



2050

METROPOLITAN TRANSPORTATION PLAN

Executive Summary

Adopted April 2022



Charlotte Regional Transportation
Planning Organization



Introduction

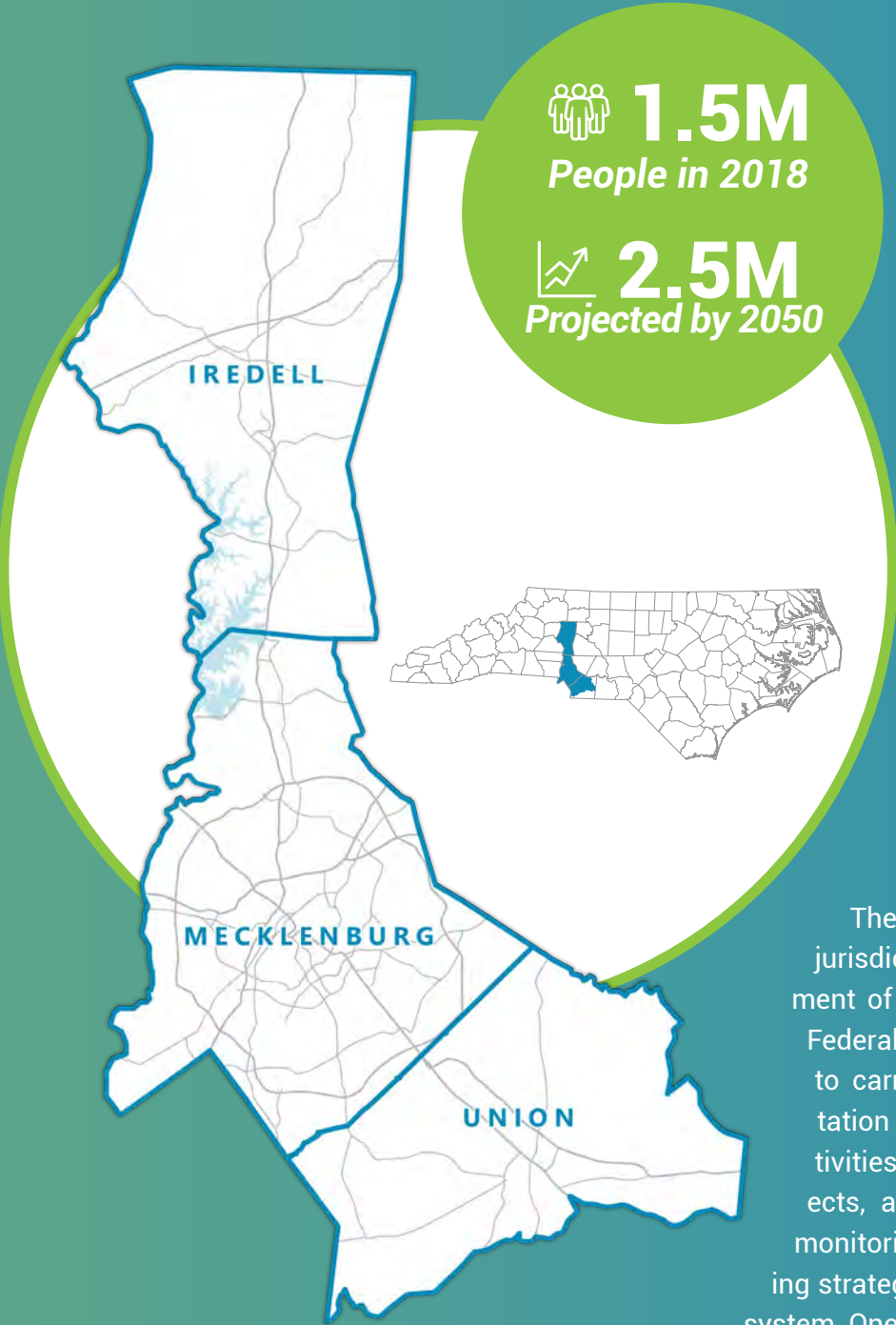
The Charlotte region continues to grow and evolve. The transportation system is an essential component of the region's success. Moving people and goods safely and efficiently, and providing a variety of transportation options, contributes to higher quality of life, economic vitality, equity, reliability, and sustainability.



Charlotte Regional Transportation Planning Organization

The Charlotte Regional Transportation Planning Organization (CRTPO) is the federally designated Metropolitan Planning Organization (MPO) for the Charlotte Urbanized Area. Within its established three-county planning area of Iredell, Mecklenburg, and Union counties, the CRTPO leads transportation planning efforts and supports 24 member jurisdictions through collaboration on various initiatives and the allocation of federal transportation funds.

The CRTPO partners with its member jurisdictions, the North Carolina Department of Transportation (NCDOT), and the Federal Highway Administration (FHWA) to carry out the metropolitan transportation planning process. Significant activities include identifying priority projects, allocating federal funds equitably, monitoring performance, and implementing strategies to enhance the transportation system. One of the primary initiatives that supports these efforts is the development of a Metropolitan Transportation Plan (MTP).





Member Jurisdictions

- Iredell County, including:

 - City of Statesville
 - Towns of:

Mooreville

Troutman
- Mecklenburg County, including:

 - City of Charlotte
 - Towns of:

Cornelius

Davidson

Huntersville

Matthews

Mint Hill

Pineville
- Union County, including:

 - City of Monroe
 - Towns/Villages of:

Fairview

Indian Trail

Marshville

Marvin

Mineral Springs

Stallings

Waxhaw

Weddington

Wesley Chapel

Wingate

CRTPO Board

32 CRTPO Board Members

- 27 Voting Members
- 5 Non-Voting Members

Technical Coordinating Committee

36 TCC Members

- Member Jurisdiction Staff
- Focus Area Representatives
- NCDOT

CRTPO Staff

11 Staff Members

- Support the CRTPO Board and TCC

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Executive Summary | CRTPO 2050 MTP

2050 MTP

The MTP is a long-range plan that considers all transportation modes and defines the policies, programs, and projects to be implemented over the next 20-plus years. It establishes goals, objectives, and transportation priorities and serves as one of the primary means for the CRTPO to assess future needs, document tools and strategies to help improve the existing system, and engage stakeholders and the public to promote awareness and request input about proposed infrastructure investments.

The MTP includes funding projections and a list of projects anticipated to be constructed over the next 20-plus years.

These projects help address safety, congestion, connectivity, and access.

The diagram illustrates the relationship between MTP Projects and their goals. On the left, four circular icons represent different transportation modes: a person walking, a car, a bicycle, and a bus. Arrows point from these icons to four circular goal areas on the right. The goals are: 'Increase Safety' (shield and upward arrow icon), 'Alleviate Congestion' (cloud and leaf icon), 'Improve Connectivity and Access' (scales of justice icon), and an unlabeled goal represented by a shield and upward arrow icon.

Long-Range Transportation Planning Is...

The CRTPO, through coordination with NCDOT and FHWA, is responsible for carrying out the 3-C transportation planning process which engages local communities in the decision-making process to identify long-term goals and transportation priorities in the region.

COMPREHENSIVE

COOPERATIVE

CONTINUING

CRTPO 2050 MTP | Executive Summary

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Goals and Objectives

Goals and objectives provide the framework for what the CRTPO intends to accomplish through the implementation of strategies and projects included in the MTP. For the 2050 MTP, the CRTPO coordinated with the Advisory Committee and requested public input to establish goals it could influence, with each one focused on specific aspects of enhancing transportation.

