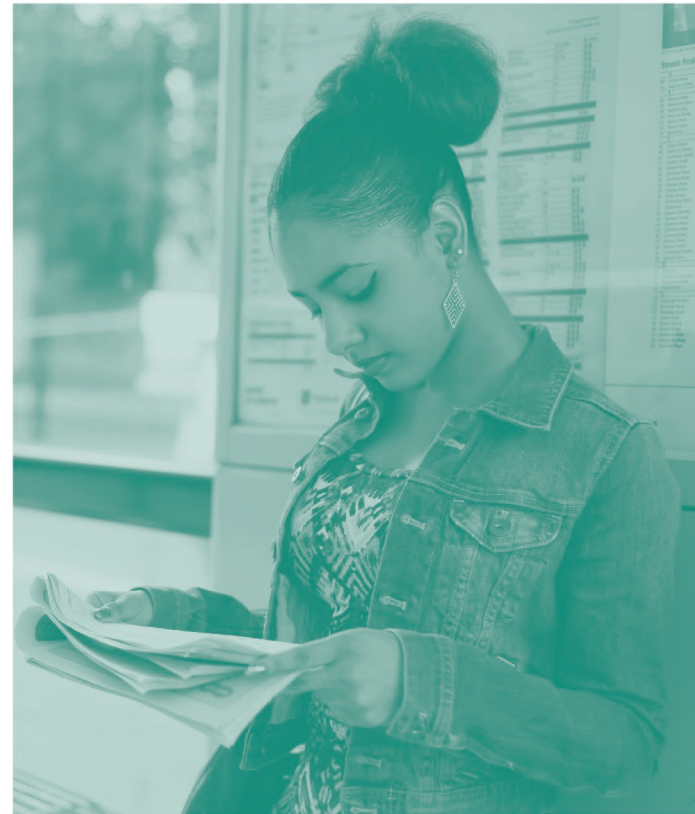




# CONNECT Beyond

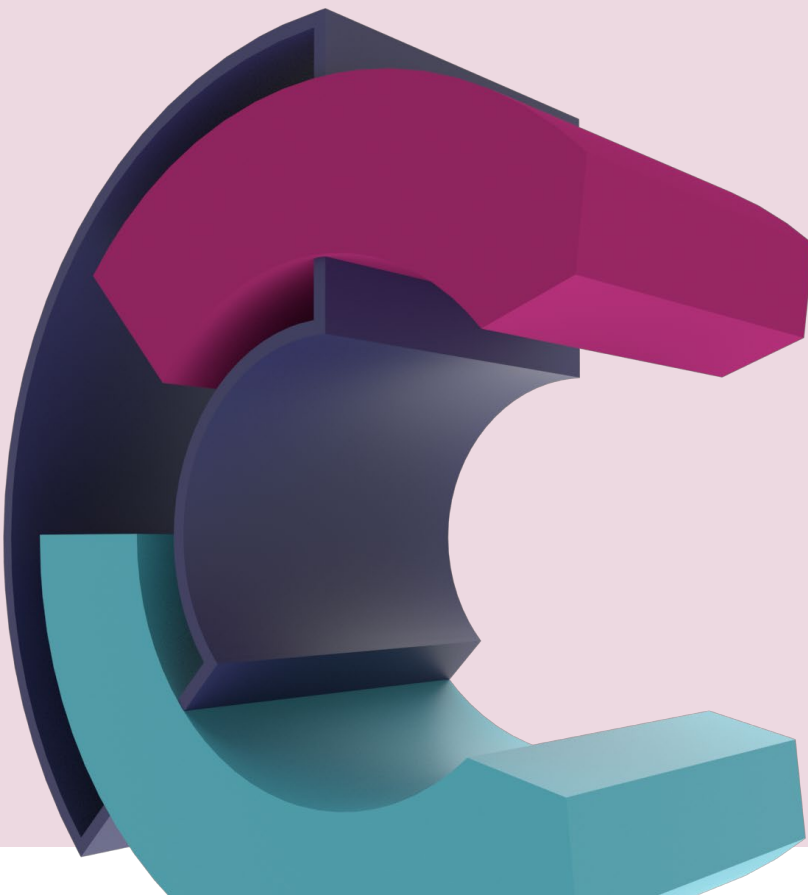
## Regional Mobility Plan





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# 01

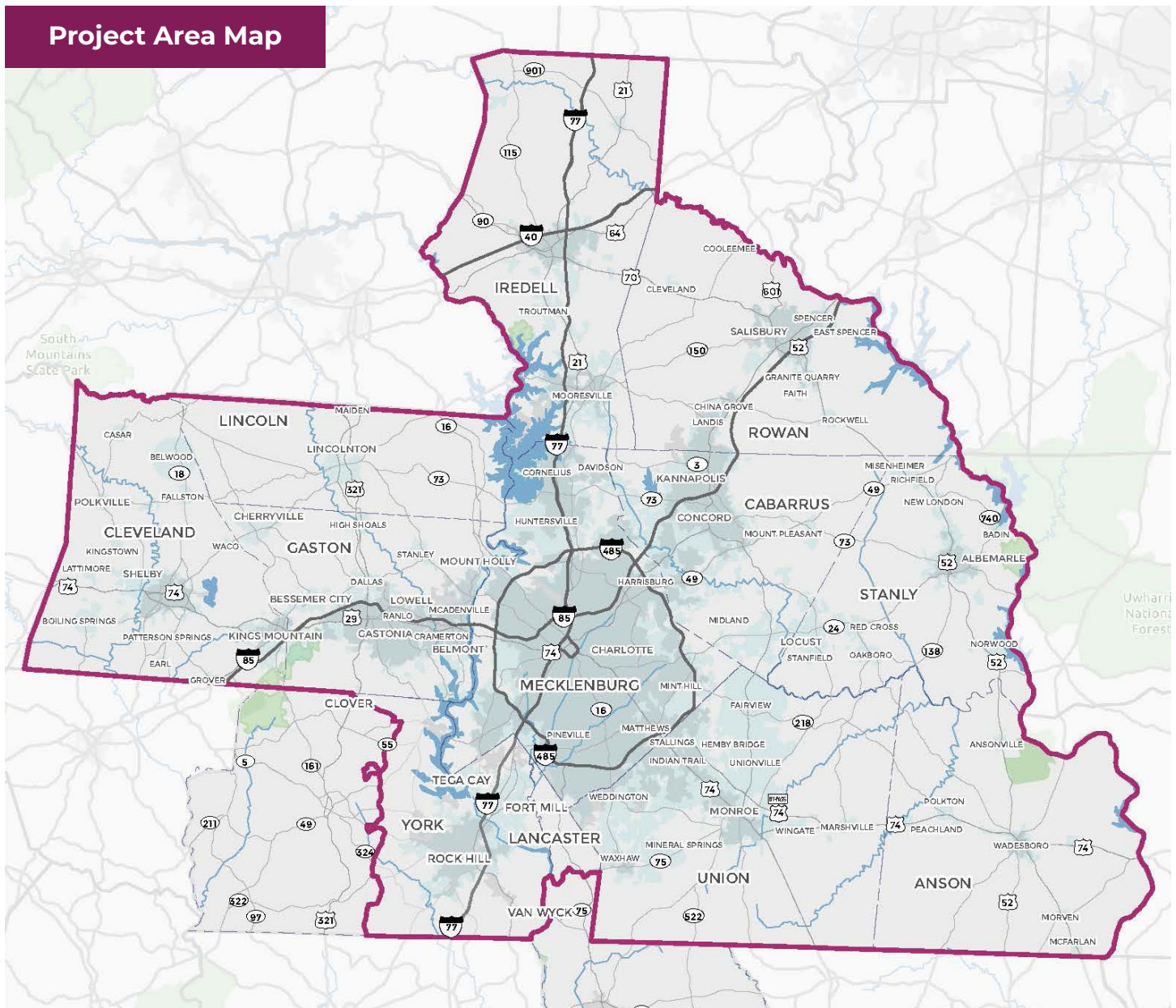
## **What is CONNECT Beyond?**

CONNECT Beyond is a bold regional mobility plan that sets the vision for how to better connect the rural, suburban, and urban communities in our 12-county region. This plan will guide and coordinate future mobility investments for the next two decades and serve as a blueprint for implementing a robust, integrated public transit network that will combine high capacity transit lines, enhanced bus services, local mobility options, and innovative transportation technologies.

CONNECT Beyond includes key recommendations paired with specific strategies and implementation steps to create a network that transforms the way residents and visitors travel throughout our region. The end goal? A total mobility network bringing seamless connectivity by way of high-quality multimodal transportation services.

# For Our Region

The CONNECT Beyond region is a diverse, two-state, 12-county area of rural communities, small towns, suburban areas, urban hubs, and booming business districts. The CONNECT Beyond region includes Anson, Cabarrus, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly, and Union counties in North Carolina, and the urbanized areas of Lancaster and York counties in South Carolina. Each county has its own unique geography, diverse demographics, and set of transportation challenges and needs. To build a more connected future where people can travel across municipal, county, and state lines with greater convenience and efficiency, [Centralina Regional Council](#), the [Metropolitan Transit Commission](#), and our regional partners have set out to create an innovative mobility plan that will transform our region's mobility future.



<b>2 STATES</b>	<b>12 COUNTIES</b>	<b>5,000 SQUARE MILES</b>	<b>2.6 MILLION RESIDENTS</b>
-----------------	--------------------	---------------------------	------------------------------



### Did You Know?

It is projected that by 2045, the region's population will increase by about 1.4 million people, an increase of over 50 percent. By that time, approximately 4.1 million people will live in the 12-county CONNECT Beyond region.

## For Our Future

This plan comes at a pivotal time. Our region is expected to grow rapidly over the next twenty years and as our region's population and industries increase, so will the need to transport more people and goods. To meet the future transportation needs of our growing region, we need to chart a new way forward and focus on developing a total mobility network that will provide alternative mobility options to better connect people, places, and opportunities. This plan outlines the current transportation conditions throughout the CONNECT Beyond region, why we're planning a new way forward, and the priorities we've set to make sure this plan benefits everyone in our region. Continue to the next page for these details and more or click the button below to jump ahead to the key recommendations and steps for implementation.

View all recommendations at [www.connect-beyond.com/plan](http://www.connect-beyond.com/plan)



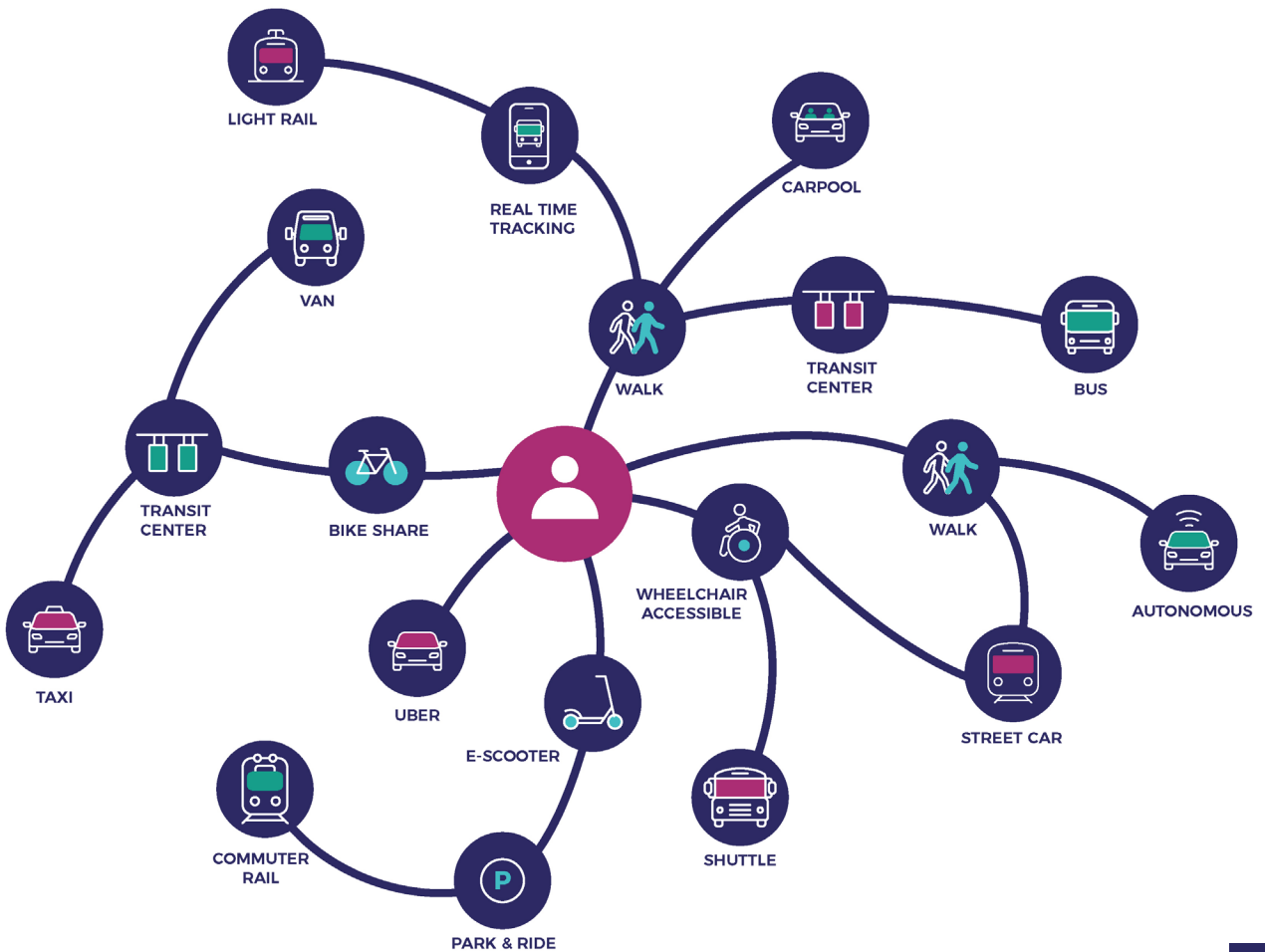
# It Starts with a Vision

The vision of CONNECT Beyond is to create a total mobility network for the region that would provide residents and visitors with a variety of alternative mobility options to travel seamlessly around our 12-county region. A total mobility network will help **improve transportation choice** and **enhance mobility** for everyone in our region. The vision will guide long-term transportation planning for the region and enable collaboration between regional partners, including local governments, transit agencies, and regional planning organizations. With this shared regional transit vision, the partners in the area will be able to plan, coordinate, and implement innovative transportation projects that will boost regional mobility, promote equitable access, encourage sustainable regional growth patterns, inspire community placemaking, and energize regional economic competitiveness.

## A Focus on Equity

Transportation is a crucial element in providing access to education, jobs, and housing to improve economic and social mobility. Limited or lack of public transportation options create significant obstacles to getting to work, shopping for groceries, taking your children to school, accessing healthcare and other public services, and participating in activities and social events throughout our region.

Helping to improve equitable access to transportation for everyone in the region, especially for those with limited or no access to a personal vehicle, is an important consideration of CONNECT Beyond. Through a combination of public listening sessions, stakeholder input, review of previous plans, and available data, CONNECT Beyond sets a foundation to guide context-sensitive mobility improvements in areas that need it most.



# A Total Mobility Network

You are at the center of the CONNECT Beyond vision. A total mobility network includes mobility options and mobility-supportive strategies that meet the user's particular and constantly changing needs. Providing various mobility options in an area allows residents and visitors to make trips in several ways, increasing travel efficiency and enhancing user experience.

## Our Region's Total Mobility Network could include:

### Public Transit Services:



**Commuter Rail**



**Light Rail**



**Streetcar**



**Bus Rapid Transit**



**Commuter Express Bus**



**Local Bus Service**



**Paratransit**



**Demand Response Services**



**Emerging Transportation Technologies like Autonomous Shuttles**

### Shared Mobility Services:



**Microtransit Services**



**Scoters**



**Bikeshare**



**Rideshare**



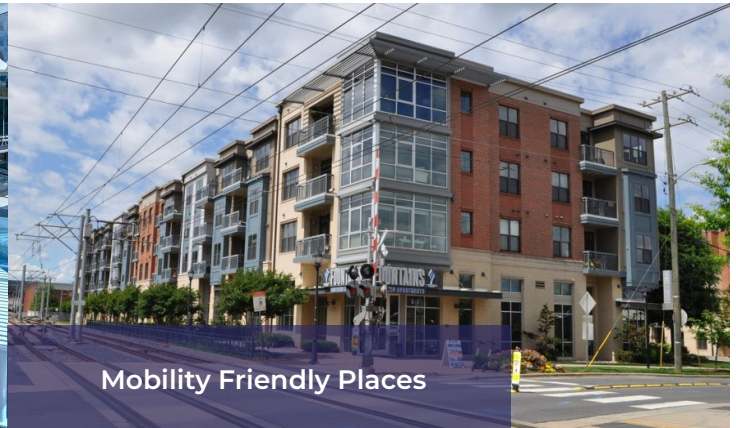
**Carpooling**



**Vanpooling**



## Our Region's Total Mobility Network could be supported by:

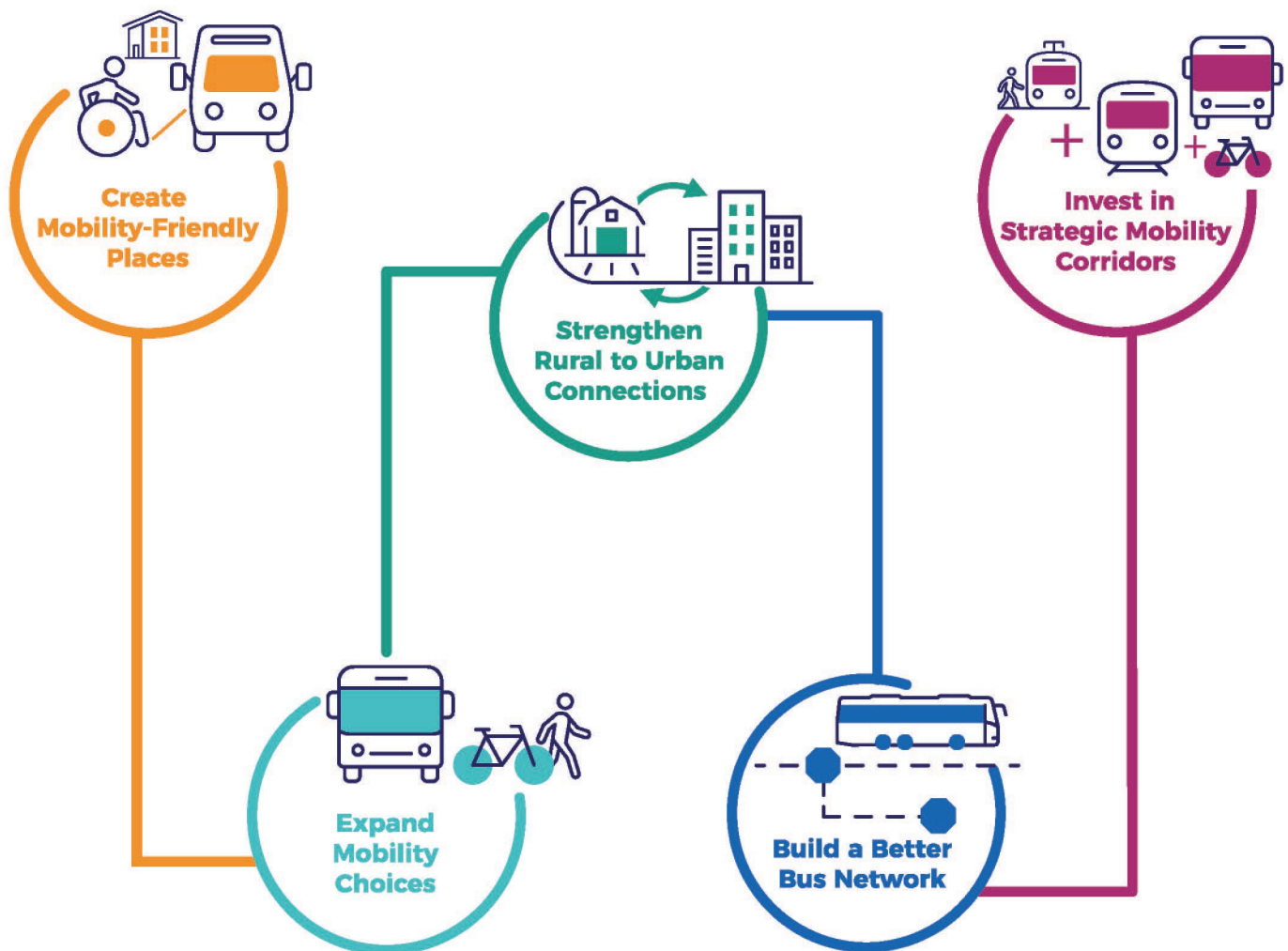


- **Mobility Connection Points:** Locations that are part of the total mobility network where users can access and make seamless transfers between mobility services. Mobility Connection Points include transit stations, transit stops, and mobility hubs.
- **Mobility-Friendly Places:** Pedestrian-friendly areas where the land use and development patterns make it easy to access everyday destinations and use public transit.
- **TDM Strategies:** Transportation Demand Management (TDM) strategies that help manage travel demand by increasing mobility options or changing travel behaviors.
- **Mobility User Tools:** Tools that make it easy and seamless for people to use mobility services that are part of the region's total mobility network. Mobility user tools can include all-in-one digital platforms for the region's total mobility network that could include journey planning applications and real time information updates about mobility services.

# Mobility Moves

The best way to think about the CONNECT Beyond plan is as a blueprint for building a mobility network, with the Mobility Moves acting as the building blocks to help us get there. The Mobility Moves are designed to support or strengthen one another as they are implemented across the region. As such, they cannot be implemented independently – all Mobility Moves must be advanced to achieve the CONNECT Beyond vision. The five Mobility Moves within CONNECT Beyond will help our region remain focused on our key priorities as they proceed toward implementation. Each of the five Mobility Moves includes key recommendations paired with specific steps and implementation strategies to guide our region as we work together to build a modern total mobility network. The Mobility Moves are discussed further in [Chapter 4](#).

CONNECT Beyond is a shared vision across the invisible lines that silo our communities – a collective blueprint for collaboration and coordinated investments. Much work still needs to be done to make this plan a reality, from strengthening current partnerships to finding additional resources to adding more bus services and building new high capacity transit corridors. But today, this plan is the critical and necessary next step in the journey to create a seamlessly connected multimodal transportation system. This plan acts as our north star and provides a clear vision to work towards, a vision of an integrated, multimodal, total mobility network that supports upward mobility and connects people to where they want and need to go.





## Create Mobility Friendly Places

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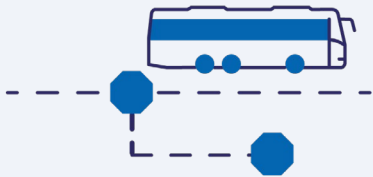
## Expand Mobility Choices

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## Strengthen Rural to Urban Connections

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## Build a Better Bus Network

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## Invest in Strategic Mobility Corridors

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# 02

## Why Mobility Matters

When various mobility options are available in an area, residents and visitors are more likely to use alternative means of transportation, like public transit, walking, biking, or ride-share service, in place of driving. Having a diverse set of efficient, reliable, and well-connected mobility options available throughout a region is one of the most critical factors to ensure that everyone can get to where they want and need to go.

# Why Mobility Matters

Providing enhanced mobility services is about more than helping people get around — they also:



Connects people to jobs



Provides local and regional travel options



Enhances upward mobility



Reduces travel volumes on roadways



Attracts new talent



Increases economic competitiveness



Allows travelers to make multimodal trips



Frees up roadway capacity for freight mobility

Currently, the CONNECT Beyond region has a limited number of mobility options. Many are not regionally coordinated or connected, making it difficult for residents and visitors to use their preferred mobility option. Instead, most residents and visitors rely almost solely on driving private automobiles as their primary form of transportation to get to and from everyday locations, like work, school, medical appointments, and the grocery store.

## Project Priorities

The recommendations included in CONNECT Beyond's regional mobility plan are focused on and aim to help address these key project priorities.



Increase Economic Competitiveness



Improve Transportation Choices



Enhance Public Transit



Advance Equity



Promote Sustainable Regional Growth



Encourage Environmental Stewardship

## Increase Economic Competitiveness

To ensure our economic competitiveness and secure consistent job growth, our region needs to develop a total mobility network that provides residents and visitors with a variety of alternative mobility options. Transportation infrastructure is a crucial factor that will influence our region's attractiveness and our ability to compete globally for talent and investment. Employers and investors now look at a region's mobility infrastructure and propensity for multi-modal transit investment as a location factor in their decision making. As a result, Centralina's Prosperity for Greater Charlotte Economic Development Strategy highlights improving and modernizing our infrastructure as one of the four priority goals for our region. Centralina found that our region's "transportation infrastructure is lagging behind population growth, resulting in significant roadway traffic congestion and inhibiting workers' ability to commute."

The Centralina Economic Development Commission reported that between 2010 and 2017, there was a 24 percent growth in the region's workforce.

The report explained that for our region to stay economically competitive, attract top talent, and recruit new businesses, that our region must expand the transportation options available to residents and visitors, and specifically focus on expanding the public transportation services. Moreover, two of our region's main industries rely on roadway capacity and reduced congestion to ensure goods produced in the region get to market and that raw materials for production arrive in a timely fashion. The success of companies in our growing advanced manufacturing and logistics/distribution industry clusters depend on the non-vehicular mobility solutions offered in CONNECT Beyond. Our success will also be a key factor for existing businesses when making decisions about whether to stay in a particular area or relocate. To stay competitive in our globalized economy, to retain our business and secure new investment, our region must improve our transportation infrastructure and enhance mobility services.

### Uptown Charlotte





Rider Transit

## Enhance Public Transit

CONNECT Beyond is equipping regional partners with the tools necessary to develop an integrated regional public transit system. While this will increase the ease of using transit, CONNECT Beyond aims to go further and elevate public transit to be a preferred mode of transportation throughout the region. To do this, CONNECT Beyond has made strategic recommendations for optimizing specific transit services and enhancing coordination between transit services. In making recommendations for how to enhance public transit services in our region, CONNECT Beyond focuses on how to better serve riders who depend on public transit for their transportation needs, how to attract new riders who may have other transportation options available to them, and how to enhance the user experience for everyone utilizing public transit services.

## Improve Transportation Choices

Transportation choice refers to the variety of alternative mobility options available to residents and visitors in a region. These transportation choices could include taking public transportation, riding a bike, walking, carpooling, driving, taking a ride-sharing service like Uber or Lyft, or using micromobility devices such as e-scooters. Currently, there are limited transportation choices available to residents and visitors in our region, and they overwhelmingly choose to drive for the majority of their transportation needs.

To improve transportation choices in our region, CONNECT Beyond seeks to develop a total mobility network that will provide residents and visitors with a variety of alternative mobility options. Our region's total mobility network could be made up of **public transit service options** including commuter rail, light rail, streetcar, bus rapid transit, commuter express buses, demand response services, local bus services, and emerging transportation technology as well as **shared mobility services** like microtransit services, scooters, bikeshares, rideshare services, carpooling initiatives, and vanpool services. Having a variety of alternative mobility services available in our region will allow residents and visitors to mix, match, and combine different mobility options to meet their transportation needs most efficiently. Developing a total mobility network will help better connect our region and expand transportation choices for everyone.



While there is no single solution to tackling inequalities and inequity in our region, focusing on expanding transportation choices and improving accessibility can help to enhance equity in meaningful and impactful ways.

## Advance Equity

Advancing equity is a central focus of CONNECT Beyond. While there is no single solution to tackling inequalities and inequity in our region, focusing on expanding transportation choices and improving accessibility can help to enhance equity in meaningful and impactful ways, such as removing barriers to education, employment, and medical services. CONNECT Beyond looked at equity in terms of social equity (the upward social and economic advancement of all populations within the study area) and jurisdictional equity (the distribution of services across the metropolitan region).

In 2013, a team of researchers from Harvard University and the University of California Berkeley published a study titled [“Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States”](#) highlighting the very real economic and social inequalities that exist in our region. This [study](#) examined intergenerational mobility for various metropolitan areas in the United States and found that **Charlotte ranked last among large U.S. cities for intergenerational mobility.** The [study](#) reported that for a child born into poverty,

the chance of that child rising to the top 20 percent income bracket as an adult is only about 4.4 percent, making clear the inequities in the CONNECT Beyond region.

CONNECT Beyond’s mission is to create a blueprint for how to enhance mobility and increase transportation choices in our region. From the beginning, advancing equity has been a key priority for CONNECT Beyond, serving as a foundation for data analysis, stakeholder and community engagement, and the development of recommendations.. This plan is focused on how to improve access to equitable and affordable transportation options to help minimize disparities in mobility and enhance access to opportunities.

Learn about our Transportation Equity Review on page 24







Transportation accounts for **29 percent of greenhouse emissions in the United States** – making it the most significant contributor to U.S. greenhouse gas emissions.<sup>10</sup>

Morrow Mountain State Park, Stanly County

## Promote Sustainable Regional Growth

Over the past few decades, the CONNECT Beyond region, like many urbanized communities, has grown in a decentralized, spread-out development pattern, often called urban sprawl. A [study by Smart Growth America](#) found that the greater Charlotte region is the **fifth most sprawling large metropolitan area** with more than one million residents. Sprawling growth patterns accelerate land use consumption by rapidly converting open space and rural land into suburban and urban development. Sprawling urban expansion is not sustainable for our region. Our land and other natural resources are finite, along with the funding required to extend infrastructure to serve this growth pattern.

CONNECT Beyond evaluated strategies to help the region move towards more transit-supportive development patterns, including encouraging compact, mixed-use development along key corridors, within activity centers, and near mobility hubs. Transit-supportive development patterns help create sustainable, livable, and walkable communities with convenient access to public transit services that simultaneously build upon existing community infrastructure investments.

## Encourage Environmental Stewardship

According to the [U.S. Environmental Protection Agency \(EPA\)](#) and the [Federal Transit Administration \(FTA\)](#), transportation accounts for **29 percent of greenhouse emissions** in the United States – making it the most significant contributor to U.S. greenhouse gas emissions. Meeting air quality conformity standards is important to ensure that federal transportation funding continues to flow to our region. Investments in transportation choices highlighted in this plan will help the region achieve air quality goals. Lowering greenhouse gas emissions is essential to environmental sustainability. By working together, our regional partners can help reduce our region's carbon dioxide emissions and steward an environmentally sustainable transportation future in the CONNECT Beyond region.

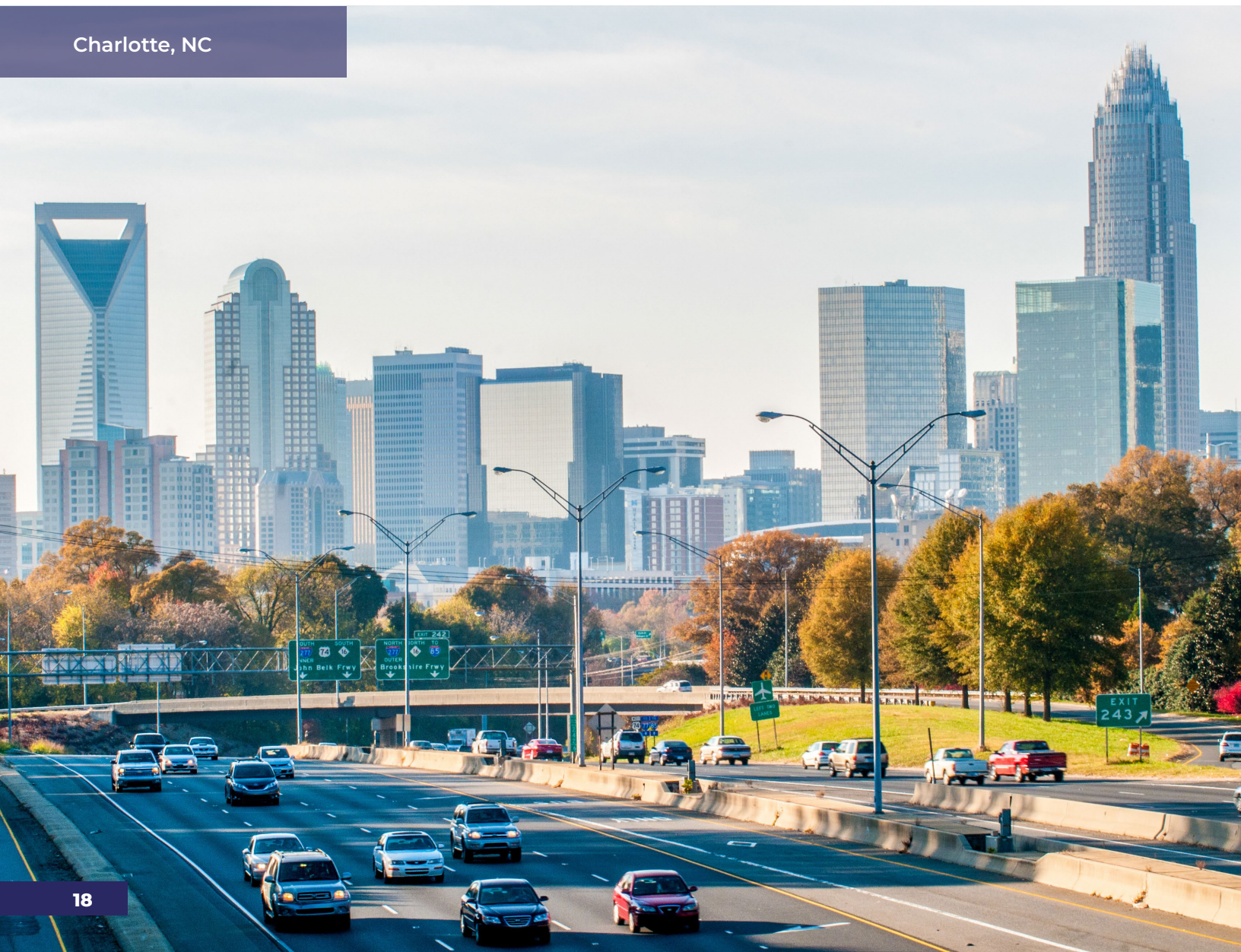
# A New Way Forward

To meet the current and future transportation needs of our growing region and promote sustainable regional growth, we must chart a new way forward and take a more balanced approach towards transportation planning and investments. While a functioning interstate highway and roadway system will always be a vital component of our region's transportation infrastructure, we need to work together to start engaging in multimodal transportation planning and focus on developing a total mobility network that will better connect our region by providing a variety of alternative mobility options.

