation system. This MTP incorporates a congestion management and traffic monitoring system that identifies system management and operational improvements.

The CR MPO has the responsibility of pursuing cost-effective practices that will not only maintain the current transportation system, but will enhance its efficiency and operation through state-of-the-art measures. This task includes securing State and local funding for the support of such programs. The CR MPO Congestion Management Process (CMP) identifies several strategies for achieving these objectives.

- **Emphasizes the preservation of the existing transportation system.** This planning factor is achieved by establishing measures that will protect existing transportation facilities and future corridors. An example of this measure is through the reservation of right-of-way for future thoroughfares with the use of local ordinances and subdivision requirements. These key corridors and the associated right-of-ways are being protected from encroaching development; so that when the need arises, they can be implemented into the transportation system. The MPO is also committed to securing the necessary resources for maintaining and preserving the existing transportation system.

- **Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts for surface transportation.** This planning factor is accomplished through the latest design and drainage elements applied through projects such as the I-85 widening, which was recently completed. The continuous 8 lanes through the urban area provides more predictability and reliability for regional vehicular travel. In addition, several ARRA projects have improved the rail corridor that connects Charlotte and Raleigh and provides a viable alternative for business and tourist travel to the State Capital from the MPO area and region. In addition, pedestrian improvements in the municipalities will hopefully result in less reliability on the single occupant vehicle and limit the long term footprint for road or lane capacity investments.
- **Enhance travel and tourism.** This planning factor is accomplished by the increased access to the MPO area through infrastructure improvements particularly completion of the I-85 project. Additional lanes on the interstate promote traffic into and thru the MPO area. The increase in hotel development and area's first convention center in Concord near Concord Mills Mall. In addition this area known as NC's #1 tourist destination, will also have the area's first flyover at exit 49 into the mall complex. Transit also plays a role in the MPO area in providing access to travel and tourist destinations in Salisbury and Kannapolis. Finally, both counties are now members of the Carolina Thread Trail, which connects many natural amenities, parks, and cultural sites. Several of the municipal MPO members are working on connecting greenway projects to realize the vision of this bi-state regional trail system.

CHAPTER 13 CONCLUSION

The Cabarrus-Rowan MPO has an active membership and transportation planning process from project planning to programming to implementation to preservation. MPO members have taken ownership in the development of the transportation system. The 2050 MTP serves as the pathway for developing and managing this transportation system over the next 25 years to the year 2050.

The following goals were outlined at the beginning of this plan. Each goal is addressed through the various elements of the MTP. These elements include documentation of the ongoing efforts of the MPO to further each transportation mode through planning, programming or implementation. To recap these goals, they are as follows:

- 1) Street System Goal – Develop an efficient street and highway network for the Cabarrus-Rowan Urban Area

- 2) Congestion Management Goal – Develop a local thoroughfare system that minimizes traffic congestion and maximizes system preservation

- 3) Title VI and Environmental Justice Goal – Plan and promote a transportation system that does not disproportionately impact minority and low-income populations

- 4) Bicycle and Pedestrian Goal – Promote development of an integrated bicycle and pedestrian network

- 5) Public Transportation Goal – Support efforts to improve mobility for Urban Area residents

- 6) Environmental Goal – Develop a transportation system, which preserves and enhances the natural and built environments

- 7) Freight Goal – Develop a transportation system that encourages safe and secure movement of freight goods within and outside the Urban Area

Street System

The Street System in the Cabarrus-Rowan MPO is important for just about every mode of transportation. Without good connecting streets, traffic congestion slows automobiles, buses, trucks, bicyclists, and pedestrians. The CR MPO is creating an efficient street and highway network through the CTP Highway Map and Street Index, fiscally constrained highway project list(s), collector street planning, and Congestion Management Process. Without these ongoing efforts, the street system will devolve into

a series of underdeveloped streets that funnel traffic onto a few major thoroughfares causing traffic backups, accidents, and delayed emergency response times.