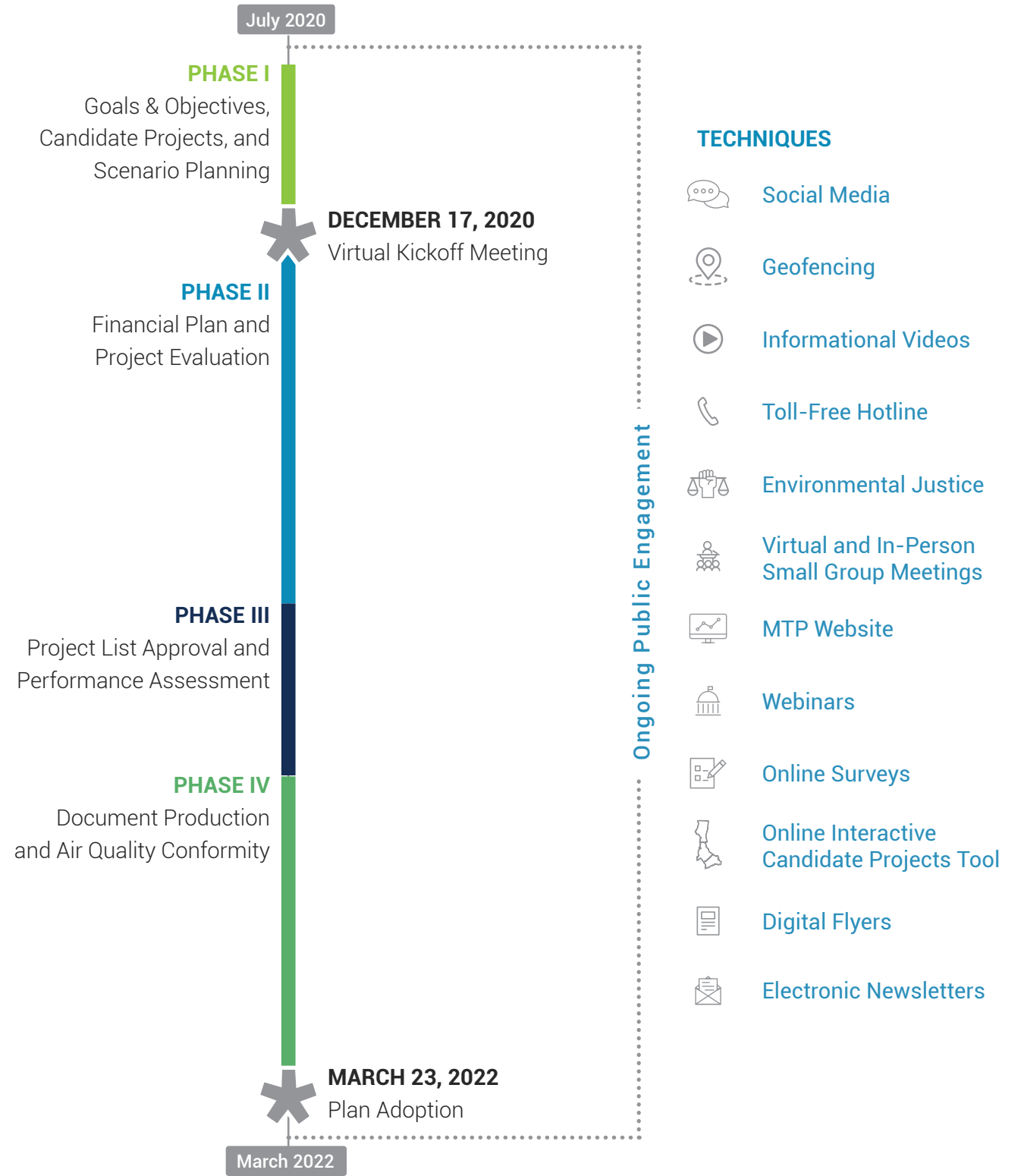
The objectives are intended to assess progress towards achieving each respective goal.

In addition, the MTP goals relate to several other elements of the plan, including federally established planning factors and performance measures, as well as scenario planning performance indicators.



2050 MTP Timeline

The 2050 MTP was developed with input and guidance from the Steering and Advisory committees, regional planning partners, and the public. The CRTPO Board adopted the plan on March 23, 2022. Due to the limitations of in-person engagement associated with COVID-19, public engagement for the 2050 MTP was largely accomplished online and through the use of virtual meetings.



Public Engagement

Public engagement is a significant component of the MTP update process. It helps the CRTPO understand the priorities and concerns of those who live and work in the region and contributes to more informed decision-making.



A variety of techniques were utilized to engage the public during the development of the 2050 MTP, which were adapted in response to COVID-19. Resource agencies were also consulted and had an opportunity to provide comments on the plan.



2050 MTP PUBLIC ENGAGEMENT STATISTICS

 **Website**
 **18.6K** TOTAL Visits

 **6.7K** TOTAL Visitors

 **Social Media**
 **36** TOTAL Posts
141.7K TOTAL Reached

 **Virtual Kickoff Meeting**
115 Attendees

 **Resource Agency Webinar**
50 Attendees **30** Agencies

 **Interactive Mapping Tool**
1.8K TOTAL Visits

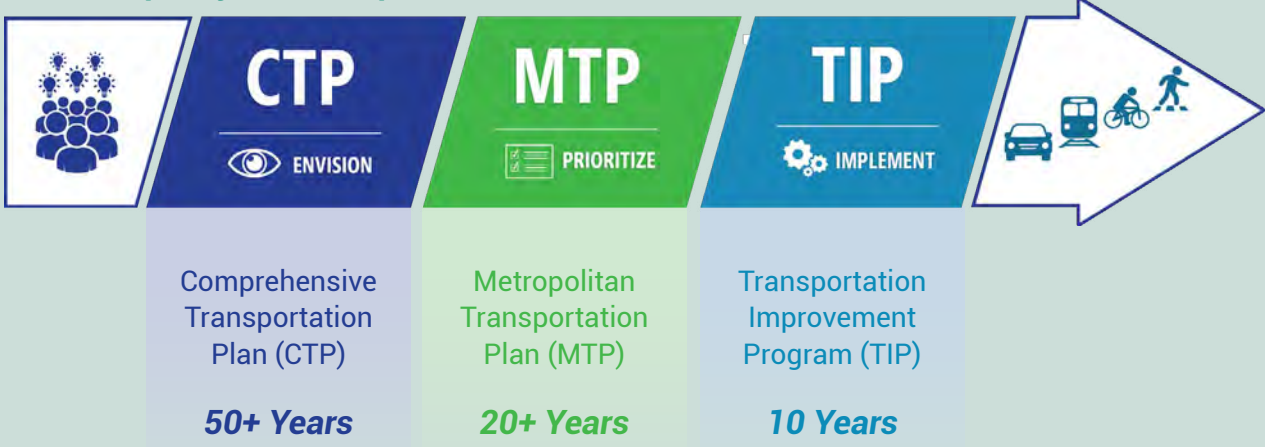
 **Community Presentations**
30+ Virtual and In-Person

 **Youth Outreach**
125+ Charlotte Area 5th Graders **8** Charlotte Area Classrooms

Relationship to Other Plans and Initiatives

The MTP compliments and supports other plans and initiatives that contribute to the CRTPO’s planning efforts, identifies priority projects and recommendations, and defines implementation strategies.

Three-Step Project Development Process



Regional Initiatives



- Comprehensive corridor evaluation
- Strategies and solutions developed
- MTP will be critical to implementing recommendations by identifying funding for proposed improvements



- Evaluates future transit investments
- Addresses equity, funding shortfalls, and sustainable growth
- Strategic Mobility Corridors identified



- Guides CRTPO activities for next 10 years
- Goals include collaboration with stakeholders, increasing awareness of transportation issues, and expanding regional transportation funding

Challenges and Strategies

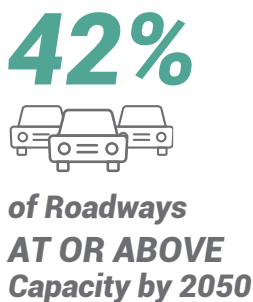
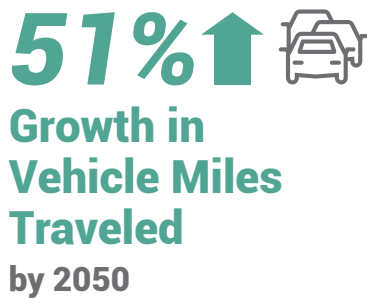
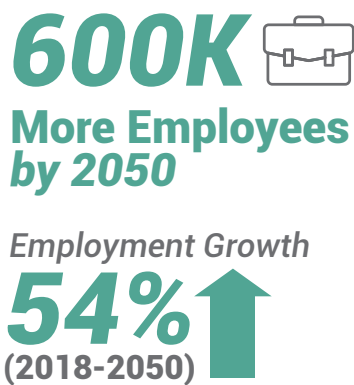
Planning for the transportation system involves many challenges, several of which are highlighted in the 2050 MTP. The following are four key challenges facing the CRTPO planning area, specific factors that contribute to these issues, along with strategies to address them:

RAPID GROWTH

The Charlotte region is one of the fastest growing areas in the country. Population and employment are increasing substantially in all three of the CRTPO's member counties. Planning and investment activities must account for the increased demands on the transportation network from the changing population and the needs of an expanding workforce. Providing opportunities for transit riders, bicyclists, and pedestrians is also important. Transportation challenges related to demographic changes, increased congestion, environmental concerns, and advancing technology will need to be addressed to accommodate anticipated growth.