## Current Mobility Conditions

Currently, the CONNECT Beyond region is an auto-oriented region with most people choosing to drive as their primary mode of transportation. Residents and visitors in our region are dependent on driving because there are limited mobility options and many of these alternative mobility services are not regionally coordinated, which makes it difficult to use them to travel around the region.

Charlotte, NC



## A Segmented Public Transit System

Our region currently has 17 transit providers, including community service providers and urban transit providers, providing public transit services for different jurisdictions throughout our region. As people travel to everyday destinations throughout the region, they often cross municipal, county, and state lines. This means that transit riders are often using a combination of transit services operated by different providers.

Each transit provider in our region has different routes, service frequencies, fare systems and prices, service hours, transit amenities, and promotional public-facing websites and phone applications. This segmented public transit system makes it difficult to use public transit services to commute to work or run errands, leaving residents and visitors to rely on private automobiles to get to daily destinations. Additional coordination between our region's transit providers would make it easier for people to use public transit services to travel around the region and seamlessly transfer between transit services.

## Transportation Demand and Travel Volume

Our region experiences significant travel volumes and transportation demand on our existing transportation infrastructure. These high travel volumes tend to cause poor traffic flow and significant traffic congestion causing our region's highways and roads to reach roadway capacity. Many of our region's primary highways and roads are already close to reaching medium to maximum capacity. As the CONNECT Beyond region continues to grow, transportation demand and travel volumes will only continue to increase.

The CONNECT Beyond region is one of the fastest-growing metropolitan areas in the United States. **It is projected that by 2045, the region's population will increase by about 1.4 million people, an increase over 50 percent. By that time, approximately 4.1 million people will live in the 12-county CONNECT Beyond region.** This exponential population growth is expected to

substantially increase transportation demand, travel volumes, and traffic congestion in our region. As part of a Travel Market Analysis conducted for CONNECT Beyond, a regional travel demand model indicated that in 2018 there were about **3.52 million one-way trips** (not including trips commuting to work and school) every weekday in our region. The regional demand model projected that by 2045, there would be about **5.5 million one-way trips** (not including trips commuting to work and school) every weekday in our region. This is approximately a **56 percent increase in daily trips in our region between 2018 and 2045.**

Between 2018 and 2045, our region will see approximately a 56 percent increase in daily car trips.<sup>13</sup>

## Why Can't We Just Build More Roads?

Many of our region's primary highways and roads are already nearing medium to maximum capacity and the development surrounding many roadway corridors is on the rise, making the potential purchase of additional right of way for roadway expansion very expensive. In congested urban areas like the CONNECT Beyond region, expanding or building new highways and roads often has limited success in reducing congestion and improving mobility. Major roadway improvements often end up increasing travel demand and traffic congestion due to induced travel demand—the phenomenon which occurs when a highway or road is built or expanded and causes traffic volumes to almost immediately increase. This means we **cannot simply build our way out of traffic congestion.** Instead, we need to look for a new way forward.

Learn More About Travel Volumes in our Region



# 03

## Creating **CONNECT** Beyond

From February 2020 to September 2021, the region has worked diligently to craft a regional mobility plan to enhance mobility and better connect our region.

# Understanding Regional Mobility Conditions

The first step in developing this regional mobility plan was to cultivate a deep understanding of the region and the mobility needs of those who live here. To understand the current and future mobility needs of the CONNECT Beyond region, four key analyses were conducted:

- Existing Transit System Evaluation
- Travel Market Analysis
- Related Plans and Studies Review
- Transportation Equity Review

CONNECT Beyond also reviewed past public feedback and sought input from key stakeholders and community members from around the region throughout the plan development process.

## Existing Transit Systems Evaluation

CONNECT Beyond conducted an in-depth Evaluation of the service delivery and performance for every fixed-route urban transit provider and community transportation provider in the 12-county region.

As part of the existing transit systems evaluation, CONNECT Beyond:

- Created an inventory of all transit services offered in the region
- Analyzed the service performance of each transit provider
- Reviewed each provider's transit service standards and performance measures
- Completed interviews with transit provider staff
- Conducted ride-alongs of select routes for each fixed-route urban transit provider

This evaluation provided valuable insights about the current transit services being offered in the region and served as the foundation on recommendations for how to improve coordination between transit providers to help improve service performance, efficiency, and connectivity.

## Review Related Plans and Studies

CONNECT Beyond reviewed past and current planning efforts and studies from communities and agencies throughout the region. Reviewing related plans and studies helped verify that CONNECT Beyond's recommendations are in alignment with existing and active planning and design efforts throughout the region.

Review related plans & studies at [www.connect-beyond.com/project-details/related-projects/](http://www.connect-beyond.com/project-details/related-projects/)



# Transit Services in our Region

## Iredell



## Mecklenburg



MECKLENBURG  
TRANSPORTATION  
SYSTEM (MTS)

## Rowan



## Cleveland



## Lincoln



## Gaston



GASTON COUNTY  
ACCESS CENTRAL  
TRANSPORTATION

## Cabarrus

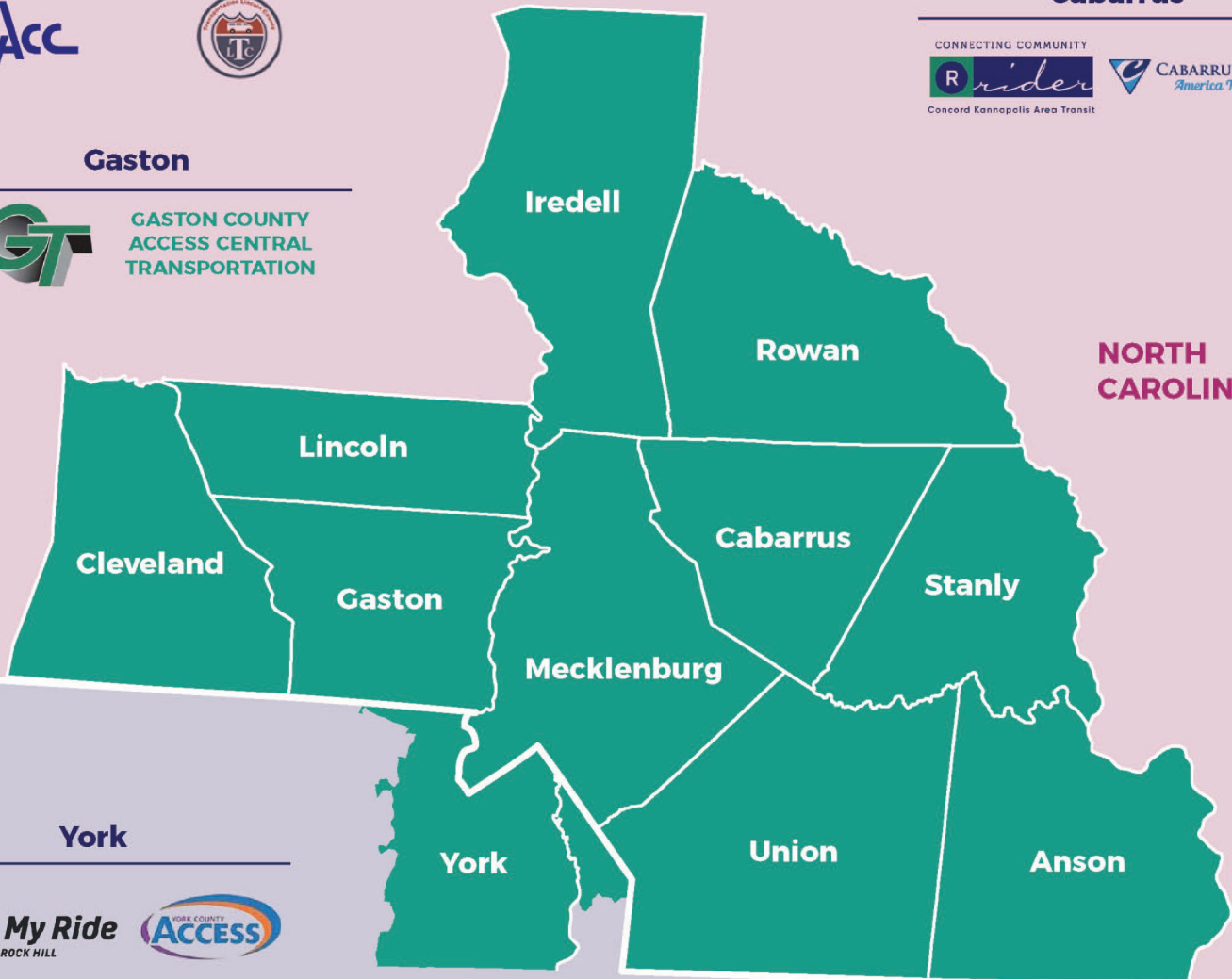
CONNECTING COMMUNITY



Concord Kannapolis Area Transit



CABARRUS COUNTY  
America Thrives Here



## York



## Lancaster

## Lancaster



SOUTH  
CAROLINA

## Union

UNION COUNTY  
TRANSPORTATION  
(UCT)

## Anson

ANSON COUNTY  
TRANSPORTATION  
SYSTEM (ACTS)

## Stanly





Charlotte, NC

## Travel in Our Region

To understand our region’s current and future mobility conditions, CONNECT Beyond examined existing and future travel patterns throughout the 12-county region using travel demand modeling software. Travel demand modeling is an analytical tool that provides insight about current and future travel demand and travel behaviors. Travel demand modeling provides a forecast of future travel that predicts where people will travel to and from the transportation modes they will use, and the daily number of trips that will be completed.

The following table provides a summary of the estimated numbers for current and projected population, households, and employment in the CONNECT Beyond region.

The Region in 2018	The Region in 2045
2.7 million people	4.1 million people
1.1 million households	1.6 million households
1.6 million jobs	2.3 million jobs

This means that between 2018 and 2045, our region will see a **52 percent** increase in population, a **45 percent** increase in households, and a **44 percent** increase in jobs.

The regional travel demand model also showed that in 2018 there were approximately **3.52 million one-way trips** (not including trips commuting to work and school) every weekday in our region and that in 2045 there will be approximately **5.5 million one-way trips** (not including trips commuting to work and school). This is approximately a **56 percent increase in daily trips** in our region between 2018 and 2045.

The regional travel demand model also helped CONNECT Beyond understand where the most future travel activity will occur in our region. The travel demand model indicated that generally much of the travel activity in our region will revolve around the City of Charlotte in Mecklenburg County, however, there is significant cross-county travel across the nine surrounding counties in North Carolina, including Anson, Cabarrus, Cleveland, Gaston, Iredell, Lincoln, Rowan, Stanly, and Union, and two counties in South Carolina, Lancaster, and York.

Analyzing travel patterns throughout the region helped CONNECT Beyond better understand the current and future mobility needs of our region and where certain alternative mobility options like high capacity transit services and enhanced bus services could be most successful. CONNECT Beyond used the insights from the regional travel demand model to help develop the recommendations for this regional mobility plan.

# Equity in Our Region

## PLAN HIGHLIGHT

### Transportation Equity Review

A cornerstone of CONNECT Beyond was its focus on increasing and prioritizing transportation options for transit-dependent individuals and families. CONNECT Beyond analyzed the region's socio-demographic make-up for factors indicative of transit-dependency, including holding a minority identity, having a low income, having a disability, being younger than 18 years old or older than 64 years old, and living in a household with one or zero cars. Areas with high densities of these demographic characteristics have the most significant potential for transit utilization. CONNECT Beyond evaluated the current transit services throughout the region and examined if these transit services provide sufficient accessibility and connectivity to essential services and key destinations.

The plan also analyzed the relationship between housing and transportation costs in the CONNECT Beyond region. Traditional housing affordability guidelines consider a home affordable if its price is 30 percent or less of a family's income, but transportation costs related to a home's location is also an important factor when calculating the cost of commuting and other daily travel needs. [The Center for Neighborhood Technology](#) developed the [Housing + Transportation Affordability Index](#) which provides a more nuanced view of housing affordability by calculating housing costs and transportation costs based on how far the home is from the region's job centers and public transportation services. [The H+T Affordability Index](#) found that the average resident in the [Charlotte-Concord-Gastonia region](#) spends about **52 percent** of their income on housing (**27 percent**) and transportation (**25 percent**) costs. Affordable housing and alternative mobility options are crucial for social and economic mobility, especially for low-income households. Having access to alternative mobility options can help offset the financial burden of high regional transportation costs for low-income households.

The last step of the Transportation Equity Review evaluated how the CONNECT Beyond region can expand and optimize transit services by examining current and projected population and employment density data. The regional socio-economic datasets helped illustrate regional travel patterns (i.e., where people are traveling to and from) and areas of high transit propensity (i.e., the likelihood of using public transit). The insight gained from looking at regional travel patterns and transit propensity guided the identification and development of recommendations for existing transit network optimization strategies, transit service expansions, and new transit services designed to better serve transit-dependent communities in the region.

The results of this review helped identify the strategic mobility corridors to support future high capacity transit lines. Through engagement with transit providers across the region, the equity review confirmed that while the current fixed route transit service is generally serving the areas of greatest need, those areas needed additional service such as more frequency and extended hours. The equity review also identified key areas where community and rural service providers could meet with fixed route operators and connect them to urban and suburban services.

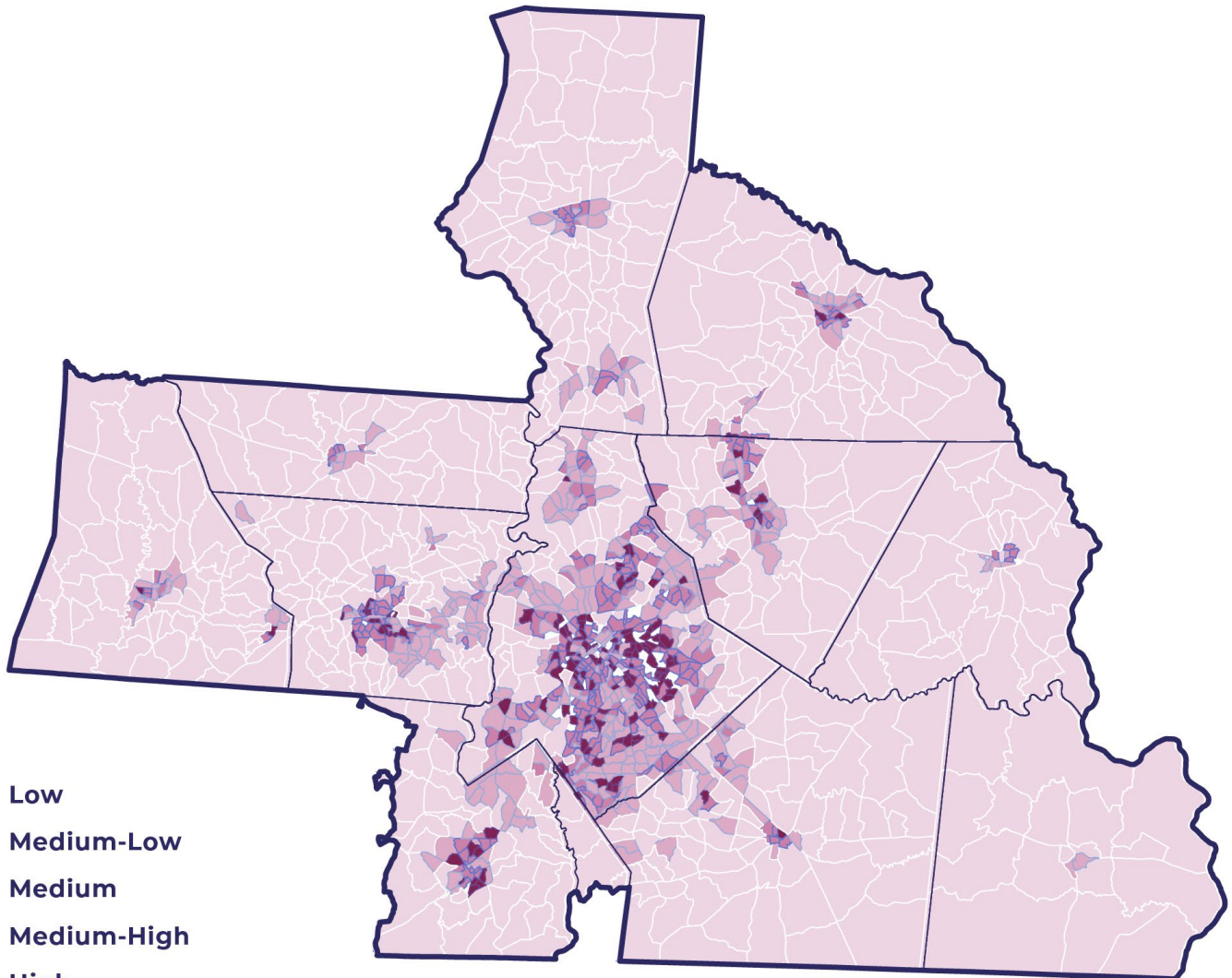
View the Data By Visiting  
[www.connect-beyond.com/why-mobility-matters/equity](http://www.connect-beyond.com/why-mobility-matters/equity)



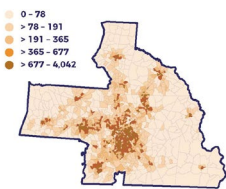


# Transit Propensity

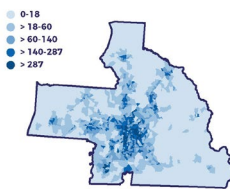
View the Data By Visiting [www.connect-beyond.com/why-mobility-matters/equity](http://www.connect-beyond.com/why-mobility-matters/equity)



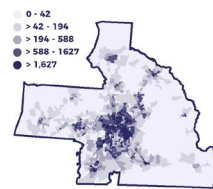
- Low
- Medium-Low
- Medium
- Medium-High
- High



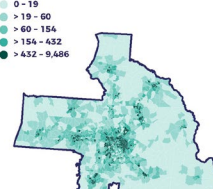
Senior & Disabled Population



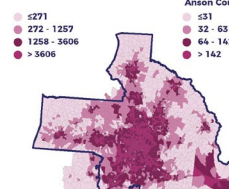
Zero to One Car Households



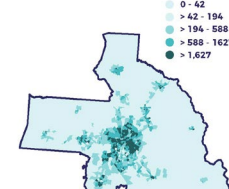
Youth



Low Income



Population Employment



Minority

# CONNECTING with the Community

CONNECT Beyond offers a once-in-a-generation chance to re-imagine what role mobility will play in our region's future and evaluate how we choose transportation projects that support our values.

At the onset of CONNECT Beyond, the intent was to ensure effective engagement – to listen to the voices in our communities and understand the region's mobility needs. Shortly after the project launched in the spring of 2020, the COVID-19 pandemic sent the world into lockdown. CONNECT Beyond's aim – to create a regional mobility plan that includes recommendations for how to enhance mobility and improve transportation choice for everyone in our region – did not change though.

Over the last 18 months, our communities have been reeling from the impacts of the COVID-19 pandemic. As the world pivoted to a “new normal” so did the development process of this regional mobility plan. CONNECT Beyond adjusted the medium for community engagement which opened the opportunity to virtually engage with the public, stakeholders, advisory committee members, elected officials, and regional and national experts to help harness their insight to develop the plan's recommendations.

**A big thank you to everyone who shared their passion and insights to help us develop this regional mobility plan during a pandemic!**

Project Kick-off February 2020



You can view past advisory committee and community presentations on our website.

View our events at [www.connect-beyond.com/  
project-details/public-involvement/](http://www.connect-beyond.com/project-details/public-involvement/)



## Past Involvement

We've been working with community members from around the CONNECT Beyond region for several years to reach this point. CONNECT Beyond builds on two complementary regional visioning and planning initiatives led by Centralina Regional Council: the CONNECT Our Future project and the Regional Transit Engagement Series.



### CONNECT Our Future

CONNECT Our Future was a regional growth planning initiative to guide the future growth, land use, and development for our region. This three-year planning process included 14 counties from both North Carolina and South Carolina and engaged 120 local governments and over 8,400 public stakeholders. The central outcome of CONNECT Our Future was the establishment of the Preferred Regional Growth Concept that will help guide the future growth of our region over the next 30 years, as well as an enhanced understanding of how our region's residents and leaders want our region to grow and develop. CONNECT Our Future identified ten growth priorities for our region and five of these growth priorities were directly related to regional transportation, public transit, and coordinated land use development.

### Regional Transit Engagement Series

Following the conclusion of CONNECT Our Future, Centralina Regional Council partnered with the Metropolitan Transportation Commission (MTC) to lead a two-year community engagement process called the Regional Transit Engagement Series to better understand the transportation opportunities and challenges in our region. From this Engagement Series, we learned more about needs, barriers, and opportunities related to transit in our region and how local communities could benefit from additional coordination. What we heard from community members during the Engagement Series helped CONNECT Beyond understand what elements would be most beneficial to include in this regional mobility plan.



Kannapolis, NC

# Engaging With Our Communities

Since the aim of CONNECT Beyond was to develop a long-term vision and action-oriented plan for how to enhance mobility and improve transportation choices in our 12-county region, it was important that we heard from and worked with those who live, work, and go to school in communities throughout our region. To better understand the mobility needs of those in our region and develop a plan that will help enhance mobility for everyone, we used a variety of public outreach tools and community engagement strategies.



## Let's Chat About Public Transit!

**GIFT CARD** \$25



You will receive a \$25 Gift Card for your participation

- Do you use public transit?
- Are you a veteran or person with a disability?
- Are you a student, parent, or retiree?
- Are you age 20-35 or 54+?

If you answered yes, text 'I am in' to 704-666-2951 or sign up at [www.connect-beyond.com](http://www.connect-beyond.com)

CONNECT BEYOND

A Regional Mobility Initiative

## MOBILITY, EQUITY, PUBLIC HEALTH AND THE FUTURE OF TRANSIT

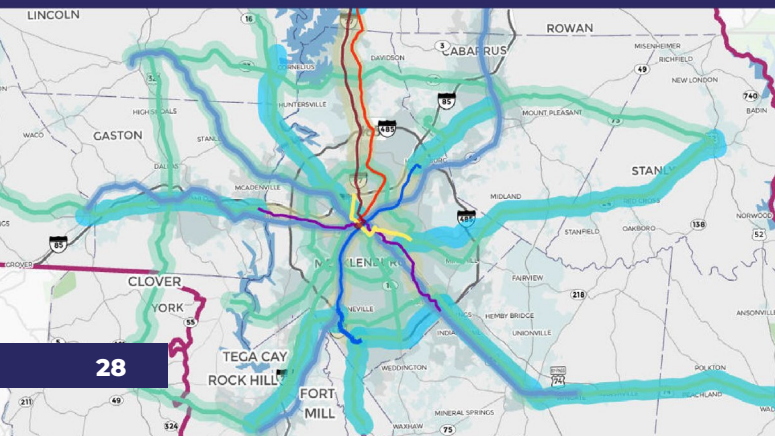


Over the last several months, our communities have been reeling from the impacts of the COVID-19 pandemic and trying to navigate how to return to a somewhat normal way of life. In tandem with this, the issue of racial inequity has taken a center stage in our public discourse. With communities of color accounting for a disproportionately higher impact of the pandemic and upward social mobility harder in our region than the rest of the nation, these two issues are intrinsically linked.

CONNECT Beyond

## The Future of High Capacity Transit

 **LIVE** December 10, 2020  
Español 1:30 p.m. English 2:30 p.m.



## CONNECT Beyond



A Regional Mobility Initiative

[www.connect-beyond.com](http://www.connect-beyond.com)

# Community Engagement Opportunities

We provided a variety of community engagement opportunities to allow the public to learn more about CONNECT Beyond and allow community members to tell us what mobility means to them and what they would like to see included in this regional mobility plan.



**Community Survey**



**Listening Sessions**



**Online Meeting**



**Facebook Live Events**

## Public Outreach Tools

We used a variety of outreach tools to help educate and inform the public about CONNECT Beyond and to encourage community involvement.



**Email Newsletters**



**Project Website**



**Social Media**



**Blog Posts**

# Community CONNECTIONS

Connecting with community members about what they envision for our region's mobility future was an important part of developing CONNECT Beyond's regional mobility plan. Two key ways CONNECT Beyond connected with community members from around our region was through an online meeting and community survey that was available to community members from November 17 to December 31, 2020 and through listening session interviews.



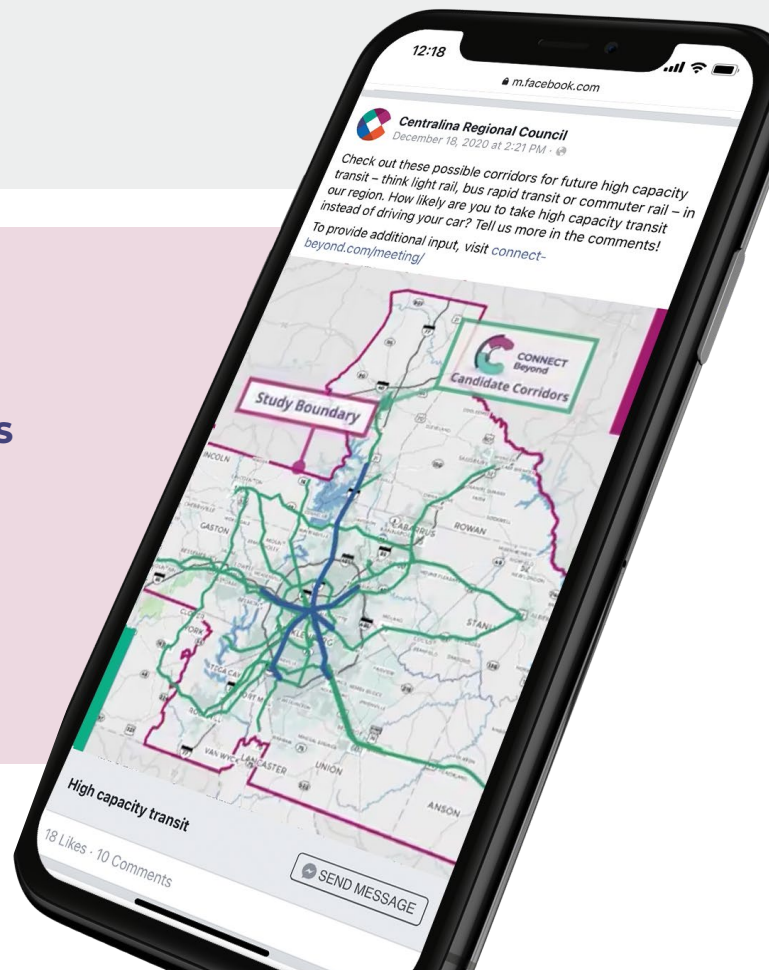
## Online Meeting & Community Survey



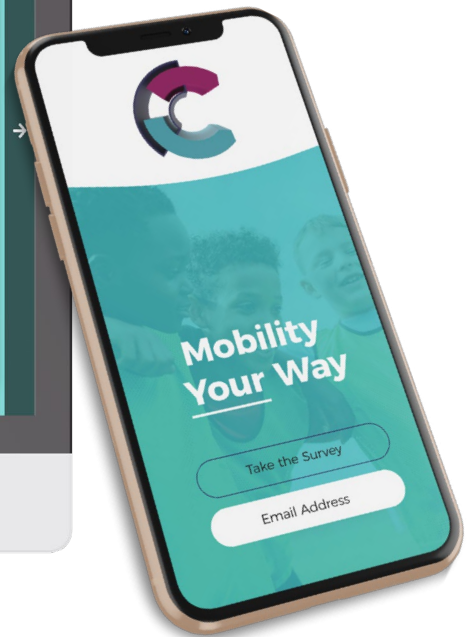
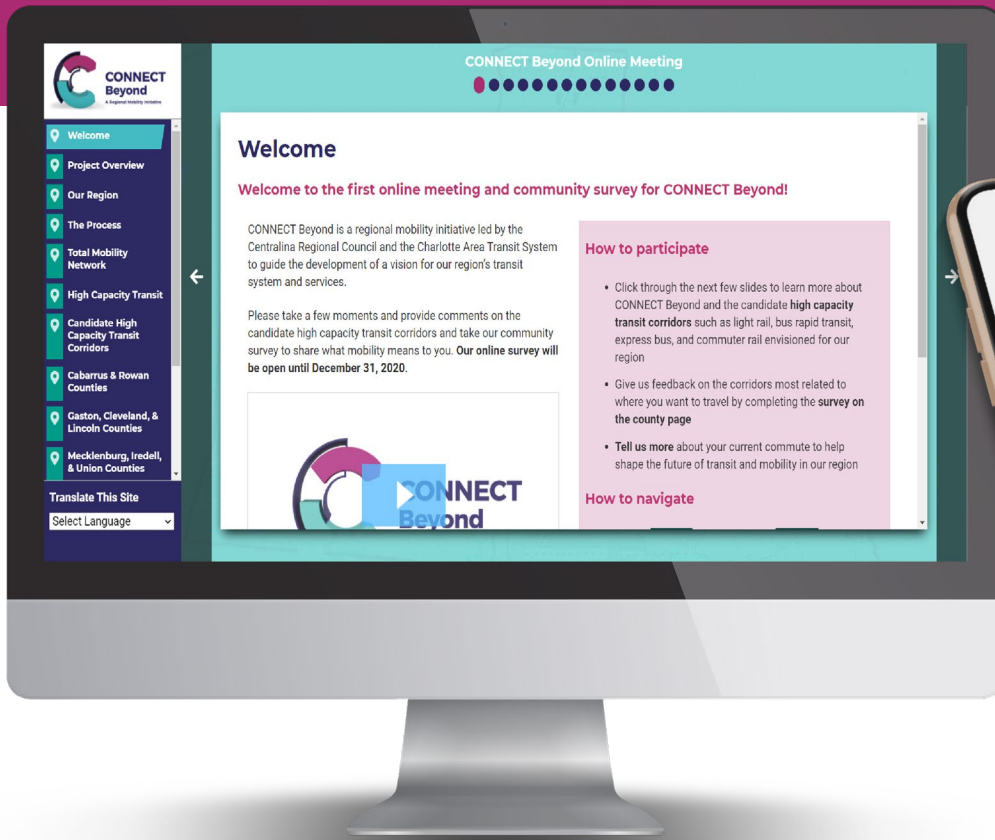
## Community Listening Sessions

**FEEDBACK GAINED FROM THE  
COMMUNITY HELPED TO PRIORITIZE  
COMMUNITY DRIVEN RECOMMENDATIONS**

**Community Driven  
Recommendation**



# Online Meeting & Community Survey



CONNECT Beyond hosted an online meeting and community survey from November 17 to December 31, 2020. The online meeting provided information about how we analyzed the region's mobility needs and presented the candidate corridors that were being considered for high capacity transit. The community survey allowed community members from across the region to provide input about their mobility needs and give feedback on the high capacity transit candidate corridors.

The community survey included six smaller surveys. The first general survey that asked participants a variety of questions about their demographics, past and current travel behavior, along with a variety of questions relating to regional transit planning. The subsequent five surveys focused on participants' support for and opinions about the high capacity transit candidate corridors in their specific counties.

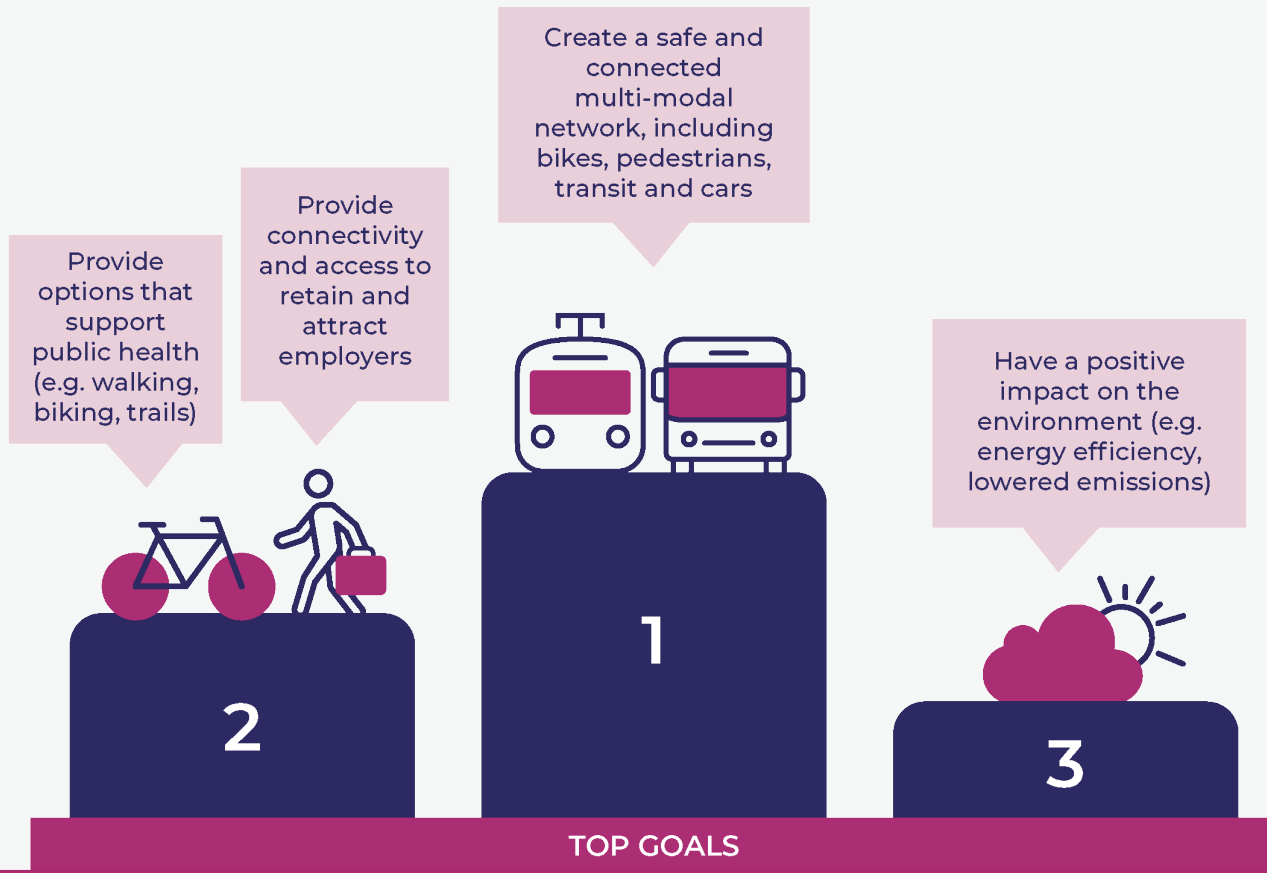
We used the public feedback from the community survey as part of the high capacity transit corridor identification and evaluation process to help us evaluate and refine the candidate corridors and ultimately make corridor recommendations. You can learn more about our corridor recommendations in the Invest in Strategic Mobility Corridors Mobility Move.