Congestion Management

The development of a Congestion Management Process (CMP) is the MPO's systematic and comprehensive approach to congestion relief. The CMP has a series of goals and performance measures to monitor the current system through the use of the Metrolina Travel Model, HERE data thru the I-95 Coalition, and NCDOT accident data. A baseline of congestion has been established through the CMP that can be used to compare future conditions for volume, capacity, delay, etc. The CMP can also be used to evaluate the effectiveness of strategies whether it is highway capacity expansion, transit service, intersection relief, or information/communication. The CMP plays a vital role in developing a transportation system that minimizes traffic congestion and maximizes mobility.

Emerging technologies such as autonomous and connected autonomous vehicles have the potential to increase the capacity of existing roadway facilities. Transportation Network companies that provide on-demand services and the increased use of shared vehicles for door-to-door transportation or last-mile travel from public transportation or Micro Transit will also change the way our thoroughfares and urban streets function. The MPO will continue to monitor how these fast-moving changes recalibrate both congestion and level of service in our communities.

Title VI and Environment Justice

The development of the 2050 MTP included additional outreach in MLI communities including focus groups in East Spencer, Kannapolis, and Concord even with the pandemic. The intent of this effort is to provide targeted opportunities for communities who have historically been disenfranchised in the planning and project implementation process. Projects should be evaluated intermittently to assess their benefits and burdens on MLI communities and include any disproportionate impacts to the minority business community. Transit service is an important part of the MTP's benefit to the MLI community. Efforts in the CR MPO have been made to retain the affordability of transit service and make connections with goods, services, and potential job opportunities. The implementation of the county-wide public transportation master plan will increase access to the goods and services in Cabarrus County for residents of MLI communities and provide greater economic opportunities for those citizens who need it most.

Bicycle and Pedestrian

Bicycle and pedestrian planning and implementation are a vital part of the transportation vision for the CR MPO. It is also integral to the community visioning that several MPO members have pursued as part of comprehensive or strategic planning in addressing quality of life issues and urban street design. The CR MPO was part of the Livable Communities Blueprint (LCB) effort and members have pursued other non-highway project planning efforts including an update to the LCB through the Carolina Thread Trail project. The CR MPO membership regularly submits successful applications for Transportation

Enhancements, maintains a bicycle and pedestrian priority list for the TIP/STI, and continues to fund several sidewalk and greenway projects through the MPO's CMAQ and STBGP allocation. CR MPO members also pursue the integration of bicycle and pedestrian facilities into development plans that result in a walkable, bicycle- friendly physical environment. These efforts are really an outgrowth of community preservation that each respective local government continues to pursue and achieve

outside the MPO process.

Public Transportation

Public transportation requires a consciousness towards improving mobility for those citizens without automobiles. The CR MPO is fortunate to have two municipal transit systems, Concord/Kannapolis Area Transit and Salisbury Transit, as well as the CCX Express Route to Charlotte. Rowan and Cabarrus Counties also provide van service in the rural areas for those residents outside the urban core. This van service can provide additional feeder ridership for the urban systems and is coordinated to create a seamless transit experience for the patron/rider. One recent development that will directly impact mass/public transportation is the completion of the Blue Line Extension Light Rail Line past UNCC in Mecklenburg County. Because of its' proximity to the Cabarrus County line, this premium mass transit service will create additional opportunities for feeder bus service from the MPO area to Charlotte, which will alleviate peak hour congestion on a major traffic artery between Raleigh and Charlotte: I-85. Since the last MTP, Cabarrus County has completed a public transportation master plan that will shape transit investment for the next several decades. These expansions in service and reduced headways will improve mobility throughout Cabarrus County and the northern portion of Kannapolis into Rowan County.

Environment

The environment is a common thread through each of the transportation elements. Without preservation and protection of the environment, the transportation system functions only to serve moving objects such as cars or trains. The NC 73 Corridor Study is a relatively new approach to land use and transportation planning that takes into context the need to grow places that facilitate movement by all modes of travel. CR MPO members have taken their local role in corridor preservation very seriously through meticulously establishing future right-of-way and cross sections for major corridors, small area plans, and their development ordinances. The perpetual emphasis on modes besides the automobile also reveals the CR MPO conscious effort to program and implement a transportation system that maximizes mobility for persons rather than the traditional highway expansion/capacity solution.