US 74 in Charlotte



Strategies

















- Scenario Planning
- Congestion Management Process
- Emerging Technologies



Scenario planning provides choices and tradeoffs to consider as decisions are made about future recommendations. For the 2050 MTP, a framework was developed for measuring the impacts and evaluating the trade-offs of different external forces that might influence future travel behavior in the region. The scenarios consider the impacts of the following three change factors on travel behavior and future investments:

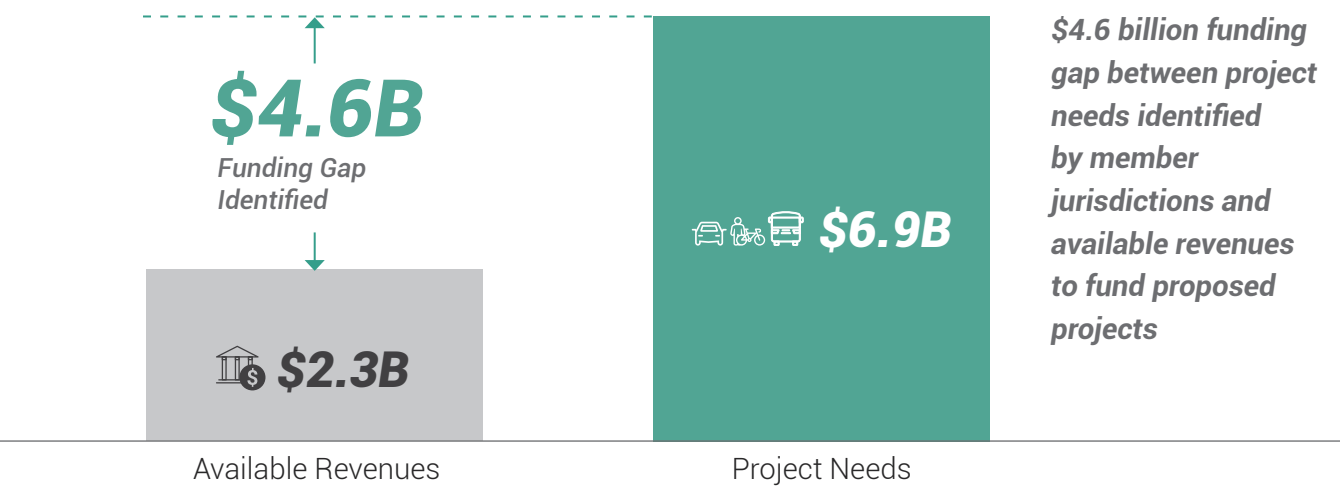
- Connected and autonomous vehicles (CAV)
- Changing growth and development patterns
- Trends toward working-from-home

The chart below displays the possibilities for each of the change factors considered for this initiative. Ten growth scenarios were developed using the three change factors.

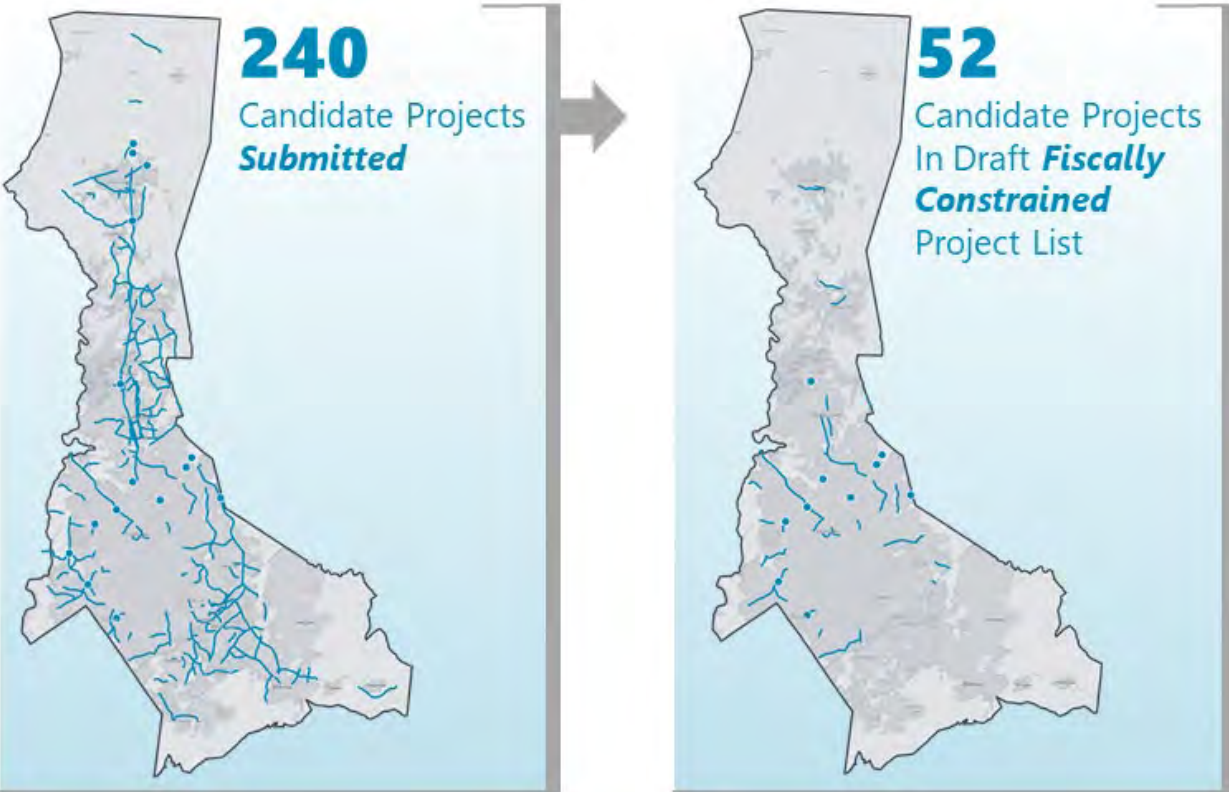
			
Status Quo	Conservative	Moderate	Aggressive
 • No CAV Technology	 • Freeway General Purpose Lanes, Managed Lanes for Freeways & Managed Lanes for US 74	 • Conservative CAV Network Plus Managed Lanes for Freeways Converted to CAV Only Lanes & Expressways	 • Moderate CAV Network Plus Select Thoroughfares
 • Adopted Community Plans	 • Widespread Sprawl Patterns	 • Dispersed Activity Centers	 • Compact, Centralized Centers
 • No Shift in Telecommuting for Office (Non-Retail/ Non-Industrial) Oriented Jobs	 • 10% Shift in Telecommuting for Office (Non-Retail/ Non-Industrial) Oriented Jobs	 • 25% Shift in Telecommuting for Office (Non-Retail/ Non-Industrial) Oriented Jobs	 • 35% Shift in Telecommuting for Office (Non-Retail/ Non-Industrial) Oriented Jobs

FUNDING SHORTFALLS

Transportation projects are typically funded by federal and state revenue sources, which are not adequate to keep up with the transportation needs in the CRTPO region. Traditional revenue sources, such as gas taxes, are already being impacted as vehicle efficiency increases and travel behaviors change. As transportation needs and demands are increasing, competition for limited funding is greater than ever.



52 of the 240 candidate roadway projects submitted by local jurisdictions are included in the 2050 MTP