Learn more about the Strategic Mobility Corridors on page 99.



# Community Survey Results

## Top Goals for the Future Vision of Transportation Improvements Across The Region



## Primary Method to Get to Work/School



**80.6%**  
Drive Alone



**6%**  
Public Transit



**4.3%**  
Bicycle



**3.2%**  
Walk



**1.1%**  
Vanpool



**1.1%**  
Carpool



**96%** of respondents are likely to take high capacity transit through these corridors over driving or other forms of transportation if they are frequent, convenient, and affordable.

**90%** of respondents support expanding high capacity transit in the region.

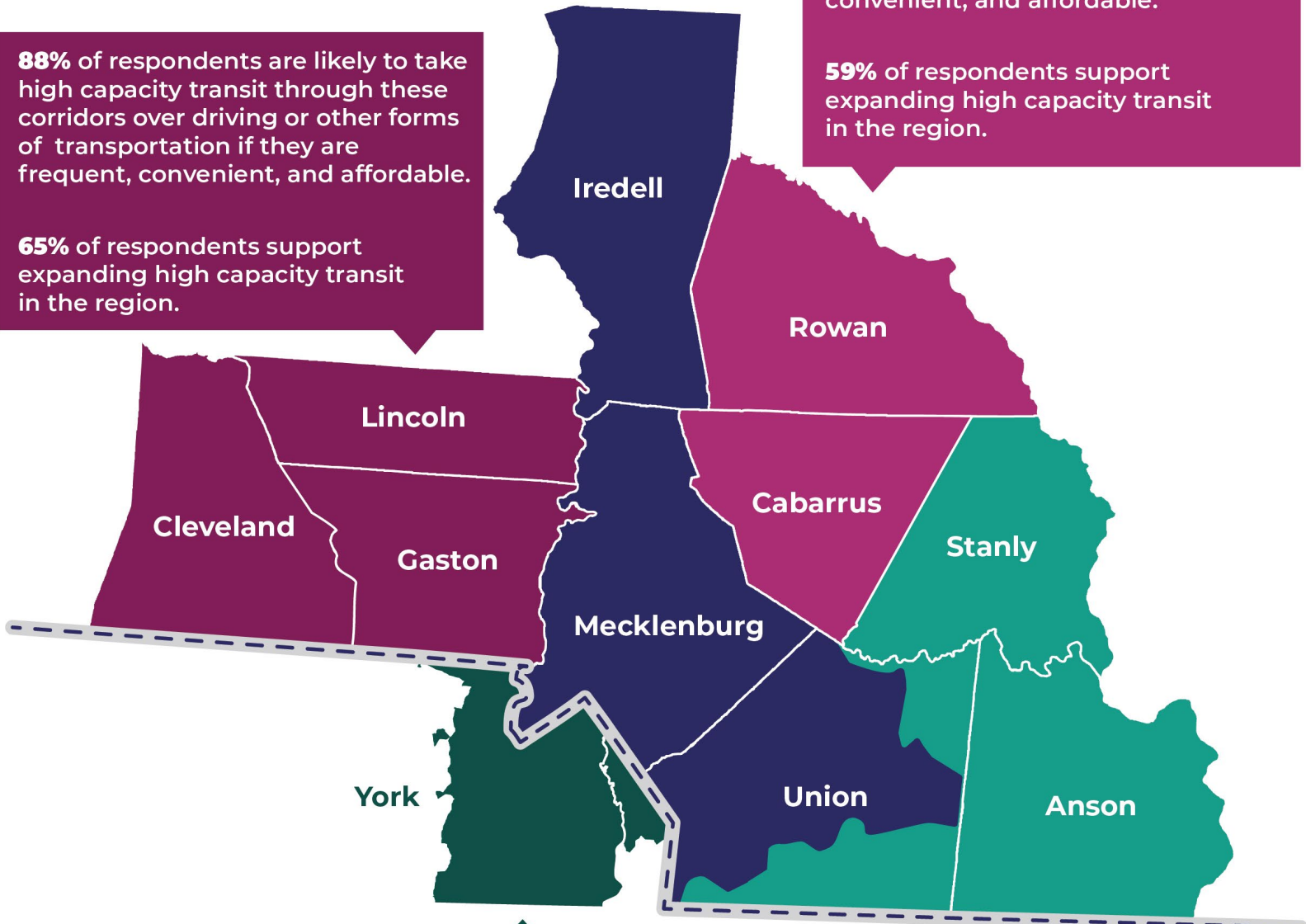
### Likelihood Participants are to Take High Capacity Transit in Recommended Corridors

**80%** of respondents are likely to take high capacity transit through these corridors over driving or other forms of transportation if they are frequent, convenient, and affordable.

**59%** of respondents support expanding high capacity transit in the region.

**88%** of respondents are likely to take high capacity transit through these corridors over driving or other forms of transportation if they are frequent, convenient, and affordable.

**65%** of respondents support expanding high capacity transit in the region.



Iredell

Rowan

Lincoln

Cleveland

Gaston

Cabarrus

Stanly

Mecklenburg

York

Union

Anson

Lancaster

**89%** of respondents are likely to take high capacity transit through these corridors over driving or other forms of transportation if they are frequent, convenient, and affordable.

**75%** of respondents support expanding high capacity transit in the region.

**67%** of respondents are likely to take high capacity transit through these corridors over driving or other forms of transportation if they are frequent, convenient, and affordable.

**52%** of respondents support expanding high capacity transit in the region.



Listening Session Participants



## Listening to the Community

To better understand what mobility means to residents and visitors in the region, we conducted in-depth Listening Session interviews with 50+ community members from around the region. These Listening Sessions helped us understand how people who live and work in our region want to travel around our area in the future. The insights that community members provided during these Listening Sessions helped CONNECT Beyond refine our recommendations.

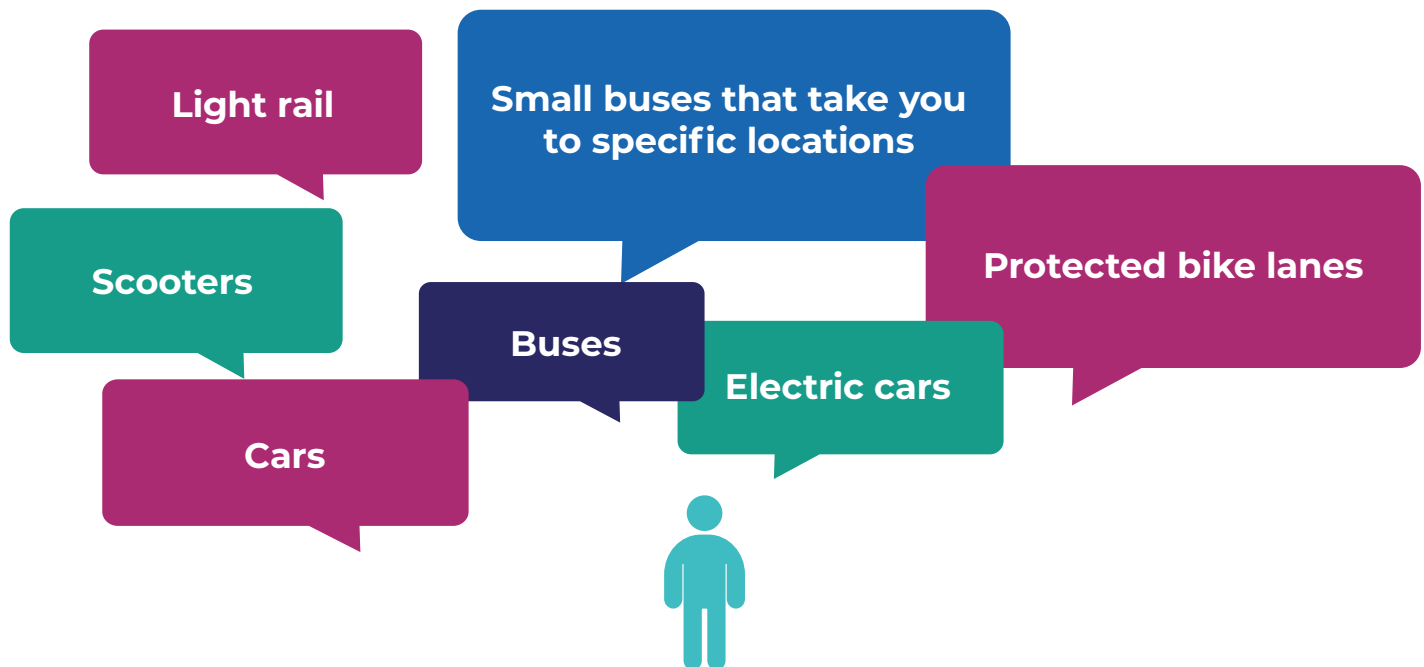
The Listening Sessions were hosted in two different formats:

- ½ of the Listening Sessions were conducted over Zoom
- ½ of the Listening Sessions were conducted in-person



# Listening Sessions: What We Heard!

What mobility options do you believe will be needed in the future for your community?



Key factors participants said prevented them from using alternative mobility options:

## To travel within 5 miles of their home:

- Safety
- Distance
- Few transfers
- Cost
- Peak hours traffic
- Accessibility for persons with disabilities
- Accessibility for persons who may be sick
- No shelters in bus stops
- Travel time
- Bus frequency
- Pollution
- Bus schedule in late hours
- Reliability

## To travel further than 5 miles from their home:

- Knowledge about how to use the transit systems
- Must travel through Charlotte
- Customized options like the “Easy Rider”
- Cost to travel, including first and last mile “ride sharing”
- Bus schedule particularly for 3rd shift workers
- Mental health

# Listening Sessions Feedback

Since CONNECT Beyond's purpose is to develop a plan that will enhance mobility and improve transportation choices for residents and visitors in our region, it was really important for us to hear directly from community members about what mobility means to them and how we could make it easier for them to travel around our region. Between June and August 2021, we hosted virtual and in-person Listening Sessions in English and Spanish with community members from around our region. Below is some of the feedback that we received during those Listening Sessions that helped us to refine the recommendations for CONNECT Beyond.



## **JAMES, 49**

James is unable to work and uses public transit to get to doctor's appointments and recreational spaces.

**"I don't drive. The farther away from downtown Charlotte it gets harder to get from place to place. Because there's not as many routes they get thinner and thinner than expected."**



## **MELANIE, 53**

Melanie works from home and normally commutes to professional and personal appointments using public transit.

**"I use a wheelchair so my mobility options would be the sidewalk. We have a big influx of cars in our neighborhood, and people cross the sidewalk, and it's not safe. It would be better for me to have the bus stop closer to my home."**



## **SONIA, 61**

Sonia commutes to work daily from where she lives in rural Gaston County.

**"I have worked in areas where people did not have transportation and then they couldn't take the bus because the bus would only go to certain areas. My region is really lacking in resources."**



### **ZOBEIDA, 65**

Zobeida is retired and uses public transportation to volunteer at multiple facilities.

**"Going to meetings at International House I will have to leave 1.5 hours early to be there on time when in car will take me 20 minutes. Sometimes at CPCC I would have to wait one hour for the next bus."**



### **STEPHANE, 16**

Stephane is a student at CPCC Huntersville Campus. He depends on public transit and his parent to move around the region.

**"I have to wake up really early to make it to the bus stop and wait for the bus to come. If wanted to go to Monroe or Gastonia I will need to ask my parents to take me. There are fewer options of buses near my home, you either take a car or walk."**



### **MARC, 61**

Marc is disabled and does not have permanent housing. He commutes to make ends meet.

**"People who are working past 11:00 – servers, Walmart employees – buses don't run late. Some must walk four or five miles and that limits their options for jobs, because they don't have bus routes."**

# Stakeholder Engagement

As part of our efforts to connect with the community as we developed this regional mobility plan, we have engaged stakeholders from around the region:

# 150+

## Key Stakeholder Meetings with over 50+ Agencies

We hosted over 150+ key stakeholder meetings with different agencies, government officials, organizations, and community groups to seek feedback and guidance as we developed this plan.

# 3

## Advisory Committees

We formed three Advisory Committees that included community members from across the CONNECT Beyond region who provided insight and guidance as we developed this regional mobility plan.

# 4

## Working Groups

We formed four working groups that were composed of individuals from around the CONNECT Beyond region who have specific technical expertise. Our working group members helped us to develop specific elements of this regional mobility plan.

“The growth between Concord, Kannapolis and Charlotte has been tremendous. Enhancing connections between the Rider Transit System, CATS, and the rest of the region is just something we have to do for our future economic success.”

– **Mayor Bill Dusch, City of Concord**



“Our city recognizes that regional collaboration is key to our success and that transportation has no borders. The citizens who live in Gastonia seek access to resources from different parts of our region. Therefore, we have to think beyond our jurisdictional lines from urban to rural and everything in between to make our region the best that it can be.”

– **Mayor Walker Reid, III, City of Gastonia**



## A Conversation on Regional Mobility

On September 30, 2020, we gathered a collection of key regional leaders for a special CONNECT Beyond virtual event to discuss the importance of regional mobility. This event featured a candid conversation between Centralina Regional Council's Executive Director Geraldine Gardner and former Charlotte Mayor Harvey Gantt – below is a snippet of their conversation.



“Some might say, ‘This isn’t the right time to do this type of visionary planning.’ In your opinion, why is this conversation and this initiative around regional mobility so important?”

– Geraldine Gardner, Executive Director, Centralina Regional Council



“Charlotte and the political boundaries defined in this region cannot compete with the fact that we live in a region that has been growing by leaps and bounds. For a regional effort, the timing is right. The best places in the country are those that are receptive to new industries coming in and those that connect people well – connecting people to jobs, commerce, recreation, and so forth. We have to deal with these kinds of things and make the region more viable for people to live in, and others to come to this area. Mobility is at the center of that effort....The fact is that if we are not addressing mobility, if we are not addressing how we connect as a region, we will find ourselves in a period where the population growth we have seen over the last 40 years will start to diminish, because the region will not be as viable. So yes, it’s a good time to deal with this [type of visionary planning].”

– Harvey Gantt, Former Mayor of Charlotte

# CONNECT Beyond Advisory Committees

We invited stakeholders from across the region to join three Advisory Committees focused on helping develop key elements of this regional mobility plan. Advisory Committee members provided insight about policy decisions, community impacts, and technical feasibility.

Our Advisory Committee members played a crucial role in helping us to develop this regional mobility plan. We are grateful to our Advisory Committee members who dedicated countless hours over the past 18 months to help us develop this plan that will transform our region's mobility future. We are grateful to our committee members for their time, guidance, and thoughtful insights as we worked together to create this regional mobility plan.

Due to the COVID-19 pandemic, all of our engagement with our Advisory Committee members was moved online. Thanks to the adaptiveness of our committee members, however, we were able to engage virtually and facilitate robust and meaningful conversations about how to build a better mobility future for our region. Going virtual also allowed us to bring in mobility experts and practitioners from around the country to talk to our committee members about emerging trends, innovative initiatives, and best practices for enhancing mobility. Being able to bring in regional and national mobility experts to share their insights at our virtual Advisory Committee meetings was game changing, because it inspired us all to think big and learn more about some of the most innovative strategies currently being used to enhance mobility throughout the country.



Thank you to all of our Advisory Committees, you all played a critical role in helping develop CONNECT Beyond.

**52** Technical Advisory Committee Members

The Technical Advisory Committee was comprised of representatives from our region's transportation planning organizations, transit service providers, and local and county operators planning departments.

**34** Community Advisory Committee Members

The Community Advisory Committee was comprised of key regional influencers, who work in government, health and human services, economic development, business, social services, and education.

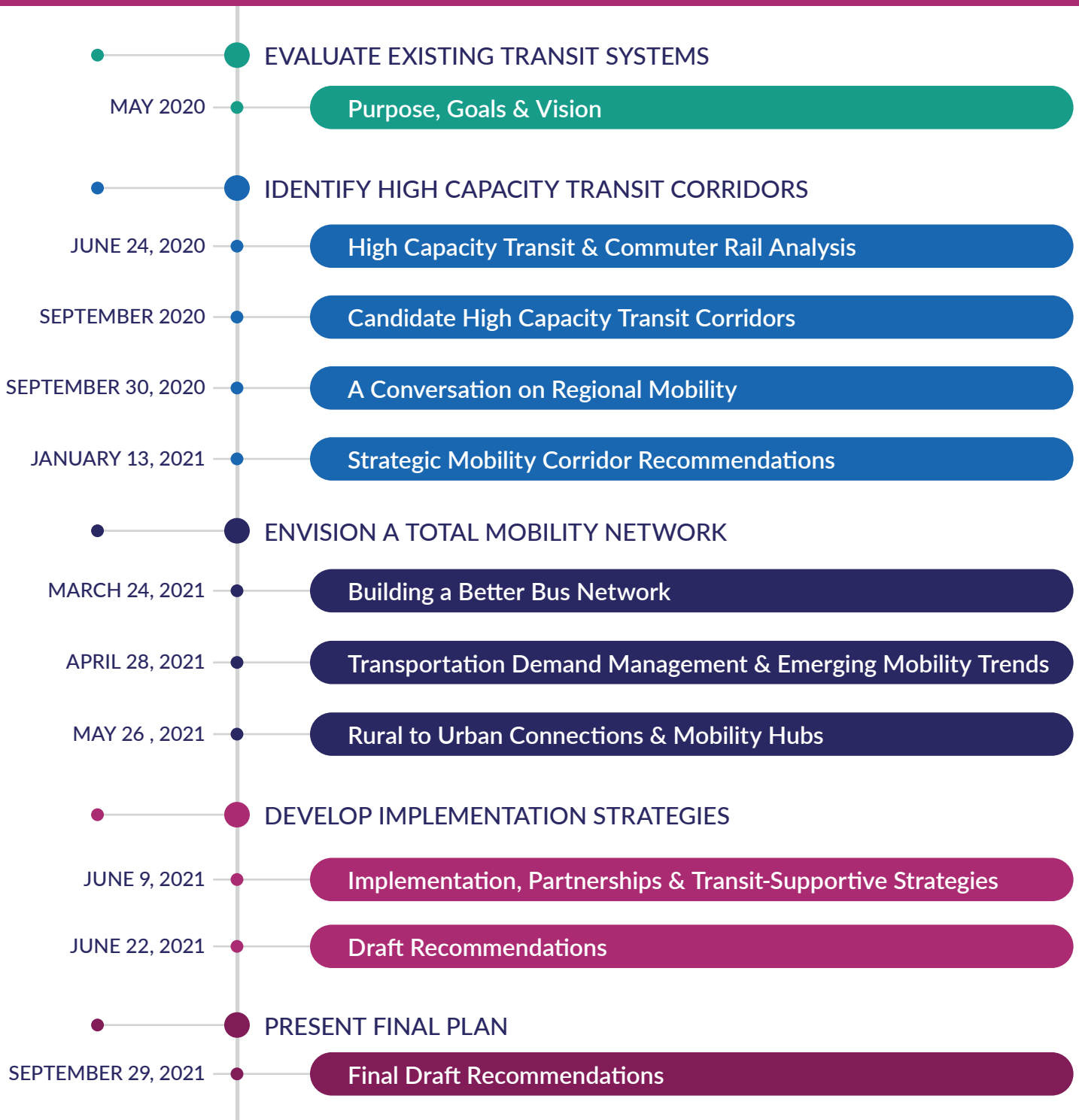
**32** Policy Advisory Committee Members

The Policy Advisory Committee was comprised of elected officials and policy experts from across the CONNECT Beyond region – representing both North Carolina and South Carolina.



# Advisory Committee Meetings

Between May 2020 and September 2021, we hosted 16 meetings for our Advisory Committee members. During these Advisory Committee meetings, we covered a wide range of topics related to regional mobility and despite going completely virtual, we were able to have very informative and engaging discussions with our committee members about the mobility needs of our region and the details of developing this plan. The feedback and guidance we received during these Advisory Committee meetings was crucial in helping us to develop this regional mobility plan.



# 04

## IMPLEMENTATION TIMEFRAMES



IMMEDIATE

0 TO 3 YEARS



NEAR TERM

3 TO 5 YEARS



MID TERM

5 TO 10 YEARS



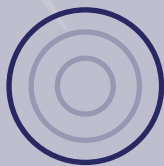
LONG TERM

10 TO 20 YEARS

## Mobility Moves

Mobility Moves are the central building blocks to create a total mobility network that will transform how residents and visitors travel through our region. There are five Mobility Moves within the CONNECT Beyond regional mobility plan that will help our region remain focused on our key priorities as they move forward. Each of the five Mobility Moves includes key recommendations paired with specific steps and implementation strategies to guide our region as we work together to build a modern total mobility network.

Recommendations consider future-proofing to strengthen mobility for years to come and encourage modernization and the adoption of new technologies. They also consider enhancing equity to reduce disparities in transportation access so that every resident and visitor has access to equitable and affordable mobility options. Each Mobility Move intentionally keeps you as the centerpiece of each recommendation and identifies the necessary agency to further the implementation.



### REGIONAL

Promote equitable economic opportunity



### LOCAL

Create more access leading to better quality of life



### INDIVIDUAL

Help provide more access and opportunity



## MOBILITY MOVES

# Create Mobility-Friendly Places

The CONNECT Beyond initiative is creating more than a mobility plan that focuses on expanding and enhancing the mobility options available in our region. CONNECT Beyond also focuses on strategies for how the region can work together to promote sustainable growth, encourage mobility-supportive land use and community development to enhance connectivity, and encourage residents and visitors to use alternative mobility options.

### What is a Mobility-Friendly Place?

Mobility-friendly places are vibrant communities where residents can live, work, shop, and play. They are one-stop environments where everyday destinations and resources are close by and easy to access. They typically include various mobility options, pedestrian-friendly infrastructure, dense, multi-use development, and enhanced pedestrian amenities.

### What is Mobility-Supportive Development?

Mobility-supportive development refers to compact, mixed-use, walkable development with multiple mobility options. Mobility-supportive development strategies are most effective when applied to the quarter- to a half-mile radius around a transit stop or station, transit corridor, or major activity centers such as a downtown or other mixed-use destination. The goal of this pattern of land development is to provide a high-quality mobility network that is convenient, safe, and accessible so that community members are encouraged to walk, bike, or ride public transit rather than relying solely on private automobiles for transportation needs.

Walkability and development density around transit stations and stops specifically influences transit ridership and makes high capacity transit investments more successful. Planning for mobility-supportive land use and development patterns along recommended transit corridors, mobility hubs, and around transit station locations is the key to creating built environment conditions that will support high capacity transit investments and encourage transit ridership. There is no one-size-fits-all set of strategies. Instead, these are curated for a specific area based on the community's existing character and desired placemaking and development goals.



Matthews, NC



Fort Mill, SC

## Scale of Mobility-Supportive Development

Three interrelated scales should be considered when planning and implementing mobility-supportive land use and development strategies in our region: **corridors, centers, and sites**. While most mobility-supportive development projects are implemented at the site or center level, it is important to conceptualize initiatives and planning approaches at all three interrelated scales.

### Corridors

Corridors are the areas around an existing or future high capacity transit line, including the area around the transit line's various stations and stops. Focusing on fostering employment and population density around a corridor for the whole alignment of a specific transit line will help ensure that the transit line is successful and help build a ridership base for that transit line.

### Centers

Centers are usually the areas around an existing or future transit line's station or stops, a downtown, or other activity center. In a center area, the goal is to create a compact, walkable, and mixed-use development pattern within a quarter- to a half-mile radius of a transit station, stop, mobility hub, or park-and-ride facility. Fostering mobility-supportive development in a center area creates a built environment where it is easy and convenient to take public transit services. Centers might also be station areas.

### Sites

Sites are individual land parcels located within a quarter- to a half-mile radius of a transit station or stop. The site scale focuses on individual developments within a center (i.e., station area) or a Corridor. At the site scale, the focus may be on building design, streetscape, and parking requirements.

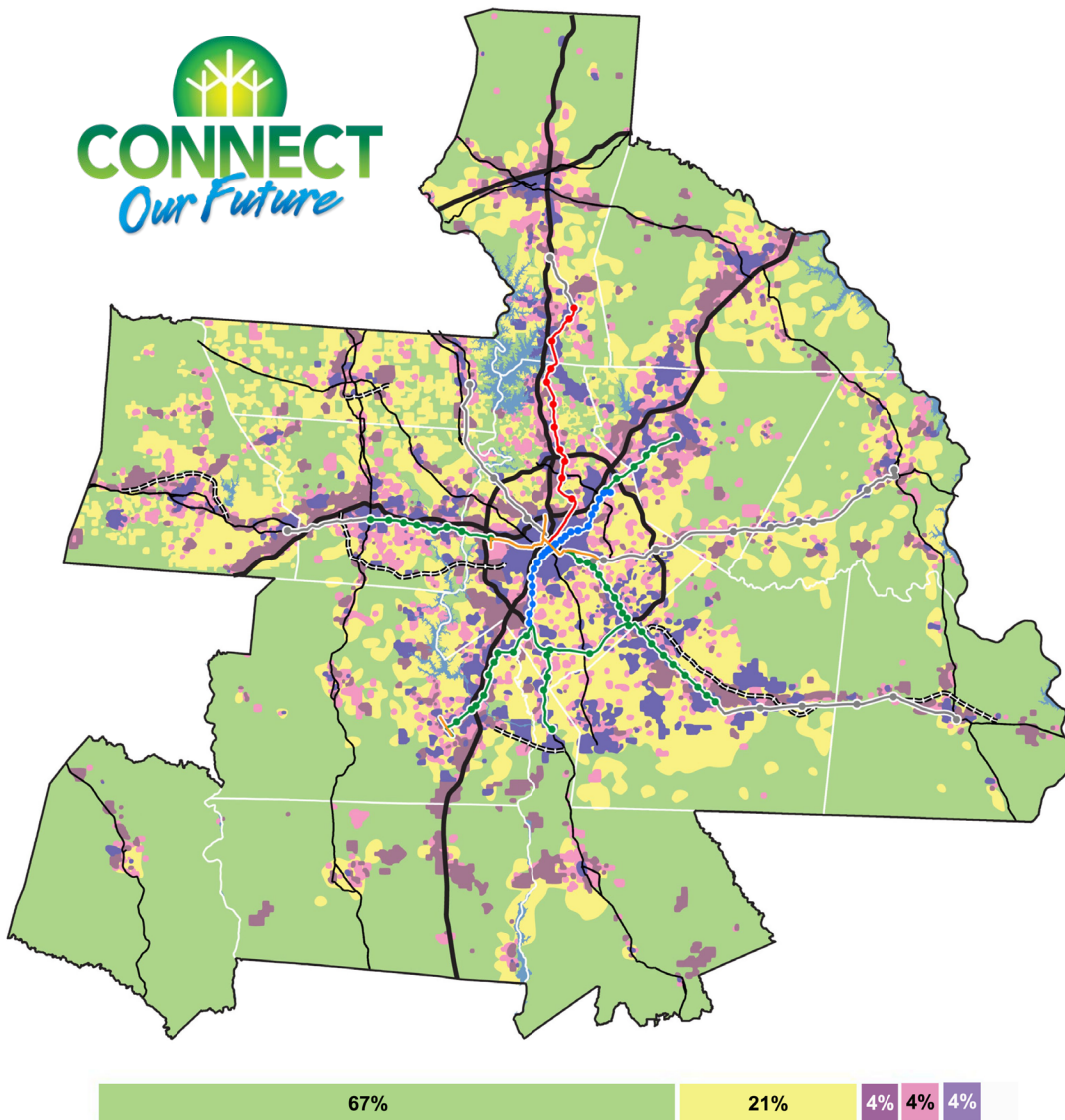
# Planning for Mobility-Friendly Communities Over the Years

## Connect Our Future

Between 2012 and 2015, the Centralina Regional Council led a regional growth planning initiative called CONNECT Our Future to create a Preferred Regional Growth Concept to guide future growth and development in our region. This three-year planning initiative involved 14 counties from both North Carolina and South Carolina and engaged over 120 local governments and over 8,400 public stakeholders.

From CONNECT Our Future, we have an existing land use conditions map for our region, an inventory of our region's community types, and a Preferred Regional Growth Concept. CONNECT Beyond used this in-depth understanding of the existing land use conditions as the foundation to develop recommendations for how our region can implement mobility-supportive land use and development strategies.

CONNECT Beyond also met with land use planners from across the region to identify local challenges in coordinating land use and transportation decisions and explored opportunities to improve outcomes through coordination, revised plans, policies, codes, and education. Based on these inputs, CONNECT Beyond identifies strategies that can be used locally to support the creation of mobility-friendly places.



**Preferred Regional Growth Concept**

- Rural Living - Open Space
- Suburban Neighborhoods
- Industrial Center
- Suburban Office & Commercial
- Mixed-Use, Walkable Centers & Neighborhoods

# Community Character Types

Each community in our region experiences different land use and development patterns, community characteristics, and transportation systems. That's why CONNECT Beyond developed Community Character Types to represent each community's diverse needs and challenges.

The purpose of creating this framework is to guide CONNECT Beyond and its partners in updating land use plans and development regulations in support of transit-friendly places. The six community types include:



Each community type is defined by the intensity of population and land use patterns and has suggested mobility-supportive development strategies. CONNECT Beyond advances the use of these strategies applied to each character type to better position communities to support more mobility options and sustainable growth. The Community Character Types identified here provide examples of how these strategies can be applied in different communities.

## City Infill



### Recommended Mobility Hub Types

- 0B: Community Connector Hub
- 1 B: Metro Bus Stop
- 2 B: Metro District Hub
- 3 A: Regional Hub
- 3 B: Regional Hub

### Characteristics:

- Medium to High Intensity: 25 to 750 jobs + population per acre
- City neighborhood with grid pattern streets
- A mix of development uses (vertical and horizontal)
- Many buildings five stories and taller
- Buildings front the street
- Structured parking behind/under buildings

### Suggested Mobility Supportive Development Strategies:

- Infill vacant and underutilized lots
- Reinforce the street grid pattern by connecting streets, adding new streets, and connecting existing pedestrian paths
- Identify the station location and emphasize highest intensity and mix of uses in the first  $\frac{1}{4}$  mile
- Plan corridor alignment to maximize development potential within the first  $\frac{1}{4}$  mile of a stop

### City Infill Examples:

- Uptown Charlotte (Pictured)
- SouthPark Charlotte
- Light rail station areas

## Regional Main Street



### Recommended Mobility Hub Types

- 2 A: Community District Hub
- 2 B: Metro District Hub

### Characteristics:

- Medium Intensity: 10 to 25 jobs + population per acre
- Traditional downtown with grid pattern streets
- Offices and housing above retail
- Buildings typically five stories or less
- Density tapers within  $\frac{1}{4}$  to  $\frac{1}{2}$  mile
- Surface and structured parking

### Suggested Mobility Supportive Development Strategies:

- Identify a job + housing intensity that (1) supports the desired transit and (2) fits within the existing context.
- Implement a policy that enables the appropriate increase in intensity
- Repurpose older buildings
- Encourage housing in upper stories and on vacant lots
- Invest in small-scale walkability improvements
- Create a 'park once' district with shared facilities
- Emphasize siting of cultural facilities and employment

### Regional Main Street Examples:

- Statesville
- Salisbury
- Monroe
- Rock Hill (Pictured)
- Albemarle
- Gastonia



## Town Main Street



### Recommended Mobility Hub Types

- 1 A: Community Bus Stop
- 2 A: Community District Hub

### Characteristics:

- Low Intensity: five to 10 jobs + population per acre
- Traditional downtown with grid or single corridor
- Mostly retail with some vertical mixed-use
- Buildings typically one or two stories
- Density tapers within  $\frac{1}{10}$  to  $\frac{1}{4}$  mile
- Surface parking

### Suggested Mobility Supportive Development Strategies:

- Same as Main Street Regional, but tailored to respect the existing context, which tends to be of a lesser intensity and height
- Intensity of development may not support high transit ridership on its own; site park-and-ride lot facilities strategically to preserve high value lots closest to a stop/station for active uses

### Town Main Street Examples:

- York
- Kings Mountain
- Davidson
- Lincolnton
- Wadesboro
- Statesville (Pictured)

## Suburban Retrofit



### Recommended Mobility Hub Types

- 0B: Community Connector Hub
- 1A: Community Bus Stop
- 1 B: Metro Bus Stop
- 3 A: Regional Hub
- 3 B: Regional Hub

### Characteristics:

- Intensity Varies: typically, 10 to 25 jobs + population per acre
- Served by high speed/capacity roads
- Single-use and strip development patterns
- Buildings typically one story
- Buildings front parking
- Surface parking

### Suburban Retrofit Examples:

- Northlake, Charlotte
- Carolina Mall, Concord
- Indian Trail
- Mint Hill
- Lake Wylie
- Rock Hill Galleria (Pictured)
- Eastridge Mall

### Suggested Mobility Supportive Development Strategies:

- Focus on creating a connected network of streets. Fill in gaps in the network and require short block lengths for new development or redevelopment
- Reform development codes so that future buildings front the street and include a mix of uses at greater intensities
- Prioritize walkability over high vehicle speeds in street design
- Plan corridor alignment to maximize development potential within the first  $\frac{1}{4}$  mile of a stop

## New Community



### Recommended Mobility Hub Types

- 0A: Rural Connector Hub
- 0B: Community Connector Hub

#### Characteristics:

- Intensity should be planned with the desired transit service in mind.
- Greenfield sites with transportation access
- Often large sites
- Range from blank canvas to partially built out
- Range from residential-only to planned mixed-use
- Opportunity to plan mobility-supportive development

#### Suggested Mobility Supportive Development Strategies:

- Dedicate land for the transit corridor and station before development
- Place the highest intensity development within the first  $\frac{1}{4}$  mile of the station area; emphasize higher density housing and a mix of uses, including civic uses, in this area
- Parking is minimal within the first  $\frac{1}{8}$  mile
- Build a network of connected and walkable streets
- Create a network of civic squares and green spaces

#### New Community Examples:

- Dixie/Berryhill, Charlotte
- Birkdale (Pictured)
- Rocky River, Cabarrus
- Old Coliseum, Charlotte

## Rural Crossroads



### Recommended Mobility Hub Types

0A: Rural Connector Hub  
1 A: Community Bus Stop

#### Characteristics:

- Low Intensity: one job + population per acre
- Scattershot development near major road junction
- Range of uses including industrial and agricultural
- Building one to two stories
- Buildings set back from streets

#### Suggested Mobility Supportive Development Strategies:

- Consider the economic future of the place in planning for transit. Places wanting to retain a rural character will need to contribute transit ridership through means other than development, such as demand-response services, trails, and park and ride lots
- Places that wish to support transit service may want to consider creating a small area plan. This plan should identify the location and form of future development and coordinate with plans for transit. In these areas, the strategies for Main Street communities may apply

#### Rural Crossroads Examples:

- Richfield
- Locust (Pictured)
- Iron Station
- Midland
- High Shoals

# Key Near-Term Recommendations

## Support Local Governments in Adopting Transit Supportive Development Policies

Timeframe: Near-Term

CONNECT Beyond recommends that regional partners work with local governments to update their development codes to allow for mobility-supportive development in their communities.