Resiliency

Looking into the future, climate change and greenhouse gases will be a focus of future MTPs efforts. As a qualitative assessment, the CR MPO has a number of activities that will address this focus including transit expansion thru the master plan, ITS improvements, signal system upgrades, and diesel fleet conversion(s). As the methodology to quantitatively measure greenhouse gases evolves, the MPO's MTP will follow suit with incorporating these measures into subsequent MTPs. The progress towards reducing the carbon footprint and dependence on the single occupant vehicle is a difficult and daunting task and cannot be successfully addressed in a single 4 year update, but will take a prolonged education effort from the land use, environment, and

transportation perspective. Likewise, communities will need to continue to prepare for severe weather events that disrupt travel through flooding events or loss of facility use for periods of time. The MPO membership must plan for this disruption in travel through making an effort to build a more resilient community with the enforcement of the state building code and methods to evacuate residents quickly in the event of a natural disaster. Access to the I-85 corridor provides an important relief valve in the event of an emergency. Local governments are dependent on the state and federal government maintaining the viability of state and US highways during these events. It's this coordinated effort to maintain alternative routes and preserve the existing system that enables a community to elevate it's response to disaster in a way that is safe and effective for the traveler and general public.

Freight

Freight has become a high priority for the state and federal government. The State of NC has recently completed a statewide Freight Plan in December 2017. The Plan included a few projects in the CR MPO area: I-85 widening, I-85 pavement rehabilitation, Rogers Lake Road Grade Separation, and 22nd Street Grade Separation. The MPO was also an active partner in the Charlotte Region's first regional Freight Study completed by CDM Smith. This study provided a lot of useful baseline data about the freight industry and the infrastructure that supports this industry. Fortunately, many of the existing CR MPO projects already support freight development and businesses and meet the intent of the Freight Goal. Moreover, the MPO will and has plugged into the emergency management service and response community by participating in regional conference calls to respond to potential natural and man-made disasters. The sharing of information and efforts is invaluable to the preparation process. Freight travel depends on a predictable and safe transportation system. Disasters can compromise these components and inflict untold costs on the freight trip for the carrier and receiver. The completion of projects identified through both freight study initiatives will improve safety and reliability of the movement of freight goods and enhance travel both into and out of the CR MPO area.

Regional Collaboration

The CR MPO continues to work effectively with the partners in the Metrolina Region and is an active partner in regional efforts. The CR MPO has supported the Charlotte Regional Alliance for Transportation (CRAFT), Metrolina Regional Model, Fast Lanes Study, Ramp Metering Study, Connect Beyond Study, Freight Study, and Interagency/Transportation Conformity with the available staff resources. CRAFT's role is to enhance communication among local and regional entities, promote awareness of regional issues/concerns, and to provide an educational forum in the Charlotte metropolitan bi-state region. The Metrolina Region continues to grow together as part of a mega-region that stretches from south of Atlanta to north of Raleigh. The consumer or traveler does not recognize MPO, county, city, or state lines as a barrier to mobility. But it is important for transportation decision makers to be responsive to local needs and reflect those needs/demands in plans and programs in the context of regional discussions. Decisions can only be rationally made and evaluated through better

coordination, and communication which has improved substantially over the past 20 years. On many occasions, the Cabarrus-Rowan MPO has shown leadership in fostering better communication and coordination with its' Metrolina neighbors as well as state and federal partners. Each successive iteration of the federal TEA has implored and challenged local and state governments to strive for this nexus with long term plans and programs. The Cabarrus-Rowan MPO has embraced this challenge as an opportunity to elevate the Metrolina Region to greater multi-modal planning heights with routinely successful collaborative results. This success is due in no small part to the leadership of the MPO, county, and municipal members and their innovative and progressive vision to meet the ever growing mobility needs of the community.