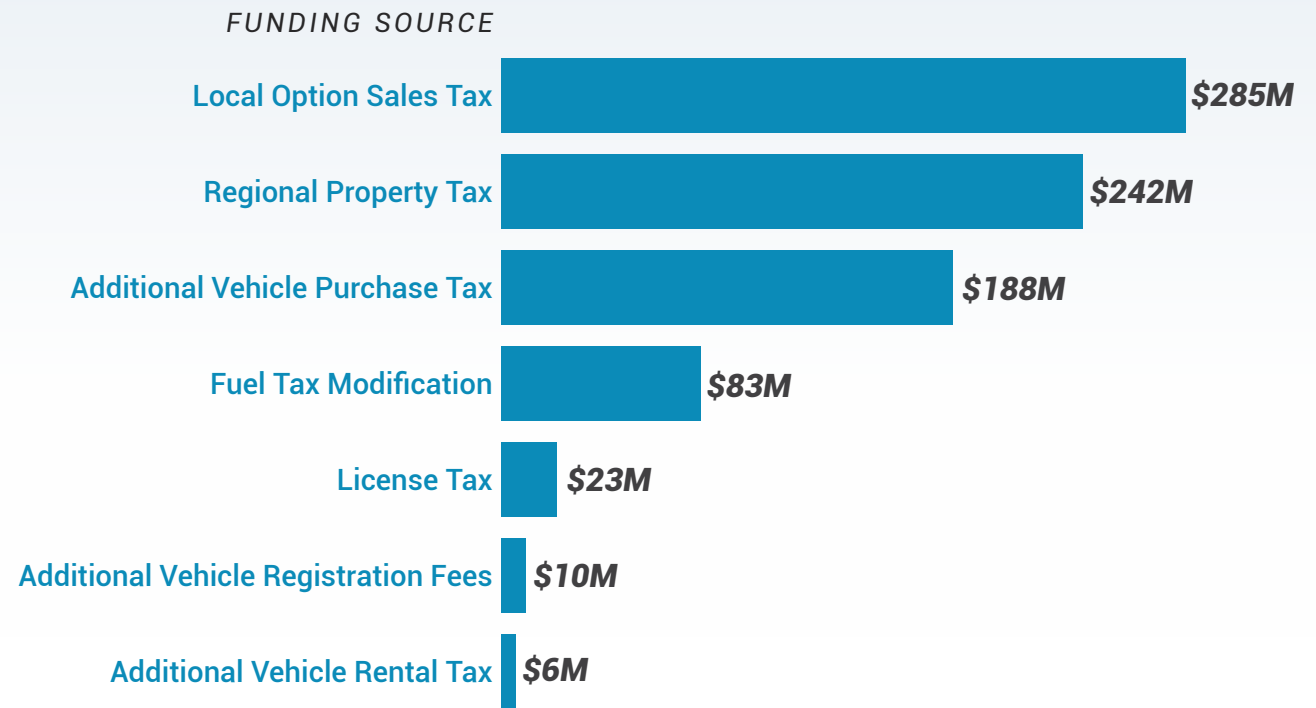
Strategies

- Scenario Planning
- **Alternative Funding Sources**
- Emerging Technologies



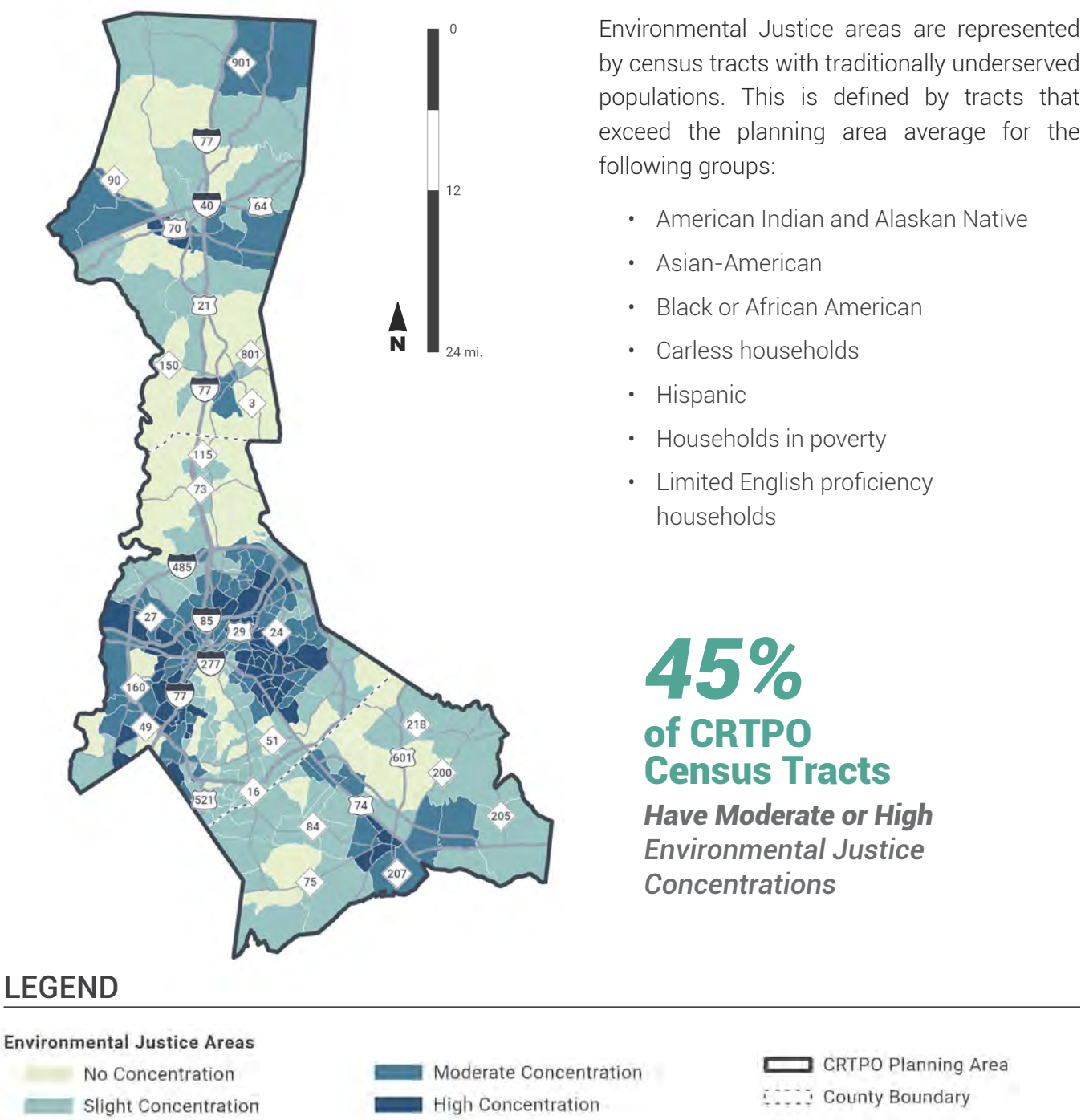
Through research, review, and coordination, possible funding sources were identified and evaluated utilizing a series of qualitative assessments, to determine their overall applicability to the region. As a result of the analysis, six funding sources were assessed further to estimate their impact within the planning area. The funding analysis was intended to develop a general understanding of potential revenue sources and their benefit to the region, but did not influence the 2050 MTP financial plan.

Alternative Funding Sources – Single Year Anticipated Revenues



EQUITY

The CRTPO planning area population is becoming more diverse. Transportation policies that place more emphasis on highway development impact people who cannot afford a car or who do not drive, such as low-income, elderly, or disabled populations. Limiting the availability of convenient and safe mode choices reduces opportunities and impacts quality of life by making it more difficult to access jobs, schools, healthcare, and other services. In addition, access to alternative mobility options helps offset the financial burden of transportation costs for low-income households.



Source 2019 American Community Survey, 3-Year Estimates

Strategies

- Scenario Planning
- Degree of Impact Analysis
- Active Transportation Corridor Screening
- Alternative Funding Sources
- Emerging Technologies
- **Project Ranking Methodology**



An Equitable Access criterion was added to the CRTPO's 2050 MTP project ranking methodology. This criterion was developed to evaluate how well each facility serves areas with high concentrations of environmental justice communities.

MAINTAINING A RESILIENT AND SUSTAINABLE SYSTEM

Resiliency and sustainability have become key elements of transportation planning to help address concerns related to climate change, severe weather, natural disasters, and other unexpected events, such as the COVID-19 pandemic. Disruptions to the resiliency and sustainability of the transportation system contribute to safety concerns, reduced reliability, impediments to emergency response, and reductions in economic productivity. Additionally, weather events and natural hazards have the potential to increase costs in the long-term. North Carolina has a high rate of roadway ownership, creating challenges to maintain resilient and sustainable infrastructure that provides access to jobs and services with minimal economic and environmental impacts.

NCDOT Maintains
>80K Roadway Miles
2nd Most of Any State

The CRTPO coordinates with partner agencies such as the NCDOT and regional MPOs to identify tools, conduct studies, and collect data to supplement future planning efforts related to resiliency and sustainability. Recommendations from those efforts are then implemented to enhance transportation infrastructure, technologies, and operations.