### How This Will Help:

Mobility-supportive land use and development patterns require clear intent within local government land use plans and development codes.

### How to Do It:

- Identify and understand the specific help each area needs to update existing or create new land use plans and development code regulations.
- Determine the preferred way to provide this necessary assistance to local governments. This could include educational sessions, development and sharing of model code language, regional agency direct technical assistance to local governments or consultant funding through a planning grant program such as a Livability Planning Grant Program.

## Develop Livability Planning Grant Program

Timeframe: Near-Term

Develop a Livability Planning Grant Program to provide financial support to local governments for planning initiatives. These initiatives should be aligned with [CONNECT Our Future's Preferred Regional Growth Concept](#), connecting land use and transportation planning and incorporating mobility-supportive design principles, particularly those outlined in CONNECT Beyond's Mobility-Friendly Community Types Framework.

### How This Will Help:

Regional entities, mainly metropolitan and rural planning organizations, are limited in their abilities to influence communities' land use plans and development regulations in ways that support CONNECT Beyond's vision of fostering mobility-friendly communities.

### How to Do It:

- Regional partners should review similar planning grant programs, such as Sacramento; Atlanta; Washington, DC; and Cleveland. Have conversations with the staff planners and program managers to learn how these programs are structured and operated. Outline the details and proposed structure of the Livability Planning Grant Program, including eligible uses of grant funds, proposed grant amounts, potential implementation funding, and other central structure and operational details.
- Determine the funding source for the Livability Planning Grant Program. Potential funding sources could include metropolitan planning organizations' planning funds.
- Create Livability Planning Grant Program guidance and issue a call for proposals.

## Create Mobility-Supportive Site and Center Plans with Local Governments

Timeframe: Near-Term

Work with local governments to create Mobility-Supportive Site Plans or Mobility-Supportive Center Plans that will help promote multi-use development and foster mobility-supportive land use patterns.

### How This Will Help:

To ensure that existing and future transit investments are successful, our communities must create land use and development patterns to support transit investments and encourage ridership at the center and site levels throughout our region.

### How to Do It:

- Better understand the specific needs of each local government when it comes to developing Mobility-Supportive Site and Center Plans.
- Determine a preferred method and process for how to provide this planning assistance.

## Use a Common Platform for Land Use Analysis

Timeframe: Near-Term

Incentivize the use of a common software platform by all regional partners and local governments that seek mobility funding based on the regional travel demand model results. This would include land use and development data, regional population/employment growth projections, and transportation forecasts.

### How This Will Help:

A common software platform could be used to examine different growth scenarios for certain areas in the region based on anticipated growth projections and variations in the allowable development type and development densities. Having a common software platform is important to be competitive for transit funding opportunities.

### How to Do It:

- Encourage all partners to use a consistent land use planning software platform.
- Identify gaps in information about current and future regional land use and update the land use model on the identified common software platform.
- Regional partners should require consistent land use and transportation data be collected from projects participating in funding requests and multi-jurisdictional or multi-agency projects.

# Use Safety Design Guidelines to Design Transit Facilities and Mobility Hubs

Timeframe: Near-Term

## Community Driven Recommendation

Crime Prevention Through Environmental Design (CPTED) is the idea that built environments like transit stations, stops, and mobility hubs can be designed in such a way to prevent crime, minimize the fear of crime, maximize users' safety, and foster a positive social environment. During our Listening Sessions with community members, we heard that feeling safe while using transit services and while at transit stations is a top priority. That is why CONNECT Beyond recommends that our regional partners work with transit agencies and local governments to help them to incorporate CPTED guidelines into their current design policies.

Beyond CPTED, transit agencies must continue working to ensure passenger safety on and near transit services. Transit agencies should work with local law enforcement and federal resources to develop and expand safety plans for the rider's benefit.

### How to Do It:

- Regional partners should work with local planning organizations, transit agencies, and advocacy groups to refine CPTED guidelines and incorporate them into local planning practices.
- Regional partners should share national CPTED principles and material with transit agencies to disseminate to the public and help educate the public on safely using transit services.
- Regional partners should empower law enforcement agencies with tips, tactics, and material to educate the community on CPTED practices.
- Transit agencies should seek assistance from FTA's Office of Transit Safety & Oversight to develop, maintain, and expand passenger safety tips and procedures to educate the public on available resources and best practices to stay safe.



Matthews, NC

# Key Mid-Term Recommendations

## Involve Transit Agencies in Land Use & Development Planning Processes

Timeframe: Mid-Term

Institutionalize a process for transit agencies to support the development review process across local governments. This should include providing input on mobility-supportive design and amenities (i.e., shelters, signage, and walkways) for development projects throughout the region.

### How This Will Help:

Mobility-supportive development requires careful coordination between land use and transit planning, or opportunities can be missed.

### How to Do It:

- Document how these development review services are currently being provided.
- Explore who should be the lead agency for organizing this approach and providing the input.
- Develop a process for local governments to request this assistance with development review.
- Instruct transit agencies to work with municipalities on integrating this new process with the existing development review process.

Rock Hill, SC





## Explore Ways to Concentrate Growth Along High Capacity Transit Corridors

Timeframe: Mid-Term

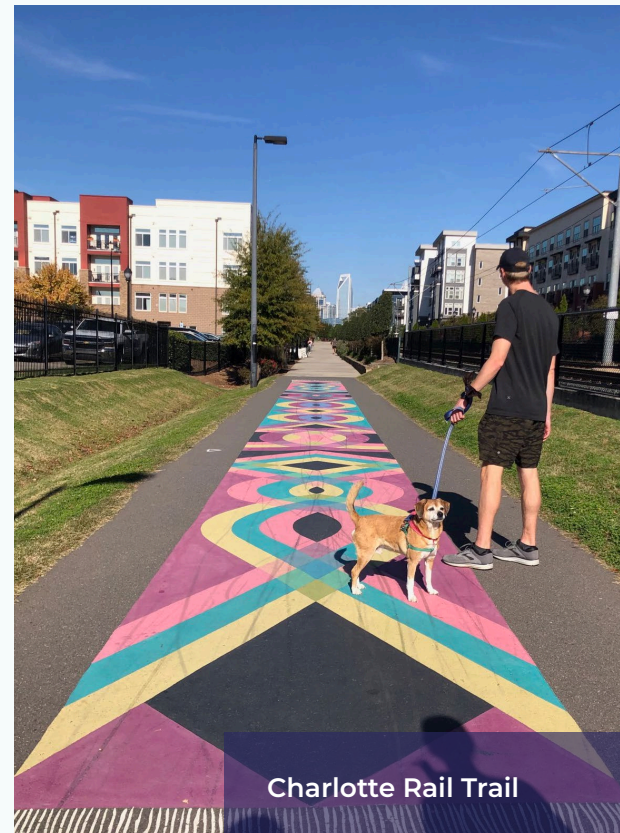
Density around a high capacity transit (HCT) corridor is the leading determinant of the potential productivity and performance of that transit line. Often, the greater the density around a HCT corridor, the greater the likelihood of persons using that transit service. To make an HCT investment successful, regional partners must ensure appropriate density around the recommended corridors. They can do this by including Recommended HCT Corridors and Emerging Mobility Corridors in local land use plans and confirming whether local government development code and zoning regulations allow for mobility-supportive development around potential corridors and potential station locations (i.e., Centers).

### How This Will Help:

Land use patterns and transportation infrastructure are deeply interrelated. Mobility-supportive development helps to create transit-supportive densities around transit corridors and corridor station areas, which are necessary for sufficient transit ridership. Mobility-supportive development also helps to foster a walkable built environment that makes it easy and convenient for people to take transit services rather than drive. Creating mobility-friendly communities that are conducive to transit ridership will help make high capacity transit investments successful.

### How to Do It:

- Study and document what has worked well with integrated corridor planning for the Silver Line TOD Project. Obtain a lessons learned case study from the Silver Line TOD Project.
- Prioritize which Recommended HCT Corridors have the most near-term potential and should be advanced into the next stage of the Corridor Planning and Development Process.
- Begin conducting Corridor Visioning and Planning Studies for the Recommended HCT Corridors with the most near-term potential.
  - » The Corridor Visioning and Planning Studies should also include preparing a Mobility-Supportive Development Plan for each specific near-term Recommended High Capacity Transit Corridor, which will include working with local governments and area developers to evaluate and plan mobility-supportive development strategies for that corridor and the corridor's station areas (i.e., Centers).



View all Mobility-Friendly Places Recommendations  
at [www.connect-beyond.com/plan](http://www.connect-beyond.com/plan)





## MOBILITY MOVES

# Expand Mobility Choices

Our region is projected to experience exponential population growth over the next twenty years, and as a result, there will be a need for increased mobility. This Mobility Move – Expand Mobility Choices – focuses on how our regional partners can work together to expand transportation demand management (TDM) strategies, enhance the experience of using our region's total mobility network services, embrace emerging mobility trends, and implement a network of mobility hubs to support our region's total mobility network.

## Transportation Demand Management

TDM is a set of strategies that **seek to change how and when people travel**. The goal of TDM is to reduce the number of people driving private vehicles in general but particularly during peak travel hours. TDM strategies encourage people to use alternative mobility options, travel during off-peak hours, or reduce their overall transportation demand by teleworking. TDM strategies are either focused on **increasing mobility options** or **changing travel behaviors**.

### TRANSPORTATION DEMAND MANAGEMENT STRATEGIES FOCUS ON

#### INCREASING MOBILITY OPTIONS



#### CHANGING TRAVEL BEHAVIORS

Enhanced bicycle and pedestrian options



Flextime work schedules

Promoting rideshare services



Limited parking

Encouraging carpooling programs



Employer discount passes for public transit

Increasing access to public transit services



Public information campaigns encouraging public transit use

# Key TDM Recommendations

## Develop a Regional Transportation Demand Management (TDM) Plan

Timeframe: Immediate

CONNECT Beyond recommends our regional partners work together to develop a regional Transportation Demand Management (TDM) Plan.

### How This Will Help:

There have been TDM plans developed that include some areas of the CONNECT Beyond region but no TDM plan has been developed specifically for the CONNECT Beyond region. CONNECT Beyond recommends relying on existing TDM resources and plans in counties within the study area to create a Regional TDM Plan that includes the rest of the region and will help support the region's total mobility network. This Regional TDM Plan should aim to provide information, incentives, and resources to encourage our region's residents and visitors to make the best possible use of the alternative mobility options available in our region. The alternative mobility options include public transportation services, carpooling, vanpooling, ridesharing, walking, cycling, and more. Other elements of this Regional TDM Plan should include walkability, complete streets, sustainability, and the integrated management of key transportation corridors.

### How to Do It:

- Centralina Regional Council to lead the Commuter Choice Program.
- Centralina Regional Council to help convene a Regional TDM Advisory Committee.
- Centralina Regional Council to work with regional partners to secure resources and funding to complete this Plan.
- Research best practices in TDM plans/ programs from peer regions around the country.

## Benefits of Transportation Demand Management



## Develop Commuter Choice Program

Timeframe: Immediate

CONNECT Beyond recommends the Centralina Regional Council to coordinate with transit agencies and mobility providers to develop a Commuter Choice Program that would implement a variety of different TDM strategies and would serve residents in the CONNECT Beyond region. This Commuter Choice Program would also be charged with educating our region's residents about the importance and benefits of TDM strategies and the alternative mobility options and programs available to them.

### How This Will Help:

A coordinated Commuter Choice Program creates a one-stop opportunity for the traveling public to learn of the mobility options available in the region. The program will bring together regional experts to share expertise and work together creating efficiencies in project deployment and administration.

### How to Do It:

- Establish Memorandums of Understanding (MOU) and funding agreements with partners.
- Identify highest priority locations to target through the TDM Plan, i.e., largest employment centers and congested corridors.
- Identify funding partners from participating counties.

CATS Vanpool



# Furthering the Customer Experience Culture

To encourage residents and visitors to use the alternative mobility services in our region's total mobility network, our regional partners must work together to ensure these mobility services are easy and pleasant to use. Below are two recommendations that serve as stepping stones for more work to come in the future to enhance the customer experience.

## Community Driven Recommendation

### Create an All-In-One Digital Platform for the Region's Total Mobility Network

Timeframe: Near-Term



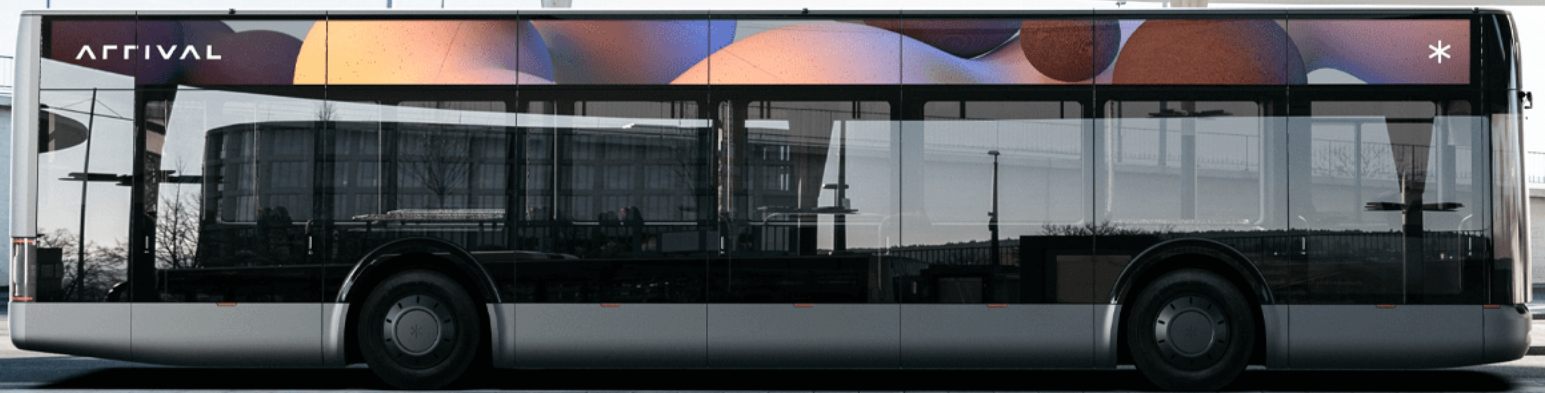
Create an all-in-one website and phone application (available for iPhones and Androids) that residents and visitors can use to plan and pay for their trips and learn about the variety of alternative commuting options and programs available in our region.

#### How This Will Help:

Currently, no single digital resource provides information about all the different mobility services available in the CONNECT Beyond region. Planning multimodal or cross-jurisdictional trips is difficult because users must navigate disaggregated online information. Having easy access to relevant passenger information is a great way to encourage ridership for alternative mobility services. To stay competitive, increase ridership, and enhance mobility for everyone in the region, we recommend our regional partners work together to develop an all-in-one digital platform for our region's total mobility network.

#### How to Do It:

- Develop agreements between regional partners to share agency route information on a common platform.
- Coordinate with the various CONNECT Beyond recommended working groups on the necessary structure to develop the application, coordinate on items such as data agreements, data availability, frequency of data updates, and a key point of contact.
- Pilot web and mobile applications from developers to build an all-in-one platform.
- Obtain feedback and lessons learned from transit agencies in the region as well as nationwide.



Arrival to build its first U.S. electric vehicle  
Microfactory in York County, South Carolina

## Single Payment System for the Total Mobility Network

Timeframe: Near-Term

### Community Driven Recommendation

CONNECT Beyond recommends our regional partners develop a Regional Fare Policy Working Group to lead a Regional Fare Integration & Implementation Study. This Study will explore ways to implement an integrated regional fare system for all mobility services in our region's total mobility network. In addition, the Study will explore potential fare payment technologies that could help make it easier for the user to pay for multimodal trips in a single fare payment platform.

#### How This Will Help:

Currently, our region has 17 different transit providers and they all have different fare structures, prices, and ways to buy a ticket or multiple ticket fare card. This fragmented fare system makes it difficult for riders to pay for and complete trips that combine multiple different mobility services. A seamless fare payment system can go beyond fares on transit systems, it could be integrated with commuter choice services (e.g., vanpool) and other mobility options (e.g., e-scooters and -bikes). This is a key step towards developing, adopting, and implementing a regional fare policy and regional fare technology. The Study should therefore aim to understand the various fare technology platforms in the region, the lifespan, upcoming upgrades, contract end dates, and available support platforms/processes/procedures. Outcomes of the Study should include a recommendation on an appropriate regional fare policy and technology the region should strive to adopt.

#### How to Do It:

- Implement a Regional Fare Policy Working Group.
- Ensure coordination with the CONNECT Beyond [Service Planning Working Group](#).
- Work with CATS to serve as a technical lead for this effort.

## Emerging Mobility Trends

Over the past five years, there have been significant disruptions in the transportation sector and changes in travel behavior due to new mobility services and emerging technologies. New technologies and modes, including mapping applications, electric scooters and bikes, electric cars, and ride-sharing services like Uber and Lyft, have changed the way people move around. The transformation of our mobility landscape and the adoption of emerging mobility services and technologies make it easier and more efficient for people to get to where they want and need to go by providing more transportation choices. Emerging mobility services also play a critical role in providing first- and last-mile connections, the distance one has to travel between the closest transit stops and a person's start or end destination. Improving first- and last-mile connections makes it easier and more convenient for people to travel using public transportation services. New technologies and service delivery models continue to emerge, and CONNECT Beyond is confident the trend will continue for the foreseeable future.

It is essential for our region to understand the evolving transportation landscape so our regional partners can work together to maximize the benefits and minimize the impacts that emerging mobility trends will have on the way we travel. CONNECT Beyond's report on emerging mobility trends highlights eight key innovations in mobility technologies and services that may suit the needs of our region. Through this effort, key recommendations about how our regional partners can work together to better understand and harness the positive potential of emerging mobility trends have also been developed. CONNECT Beyond's emerging mobility recommendations focus on how we can embrace new mobility technologies and modes to add to our region's total mobility network.



**Scooter Share**



**Electric Car**

## Emerging Mobility Technology and Services

The following eight key innovations in mobility technology and services are organized into three main categories, which can support the goals of CONNECT Beyond and could potentially play a role in our region's total mobility network.

### Vehicle Technologies:

- **Autonomous Vehicles and Shuttles (AVs)** can operate with some level of operation control without driver input.
- **Connected Vehicles (CVs)** are vehicles with technology that allow for vehicles and infrastructure to “talk” with one another. Connected vehicles can utilize Vehicle to Vehicle (V2V), Vehicle to Infrastructure (V2I), and/or Vehicle to Everything (V2X) technology.
- **Electric and Alternative Fuel Vehicles (EVs/AFVs)** use one or more electric motors or fuels for propulsion. In addition to electricity, vehicles may be powered by gaseous fuels (hydrogen, natural gas, and propane), alcohols (ethanol, methanol, and butanol), and vegetable and waste-derived oils. EVs/AFVs include personal and shared, light- and heavy-duty vehicles.



### Shared Mobility Services:

- **Ridehailing** services are pre-arranged and on-demand transportation services for hire in which drivers and passengers connect via digital applications (typically with booking, electronic payment, and ratings).
- **Microtransit** is defined as a privately- or publicly-operated, technology-enabled transit service that typically uses multi-passenger/pooled shuttles or vans to provide on-demand or fixed-schedule services with either dynamic or fixed routing. It can also include individual mobility devices such as bikeshares and e-scooters.
- **Car Share** offers members access to vehicles by joining an organization that provides and maintains a fleet of cars, vans and/or light trucks.

### Digital Platforms for Accessing Mobility:

- **Transportation or Mobility-as-a-Service (TaaS or MaaS)** is an open marketplace that maximizes personal mobility options by integrating a suite of available transportation options into a single platform with on-demand trip planning, real-time information, and payment.





# Key Emerging Mobility Recommendations

## Establish an Emerging Mobility Working Group

Timeframe: Immediate

In coordination with the existing Connected and Autonomous Task Force convened by Centralina Regional Council, establish an Emerging Mobility Working Group. The Group will engage transit stakeholders to understand current and future technology needs and set a path for the effective integration of emerging mobility initiatives and programs with current and future transit services, including mobility hubs identified by CONNECT Beyond. The Emerging Mobility Working Group will pilot and implement first-mile/last-mile solutions, ride-share coordination, electric vehicle technologies, innovations for seniors/persons with disabilities, and other relevant mobility recommendations presented by CONNECT Beyond.

### How This Will Help:

Currently there's no regional coordination on emerging mobility technology and deployment to ensure seamless service for the customers and effective coordination with other services.

### How to Do It:

Coordinate with the proposed CONNECT Beyond Service Planning Working Group, Regional TDM Advisory Committee, established working groups, and others to:

- Provide resources for integrating emerging mobility options into service planning and TDM strategies
- Coordinate across concurrent efforts
- Identify policy, operational, or funding barriers to implementing emerging mobility strategies.



## Move Toward an Integrated Electric Fleet and Charging Network

Timeframe: Immediate

Work with transit providers on an electric fleet inventory and survey the CONNECT Beyond region's transit providers on electric fleet conversion goals and timelines. The CONNECT Beyond Emerging Mobility Working Group should perform an Electric Fleet Suitability Analysis of where individual or shared agency electric infrastructure would be optimally located in particular charging stations.

### How This Will Help:

With MyRide's all-electric fleet, CATS using and transitioning to an all-electric fleet, and agencies around the region also exploring the adoption of electric vehicles, it is vital to understand how to optimize electric infrastructure in the region. It also helps align the region with the national vision of transitioning to electric vehicles.

### How To Do It:

- CONNECT Beyond Emerging Mobility Group to work with the CONNECT Beyond Service Planning Working Group to understand regional transit providers' electrification transition plans and identified fleet needs in the Short Range Transit Program.
- The CONNECT Beyond Emerging Mobility Working Group to perform an Electric Fleet Suitability Analysis to identify technology types and charging locations.



### **CONNECT To Travel**

We're expanding transit corridors so you can easily go from your doorstep to your destination. Let transit take you to your next adventure. We're working to connect you to the world.

## **Complete an Emerging Mobility Suitability Assessment**

Timeframe: Near-Term

Complete a regional Emerging Mobility Suitability Assessment to identify areas most likely to benefit from specific emerging mobility service models and the market potential for attracting public/private partnerships to implement such services.

### **How This Will Help:**

This regional Emerging Mobility Suitability Assessment will help clarify where and how public resources should be applied to capture benefits from emerging mobility.

### **How to Do It:**

- Utilize results of robust analysis completed through CONNECT Beyond as inputs for new multi-layered Emerging Mobility Suitability Assessment.
- Identify suitability metrics that are specific to each transportation mode and service model under consideration.
- Determine areas where significant mobility benefits may be captured from implementing emerging mobility technologies, but subsidies or other resources may be needed to overcome market limitations.



Charlotte Transportation Center

## Mobility Hubs

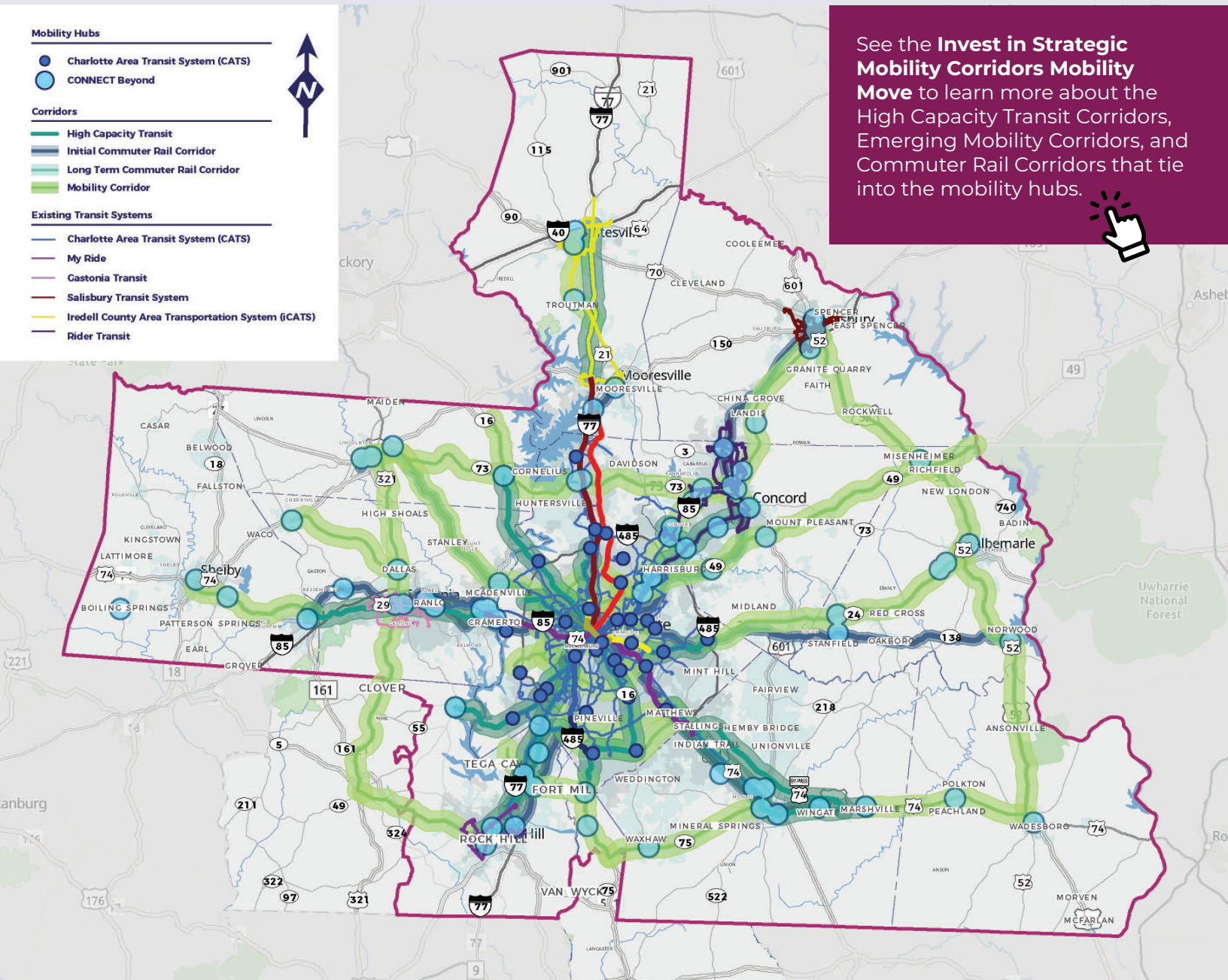
Mobility hubs are places of connectivity where different travel options come together, and people can conveniently access various alternative mobility options. A mobility hub is a focal connection point of the region's total mobility network and can signify a downtown, major activity center, transit station or stop location where multiple different mobility options interconnect and allow users to transfer from one mobility service to another quickly. Mobility hubs provide a range of integrated mobility services and supporting amenities and technologies to facilitate connections between services and make trip planning across multiple modes easy and convenient for both system users and operators. Mobility hubs also strengthen connections between rural and urban areas, improving commute times and experiences and better connecting people to resources.

Mobility hubs should create a safe, seamless, and comfortable experience. To do this, each mobility hub should at a minimum include:

- Access to two or more transportation services
- Biking and walking access to the site
- A sense of place and human-centered design
- Locally-relevant and context sensitive programming and amenities
- Fair and equitable access
- Flexibility to adapt to evolving needs

# CONNECT Beyond Mobility Hub Locations

CONNECT Beyond identified **74 locations** throughout the region where mobility hubs can be implemented and serve as important connection points for the region's recommended strategic mobility corridors.



A mobility hub is a focal connection point of the region's total mobility network and is a transit station or stop location where multiple different mobility options interconnect and allow users to transfer from one mobility service to another quickly.

# CONNECT Beyond Mobility Hubs Framework

There are no one-size-fits all designs for a mobility hub, but instead, they are scaled to reflect the unique context and needs of a particular area. Mobility hubs can be located in mobility solutions areas, along emerging mobility corridors or along high capacity transit corridors.

The CONNECT Beyond region has a wide variety of geographies and consists of rural areas, suburban communities, and an urban city. Mobility hubs can be big or small and they can be designed to fit the varying types of places and communities around the CONNECT Beyond region. To meet the different transportation needs of our region's varying geographical areas, CONNECT Beyond developed the CONNECT Beyond Mobility Hubs Framework which includes eight different mobility hub types organized into four different size scales (Level 0 to 3). Mobility hub types are organized from small to large scale. Each mobility hub level offers a collection of elements that allows each Level's mobility hub types to function as a seamless mobility connector in different community contexts. Since each mobility hub level functions in a different area and connects different types of alternative mobility services, there are different elements that are required or recommended for each mobility hub level.



## Mobility Hub Elements

The matrix of mobility hub elements below indicates recommended and required mobility hub features for each mobility hub level.

	LEVEL 0: Neighborhood Nodes	LEVEL 1: Optimized Bus Stops	LEVEL 2: High Activity Centers	LEVEL 3: Regional Connectors
Transit Ticket Kiosks	●	●	●	●
Sidewalks	●	●	●	●
Safe Pedestrian Crossings	●	●	●	●
Seating	○	●	●	●
Shelter/Shade Structure	○	●	●	●
Scootershare Parking	◎	◎	○	●
Bikeshare Parking	◎	◎	○	●
Short Term Bike Parking	○	●	●	●
Electric Vehicle Parking	●	●	○	●
Wayfinding	◎	○	●	●
Dedicated Bike Infrastructure	○	○	○	●
Passenger Pick-up/Drop-off (Microtransit and/or TNC)	●		○	●
Carshare Parking	◎		○	●
Bus Stop		●	●	●
Real-Time Information			○	●
Wifi Hub			○	●
Water Fountain			○	●
Restrooms			●	●
Active Public Space			◎	○
Convenience Retail			◎	○
Indoor Waiting Area				○
High Capacity Transit				●
Long Term Bike Parking				●
Personal Vehicle Parking				●

○ Recommended    ● Required    ◎ At high ridership locations    ● Where services available



LYNX Blue Line Station

The CONNECT Beyond Mobility Hub Framework was developed to work in alignment with the CONNECT Beyond Community Character Types and the transportation context categories (i.e., the High Capacity Transit Corridors, the Emerging Mobility Corridors, and the Mobility Solution Areas) developed by CONNECT Beyond.

## MOBILITY HUB

### LEVEL 0: NEIGHBORHOOD NODES

The Level 0 Mobility Hubs are called **Neighborhood Nodes**. These mobility hub types have a smaller footprint and have a unique potential to serve rural communities. Neighborhood Nodes can serve areas where there is limited transit service or gaps in service coverage. Neighborhood Nodes mobility hubs could be located in Mobility Solutions Areas. There are two Neighborhood Nodes mobility hub sub-types, including the **Rural Connector Hub** and the **Community Connector Hub**, which differ in their context characteristics and likely community character types.

#### Required Mobility Hub Elements:

- Passenger Pick-up/Drop-off (Microtransit and/or TNC)
- Sidewalks
- Safe Pedestrian Crossings

#### Recommended Mobility Hub Elements:

- |                           |                           |                                 |
|---------------------------|---------------------------|---------------------------------|
| • Seating                 | • Bikeshare Parking**     | • Wayfinding*                   |
| • Shelter/Shade Structure | • Short Term Bike Parking | • Dedicated Bike Infrastructure |
| • Scootershare Parking**  | • Carshare Parking**      |                                 |

\* At high ridership locations \*\*Where service is available



## LEVEL 0A - Rural Connector Hub



### Context Characteristics:

- Could be located in Mobility Solutions Areas
- Low density
- Low demand (i.e., trip attractors)
- Supports first-mile/last-mile access to Emerging Mobility Corridors and High Capacity Transit Corridors
- May provide a transfer point for specialized services, such as regional express buses, shuttle services, demand-response, and paratransit

### Likely Community Character Types:

- Rural Crossroads
- New Community

## LEVEL 0B - Community Connector Hub



### Context Characteristics:

- Could be located in Mobility Solutions Areas
- Low to moderate density
- Low to moderate demand (i.e., trip attractors)
- Supports first-mile/last-mile access to Emerging Mobility Corridors and High Capacity Transit Corridors, as well as non-transit trips
- May provide a transfer point for specialized services, such as regional express buses, shuttle services, demand-response, and paratransit

### Likely Community Character Types:

- Suburban Retrofit
- New Community
- City Infill (where transit is not available)

## MOBILITY HUB

### LEVEL 1: OPTIMIZED BUS STOPS

The Level 1 Mobility Hubs are called **Optimized Bus Stops**. Optimized Bus Stop mobility hubs should be located in Mobility Solutions Areas and along Emerging Mobility Corridors. The two Optimized Bus Stop mobility hub types are the **Community Bus Stop** and the **Metro Bus Stop**. The two Optimized Bus Stops mobility hub types differ in their context characteristics and likely community character types. The Community Bus Stop mobility hub type is better suited for non-urban areas and the Metro Bus Stop mobility hub type is better suited for urban areas.