Rail Construction for Future Charlotte Gateway Station

Strategies

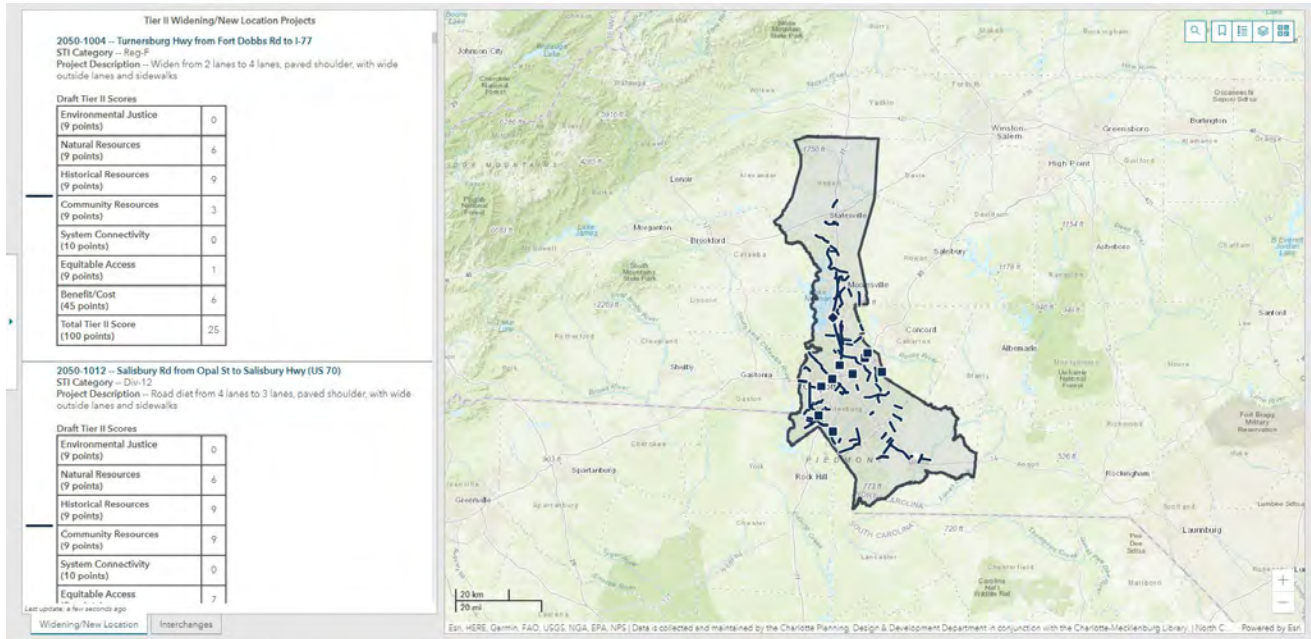
- Scenario Planning
- Congestion Management Process
- Alternative Funding Sources
- Emerging Technologies
- **Environmental Mitigation Activities**



Environmental mitigation activities help minimize the negative impacts of transportation projects on the natural and built environments. This not only protects the environment but makes the transportation system more resilient and sustainable. The CRTPO utilizes numerous strategies to address environmental constraints and avoid impacts.

Environmental Mitigation Activities include:

- **Assess impact of candidate MTP projects on natural, cultural, and historic resources**
- **Seek resource agency input**
- **Conduct analyses of CTP corridors**
- **Allocate Congestion Mitigation and Air Quality (CMAQ) funds**
- **Air quality representative on TCC**
- **Encourage implementation and expansion of transit infrastructure and services**
- **Integration of land use and transportation**



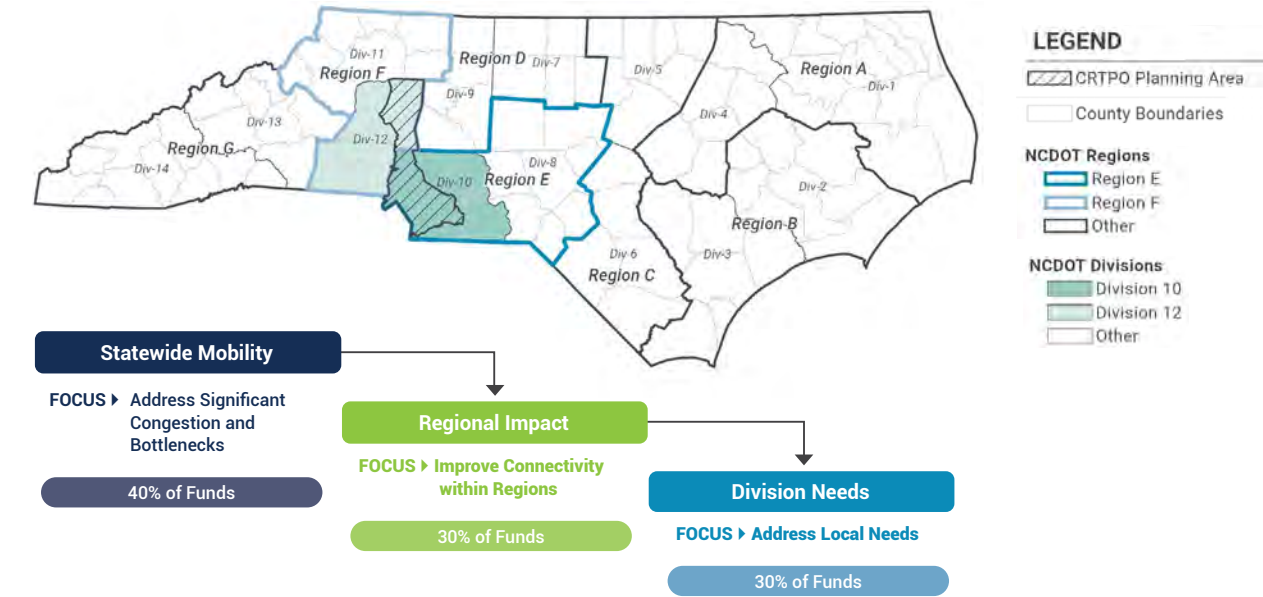
The CRTPO developed an [interactive application](#) to evaluate the impact of candidate roadway projects to various environmental resources.

Financial Plan

The MTP financial plan considers a variety of revenue sources and projections are developed to determine the funds available for project investments through 2050.

STRATEGIC TRANSPORTATION INVESTMENTS (STI)

The STI law mandates how a significant portion of capital project funding in North Carolina is allocated. It includes three specific categories, each of which represents a defined geography and a percentage of the total available funding.



TYPES OF MTP PROJECT INVESTMENTS AND TOTAL AVAILABLE FUNDING

STI	Roadway	Major Widening, Realignment, New Construction for Roadways and Interchanges, Express Lanes	Total Available Funding	\$9,003M
	Non-Roadway	Bicycle, Pedestrian, Rail, Transit	Total Available Funding	\$348M
DISCRETIONARY	Roadway	Widening, Realignment, New Construction and Improvements for Roadways and Intersections	Total Available Funding	\$753M
	Non-Roadway	Bicycle, Pedestrian, Transit	Total Available Funding	\$253M
Transit		Capital Improvements, Fleet/Service Expansion, Maintenance and Operations	Total Available Funding	\$1,306M
Maintenance		Pavement Resurfacing, Bridge Maintenance/ Replacement, Other General Maintenance	Total Available Funding	\$1,891M

ANTICIPATED FUNDING SHORTFALLS

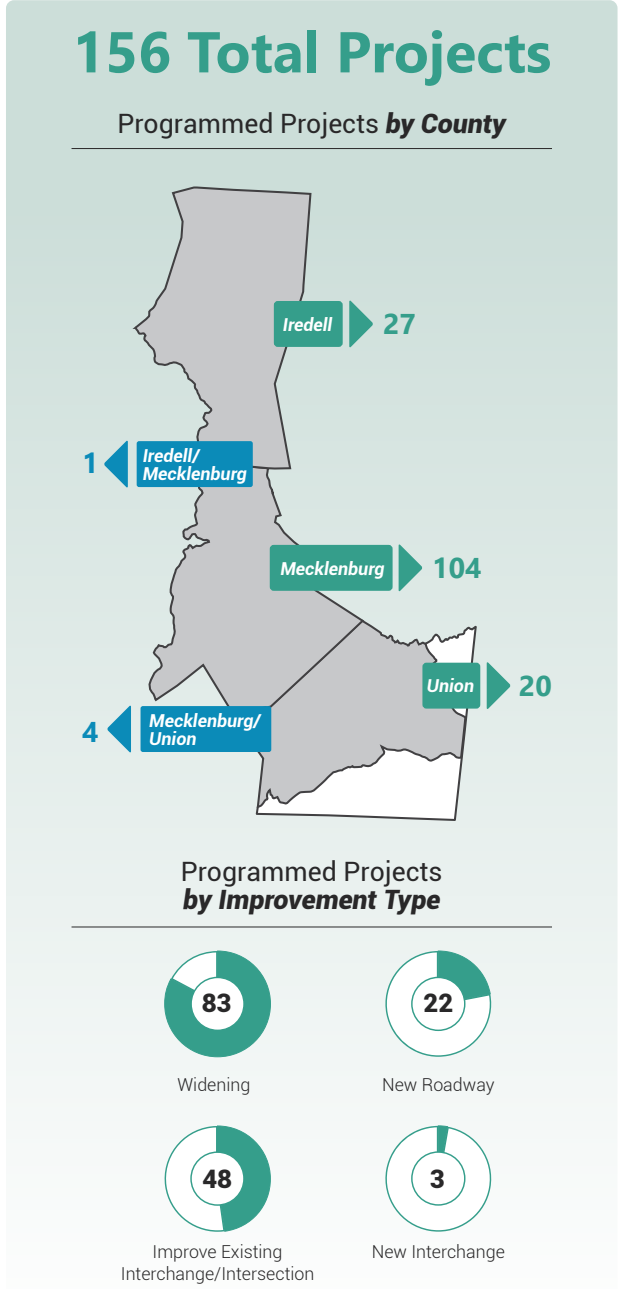
Unexpected spending, loss of revenue, and increased project cost estimates have led to cash balance shortages for the NCDOT. The combination of these factors has led to over programming of the State Transportation Improvement Program (STIP), resulting in numerous project delivery delays, and will also require the 2050 MTP to be amended.