#### Required Mobility Hub Elements:

- Bus Stop
- Shelter/Shade Structure
- Sidewalks
- Seating\*
- Short Term Bike Parking\*
- Safe Pedestrian Crossings

#### Recommended Mobility Hub Elements:

- Scootershare Parking\*
- Wayfinding
- Infrastructure
- Bikeshare Parking\*
- Dedicated Bike

\* At high ridership locations



LEVEL 1A - Community Bus Stop

#### Context Characteristics:

- Could be located in Mobility Solutions Areas and along Emerging Mobility Corridors.
- Low to moderate density
- Low to moderate demand (i.e., trip attractors)

#### Likely Community Character Types:

- Rural Crossroads
- Suburban Retrofit
- Town Main Street



LEVEL 1B - Metro Bus Stop

#### Context Characteristics:

- Could be located along Emerging Mobility Corridors
- High density
- Moderate demand (i.e., trip attractors)

#### Likely Community Character Types:

- Suburban Retrofit
- City Infill

## MOBILITY HUB

### LEVEL 2: HIGH ACTIVITY CENTERS

The Level 2 Mobility Hubs are called **High Activity Centers**. The High Activity Center mobility hubs could be located along High Capacity Transit Corridors and Emerging Mobility Corridors. The two mobility hub types that are on the High Activity Centers scale are the **Community District Hub** and the **Metro District Hub**. Like the other mobility hub sub-types, they differ in their context characteristics and likely community character types. The two mobility hub types within the High Activity Centers Level are different because the Community District Hub type is better suited for non-urban areas and the Metro District Hub type is better suited for urban areas.

#### Required Mobility Hub Elements:

- Bus Stop
- Seating
- Shelter/Shade Structure
- Short Term Bike Parking
- Wayfinding
- Sidewalks
- Safe Pedestrian Crossings

#### Recommended Mobility Hub Elements:

- Passenger Pick-up/Drop-off (Microtransit and/or TNC)
- Scootershare Parking
- Bikeshare Parking
- Carshare Parking
- Electric Vehicle Charging
- Real-Time Information
- Wi-Fi Hub
- Water Fountains
- Dedicated Bike Infrastructure
- Active Public Space\*
- Convenience Retail\*

\* At high ridership locations



#### Context Characteristics:

- Could be located along Emerging Mobility Corridors
- Low to Moderate density
- Low to moderate demand (i.e., trip attractors)

#### Likely Community Character Types:

- Town Main Street
- Regional Main Street



#### Context Characteristics:

- Could be located along Emerging Mobility Corridors and High Capacity Transit Corridors
- High density
- Moderate to High demand (i.e., trip attractors)

#### Likely Community Character Types:

- Regional Main Street
- City Infill

## MOBILITY HUB

### LEVEL 3: REGIONAL CONNECTORS

The Level 3 Mobility Hubs are called **Regional Connectors**. The Regional Connectors mobility hubs could be located along High Capacity Transit Corridors and would have limited application along Emerging Mobility Corridors. The two mobility hub types within the Regional Connectors Level are different based on the scale of the mobility hub. The two mobility hub types that are on the Regional Connectors scale are both called **Regional Hubs**.

#### Required Mobility Hub Elements:

- Bus Stop
- High Capacity Transit
- Passenger Pick-up/Drop-off (Microtransit and/or TNC)
- Seating
- Shelter/Shade Structure
- Scootershare Parking
- Bikeshare Parking
- Carshare Parking
- Electric Vehicle Charging
- Wayfinding
- Real-Time Information
- Wi-Fi Hub
- Water Fountains
- Restrooms
- Sidewalks
- Safe Pedestrian Crossings
- Dedicated Bike Infrastructure

#### Recommended Mobility Hub Elements:

- Transit Ticket Kiosks
- Long Term Bike Parking
- Active Public Space
- Indoor Waiting Area
- Personal Vehicle Parking
- Convenience Retail

#### LEVEL 3A - Regional Hub



#### Context Characteristics:

- High Capacity Transit Corridors
- High density
- Moderate to High demand (i.e., trip attractors)

#### Likely Community Character Types:

- Suburban Retrofit
- City Infill

#### LEVEL 3B - Regional Hub



#### Context Characteristics:

- High Capacity Transit Corridors
- High density
- Moderate to High demand (i.e., trip attractors)

#### Likely Community Character Types:

- Suburban Retrofit
- City Infill

# Key Mobility Hubs Recommendations

## Fund and Initiate a Regional Mobility Hub Implementation Strategy

Timeframe: Near-Term

CONNECT Beyond recommends that our regional partners work together to fund and initiate a Regional Mobility Hub Implementation Strategy.

### How This Will Help:

In the long-term, the integration of mobility hubs is needed to better connect transit providers and alternative mobility services around the region.

### How to Do It:

- Use the CONNECT Beyond Mobility Hub Framework in candidate areas.
- Refine mobility hub siting methodology and consider specific sites within areas of interest.
- Identify partners and funding sources for mobility hub implementation.
- Identify opportunities for a Mobility Hub Pilot Program to test and refine the Implementation Strategy.

## Develop a Mobility Hub Pilot Program

Timeframe: Mid-Term

Develop a Mobility Hub Pilot Program that implements a limited number of demonstration sites with low-cost temporary installations and evaluate outcomes.

### How This Will Help:

Mobility Hub Pilots provide an opportunity to learn while the best practices for mobility hubs are still evolving. Demonstration hubs may offer immediate benefits for mobility access without waiting for large capital funding and construction timelines.

### How to Do It:

- Identify highest priority locations as part of the Mobility Hub Implementation Strategy.
- Identify participating funding partners in priority counties.
- Establish memorandums of understanding and funding agreements with partners.
- Set performance measures and processes for evaluating pilot outcomes so that permanent investments reflect findings.



My Ride Rock Hill Launch

## Integrate the CONNECT Beyond Mobility Hub Locations into Local, County, and Regional Transit Plans

Timeframe: Mid-Term

Integrate the CONNECT Beyond Mobility Hub locations and service connections within local, county, and regional transit plans.

### How This Will Help:

This will allow for more effective connections and customer transfers between various transit services, including transfers between different fixed-route urban transit services, transfers between different community transportation provider services, and transfers between fixed-route urban transit services and community transportation provider services. Establishing Mobility Hubs throughout the region will help support the connectivity and seamlessness of the region's total mobility network.

### How to Do It:

The new CONNECT Beyond Emerging Mobility Working Group and the new CONNECT Beyond Service Planning Working Group should coordinate with individual transit providers to include the CONNECT Beyond Mobility Hubs Locations into their near-term, mid-term, and long-range transit plans.

View all Expand Mobility Choices Recommendations  
at [www.connect-beyond.com/plan](http://www.connect-beyond.com/plan)





## MOBILITY MOVES

# Strengthen Rural to Urban Connections

What makes the CONNECT Beyond region so unique and special is the diversity of its geography. The CONNECT Beyond region is made up of rural communities, suburban areas, small historic downtowns, and a large metropolitan city. Residents who live and work in these different areas throughout the CONNECT Beyond region have their own unique transportation needs and challenges. A key component of CONNECT Beyond is focused on improving mobility and transportation choices for those living in our rural communities that rely on transit to get to critical medical appointments, jobs, and daily activities.

The primary purpose of this Mobility Move was to identify opportunities to enhance and better coordinate rural mobility services for current and future users. CONNECT Beyond developed strategies, in coordination with the CONNECT Beyond Rural to Urban Connections Working Group, to improve public transit services in our region's rural communities and provide better connections between rural and urban transit services, so that residents who live in rural areas can easily travel throughout our 12-county region.

York County, SC



## Our Rural Communities

The [United States Census Bureau](#) defines urbanized areas as areas with 50,000 or more people, urban clusters as areas with between 2,500 and 50,000 people, and rural areas as areas that have less than 2,500 people. By this definition, about **74.6%** of the CONNECT Beyond land area is rural. We learned from [CONNECT Our Future](#) that many of our region's counties are "predominantly rural or large-lot suburban. These areas are characterized by a pattern of large lots, abundant open space and a high degree of separation between residential structures, resulting in transportation challenges for residents who do not have access to a private automobile, or would like to use public transportation for commute and other daily needs." Like other parts of our region, rural areas especially have auto-oriented development styles and limited access to public transportation services, making it very difficult for rural residents to get around without a car.

## Rural Transportation Needs

[CONNECT Our Future](#) showed us "the demographics, mobility needs, and resources of rural areas are vastly different than those of urban areas." That's why an important focus of CONNECT Beyond was to understand rural needs and to develop strategies to enhance mobility and provide more mobility services for residents living in rural communities.

Like all individuals, residents of rural areas in the CONNECT Beyond region rely on transportation to access services and activities such as work, school, healthcare appointments, shopping, recreation activities, social events and community gatherings, and religious services. Community transportation providers in the rural areas of the CONNECT Beyond region specifically provide transportation options for qualifying individuals.



## Who Benefits from Strengthening Rural to Urban Connections

Thousands of people in rural areas rely on public transportation services for most of their transportation needs. While enhanced mobility services in rural areas tend to directly or indirectly benefit almost all residents living in rural communities, they are especially beneficial for the elderly, low-income populations, people with disabilities, and adolescents. Below are some key statistics of CONNECT Beyond residents living in rural areas:

### Elderly Populations

About 32 percent of elderly residents (defined as 65 years and older) in the CONNECT Beyond region live in rural communities. To allow elderly residents to age in place and maintain independent living, they must have access to reliable mobility services to travel to key locations and events that may be far from their homes, such as grocery stores, community gatherings, religious services, and healthcare services.

### Low-Income Populations

Many individuals from low-income households rely on alternative mobility services for most of their transportation needs. Approximately 36 percent of our region's transit-dependent population (individuals who depend on public transportation services for most of their transportation needs) live in rural areas throughout our region.

The [National Association for State Community Services Programs](#) found that “transit can reduce social and economic inequalities by enhancing mobility for residents, many of whom lack cars and need assistance in finding jobs outside their primary resident area. Such jobs serve as an important source of income for those that otherwise face limited employment opportunities.” Therefore, mobility services are critical for connecting rural areas and low-income individuals to employment centers.

### People with Disabilities

Individuals with disabilities may have limited driving abilities and rely on alternative mobility services to get to everyday destinations and vital appointments. To enhance mobility for persons with disabilities who live in rural areas, it is crucial to provide reliable and comprehensive alternative mobility services to get them to where they want to and need to go.

### Adolescents

Many youths in rural areas around America feel disconnected and cut off from educational and employment opportunities because they don't have reliable access to public transportation services to get them there. Providing enhanced and expanded public transportation services is a key way to enhance connectivity, especially for people living in rural areas. Providing rural area residents with enhanced and expanded public transportation services will improve access to educational and employment opportunities while still allowing them to live in the communities they call home.

## Benefits of Rural Mobility Services

### Access to Employment and Educational Opportunities

Rural mobility services provide access to employment and educational opportunities for rural residents. The American Public Transportation Association ([APTA](#)) found about **34.1 percent** of all mobility service trips in rural areas are residents commuting to work and about **11.5 percent** of all mobility service trips in rural areas are residents going to school. For many rural residents, getting to work and school depends on having reliable transportation provided by rural mobility services.

## Access to Healthcare Services

Many residents in rural areas, especially elderly residents, residents with disabilities, and low-income individuals, tend to rely on alternative mobility services for transportation to healthcare services. According to the [Rural Health Information Hub](#), when mobility services are “unavailable, unaffordable, or difficult to access, rural community members may not be able to receive important services. Barriers to transportation can result in missed healthcare appointments, delays in receiving healthcare interventions, and missed or delayed use of needed medications – all of which may have negative consequences for managing health conditions.”

## Encourages Active Lifestyles and Community Engagement

Rural mobility services allow rural residents to maintain active lifestyles and attend community events. In rural areas where destinations tend to be spread out, transportation provided by rural mobility services is essential for ensuring residents can engage in activities and social events in their communities. Rural communities tend to be tight-knit. Residents benefit from close social connections with their fellow community members, so it is essential to provide mobility services to facilitate those interactions.

## Rural Transportation Challenges

### Distance & Low-Density

It can be challenging to provide public transportation services in rural areas because the distance between critical destinations and the low population densities of these areas make it expensive to operate.

### Lack of Funding

Unfortunately, there is not always sufficient funding or available public transportation services to meet the transportation needs of those who live in rural areas. Only **11 percent of Federal transportation funding grants** are allocated for rural transportation services. In our region, urban transit service providers receive about **ten times** the funding that community transportation providers who serve rural areas receive.

### Community Transportation Providers

There are 11 community transportation providers who provide mobility services to rural and small urban communities in the CONNECT Beyond region. The providers were part of the CONNECT Beyond Rural to Urban Connections Working Group, and their service characteristics are outlined in the following table.

## CONNECT to Healthcare

Access to healthcare is critical to the health and well-being of our community. In our region, over 84% people live 10 minutes or more from a hospital or trauma center. Improved public transit will connect more people to hospitals and support healthier communities.



Agency	Service Frequency	Span & Level of Service	Americans with Disabilities Act (ADA) Coverage Area
<b>Anson County Transportation System</b>	On demand	Monday–Friday 8:30 am to 4:30 pm	Countywide; out of County trips are considered on a case by case basis
<b>Cabarrus County Transportation Services</b>	On demand	Normal business hours, six days a week. Only dialysis, life sustaining, or other critical appointments scheduled on county holidays.	Countywide; out-of-county can also be scheduled
<b>Gaston County ACCESS Central Transportation</b>	Monday–Sunday 75-100 minutes	Monday–Friday 4:00 am to 6:00 pm <u>Salisbury VA</u> –Tuesday and Thursday only <u>Gaston College</u> – every hour 7:30 am to 4:30 pm at Transit Station	Federally mandated within 3/4 mile of fixed route services
<b>Iredell County Area Transportation System *</b>	Monday–Sunday 75-100 minutes	<b>Express routes:</b> three trips during AM and PM peak 5:00 am to 8:30 pm <b>Local routes:</b> varies; 6-8 trips a day	Federally mandated within 3/4 mile of local fixed route services
<b>Lancaster Area Ride Service (Zone 5)</b>	On demand	Monday–Friday 9:00 am to 3:00 pm	Countywide; out-of-county services for medical treatments only
<b>Mecklenburg Transportation System</b>	On demand	Monday–Sunday 5:00 am to 7:00 pm	Countywide
<b>Rowan Transit System</b>	On demand	<b>Demand Response:</b> <u>West Rowan</u> – Tuesday <u>North Rowan</u> – Wednesday <u>South Rowan</u> – Thursday <u>East Rowan</u> – Friday; 7:30 am to 5:00 pm	Countywide
<b>Stanly County Transportation Services</b>	On demand	Monday–Friday 8:30 am to 5:00 pm	Countywide
<b>Transportation Administration of Cleveland County</b>	<u>CCT</u> : Four trips West End <u>REACH</u> : Seven trips a day every 45 minutes	<u>CCT</u> : Monday–Friday 7:15 am to 3:08 pm <u>West End REACH</u> : Monday, Wednesday, Friday 9:15 am to 2:45 pm	Federally mandated within 3/4 mile of fixed route services
<b>Transportation Lincoln County</b>	Subscription and on-demand	<b>Demand Response:</b> Monday–Friday 6:00 am to 5:00 pm; out-of-county 9:00 am to 3:00 pm <u>Mooresville and Huntersville</u> : Tuesday–Thursday 9:00 am to 2:00 pm <u>Lincolnton Town</u> : 8:05 am to 5:45 pm (eight loops a day)	Countywide; out of county service available
<b>Union County Human Services' Transportation Division</b>	On demand	Monday–Friday 6:00 am to 5:00 pm. Only dialysis, life sustaining, or other critical appointments scheduled on county holidays.	Countywide
<b>York County Access</b>	On demand	Monday–Friday 6:00 am to 6:00 pm <u>Ride-to-Work</u> : 5:30 am to 9:00 am and 3:30 pm to 6:00 pm	Countywide; out of county service available

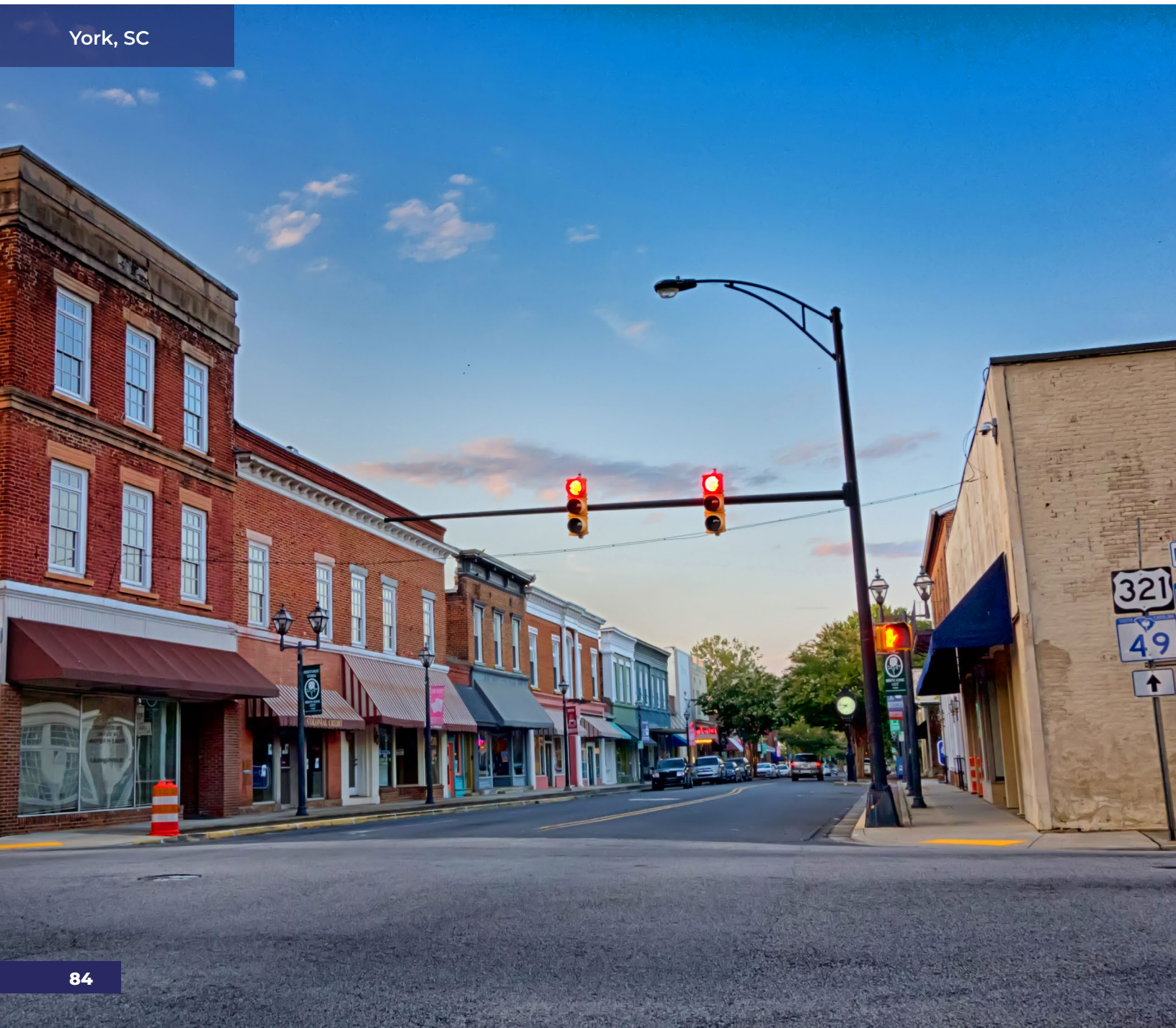
\* Also provides fixed-route service.

# Understanding the Needs of Our Rural Communities

During CONNECT Our Future, we learned the transportation needs of those living in rural communities throughout our region are often different from the transportation needs of those who live in urbanized areas. As part of CONNECT Beyond, we set out to better understand the transportation needs of rural communities and how we can provide enhanced mobility services for those living in rural areas.

To learn more about the transportation needs of those who live in rural areas in the CONNECT Beyond region, we created a Rural to Urban Connections Working Group, which was comprised of representatives from the 11 community service providers in our region.

York, SC



# What We've Heard

The two most discussed topics at the Rural to Urban Connections Working Group meetings were the growing demands for transit services in the rural areas and the decrease in funds to provide such service. In speaking with the community transportation providers, most of them limit mobility services to destinations within their own counties except for passengers needing to get to medical appointments with specialty doctors in Charlotte, Rock Hill, or other urban areas.

The stipulation of needing a medical appointment to access an out-of-county trip is particularly limiting for many of our transit-dependent rural residents who don't own a personal vehicle or cannot afford other transportation options. One of our key recommendations is for our region's community transportation providers to provide mobility services for more general use trips in rural areas.

## Rural Transit: Where This Works

Carteret County is a rural county in eastern North Carolina that has taken a proactive approach to enhancing mobility for its residents and visitors by providing flexible public transportation services. The Carteret County Area Transit System (CCATS) provides personalized demand-response transit services that allows residents and visitors to make in-county and out-of-county trips for any purpose. Passengers just have to book their ride one business day in advance and CCATS provides curbside home pickup and round trip transportation to the passenger's specified destination within or outside of Carteret County. There are no trip purpose restrictions for the CCATS demand-response transit services, which means that passengers can use the services to get to and from any destination, including work, school, medical appointments, the beach, and shopping. For a rural county that has a smaller population dispersed over a large area, this type of personalized demand-response transit service helps efficiently meet the mobility needs of the county's residents and visitors and provides enhanced connections to key destinations and services.



Morrow Mountain State Park, Stanly County

# Key Recommendations

## More General Public Use Trips

Timeframe: Near-Term

### Community Driven Recommendation

During our discussions with our Rural to Urban Connections Working Group members, we found there is growing demand for transit services in rural areas but that most community transportation providers limit mobility services to destinations within their own counties, especially for non-medical trips. Residents in rural areas of the CONNECT Beyond region need more mobility services available for reasons other than medical trips. CONNECT Beyond recommends our regional partners work with the region's community transportation providers to review and standardize travel policies to allow for cross-jurisdictional trips (out of county) and more public use trips.

### How This Will Help:

There is latent demand for general use trips. Right now, there is funding for medical trips but by adding resources, more trips can be made and allow users to connect to work, education, and other opportunities.

### How to Do It:

- CONNECT Beyond Regional Mobility Manager should lead a review of local operating policies and work to create consistency and cross-jurisdictional reciprocity for general use trips.
- CONNECT Beyond Regional Mobility Manager to work with community transportation providers, TPOs, and the [CONNECT Beyond Funding & Partnership Working Group](#) to help find resources and opportunities to provide and expand more general public use trips.
- Community transportation providers should adopt uniform scheduling platform to coordinate trips.

Lincoln County, NC

## Enhance Regional Coordination and Representation

Timeframe: Mid-Term

### Community Driven Recommendation

Community transportation providers serving rural areas should be contacted during the planning of fixed-route transit service changes, not after implementation. That's why CONNECT Beyond recommends community transportation providers be included in the CONNECT Beyond Service Planning Working Group (CBSPWG) to ensure all service changes are coordinated at a regional level. The CONNECT Beyond Service Planning Working Group will work to coordinate regional service changes, coordinate future agency plans and services, address shared fixed-route service provider issues and initiatives, and guide consensus on transit planning efforts.

#### How This Will Help:

This will help ensure community transportation providers will not be adversely impacted by unknown actions, such as route additions or schedule changes, implemented by the region's urban fixed-route providers.

#### How to Do It:

CONNECT Beyond recommends community transportation providers should meet two to three times per year with urban fixed-route service providers to review schedule adjustments and determine the impacts on community transportation providers' out-of-county trips/routes. This would also provide an opportunity to potentially better coordinate services to enhance mobility services provided to rural residents.

## System Streamlining

Timeframe: Mid-Term

CONNECT Beyond suggests our regional partners work together to study opportunities for system and service consolidation between the region's urban fixed-route transit providers and the community transportation providers.

#### How This Will Help:

Given the number of community transportation providers and urban fixed-route transit providers in the region, there may be opportunities to consolidate some of the transit services offered to improve operation efficiency, service delivery, and potentially cost savings.

#### How to Do It:

CONNECT Beyond recommends that our regional partners work with the CONNECT Beyond Regional Mobility Manager and the CONNECT Beyond Service Planning Working Group to:

- Build off CONNECT Beyond's Existing Transit Systems Evaluation.
- Better understand the region's transit providers' projected revenue and projected service modifications.
- Perform an internal policy review to determine opportunities to streamline service between region's transit providers.
- Perform a System Consolidation Study to better understand the sensitivities and efficiencies around consolidating community transportation providers and fixed-route urban transit providers.
- Develop a proposal and potential policy modifications for stakeholder and policymaker review for implementation.

## Regional Scheduling Software

Timeframe: Long-Term

CONNECT Beyond recommends the region's community transportation providers adopt a unified regional paratransit scheduling software to help better coordinate paratransit services throughout the region.

### How This Will Help:

The majority, but not all, of the region's community transportation providers utilize the same trip scheduling and routing software. Using the same software enables the community transportation providers to coordinate rides with another provider because their rider databases can easily be shared. Due to the demand for services within each county, community transportation providers could have designated specific days of the week and hours of service to travel out of their counties to urban areas. They can also arrange coordinated rides with other community transportation providers to offer inter-jurisdictional rides between rural locations.

### How to Do It:

- The CONNECT Beyond Implementation Team should conduct a Regional Paratransit Scheduling Integration & Implementation Study to review of available software and develop recommendations to present to the CONNECT Beyond Service Planning Working Group for next steps.
- CONNECT Beyond Implementation Team to explore shared purchasing agreements for regional coordination of software.
- Regional providers to collectively adopt a shared scheduling software platform.

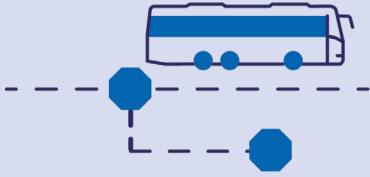
View all Rural to Urban Connections Recommendations  
at [www.connect-beyond.com/plan](http://www.connect-beyond.com/plan)



### ICATS Iredell Express







## MOBILITY MOVES

# Build a Better Bus Network

Buses are the backbone of every transit network in the nation, even in major cities like Chicago, Austin, and Phoenix. Buses can cover vast areas and make new connections between everyday destinations and other transit services much more easily than rail, and at a fraction of the cost. Unlike rail, buses can quickly respond to changing conditions, and the CONNECT Beyond region will see many changes in the next 20 years. As new employment centers emerge and population increases, existing bus services can increase frequency, hours of service, or route length/alignment to meet changing needs. New routes can be added to the system to make new connections. Connecting the region's rural communities through transit will play a critical role in improving the region's social and economic mobility. Enhancing existing routes and making new connections with quality bus service is the foundation for building regional transit ridership demand, which is the precursor to implementing high capacity transit (HCT) services such as bus rapid transit or light rail. The improvements to a bus network cannot be underestimated, as a quality bus network makes crucial multimodal connections and offers a means of accessing many economic, social, and educational opportunities – not to mention its impact in reducing congestion and improving air quality.

**2**

STATES

**12**

COUNTIES

**6**

FIXED-ROUTE PROVIDERS\*

**11**

COMMUNITY TRANSPORTATION PROVIDERS

**\$200M**

IN TOTAL OPERATING COSTS ALL AGENCIES

**24.4M+**

TOTAL TRANSIT TRIPS ALL AGENCIES (2018)\*\*

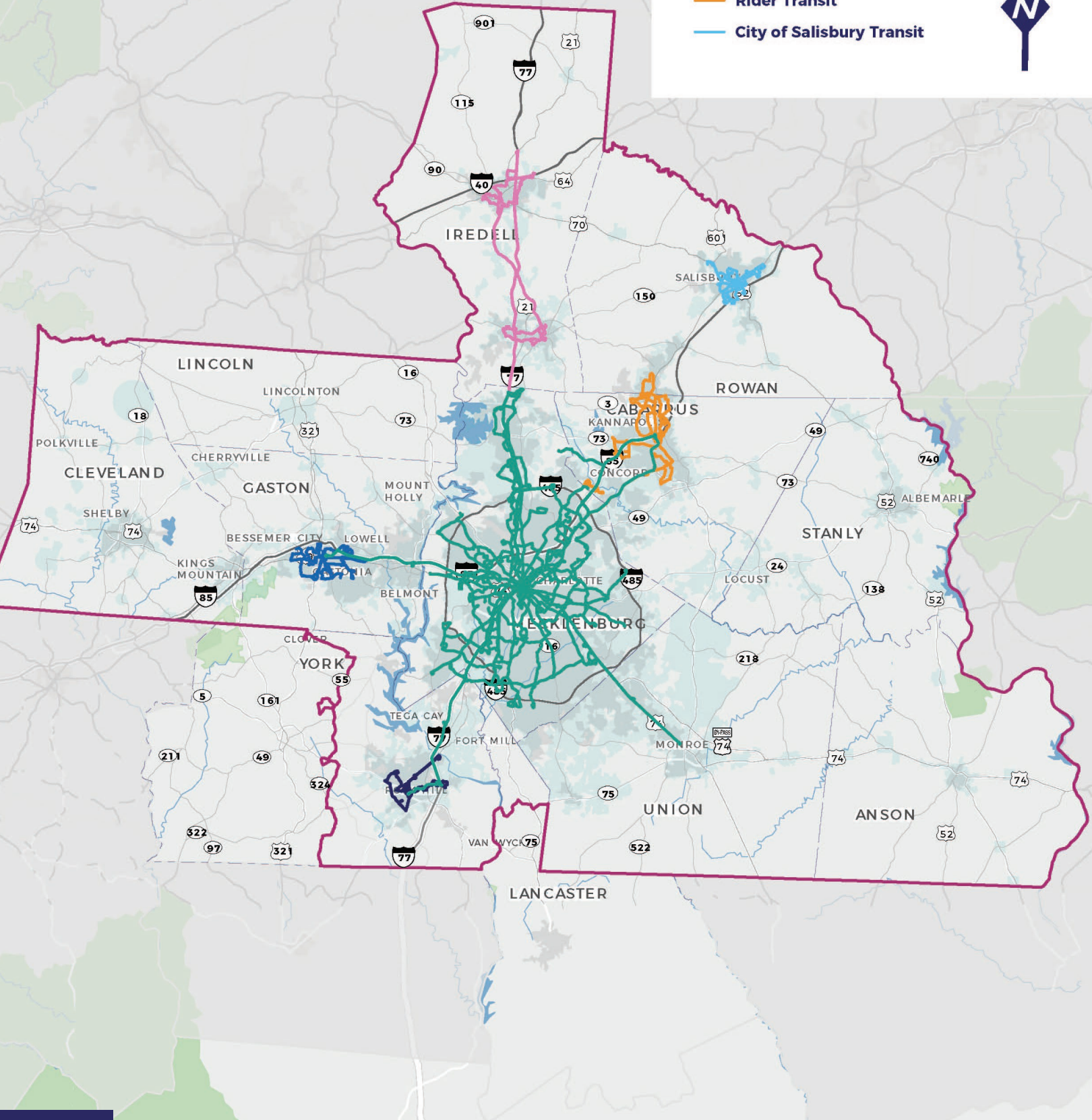
\* ICATS also serves as a community transportation provider

\*\*Does not include Rock Hill My Ride. In FY2020 My Ride had about 200k riders and \$1.75M operating budget

# CONNECT Beyond Fixed-Route Providers

## Existing Routes

- Charlotte Area Transit System (CATS)
- City of Gastonia Transit
- Iredell County Area Transportation System (iCATS)
- Rock Hill MyRide
- Rider Transit
- City of Salisbury Transit



# The Region's Bus Network Today

The CONNECT Beyond study area includes 17 transit agencies, 11 community transportation providers, and 6 fixed-route service providers. Together, these agencies provide public transit services including demand response, demand taxis, subscription routes, circulators/shuttles, fixed-route buses, vanpools, light rail, streetcar, and commuter express buses. Fixed-route service providers are an essential link between community service providers, suburban areas, urban centers, and existing and future high capacity transit corridors. A summary of public transit services by agency is provided in the table below.

Fixed-Route Service Providers						
Agency	Bus	Commuter Bus	Demand Response	Light Rail	Streetcar Rail	Vanpool
Charlotte Area Transit System	●	●	●	●	●	●
Rider Transit- Concord Kannapolis Area Transportation	●		●			
City of Gastonia Transit	●		●			
Rock Hill My Ride	●					
City of Salisbury Transit	●					
Iredell County Area Transportation System	●	●	●			

To fully understand the needs of fixed-route transit providers, their current operating practices, and to develop recommendations for the immediate- to the long-term, the following tasks were undertaken:

## Existing Transit System Evaluation including:

- Inventory of transit services
- System level performance analysis
- Review of service standards and performance measures
- Field observations

## Targeted Stakeholder Meetings including:

- Transit provider survey and interviews
- Strength, weakness, opportunities, and threats analysis workshop
- Interactive long-range planning workshop

This quantitative data-driven approach was critical to the development of service recommendations, and the input from transit agency staff and key stakeholders was valuable in understanding the region's priorities. A summary describing key takeaways from the technical review and stakeholder meetings is described below.