Projects

The CRTPO's 2050 MTP includes capital roadway and non-roadway projects and demonstrates fiscal constraint, meaning the projected funds are adequate to cover the cost of the programmed projects.

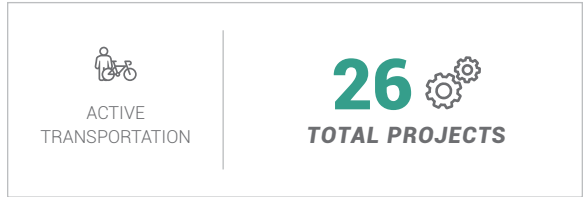
ROADWAY

Roadway projects represent a significant amount of the capital investments included in the 2050 MTP. A total of 156 roadway projects are programmed throughout the planning area, representing a variety of improvement types.



ACTIVE TRANSPORTATION

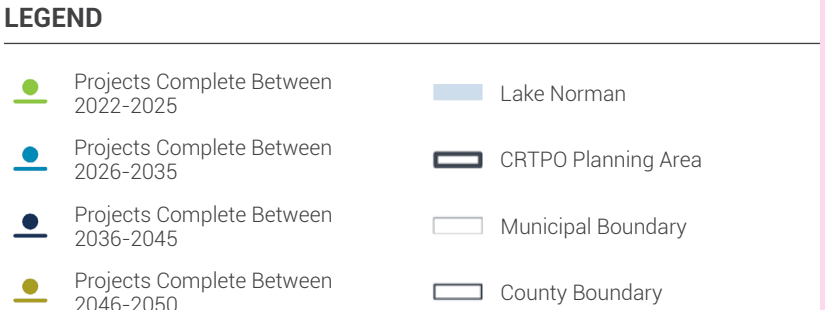
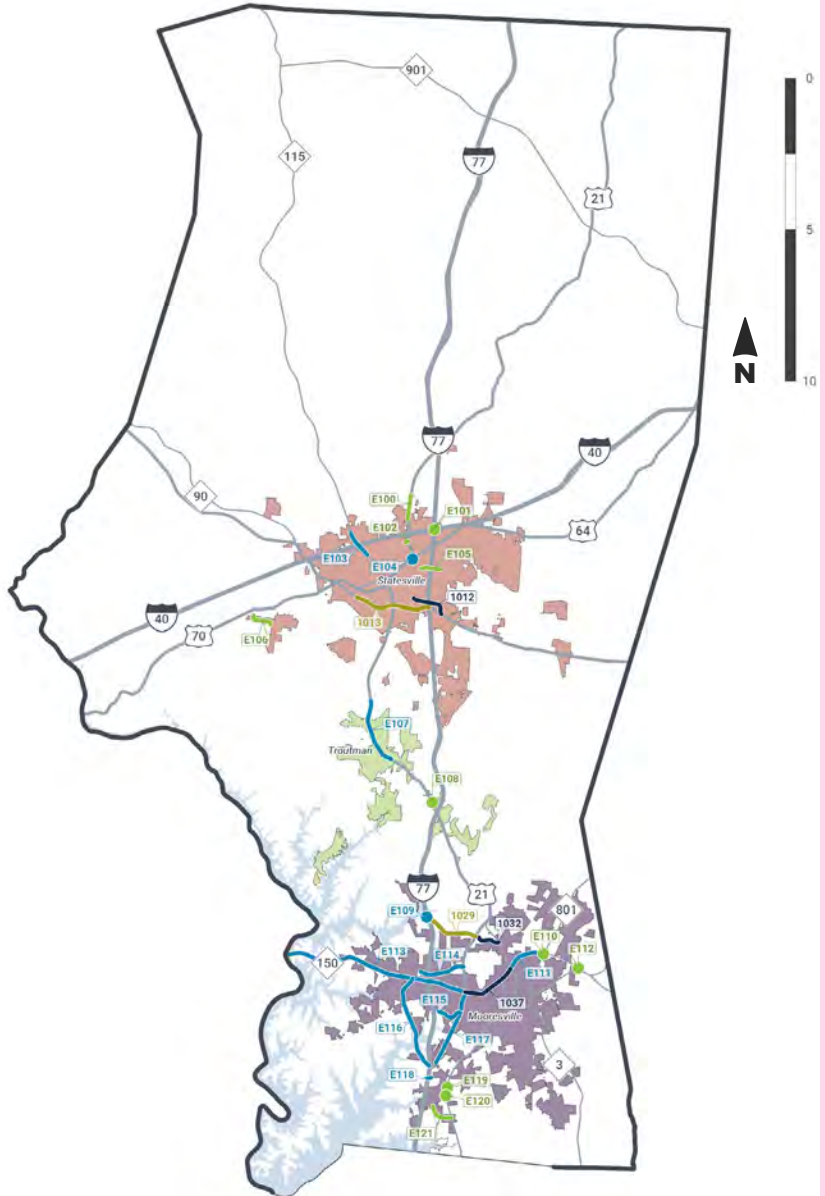
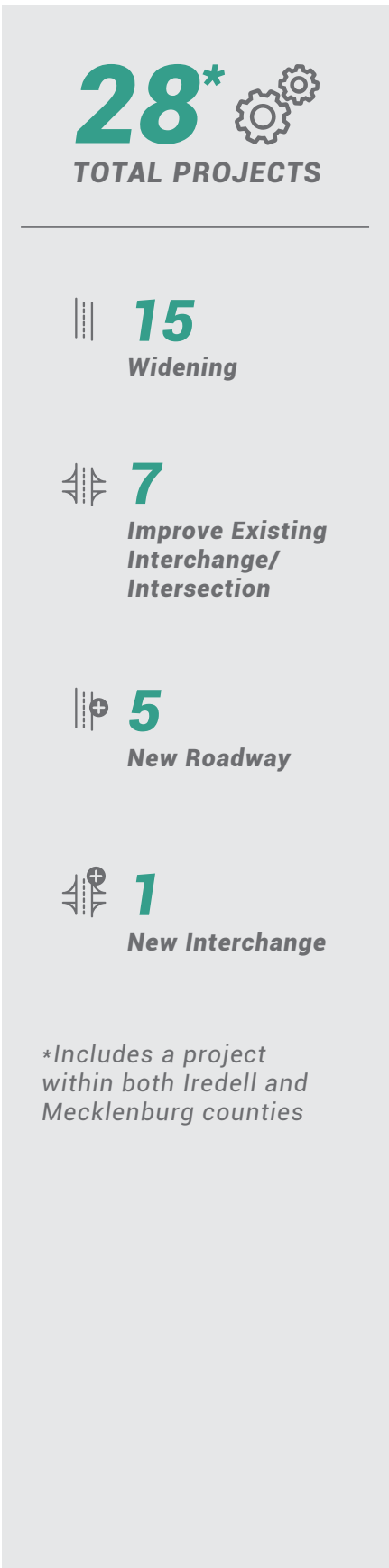
The Active Transportation projects in the 2050 MTP already have funding committed. In addition, bicycle and pedestrian accommodations are a key element of many of the MTP roadway project improvements, which is encouraged by NCDOT's Complete Streets Policy and is often a priority for member jurisdictions.