# Takeaways Guiding the Recommendations

Through the analysis and stakeholder meetings detailed above, several key takeaways emerged as fundamental to Building a Better Bus Network. The most urgent needs identified include:

- Need to provide transfer opportunities more effectively between providers
- Need to enhance transit convenience by providing better frequency, expanding hours of service, and providing more connections around the region
- Need for improved bus stops and wayfinding (signage)
- Need for improved or expanded operation and maintenance facilities

These core needs were a driving force behind the development of the CONNECT Beyond fixed-route transit service provider recommendations. Recommendations were also developed based on the technical analyses and input from stakeholder meetings. The recommendations were developed to address service gaps and the needs of agencies, as well as build ridership demand for the HCT and mobility corridors designed to improve regional connectivity.

## Key Immediate Recommendations

### Establish a CONNECT Beyond Service Planning Working Group

Timeline: Immediate

Establish a CONNECT Beyond Service Planning Working Group (CBSPWG) with the following charges:

- Coordinate regional service changes (e.g., new service or service modifications),
- Jointly develop and integrate future agency service plans
- Address shared fixed-route service provider issues and initiatives (e.g., a single trip planning website and regional fare collection)
- Guide consensus-driven transit planning efforts such as a regionally consolidate Short Range Transit Program. Work towards an integrated and seamless transit system and identify ways to enhance the current and future passenger user experience.

#### How This Will Help:

With no current coordinated regional service plan, it is very difficult for the region's transit riders to travel between systems. The Service Planning Working Group will provide the region with a dedicated team of transit operation professionals to lead service planning for the region.

#### How to Do It:

- Establish regularly occurring meetings (minimum once a month)
- Identify consistent agency lead and representation.
- Add applicable CONNECT Beyond recommendations as a standing agenda item and regularly canvass the Group for additional local agenda topics to discuss.
- Work in coordination with the Centralina Mobility Managers Group.

## Implement a Mobility Education Campaign

Timeline: Immediate

### Community Driven Recommendation

Develop and maintain a regional marketing campaign to educate the region on the value of transit, the value of multimodal options, current and future mobility options, as well as how to stay involved in helping further transit in the CONNECT Beyond region.

#### How This Will Help:

Well-connected mobility services now and in the future ensure that our region can sustain and increase our economic competitiveness, promote sustainable regional growth, advance social equity, and further environmental stewardship. Implementing a mobility education campaign helps by:

- Promoting and connecting current and future residents and visitors in our region to all available mobility options.
- Providing a way to stay informed and advocate for greater mobility options that connect our region.
- Promoting the importance of mobility options and the economic impact it has to our region.

#### How to Do It:

- Conduct a peer review of similar regions and identify best practices.
- Working through the CBSPWG, develop an outreach campaign framework that promotes mobility initiatives and resources such as a all-in-one mobility app.
- Resources from across the region can be pooled, proportional to each agency size, to fund and sustain the campaign.

## Leverage Existing Funding

Timeline: Immediate

Coordinate on funding efforts to maximize current and future state and federal grant funding opportunities. Continue efforts with municipal and county Boards of Commissioners in funding (and/or expand funding) for public transportation.

#### How This Will Help:

Leveraging existing funding against established sources, such as federal grants and formula funds, will help our region support the recommendations of CONNECT Beyond, from planning (e.g., high capacity transit studies) to capital purchases (e.g., fare box technology and electric vehicles).

#### How to Do It:

- Incorporate CONNECT Beyond recommendations into a regional Short Range Transit Program to forecast regional financial needs.
- Coordinate with the various CONNECT Beyond working groups and transportation planning organizations.
- Coordinate efforts through the CONNECT Beyond Funding & Partnership Working Group.
- Complete the Regional Financial Capacity Assessment to understand the resources needed to implement the CONNECT Beyond recommendations.

## Adopt Regional Transit Standards and Performance Measures

Timeline: Immediate

Develop and adopt regional Transit Standards and Performance Measures (TSPM) which establish network design consistency for elements such as the hours of service and frequency of service by service time, and metrics for evaluating service performance.

### How This Will Help:

TSPM are guidelines or policies by which the performance of the region's transit system may be implemented and/or evaluated, and decisions regarding transit investments may be prioritized and measured. From a customer convenience standpoint, TSPM establishes clear expectations for services and make the network easier to navigate. TSPM also provides a formal mechanism for making service tradeoffs in an objective and equitable way and provides both decision-makers and the public with the necessary data and evidence when discussing routing, scheduling, and service change decisions.

### How to Do It:

- Build off work completed in the CONNECT Beyond TSPM Report, which included a peer review and made network design criteria and service evaluation metric recommendations.
- Through the CONNECT Beyond Service Planning Working Group, refine and develop a TSPM document for the region.
- Use the transit data repository website with data collection, reporting and sorting procedures as a key analysis tool for TSPM.

## Key Immediate Recommendations

### More Transit Access Networks and Mobility Hubs

Timeline: Near-Term

**Community Driven Recommendation**

For all mobility hubs and strategic mobility corridors, coordinate with State Departments of Transportations and Metropolitan Planning Organizations to incorporate space for mobility projects in highway and land use plans, strategically advance the active transportation corridor to make connections, and integrate HCT investments into the planning and design process for major arterials.



### CONNECT To Education

Improved public transit can help remove barriers to higher education like commuting costs, on-campus living costs, and lack of a personal vehicle. CONNECT Beyond aims to connect you to a brighter tomorrow.

### How This Will Help:

Not all services or transit improvements are warranted in the near-term but ensuring there is space for the projects in the future must be done now. The coordination of projects will save the region money by avoiding costly land purchases or the reconstruction of roadways. Additionally, when and where feasible, the strategic incorporation of transit improvements into roadway projects, such as signal prioritization technologies, which will result in cost efficiencies and transit travel time savings. The sooner improvements like this are incorporated, the higher quality the transit service will be, which will increase transit demand. Finally, coordinating with State DOTs and MPOs to identify multi-use and greenway corridors for advancement to connect to the transit network will greatly improve system access beyond identified mobility hubs.

### How to Do It:

- Transit agencies and municipalities need to have ongoing coordination with their respective MPO and State Departments of Transportation to ensure that CONNECT Beyond recommendations are included in appropriate long-range plans.
- Coordination with local municipalities and transit agencies to find resources to deploy mobility hubs and additional services are necessary to deliver the recommendations.



Rider Transit



CATS Express Bus

## Create Transit Workforce of Tomorrow

Timeline: Near-Term

The future of mobility will include more on-demand services and bus fleet electrification. To ensure that the region's transit workforce is ready to meet the technology needs of the future, we must prepare today.

### How This Will Help:

The expansion of the region's transit network will require an increase in human capital. A Job Tasks Analysis study will help identify long-term transit plan implementation needs on both planning and operations. As the region transitions to electric vehicles and other new technologies, agencies need to provide their staff with the appropriate training programs to keep the agency and its services operating efficiently and effectively. As fleet and propulsion types change in the future, the region needs to have a skilled workforce to keep vehicles moving and data systems talking to each other. Recruiting from local colleges will benefit the agency by attracting local talent and supporting residents of the region.

### How to Do It:

- Coordinate with the CONNECT Beyond Service Planning Working Group and area transit providers to develop an assessment of key technical capacities needed at the transit agency level for the future.
- CBSPWG complete a Job Task Analysis Study.
- Coordinate with each transit provider in the region to understand technology upgrades needed in the long-term (e.g., vehicle electrification, connected vehicle technology) and work with community colleges and/or other educational institutions to develop a training program to train the transit workforce of the future.
- Partner with area community colleges to develop the transit workforce of the future.





# Key Mid-Term Recommendations

## Expanding Fixed-Route Transit into High Capacity Transit Corridors

Timeline: Mid-Term

### Community Driven Recommendation

Implement local bus service in Recommended High Capacity Transit Corridors to establish a ridership base to compete for and justify future HCT investment.

#### How This Will Help:

Some of the HCT corridors identified currently lack transit service or the necessary ridership base to justify the level of investment needed to implement HCT. The CONNECT Beyond Plan proposes a series of incremental improvements to build the demand for HCT modes such as bus rapid transit, light rail, or commuter rail. This starts with improving existing service (by span and frequency) and establishing new transit services in existing mobility and HCT corridors. Improving the quality and coverage of the transit network increases convenience to populations served, thereby increasing demand for transit.

#### How to Do It:

When transit is convenient and efficient, it becomes an appealing alternative to private vehicles and increases transit demand. To expand service into HCT corridors, providers should:

- Prioritize increasing existing services and providing new services in mobility and HCT corridors.
- Most existing and new services in mobility and HCT are or will be express services, and so transit agencies and municipalities should focus on expanding bus on shoulder corridors to provide a service with competitive travel times.

# More and New Services, Coverage Area, Connections, Capital Equipment

Timeline: Mid-Term

## Community Driven Recommendation

Enhance transit service (e.g., hours of service, days of service, service frequency) to match regional transit service standards and expand the system coverage area.

### How This Will Help:

In working to achieve service standards outlined in a regional TSPM document, services across the region will become higher quality and more consistent. The more transit service options available to the public, the more attractive it is for users to take transit instead of their vehicles. In addition, focusing on improvements and expanding the service area coverage to transit-dependent areas, or areas with an identified high capacity transit corridor will help advance equitable and community-driven improvements and ensure a culture of transit in key corridors to compete for federal grants confidently.

### How to Do It:

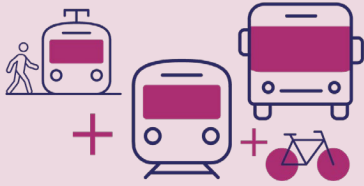
Enhancing the system with additional hours of service, days of service, service frequency, and coverage area is a robust task. The region must work to:

- Garner public, stakeholder, and political support to find the necessary financial resources.
- Coordinate capital needs and service changes through the CBSPWG
- Work closely with regional stakeholders, the public, transit agencies, and the CONNECT Beyond Maintaining Our Momentum and the Grow Funding effort.

View all Bus Network Recommendations at [www.connect-beyond.com/plan](http://www.connect-beyond.com/plan)



Gastonia Transit



## MOBILITY MOVES

# Invest in Strategic Mobility Corridors

A major part of CONNECT Beyond's regional mobility plan was identifying and evaluating Strategic Mobility Corridors throughout the region. To identify and evaluate Strategic Mobility Corridors, our Team conducted a High Capacity Transit Corridor Identification and Evaluation Process and a Commuter Rail Assessment.

During the High Capacity Transit Corridor Identification and Evaluation Process, CONNECT Beyond identified and evaluated Candidate Corridors along which high capacity transit lines could be implemented. From this High Capacity Transit Corridor Identification and Evaluation Process, **13 High Capacity Transit Corridors** and **24 Emerging Mobility Corridors** are recommended for the CONNECT Beyond region.

Through the Commuter Rail Assessment, CONNECT Beyond identified and evaluated potential commuter rail corridors to serve region. Following the Commuter Rail Assessment process, **four Initial Commuter Rail Corridors** are recommended for near-term implementation and **an additional three for the long-term**. The processes and recommendations for both the High Capacity Transit Corridor Identification and Evaluation Process and the Commuter Rail Assessment are described in more detail below.



Metro C Line BRT




# High Capacity Transit

## High Capacity Transit Services



Regional (Heavy) Rail




Service that connects different cities and regions using railroad lines. This is usually used to travel longer distances at high speeds between larger cities or urban areas. Other characteristics include high capacity, fixed station locations, pre-boarding payment, and the placement of one station within each urban area served. This service is often referred to as intercity rail.

Frequency	Avg. Speed	Stop Spacing	Avg. Capacity	Rec. Density	Example
All day, Peak, Off-Peak 10-60 min.	 60 - 75 mph	 3 - 15+ miles	70 - 190 Passengers	 Medium/High	<ul style="list-style-type: none"> <li>Between Raleigh and Charlotte</li> </ul>



Commuter Rail

Characterized by local short-distance travel operating between a central city and neighboring suburbs. Other features include multi-trip tickets, specific station-to-station fares that are paid prior to boarding, and the presence of only one or two stations in a central business district.

Frequency	Avg. Speed	Stop Spacing	Avg. Capacity	Rec. Density	Example
Peak, Limited Off-peak 20 - 30 min.	 30 - 50 mph	 3 - 15 miles	70 - 190 Passengers	 Medium/High	<ul style="list-style-type: none"> <li>Nashville (TN)</li> <li>Seattle (WA)</li> <li>Portland (OR)</li> </ul>

## What is High Capacity Transit?




High capacity transit is a form of public transit that offers more passenger capacity and operates at higher speeds with fewer stops than traditional local bus services. Some examples of high capacity transit include light rail, bus rapid transit, express buses, commuter rail, and streetcars. A primary purpose of CONNECT Beyond is to guide our region in developing an integrated regional mobility system with high capacity transit lines that serving as the backbone of the region's total mobility network.

### High Capacity Transit Services



Light Rail Transit (LRT)




Typically consists of single or double car trains on an electric railway connecting various nodes along a corridor within one urban area. Light rail passenger cars have less ridership capacity than heavy rail cars. Fixed stations are common, although some systems have flexible stop locations.

Frequency	Avg. Speed	Stop Spacing	Avg. Capacity	Rec. Density	Example
10-30 min.	 10 - 30 mph	 1 - 2 miles	60 - 175 Passengers	 High	<ul style="list-style-type: none"> <li>• Portland (OR)</li> <li>• Minneapolis (MN)</li> <li>• Charlotte (NC)</li> </ul>



Bus Rapid Transit (BRT)

Characterized by traditional or articulated buses operating within designated lanes, mixed traffic, or a combination. Corridors have fewer stops than traditional bus routes to decrease travel times between termini, and stations are designed for long term use with more passenger amenities than traditional bus stops. Buses may receive priority at traffic signals and intersections.

Frequency	Avg. Speed	Stop Spacing	Avg. Capacity	Rec. Density	Example
Peak, Limited Off-peak 15 - 30 min.	 15 - 30 mph	 .5 - 1 miles	40 - 60 Passengers	 Medium	<ul style="list-style-type: none"> <li>• Columbus (OH)</li> <li>• Minneapolis (MN)</li> <li>• Richmond (VA)</li> </ul>

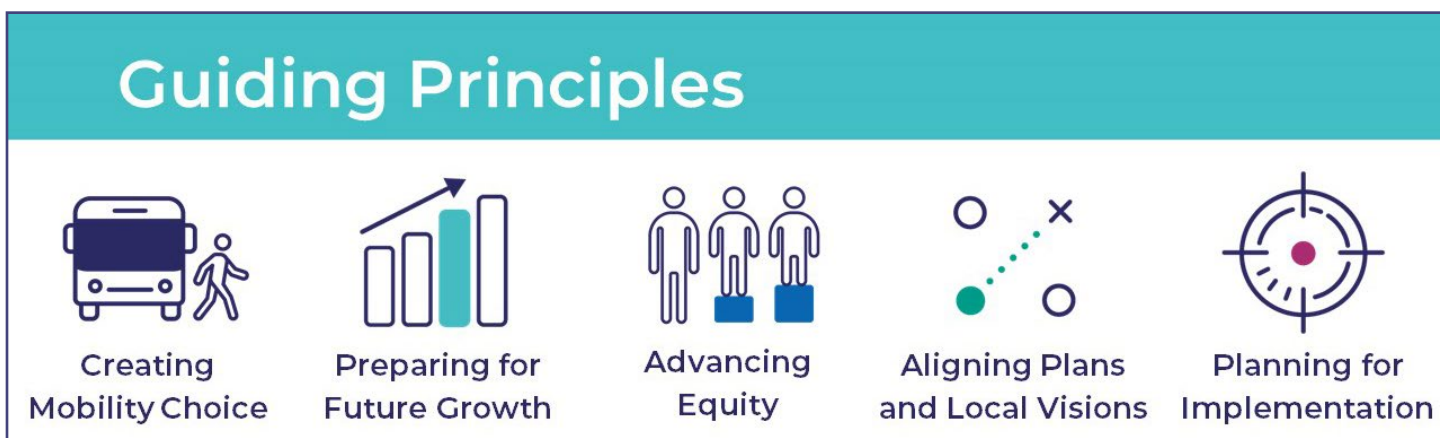
# High Capacity Transit Corridor Identification and Evaluation Process

To identify and evaluate potential corridors where high capacity transit could be implemented in the CONNECT Beyond study area, the Project Team followed a multi-step HCT Corridor Identification and Evaluation process. The Corridor Identification and Evaluation process included developing the guiding principles, analyzing regional transit conditions, identifying Candidate Corridors, conducting a Level 1 Corridor Evaluation, conducting a Level 2 Regional Analysis, and making corridor recommendations.



## Strategic Mobility Corridor Guiding Principles

During the high capacity transit corridor identification and evaluation process, the guiding principles helped guide the evaluation of the candidate corridors during the Level 1: Corridor Evaluation process. The guiding principles are creating mobility choice, preparing for future growth, advancing equity, aligning plans and local visions, and planning for implementation.



## Analyze Regional Transit Conditions

To identify candidate corridors, the project team conducted various regional transit conditions analyses, including an Existing Transit Systems Evaluation, a Transit Market Analysis, a Transit Propensity Analysis, and a Review of Related Plans and Studies.

## Identifying Candidate Corridors

During the candidate corridor identification process 32 candidate corridors were identified in the CONNECT Beyond region for evaluation. These candidate corridors were identified based on:

- Existing transportation networks
- Existing and future travel patterns and demand
- Existing and future potential transit demand
- Population and employment growth
- Land use growth and changes
- Applicable transit plans and prior studies
- Study guiding principles
- Previous public input
- Additional stakeholder input






After the candidate corridors were identified, each corridor went through a two-level evaluation and analysis process.

Candidate Corridors			
<b>1</b>	Highway 16/Providence Road	<b>17</b>	Various Roads in East Charlotte (From Sugar Creek Road to Monroe Road)
<b>2</b>	Highway 49/South Tryon Street	<b>18</b>	Various Roads in South Charlotte (From Monroe Road to South Blvd)
<b>3</b>	Highway 51/Pineville-Matthews Road	<b>19</b>	Various Roads in Southwest Charlotte (From South Blvd to Wilkinson Blvd)
<b>4</b>	Highway 74 East/ W Roosevelt Blvd	<b>20</b>	Interstate 485
<b>5</b>	Highway 74 West	<b>21</b>	Interstate 85
<b>6</b>	Interstate 77 South	<b>22</b>	Highway 160
<b>7</b>	Highway 321	<b>23</b>	Freedom Drive /Moore's Chapel Road
<b>8</b>	Highway 5	<b>24</b>	West Blvd
<b>9</b>	Highway 73 West	<b>25</b>	Graham Street
<b>10</b>	Highway 24/27/ Albemarle Road	<b>26</b>	Beatties Ford Road
<b>11</b>	Highway 16 Northwest	<b>27</b>	Highway 75/Waxhaw Highway
<b>12</b>	Highway 21 South	<b>28</b>	Highway 52
<b>13</b>	Highway 21 North	<b>29</b>	Highway 49
<b>14</b>	Highway 29 North	<b>30</b>	Interstate 77 North
<b>15</b>	Highway 27 North	<b>31</b>	Monroe Expressway/Highway 74 Bypass
<b>16</b>	Various Roads in Northwest Charlotte (From Wilkinson Blvd to Sugar Creek Road)	<b>32</b>	Highway 279

## LEVEL 1: CORRIDOR EVALUATION

During the Level 1 Corridor Evaluation each Candidate Corridor was evaluated using criteria and measures related directly to the Guiding Principles. The main objective of this Level 1 Corridor Evaluation was to assess each Candidate Corridor in relation to the Guiding Principles and assess each Candidate Corridors' readiness (or preparedness) for high capacity transit service.

Both qualitative and quantitative measures were used to evaluate the corridors and assign a score for each criterion. An overall rating was calculated for each Candidate Corridor. The table below provides the criteria, measures, and methods used to score each Candidate Corridor during the Level 1 Corridor Evaluation process.

Guiding Principles	Evaluation Criteria	Measure	Method
 <p><b>Creating Mobility Choice</b></p>	Regional Connectivity	Network integration and operational flexibility	Regional transit system connectivity and operational flexibility to meet future demand
	Public Facilities and Destinations Served	Access to public facilities	Number of public facilities and destinations, within a one-mile radius of a proposed alignment
 <p><b>Preparing for Future Growth</b></p>	Projected Transit Demand	Future population and employment served (forecast for 2045)	Future population and Employment within one mile of the corridor
	Service in Congested Corridors	Projected congestion in corridor (2045)	Quantitative assessment of highly congested highway and arterial mileage
 <p><b>Advancing Equity</b></p>	Transit Dependency	Service to households likely to use public transportation (zero- and one-car households)	Percentage of corridor serving census tracts with zero- and one-car households
	Access to Jobs	Projected job growth in corridor	Comparative summary of job growth by job classification within each candidate HCT corridor
	Opportunities for Historically Underserved Populations	Service to households with incomes below the federal poverty threshold	Assessment of access to opportunities for historically underserved populations
 <p><b>Aligning Plans and Local Visions</b></p>	Land Use and Transportation Plan Consistency	Corridor consistency with local land use and transportation plans	Compatibility of potential HCT transit corridors with local and regional land use and transportation plans
	Environmental Benefits	Built, Natural, and Social Environments	Qualitative assessment of a candidate corridor's ability to improve environmental conditions within the corridor served
 <p><b>Planning for Implementation</b></p>	Station Area Development Potential	Transit-supportive economic development	Qualitative assessment of corridor development potential



## LEVEL 2: REGIONAL ANALYSIS

Following the Level 1 Corridor Evaluation, CONNECT Beyond conducted a Level 2 Regional Analysis to better understand each Candidate Corridor’s ability to meet the region’s future transportation needs. This Level 2 Regional Analysis used regional travel demand data and findings from the Travel Market Analysis to create a picture of where future high capacity transit services could be most effective. During the Level 2 Regional Analysis, CONNECT Beyond analyzed projected travel demand and future roadway capacities, examined population and employment growth trends, and considered where transit services could be most successful based on traditional transit planning performance indicators, which were developed as part of the Transit Propensity Analysis.

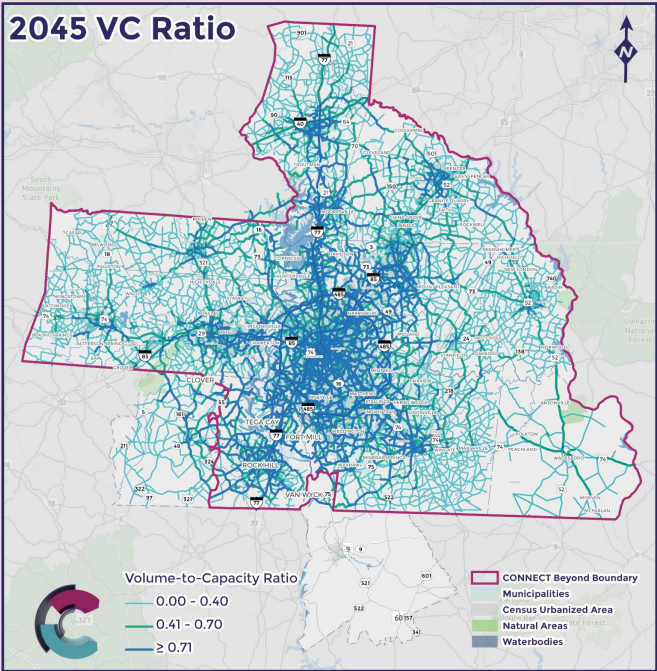
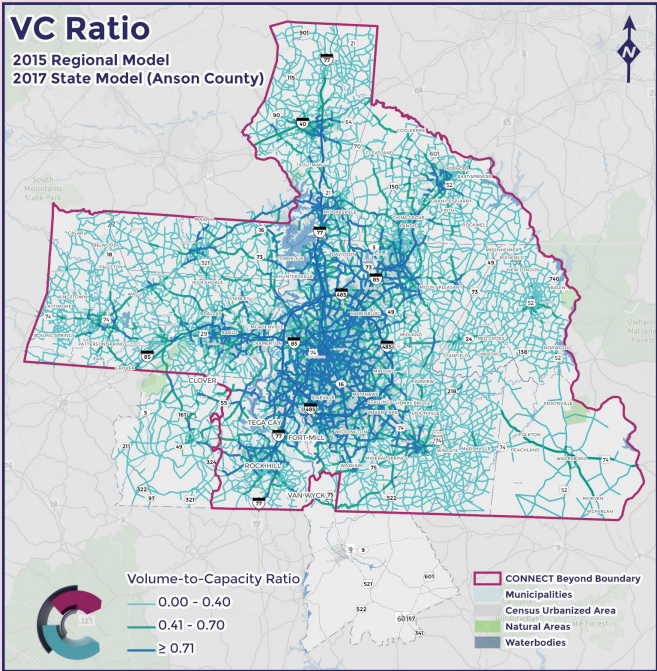
During the Level 2 Regional Analysis, one of the transit planning performance indicators that was evaluated was the relationship between vehicle travel volumes and roadway operating capacity. Volume to capacity ratios (also known as V/C ratios) measure a roadway’s operating capacity (i.e., the maximum number of vehicles that a roadway can accommodate) relative to travel volumes (i.e., the estimated number of vehicles traveling along that roadway). CONNECT Beyond identified Candidate Corridors that could help offset increased travel demand by implementing new or enhanced high capacity transit services.

This Analysis showed that many of our region’s highways and roads are already experiencing heavy vehicle travel volumes at levels near or exceeding the roadway’s operating capacity. This trend is expected to continue as more and more people move to the region. The maps below depict the existing and projected volume-to-capacity ratios for our region.

During the Level 2 Regional Analysis

For each Candidate Corridor, CONNECT Beyond evaluated:

- Roadway Volume-to-Capacity Ratios
- Projected Transit Demand
- Potential Transit Performance



# Strategic Mobility Corridor Recommendations

From the High Capacity Transit Corridor Identification and Evaluation process the following were recommended:

- **13 Recommended High Capacity Transit Corridors** that are currently ready for high capacity transit investments.
- **24 Emerging Mobility Corridors** that may be good candidates for high capacity transit in the future, but are currently better suited for other types of transit investments.

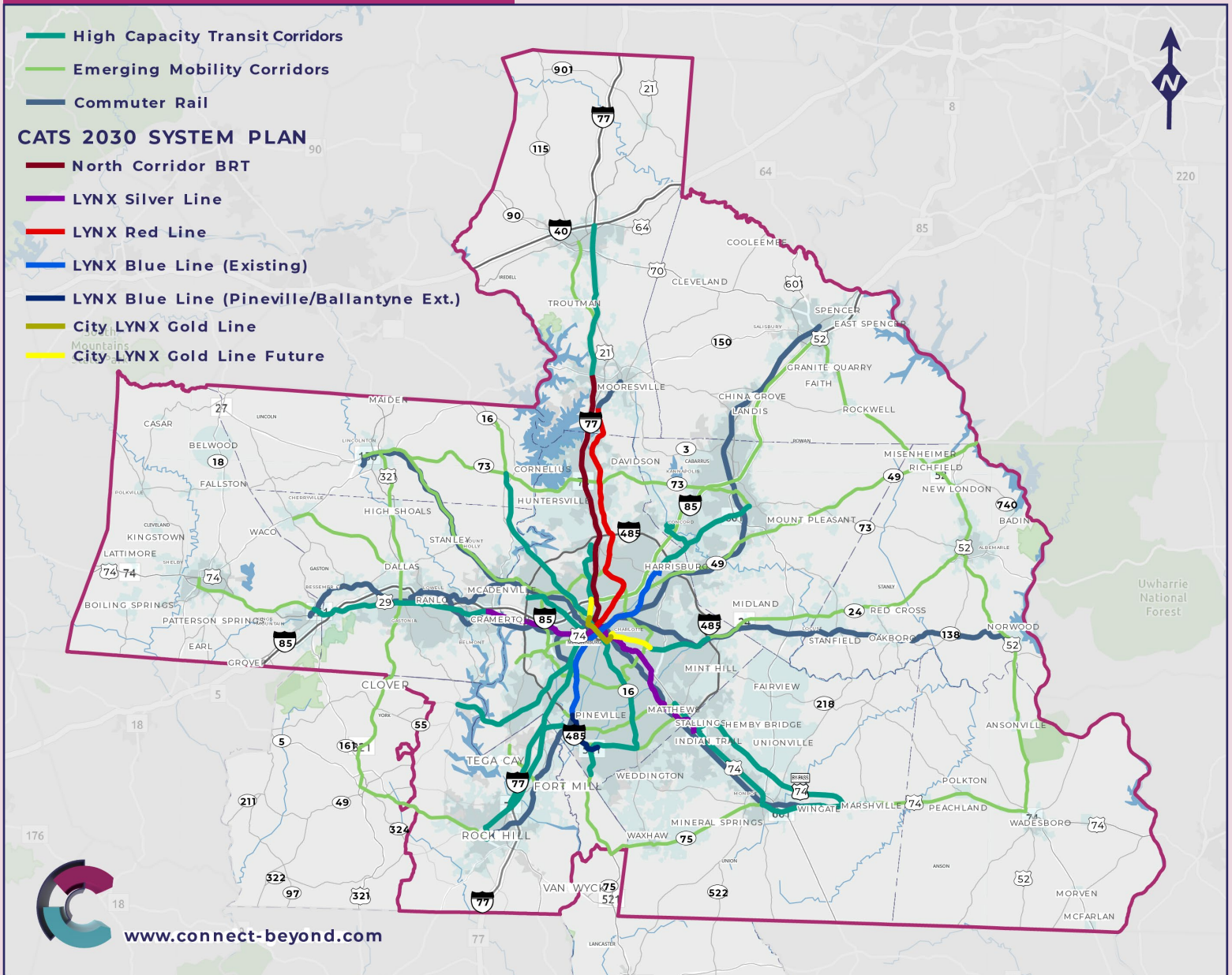
## Evaluation & Analysis Observations

During the Candidate Corridor Evaluation Process, it became clear that portions of some candidate corridors were more prepared for high capacity transit service than other portions of that same candidate corridors. Therefore, some candidate corridors were subdivided and the portion of the corridor most prepared for high capacity transit was advanced as a recommended high capacity transit corridor and the remaining portion of the corridor was advanced as an emerging mobility corridor, which is why 32 candidate corridors were initially identified, but there were 13 corridors were advanced as recommended high capacity transit corridors and 24 corridors were advanced as emerging mobility corridors for the CONNECT Beyond region.

The Charlotte Gateway Station Project is part of the City of Charlotte's 2030 Transit System Plan and will include a signature multi-modal facility connecting local light rail, streetcar, local and regional buses, and intercity buses. The project will also culminate in the relocation of intercity passenger rail from an existing station with limited multimodal connections for rail passengers located outside of the center city, to the region's employment, entertainment, and cultural center in downtown Charlotte.



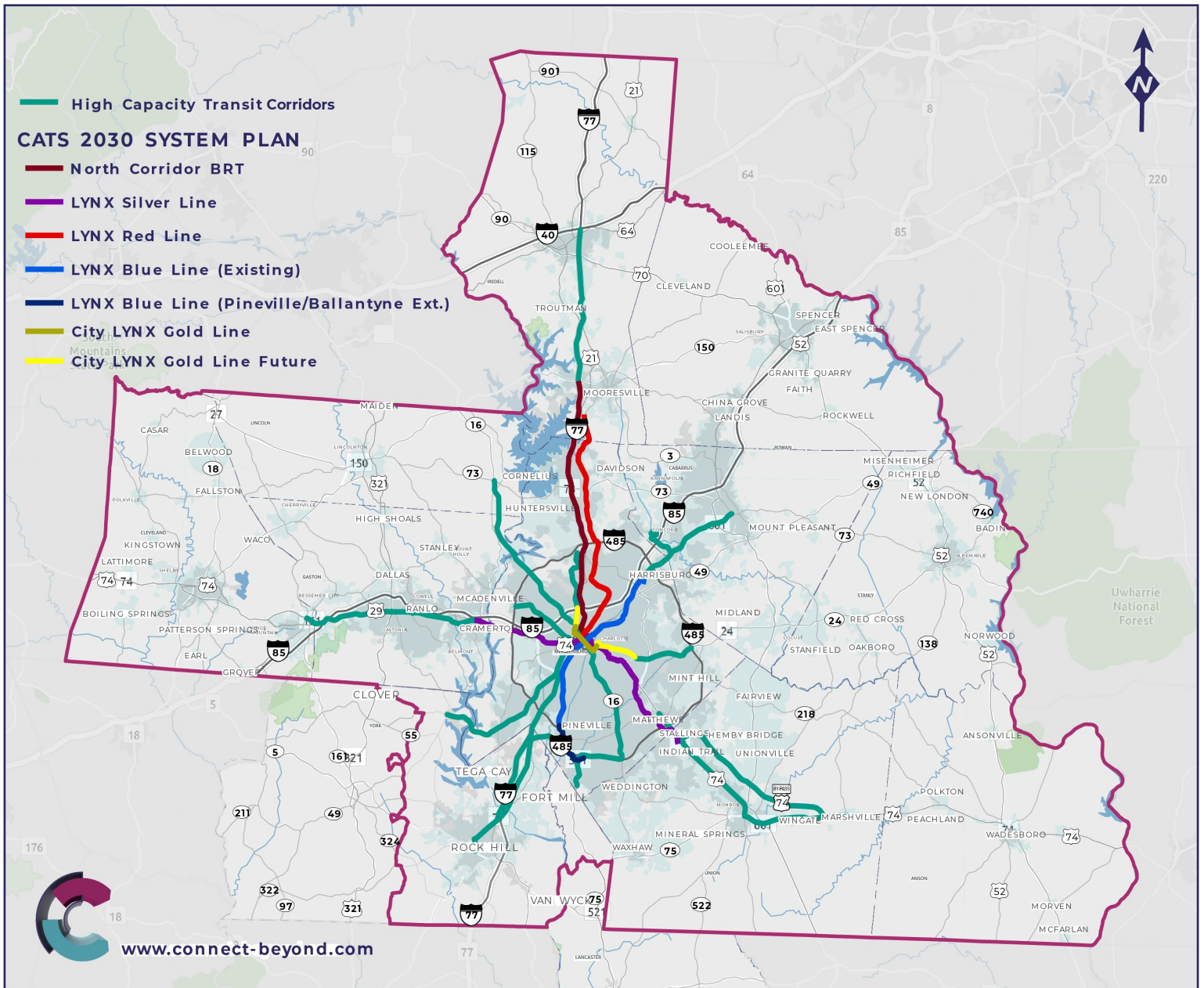
# Strategic Mobility Corridor Map



- **13 Recommended High Capacity Transit Corridors** that are currently ready for high capacity transit investments.
- **24 Emerging Mobility Corridors** that may be good candidates for high capacity transit in the future, but are currently better suited for other types of transit investments.
- **4 Initial Commuter Rail Corridors** that are more prepared for a commuter rail investment.
- **3 Long-Term Commuter Rail Corridors** that are not currently as ready for a commuter rail investment but should continue to be considered.

# Recommended High Capacity Transit Corridors

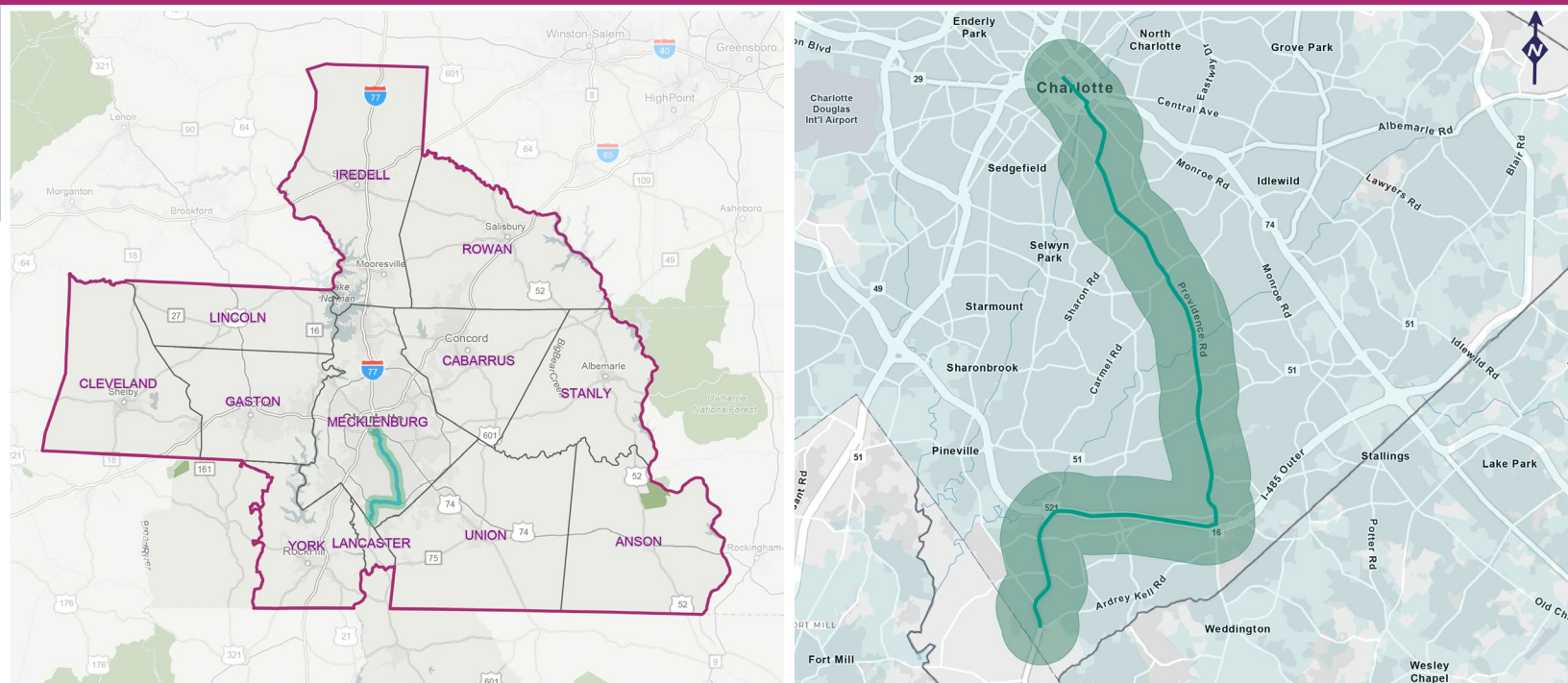
CONNECT Beyond effort identified 13 recommended high capacity transit corridors for the region. The recommended high capacity transit corridors are corridors along which high capacity transit lines could be implemented in the near future and would provide the greatest mobility benefits and return on investments. These corridors are currently ready for the next steps in high capacity transit investment. These corridors are transit mode agnostic, because more detailed evaluations need to be completed for each recommended high capacity transit corridor to effectively identify the transit mode/technology that best suits each corridor.



RECOMMENDED HCT CORRIDOR A

# Highway 16/Providence Road

(Previously Candidate Corridor 1)



The Highway 16/Providence Road Corridor would extend high capacity transit service from Uptown Charlotte to Ballantyne, NC. A possible extension of this Corridor along Highway 521 into urbanized Lancaster County was also considered as Emerging Mobility Corridor A.

### Corridor Analysis:

- Recommended HCT Corridor A displays several land use and transportation attributes that create a transit-supportive environment.
- The return-on-investment potential of this Corridor is already strong and is expected to strengthen further.

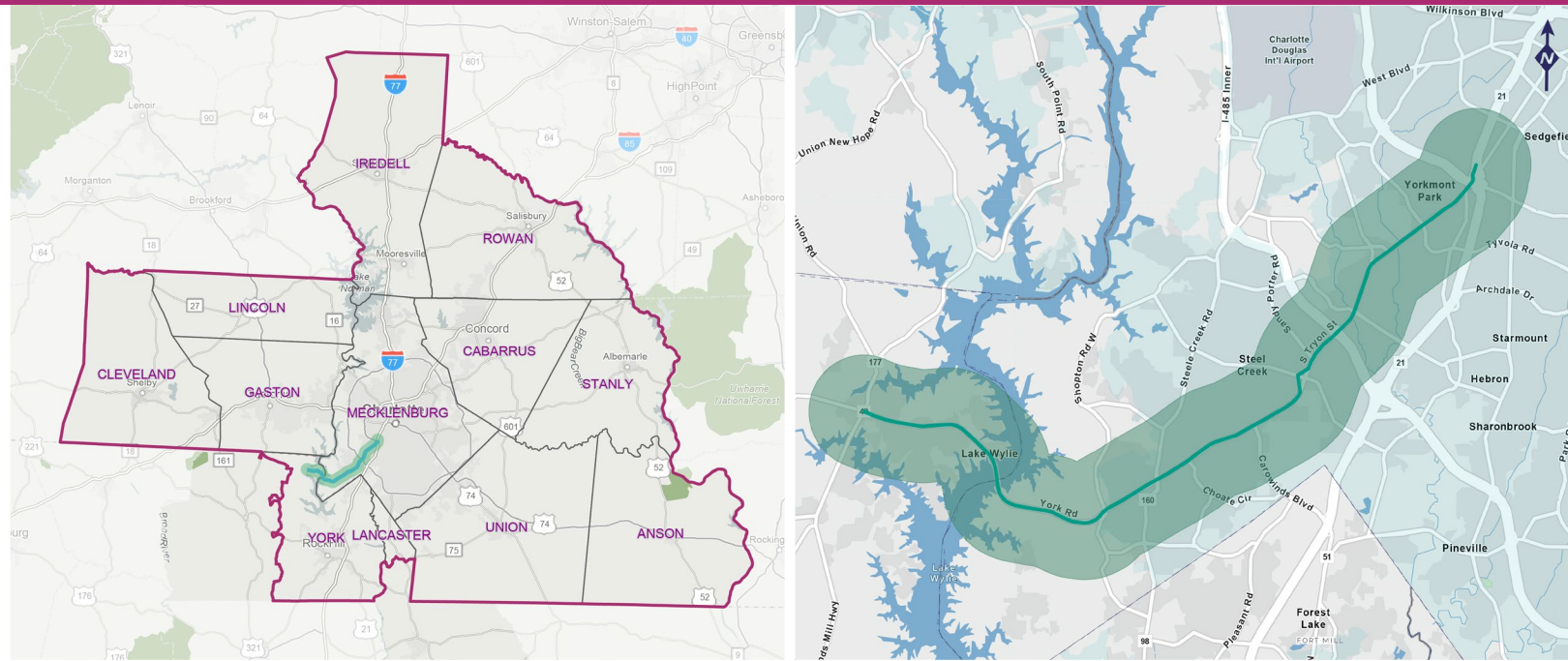
### Level 1 Corridor Evaluation Criteria Scores

Regional Connectivity	● High	Access to Jobs	● High
Public Facilities and Destinations Served	● High	Historically Underserved	● Medium
Projected Transit Demand	● Medium	Planning Consistency	● Medium
Service in Congested Corridors	● Medium	Environmental Benefits	● Medium
Transit Dependency	● High	Station Area Development Potential	● Medium
<b>Overall Composite Score</b>	<b>● Medium</b>		

**RECOMMENDED HCT CORRIDOR B**

# Highway 49/South Tryon Street

(Previously Candidate Corridor 2)



The Highway 49/South Tryon Street Corridor would extend high capacity transit service from Southwest Charlotte to Lake Wylie, SC along Highway 49 Southwest. A possible future connection could be to extend service along Highway 49 to York, SC.

**Corridor Analysis:**

- South Tryon Street in Charlotte/Mecklenburg County is a rapidly urbanizing corridor including housing, retail, commercial, and industrial and logistics warehousing south of Charlotte-Douglas International Airport.
- Presence of institutional anchors along with reasonable land prices suggests this Corridor will continue to grow.
- Existing right-of-way allows for design flexibility to adapt a HCT corridor investment to existing and future conditions.

**Level 1 Corridor Evaluation Criteria Scores**

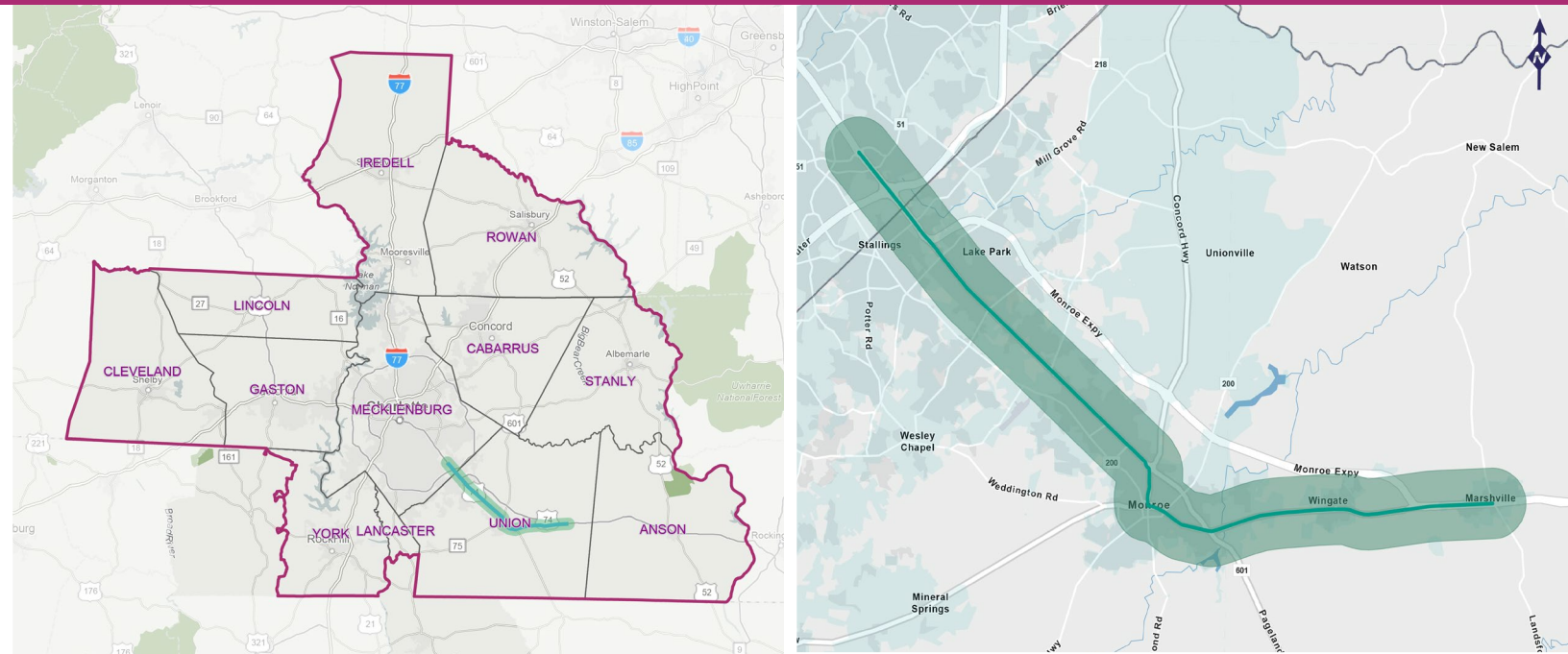
Regional Connectivity	● Medium	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Low	Historically Underserved	● Medium
Projected Transit Demand	● Medium	Planning Consistency	● Medium
Service in Congested Corridors	● Low	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● Medium

**Overall Composite Score** ● **Medium**

RECOMMENDED HCT CORRIDOR C

# Highway 74 East/ W Roosevelt Blvd

(Previously Candidate Corridor 4)



The Highway 74 East/W Roosevelt Blvd Corridor would extend high capacity transit service from the Indian Trail, NC to Marshville, NC along Highway 74/Roosevelt Boulevard. A possible extension of this Corridor from Marshville to Wadesboro was also considered and advanced as Emerging Mobility Corridor C.

**Corridor Analysis:**

- This Corridor displays several land use and transportation attributes that create a transit-supportive environment.
- As an alternate option to Recommended HCT Corridor M, the tradeoff between this Corridor and the Corridor M is one of speed versus access.
- Residential and employment growth forecasts support growing demand for frequent, expedient transit service and institutions like Wingate University.
- Future trip patterns suggest growing volume of trips to Uptown Charlotte and points along the Corridor.
- Additional planning study is recommended for this Corridor in conjunction with Recommended HCT Corridor M to determine the optimal assignment of future HCT services.

**Level 1 Corridor Evaluation Criteria Scores**

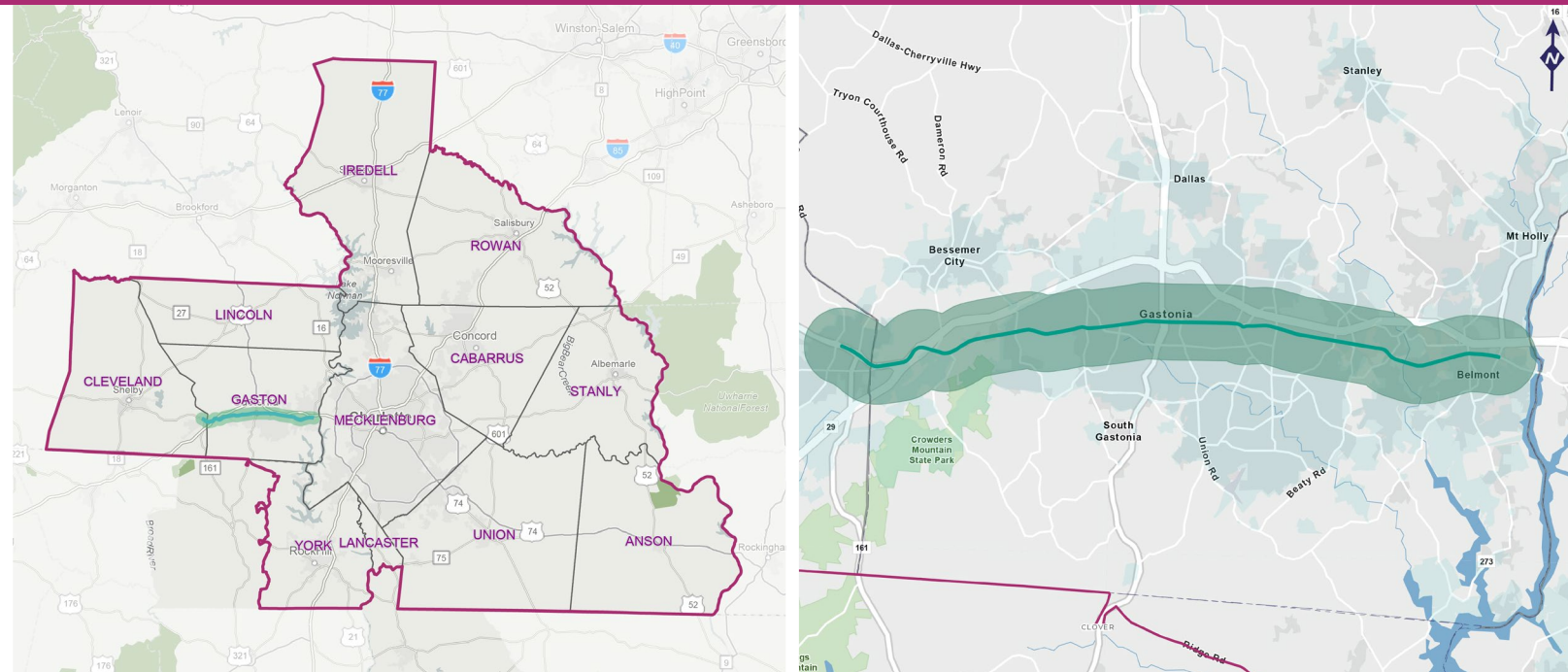
Regional Connectivity	● Low	Access to Jobs	● High
Public Facilities and Destinations Served	● High	Historically Underserved	● Medium
Projected Transit Demand	● High	Planning Consistency	● Medium
Service in Congested Corridors	● Medium	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● High

**Overall Composite Score** ● Medium

RECOMMENDED HCT CORRIDOR D

# Highway 74 West

(Previously Candidate Corridor 5)



The Highway 74 West Corridor would provide high capacity transit from the proposed end of the LYNX Silver Line in Belmont, NC to Kings Mountain, NC. A continued connection beyond Kings Mountain to Shelby, NC was considered and advanced as Emerging Mobility Corridor D. A prior commuter rail study was completed that considered a potential commuter rail service between Charlotte and Kings Mountain.

**Corridor Analysis:**

- Recommended HCT Corridor D would link Belmont, Gastonia, and Kings Mountain.
- There is projected to be continued growth and development around this Corridor and therefore it is recommended for high capacity transit service.

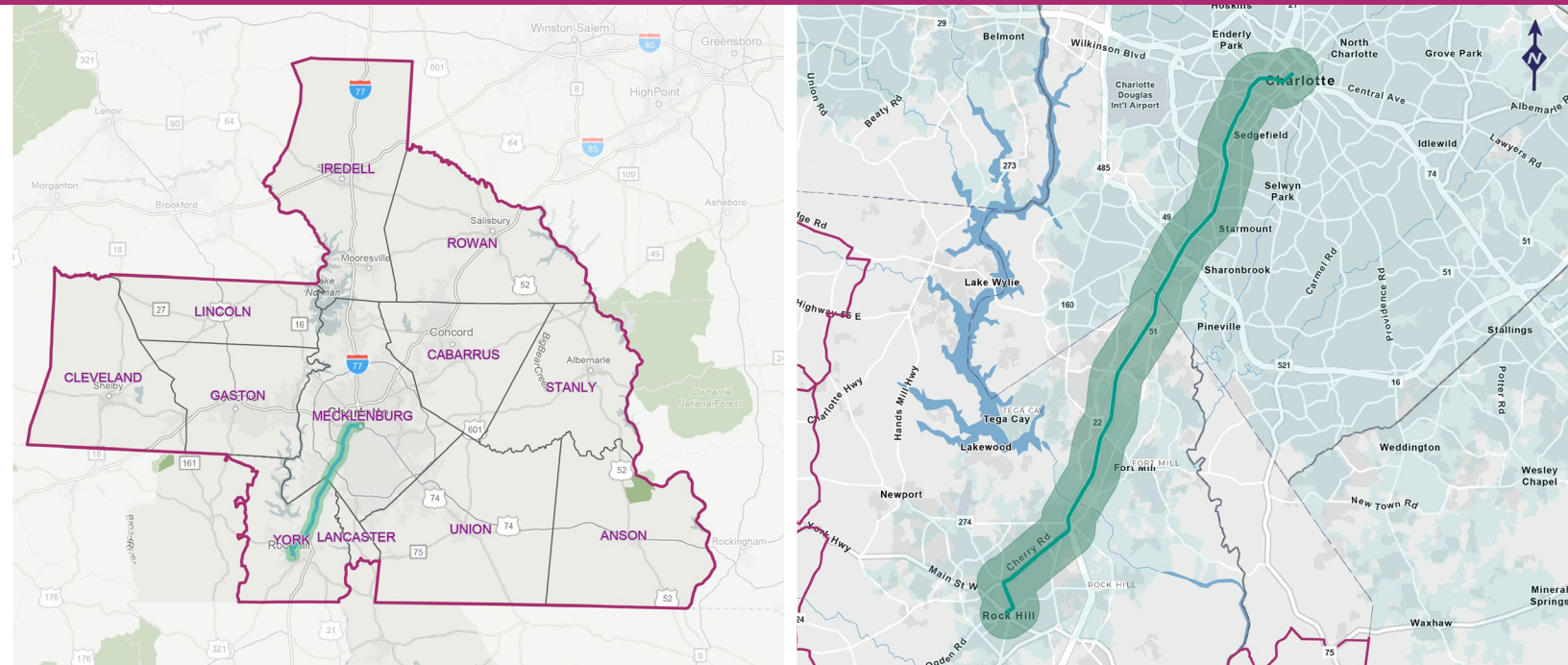
Level 1 Corridor Evaluation Criteria Scores			
Regional Connectivity	● Low	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Medium	Historically Underserved	● High
Projected Transit Demand	● Medium	Planning Consistency	● High
Service in Congested Corridors	● Low	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● High
<b>Overall Composite Score</b>	<b>● Medium</b>		



RECOMMENDED HCT CORRIDOR E

# Interstate 77 South

(Previously Candidate Corridor 6)



The I-77 South Corridor would extend high capacity transit service between Uptown Charlotte and Downtown Rock Hill, SC with connections to Fort Mill and other points in southwest Charlotte. As a highway-oriented commuter corridor, planning should consider speed, reliability, and operational needs as well as the needs of commuting passengers.

## Corridor Analysis:

- Continued growth surrounding I-77 will contribute exponentially to a growth in corridor trips, growth in corridor trips and traffic congestion. While the I-77 corridor may be expanded at certain locations to increase capacity, there are many locations where physical expansion would be cost-prohibitive, necessitating a way to increase the Corridor’s capacity without expanding the number of travel lanes.
- HCT service with flexible design and construction treatments to provide transit advantages can increase corridor capacity and improve travel speeds.
- Additional planning study is recommended for this Corridor in conjunction with Recommended HCT Corridor H.

### Level 1 Corridor Evaluation Criteria Scores

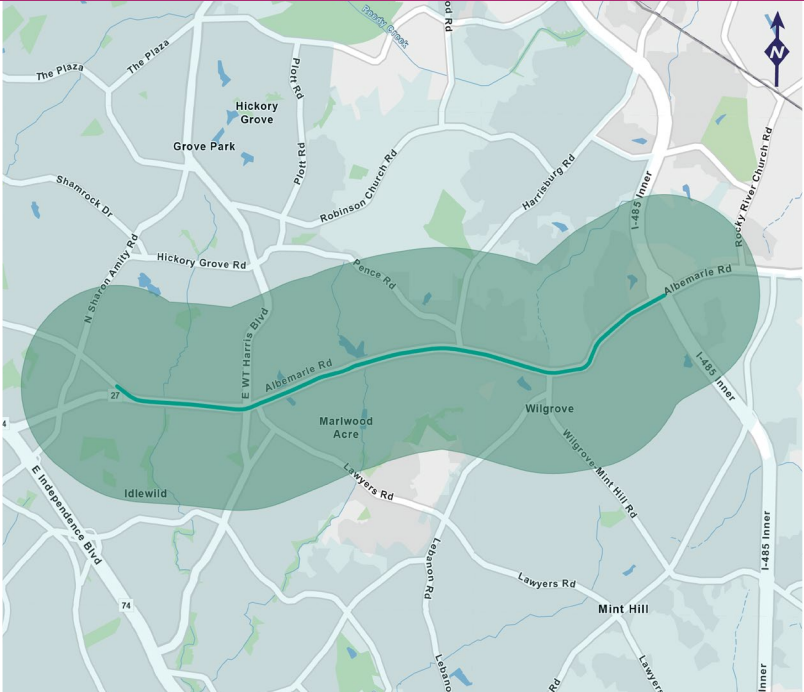
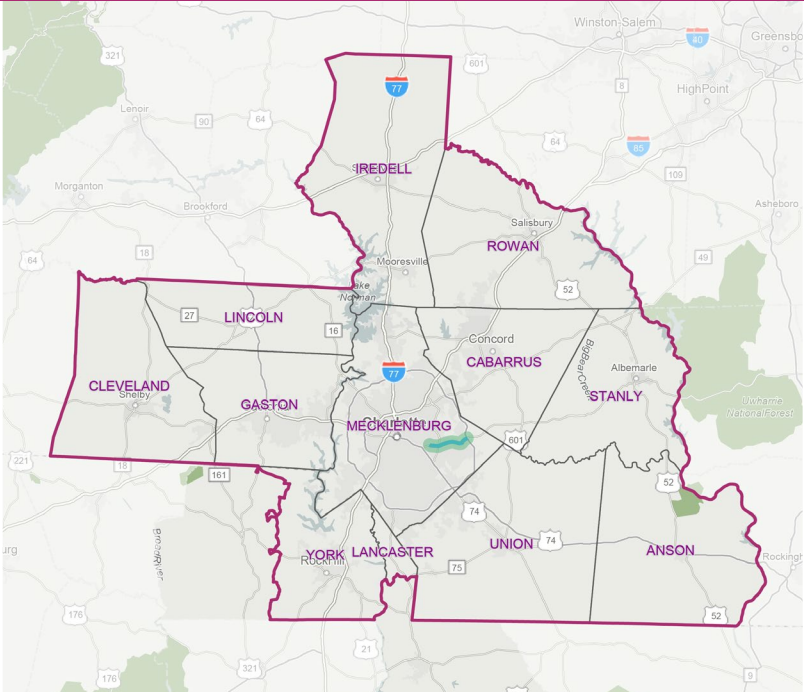
Regional Connectivity	● High	Access to Jobs	● High
Public Facilities and Destinations Served	● Medium	Historically Underserved	● High
Projected Transit Demand	● High	Planning Consistency	● High
Service in Congested Corridors	● Medium	Environmental Benefits	● High
Transit Dependency	● High	Station Area Development Potential	● Low

**Overall Composite Score** ● High

RECOMMENDED HCT CORRIDOR F

# Highway 24/27/Albemarle Road

(Previously Candidate Corridor 10)



The Highway 24/27/ Albemarle Road Corridor would provide high capacity service between Mint Hill, NC, and Charlotte’s Eastland Mall area, where a future transfer station is planned at the terminus of the proposed City LYNX Gold Line.

**Corridor Analysis:**

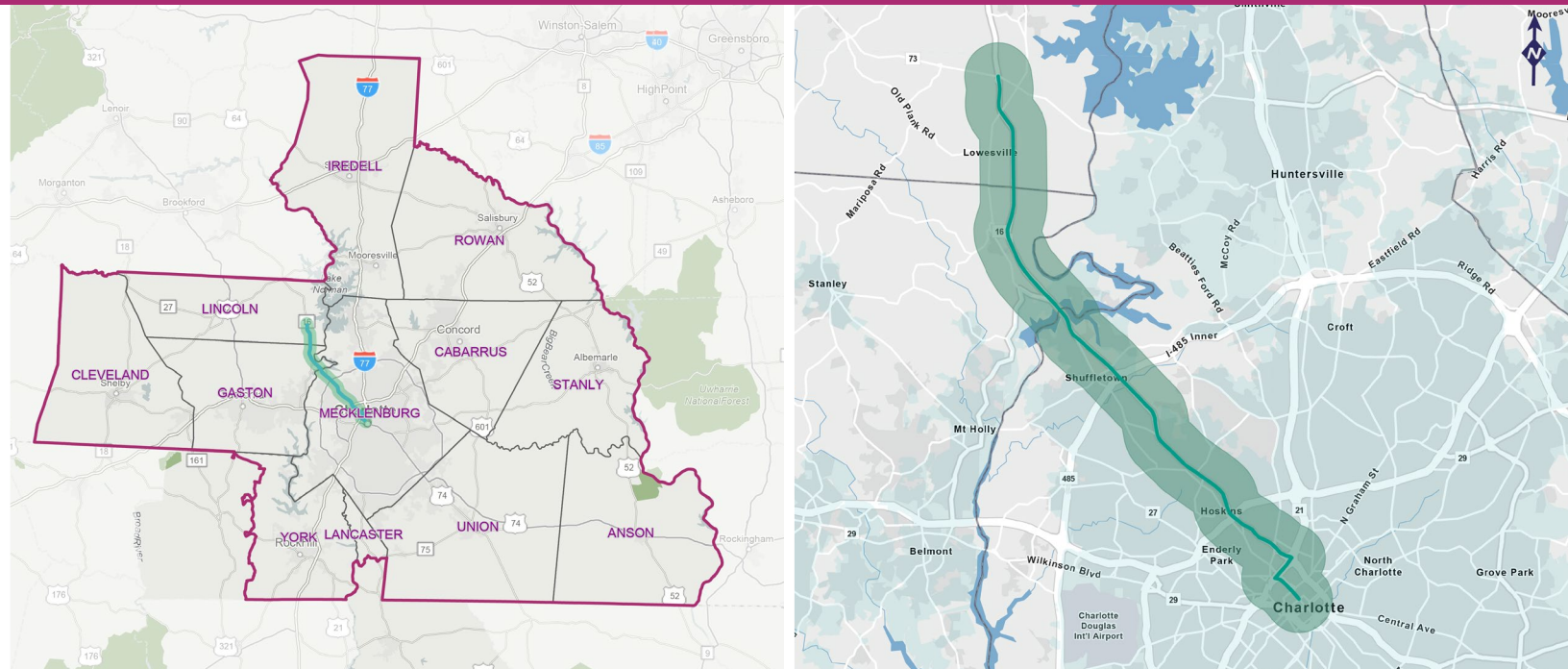
- The Highway 24/27/ Albemarle Road Corridor has strong transit-supportive socioeconomic characteristics, coupled with corridor population growth.
- Strong potential for land use change in the future.
- The future planned extension of the City LYNX Gold Line streetcar along Central Avenue would create a good market to extend HCT out to I-485.

Level 1 Corridor Evaluation Criteria Scores			
Regional Connectivity	● Medium	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Medium	Historically Underserved	● Medium
Projected Transit Demand	● Medium	Planning Consistency	● Medium
Service in Congested Corridors	● Low	Environmental Benefits	● Medium
Transit Dependency	● Low	Station Area Development Potential	● High
<b>Overall Composite Score</b>	<b>● Medium</b>		

RECOMMENDED HCT CORRIDOR G

# Highway 16 Northwest

(Previously Candidate Corridor 11)



The Highway 16 Northwest Corridor would establish high capacity transit service between Uptown Charlotte and Lowesville, NC. A possible extension of this Corridor that would connect Lowesville to Denver, NC was also considered and advanced as Emerging Mobility Corridor I.

## Corridor Analysis:

- Population growth surrounding the Highway 16 Northwest Corridor suggests a growing transit market, particularly between Uptown Charlotte and the intersection of Highway 16 Northwest/ Highway 73.
- Limited Catawba River crossings coupled with increased growth around this Corridor will create traffic bottlenecks. High capacity transit along this Corridor could offer alternative mobility options to travelers to bypass such congestion.

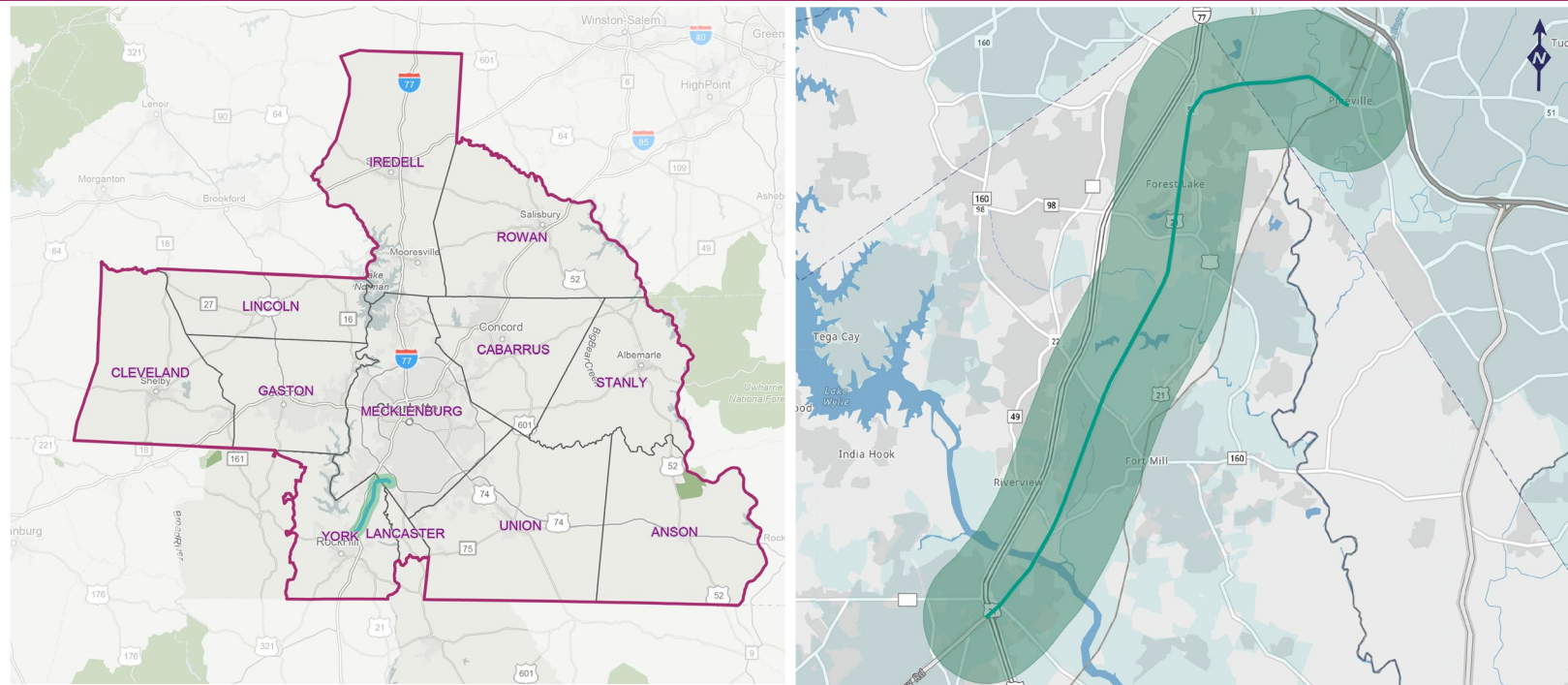
### Level 1 Corridor Evaluation Criteria Scores

Regional Connectivity	● Medium	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Medium	Historically Underserved	● Medium
Projected Transit Demand	● Medium	Planning Consistency	● Medium
Service in Congested Corridors	● High	Environmental Benefits	● Medium
Transit Dependency	● Low	Station Area Development Potential	● Medium
<b>Overall Composite Score</b>	<b>● Medium</b>		

RECOMMENDED HCT CORRIDOR H

# Highway 21 South

(Previously Candidate Corridor 12)



The Highway 21 South Corridor would provide high capacity transit service between Pineville, NC, and Rock Hill, SC. Previously, the Rock Hill-Fort Mill Area Transportation Study (RFATS) considered Highway 21 between Rock Hill and Pineville as a potential BRT corridor. This Corridor is considered in the context of the Interstate 77 South travel shed between Rock Hill and Charlotte.