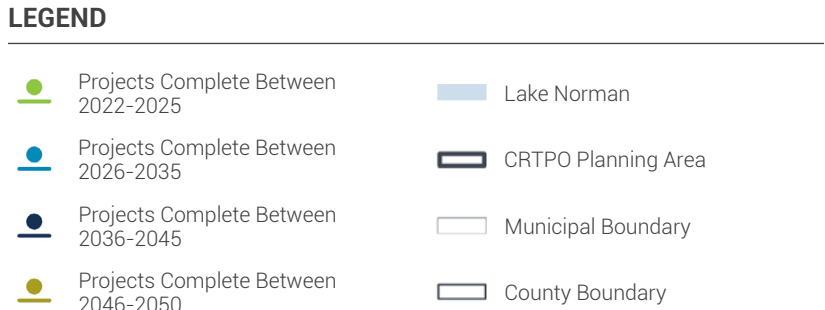
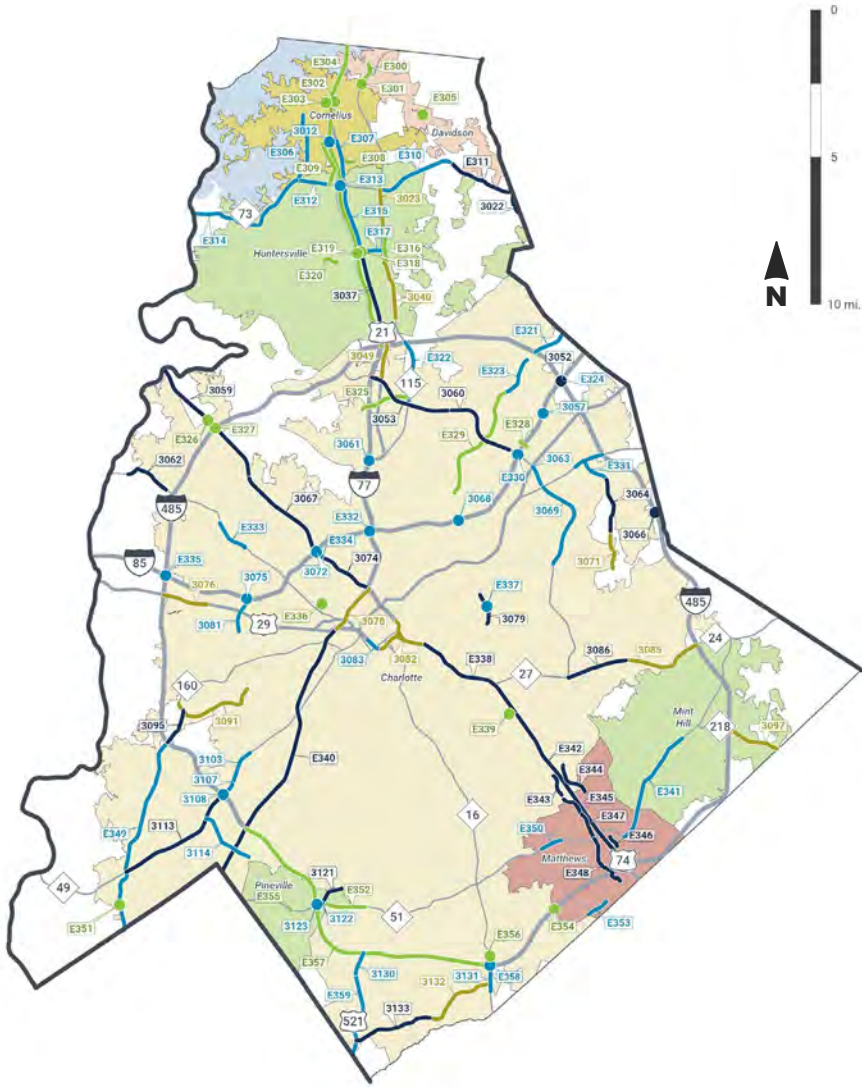
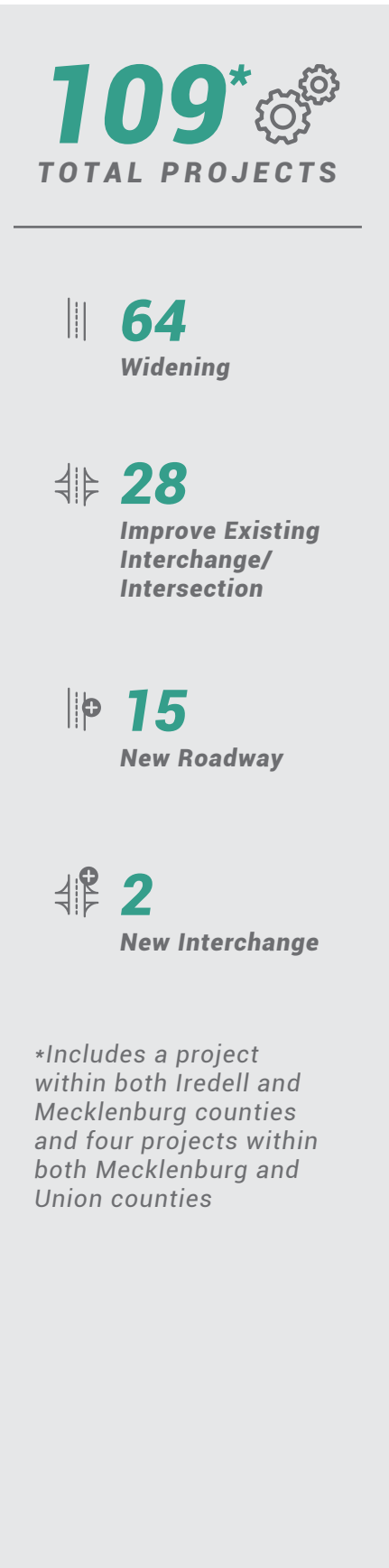
TRANSIT

Transit projects are not submitted for evaluation in the MTP development process. However, coordination is ongoing between the CRTPO and public transportation providers to identify projects through their respective governing boards. As specific projects (and the respective funding for each) are approved, the MTP is updated.

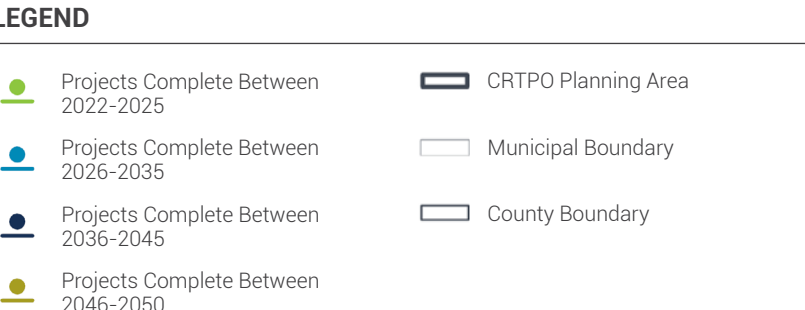
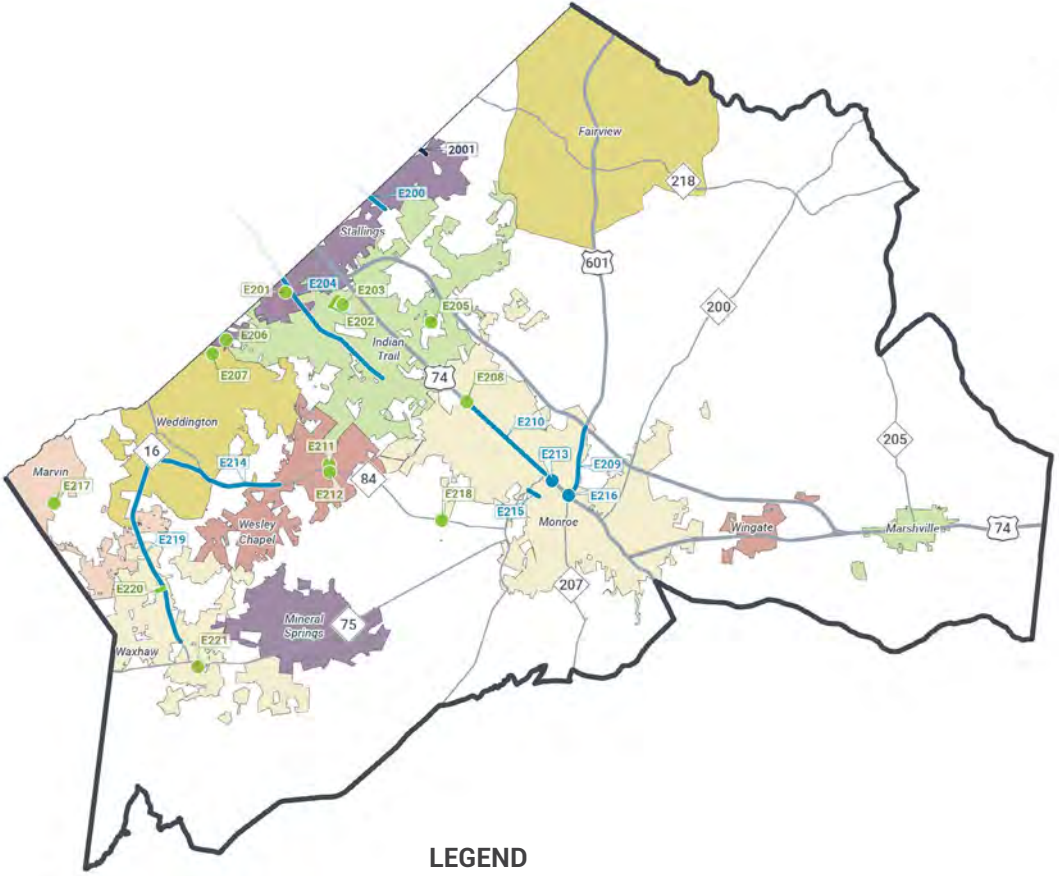
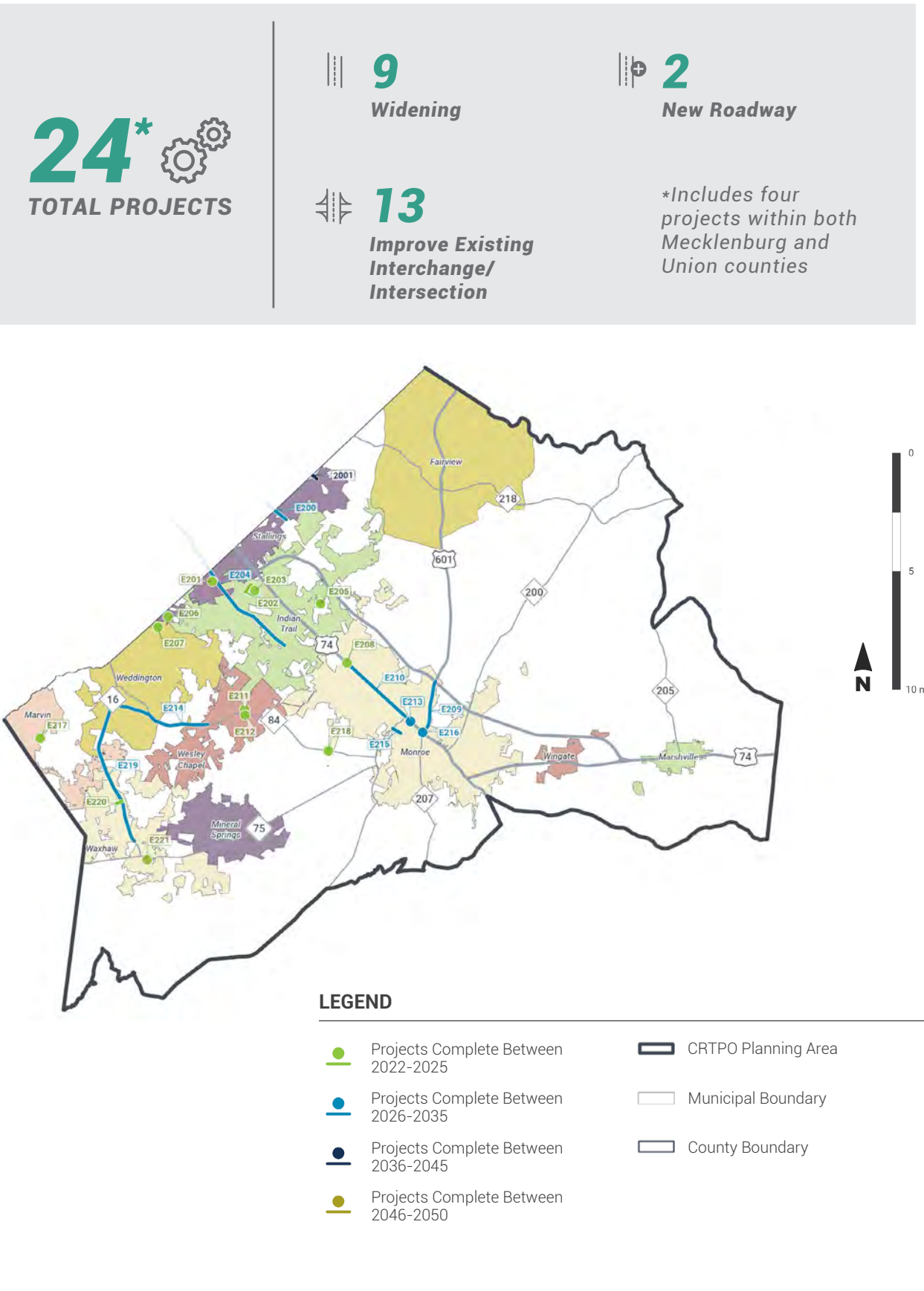
Iredell County



Mecklenburg County



Union County





Integrating Performance Management

Performance-based planning and programming is a significant element of the MTP development process, intended to connect performance outcomes to investment decisions. It is an ongoing process that consists of extensive coordination among the CRTPO, NCDOT, and transit providers with specific requirements outlined for each respective entity. The MTP serves as the primary source for the CRTPO to highlight the requirements, updates, integration activities, and outcomes associated with performance-based planning.

FEDERAL PERFORMANCE-BASED PLANNING PROCESS

CRTPO coordinates with NCDOT and transit providers to develop and monitor targets for a series of required performance measures.

Blue Line Expansion

National Performance Goals

Safety

Infrastructure Condition

Congestion Reduction

System Reliability

Freight Movement and Economic Vitality

Environmental Sustainability

Reduce Project Delivery Delays

Performance Measures Categories



Safety



Infrastructure Condition



System Performance



Transit Asset Management



Transit Safety

ASSESSMENT OF PERFORMANCE MEASURES

Federal Measures

The CRTPO has proactively integrated performance-based planning into its MTP development process. Based on available data related to each federal performance measure, the CRTPO used three approaches to assess whether projects programmed in the 2050 MTP help achieve established performance targets:



Project Level with Quantitative Data



CRTPO Planning Area Level with Quantitative Data



CRTPO Planning Area Level with Qualitative Data

The following chart lists each performance measure and how they were assessed:

Safety	System Performance*	Infrastructure Condition	Transit
Number of fatalities	Percent of person-miles traveled on the interstate that are reliable	Percent of pavement on interstate in good condition	Asset Management <ul style="list-style-type: none">Rolling StockEquipmentFacilitiesInfrastructure
Fatality rate (per 100 million VMT)	Percent of person-miles traveled on the non-interstate National Highway System (NHS) that are reliable	Percent of pavement on interstate in poor condition	Public Transportation Agency Safety Plan (PTASP) <ul style="list-style-type: none">FatalitiesInjuriesSafety EventsSystem Reliability
Number of serious injuries	Truck Travel Time Reliability (TTTR) Index	Percent of pavement on non-interstate in good condition	
Serious injury rate (per 100 million VMT)	Total Emissions Reduction	Percent of pavement on non-interstate in poor condition	
Number of non-motorized fatalities and serious injuries	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the NHS	Percent of NHS bridges in good condition	
		Percent of NHS bridges in poor condition	

* There is one additional System Performance measure, Percent of Non-Single Occupancy Vehicle (SOV) Travel, that is not considered in this MTP due to a lack of adequate data to assess performance.

Non-Federal Measures

The CRTPO established local performance measures for elements of the transportation system not covered by the federal metrics. The 2050 MTP reports progress made to achieve the respective targets initially set in 2017.

Performance Measure	2017–2021 Miles Added	Target	Status
Miles of Sidewalk Facilities	64 miles	35 miles ¹	
Miles of On-Road Bicycle Facilities	23 miles	23 miles ¹	
Miles of Shared Use Facilities	25 miles	22 miles ¹	

Performance Measure	2015	2018	Target	Status
Percent of Households within 15 minutes of a Regional Activity Center	68%	69%	50% ²	
Percent of Households within 1/2-Mile of a Fixed Route Transit Station	5%	12%	20% ²	
Percent of Employees within 1/2-Mile of a Fixed Route Transit Station	16%	22%	35% ²	
Percent of Households within 1/4-Mile of a Bus Route	55%	65%	50% ²	
Percent of Employees within 1/4-Mile of a Bus Route	75%	79%	70% ²	
Percent of Employees within a Strategic Freight Mobility Corridor	86%	86%	85% ²	

1- Target was set to be achieved by 2022

2- Target was set to be achieved by 2045

Legend



Meeting Target



Neutral

Conclusion

Even after the MTP is adopted, ongoing efforts are necessary to respond to growth and changing conditions. The 2050 MTP projects do not represent all the improvements needed to address the challenges in the planning area. The CRTPO will continue to define policies and processes to accommodate increasing demands and enhance the future transportation system.



Little Sugar Creek Greenway
(Sharon Road West)

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Future Considerations
- Visit https://crtpo.org/PDFs/MTP/2050/2050_MTP_AdoptedWeb.pdf to view the full MTP document





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