### Corridor Analysis:

- Planned as part of the RFATS regional transportation investment strategy.
- Growth of Rock Hill, Fort Mill, Kingsley/Baxter, and Pineville coupled with the future LYNX Blue Line extension creates an opportunity for HCT services extending further south.
- The Highway 21 Corridor greatly improves access to adjacent communities and nearby institutions that would not be served by HCT service on I-77 only.
- Travel patterns within the Highway 21 Corridor suggest a market for service to office and industrial technology parks along I-485 in Pineville/Ballantyne and Fort Mill.

### Level 1 Corridor Evaluation Criteria Scores

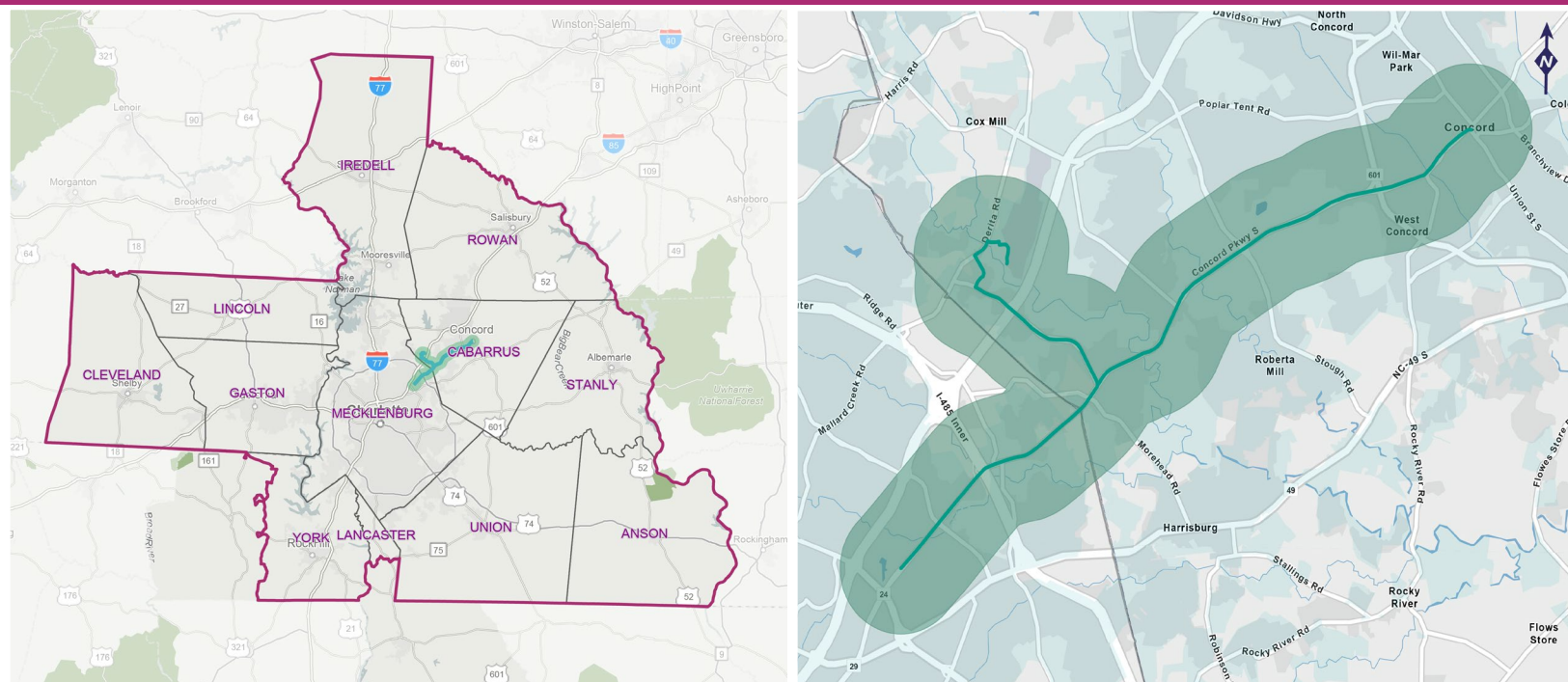
Regional Connectivity	● High	Access to Jobs	● Medium
Public Facilities and Destinations Served	● High	Historically Underserved	● Medium
Projected Transit Demand	● Medium	Planning Consistency	● High
Service in Congested Corridors	● Medium	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● High

**Overall Composite Score** ● Medium

RECOMMENDED HCT CORRIDOR I

# Highway 29 North

(Previously Candidate Corridor 14)



The Highway 29 North Corridor would extend high capacity transit from the current LYNX Blue Line northern terminus at UNCC north to Concord, NC. Two route options are possible: an extension to the Concord-Padgett Regional Airport and/or an extension that provides service directly into Downtown Concord, NC.

### Corridor Analysis:

- As the cities of Charlotte and Concord converge around I-485, coupled with regionally-significant anchor land uses like UNCC, Concord Mills, and the Charlotte Motor Speedway, it is foreseeable that Highway 29 North will experience significant corridor growth both in terms of population and employment.
- The Highway 29 North Corridor to Concord, which could connect to the current northern end of the LYNX Blue Line, warrants further planning analysis and review.

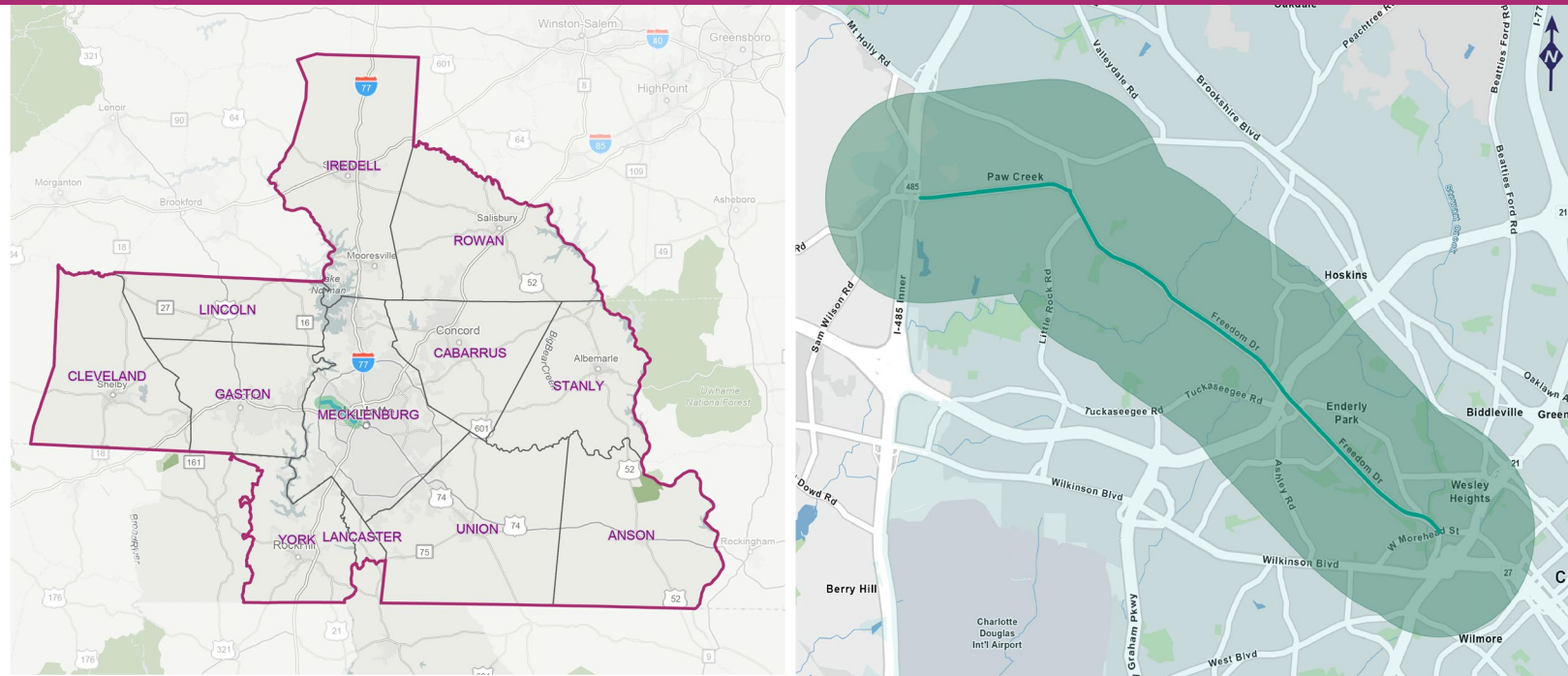
### Level 1 Corridor Evaluation Criteria Scores

Regional Connectivity	● Medium	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Medium	Historically Underserved	● Medium
Projected Transit Demand	● High	Planning Consistency	● High
Service in Congested Corridors	● Medium	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● High
<b>Overall Composite Score</b>	<b>● Medium</b>		

RECOMMENDED HCT CORRIDOR J

# Freedom Drive/Moores Chapel Road

(Previously Candidate Corridor 23)



The Freedom Drive/Moores Chapel Road Corridor would extend high capacity transit service from Uptown Charlotte along Freedom Drive and Moores Chapel Road to an area on the west side of Charlotte known as Wildwood. This Corridor is a part of CATS Envision My Ride future high frequency network.

**Corridor Analysis:**

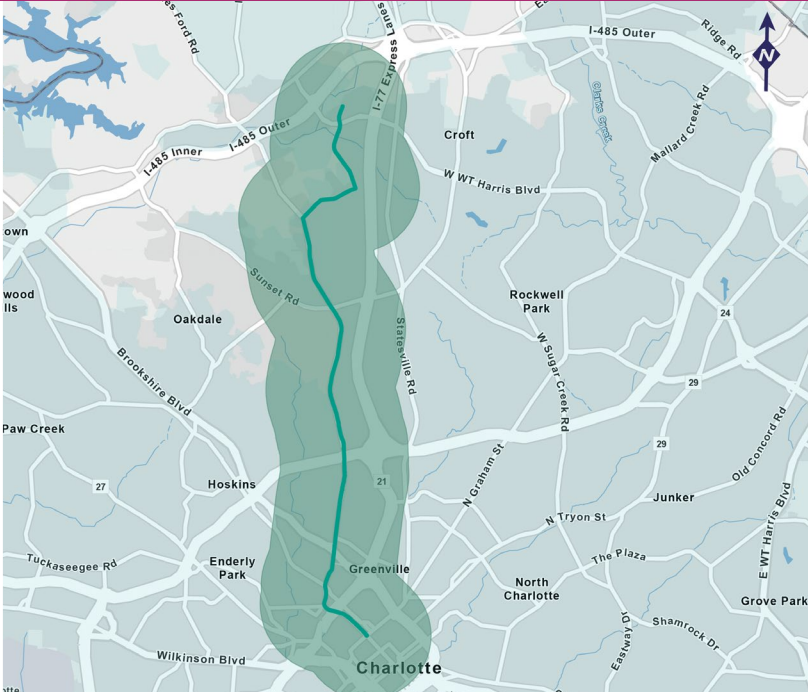
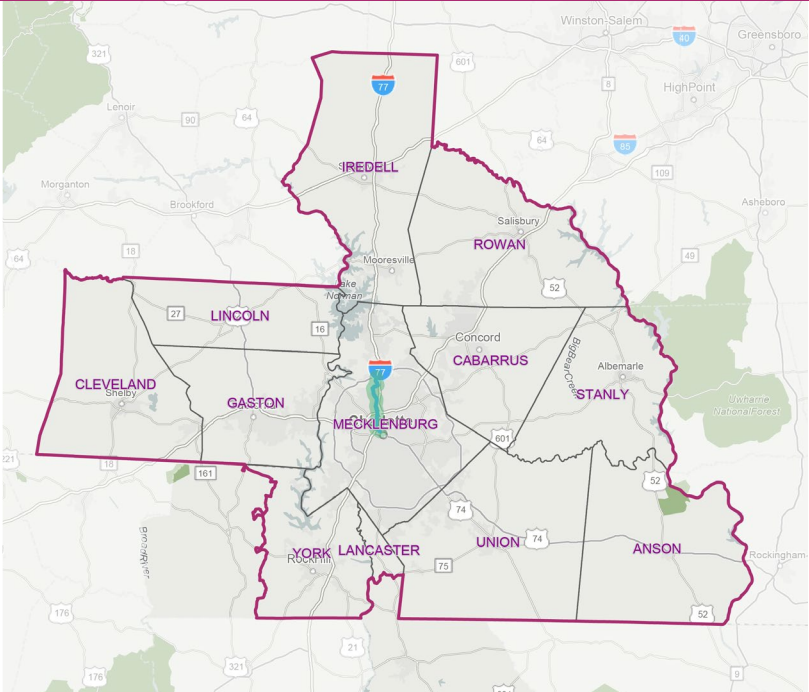
- The Freedom Drive/Moores Chapel Road Corridor has strong underlying socioeconomic characteristics, as well as demographic growth in population.
- Corridor would provide a strong northwest Charlotte/east Gaston County connection for adjacent neighborhoods.
- HCT transit in this Corridor would create a strong connections to existing and future job centers and spur growth around the Corridor.

Level 1 Corridor Evaluation Criteria Scores			
Regional Connectivity	● High	Access to Jobs	● Medium
Public Facilities and Destinations Served	● High	Historically Underserved	● High
Projected Transit Demand	● High	Planning Consistency	● Medium
Service in Congested Corridors	● High	Environmental Benefits	● High
Transit Dependency	● High	Station Area Development Potential	● Medium
<b>Overall Composite Score</b>	<b>● High</b>		

**RECOMMENDED HCT CORRIDOR K**

# Beatties Ford Road

(Previously Candidate Corridor 26)



The Beatties Ford Road Corridor would extend high capacity transit from Uptown Charlotte to the Northlake Mall area. This Corridor would provide high capacity transit in addition to the future City LYNX Gold Line near the Rosa Parks Transit Center. CATS is planning for the extension of the City LYNX Gold Line on Beatties Ford Road to the Rosa Parks Transit Center.

**Corridor Analysis:**

- Future extension of the City LYNX Gold Line streetcar to Rosa Parks Transit Center sets up a future HCT corridor extension to Northlake Mall.
- Strong potential for land use change in the future, consistent with corridor land use vision.
- Wealth of social service and civic offices, and future densities also suggest it could be a successful HCT corridor.

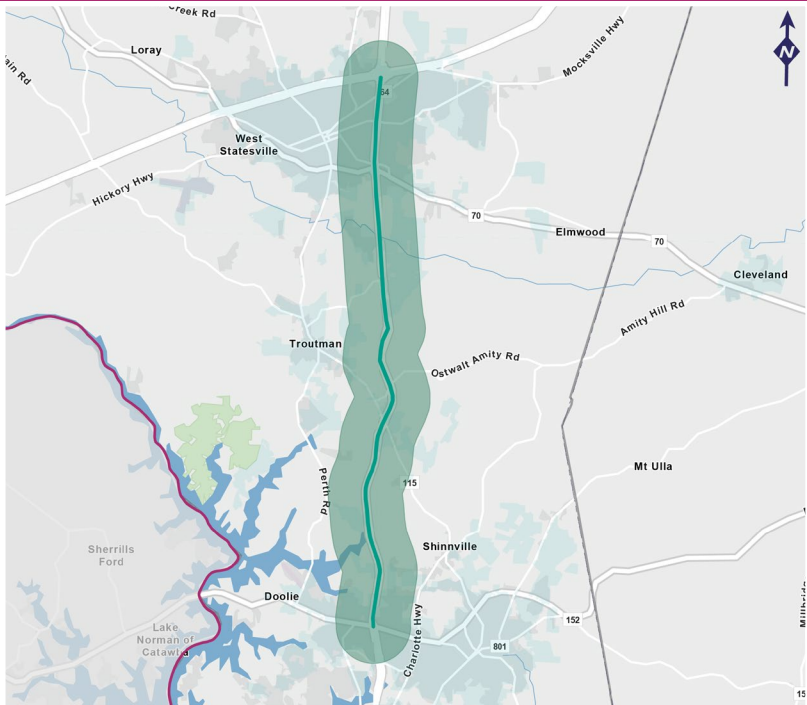
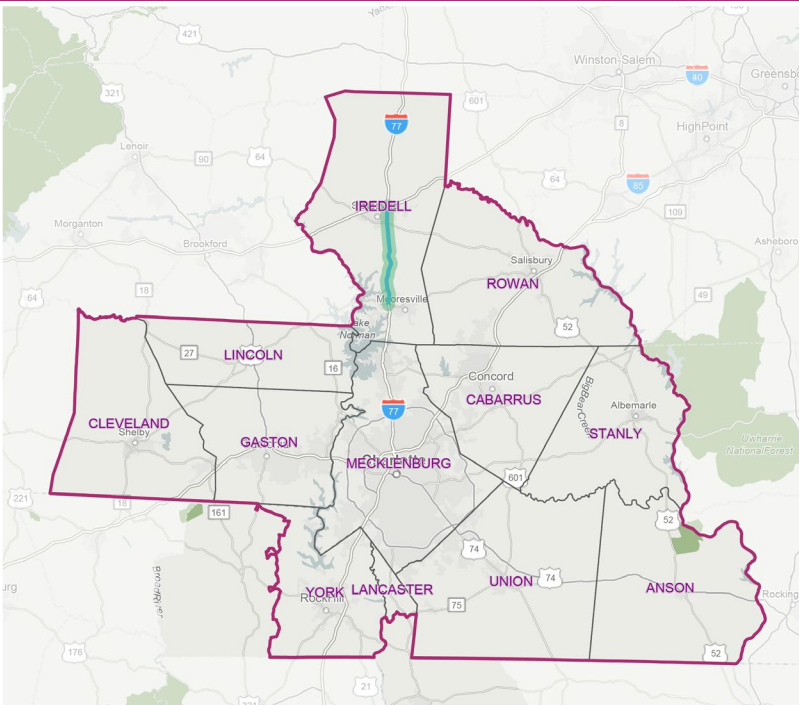
**Level 1 Corridor Evaluation Criteria Scores**

Regional Connectivity	● High	Access to Jobs	● High
Public Facilities and Destinations Served	● High	Historically Underserved	● High
Projected Transit Demand	● High	Planning Consistency	● Medium
Service in Congested Corridors	● High	Environmental Benefits	● High
Transit Dependency	● High	Station Area Development Potential	● High
<b>Overall Composite Score</b>	<b>● High</b>		

RECOMMENDED HCT CORRIDOR L

# Interstate 77 North

(Previously Candidate Corridor 30)



The I-77 North Corridor would extend high capacity transit service from Mooresville, NC to Statesville, NC. This Corridor would serve as a potential extension of the currently planned CATS MetroRapid North Corridor BRT that will provide bus rapid transit service in the I-77 Express Lanes from Uptown Charlotte to Mooresville, NC.

### Corridor Analysis:

- Growing travel shed along I-77 North between Uptown Charlotte and Statesville.
- Presence of employment nodes and anchor institutions suggests Corridor will see expanded, stable employment growth in the future.

### Level 1 Corridor Evaluation Criteria Scores

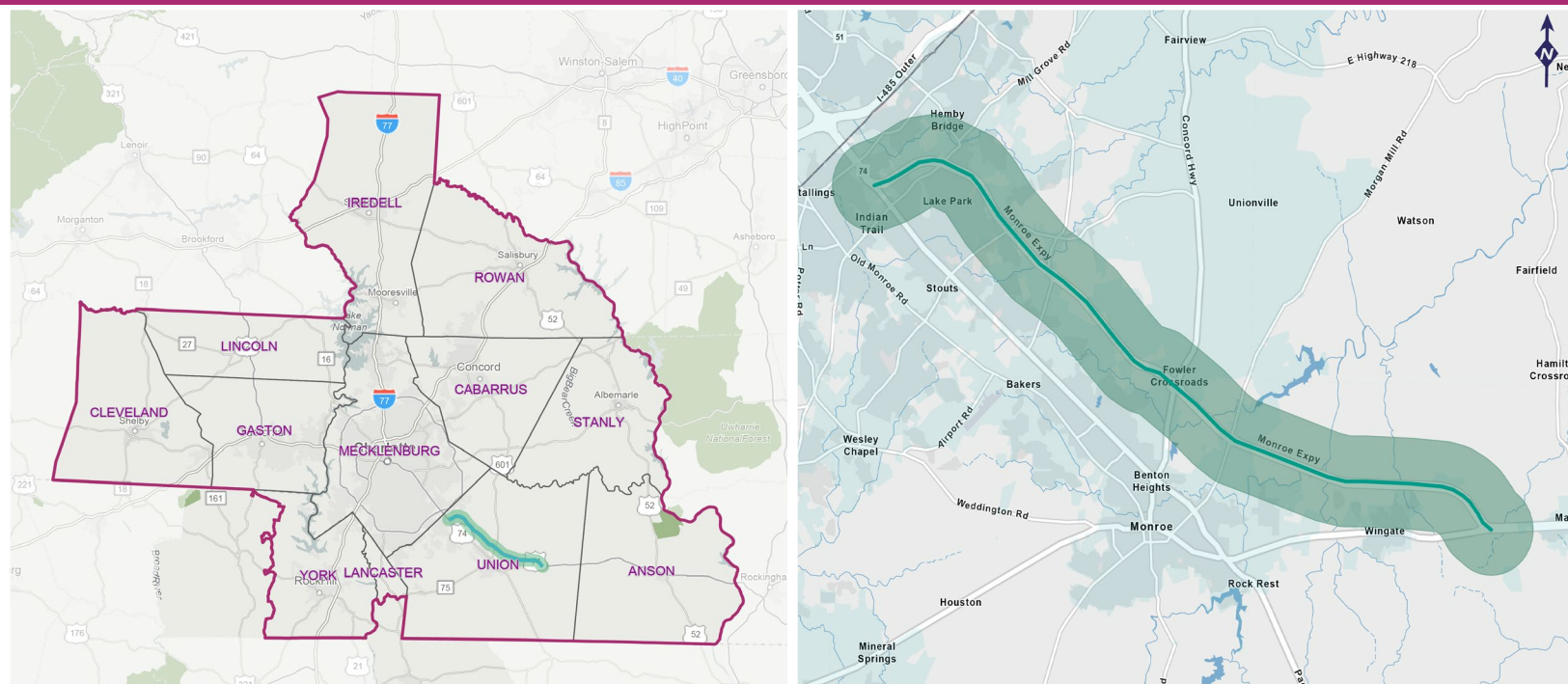
Regional Connectivity	● Low	Access to Jobs	● Medium
Public Facilities and Destinations Served	● Low	Historically Underserved	● Medium
Projected Transit Demand	● Low	Planning Consistency	● High
Service in Congested Corridors	● Medium	Environmental Benefits	● Medium
Transit Dependency	● Medium	Station Area Development Potential	● High
<b>Overall Composite Score</b>	<b>● Medium</b>		



RECOMMENDED HCT CORRIDOR M

# Monroe Expressway/Highway 74 Bypass

(Previously Candidate Corridor 31)



The Monroe Expressway/Highway 74 Bypass Corridor would provide high capacity transit service between Stallings and Marshville and be located along the Monroe Expressway/Highway 74 Bypass. This Corridor is an alternate to Recommended HCT Corridor C.

### Corridor Analysis:

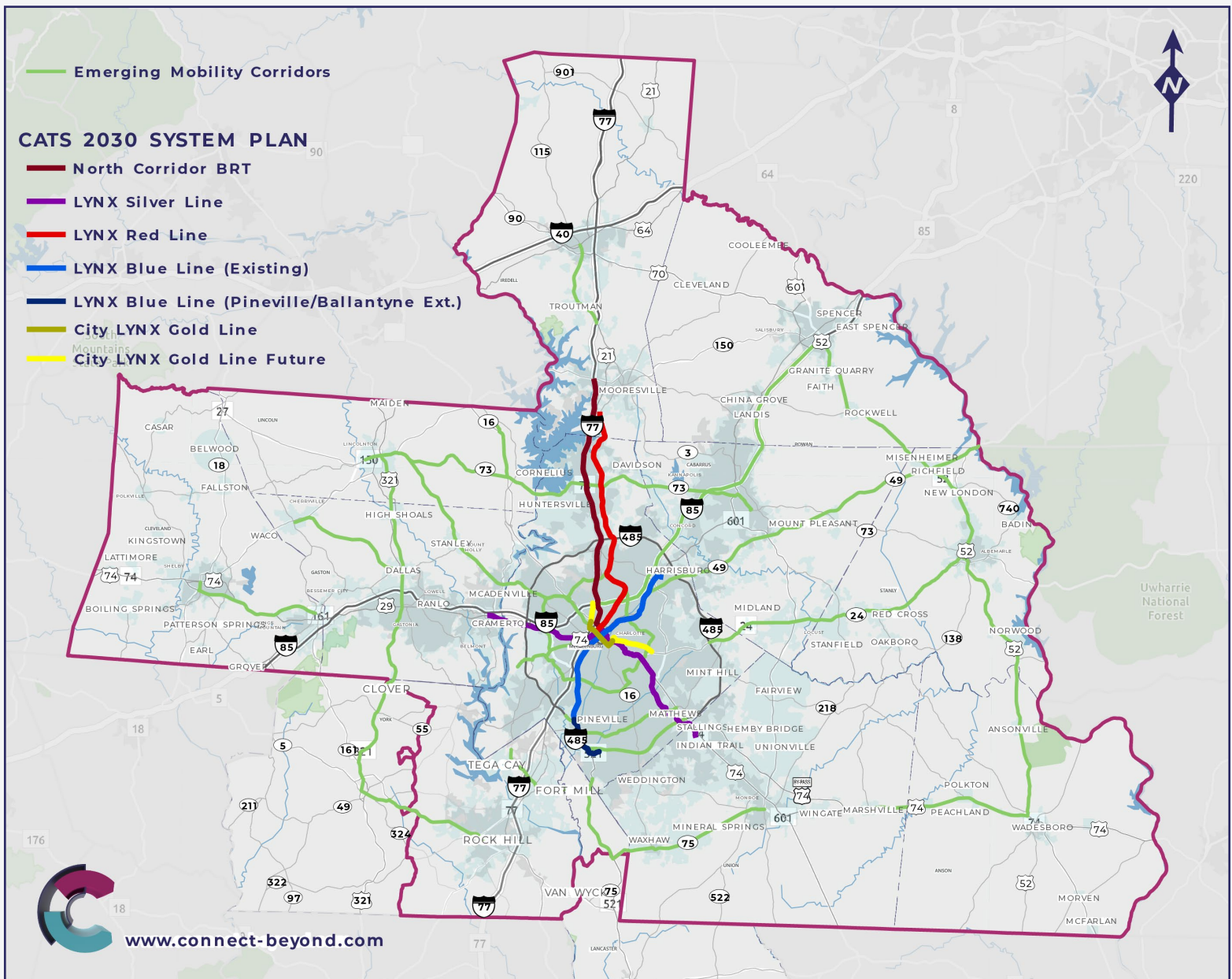
- Primary tradeoff between this Recommended HCT Corridor M and Recommended HCT Corridor C is speed versus access.
- As the region continues to grow, Union County is set to absorb a large percentage of growth along the Highway 74 Corridor. The implementation of HCT services along the Monroe Expressway/Highway 74 Bypass Corridor, coupled with park-and-ride facilities, could significantly extend the reach of regional rapid transit service and help expediently move people from Union County’s growth centers into Mecklenburg County.
- Additional planning study is recommended for this Corridor in conjunction with Corridor C to determine the optimal assignment of future HCT services.

### Level 1 Corridor Evaluation Criteria Scores

Regional Connectivity	● Low	Access to Jobs	● Low
Public Facilities and Destinations Served	● Low	Historically Underserved	● Low
Projected Transit Demand	● Medium	Planning Consistency	● Medium
Service in Congested Corridors	● High	Environmental Benefits	● Medium
Transit Dependency	● Low	Station Area Development Potential	● Medium
<b>Overall Composite Score</b>	<b>● Medium</b>		

# Emerging Mobility Corridors

CONNECT Beyond identified **24 Emerging Mobility Corridors**. Emerging Mobility Corridors are corridors that may be good candidates for high capacity transit investments in the future but are currently better suited for other types of transit investments like Enhanced Bus Solutions and Mobility Solutions. Enhanced Bus and Mobility Solutions would likely help these Emerging Mobility Corridors build a transit base and pre-position them as candidates for future high capacity transit investments. As regional funding becomes available and these Emerging Mobility Corridors grow and densify, they may be considered for future high capacity transit investments.



# Emerging Mobility Corridors

Corridor	Location	Linkage
Emerging Mobility Corridor A	Highway 521/Charlotte Highway	Ballantyne to Lancaster
Emerging Mobility Corridor B	Highway 51/ Pineville-Matthews Road	Pineville to Matthews
Emerging Mobility Corridor C	Highway 74 East Wadesboro Extension	Marshville to Wadesboro
Emerging Mobility Corridor D	Highway 74 West Shelby Extension	Kings Mountain to Shelby
Emerging Mobility Corridor E	Highway 321	York to Lincolnton
Emerging Mobility Corridor F	Highway 5	York to Rock Hill
Emerging Mobility Corridor G	Highway 73 West	Lincolnton to Concord
Emerging Mobility Corridor H	Highway 24/27 Albemarle Extension	Mint Hill to Albemarle
Emerging Mobility Corridor I	Highway 16 Northwest Denver Extension	Lowesville to Denver
Emerging Mobility Corridor J	Highway 21 North	US 21 / I-77 Interchange to Front Street, Statesville
Emerging Mobility Corridor K	Highway 27 North	Uptown Charlotte to Lincolnton
Emerging Mobility Corridor L	Various Roads in Northwest Charlotte (From Wilkinson Blvd to Sugar Creek Road)	Wilkinson Blvd to Sugar Creek Road
Emerging Mobility Corridor M	Various Roads in East Charlotte (From Sugar Creek Road to Monroe Road)	Sugar Creek Road to Monroe Road
Emerging Mobility Corridor N	Various Roads in South Charlotte (From Monroe Road to South Blvd)	Monroe Road to South Blvd
Emerging Mobility Corridor O	Various Roads in Southwest Charlotte (From South Blvd to Wilkinson Blvd)	South Blvd to Wilkinson Blvd
Emerging Mobility Corridor P	Interstate 485	Indian Trail to Pineville
Emerging Mobility Corridor Q	Interstate 85	Uptown Charlotte to Salisbury
Emerging Mobility Corridor R	Highway 160	Hwy 460 to Hwy 521 in Fort Mill
Emerging Mobility Corridor S	West Blvd	Wilmore Charlotte to Garrison Road
Emerging Mobility Corridor T	Graham Street	Uptown to Graham/Sugar Creek Road
Emerging Mobility Corridor U	Highway 75/Waxhaw Highway	Lancaster/Waxhaw to Monroe
Emerging Mobility Corridor V	Highway 52	Salisbury to Wadesboro
Emerging Mobility Corridor W	Highway 49	UNCC to Richfield
Emerging Mobility Corridor X	Highway 279	Dallas to Cherryville

# Commuter Rail Assessment

In parallel with the High Capacity Transit Corridor Identification and Evaluation Process, the CONNECT Beyond Team also identified and evaluated potential commuter rail corridors to serve the greater Charlotte metropolitan region. As demands on the Charlotte region's freeway system continue to grow, resulting in increased travel times, commuter-based transit presents a unique solution to corridor congestion.

## What is Commuter Rail?

Commuter rail refers to passenger trains that operate along railroad tracks and offer scheduled regional services, often between a central metropolitan hub and adjacent suburbs. On an average weekday in the United States, approximately 1.7 million trips are made on the nation's commuter rail systems. As would be expected, the largest systems serving the metropolitan areas with the highest populations have the most riders. The three systems serving New York City carry approximately 930,000 passengers on the average weekday, roughly 53 percent of all commuter rail passengers in the United States. The system with the lowest daily ridership is the Music City Star serving Nashville, TN, with an average ridership of 1,200 passengers per weekday.

## Commuter Rail Assessment Process

Since most commuter rail services in the United States operate along existing freight railroad trackways, the Commuter Rail Assessment gathered and reviewed applicable data on the ownership, operation, condition, and classification of the existing freight rail trackways in the region and those anticipated to be used for commuter rail purposes.

## Commuter Rail Recommendations

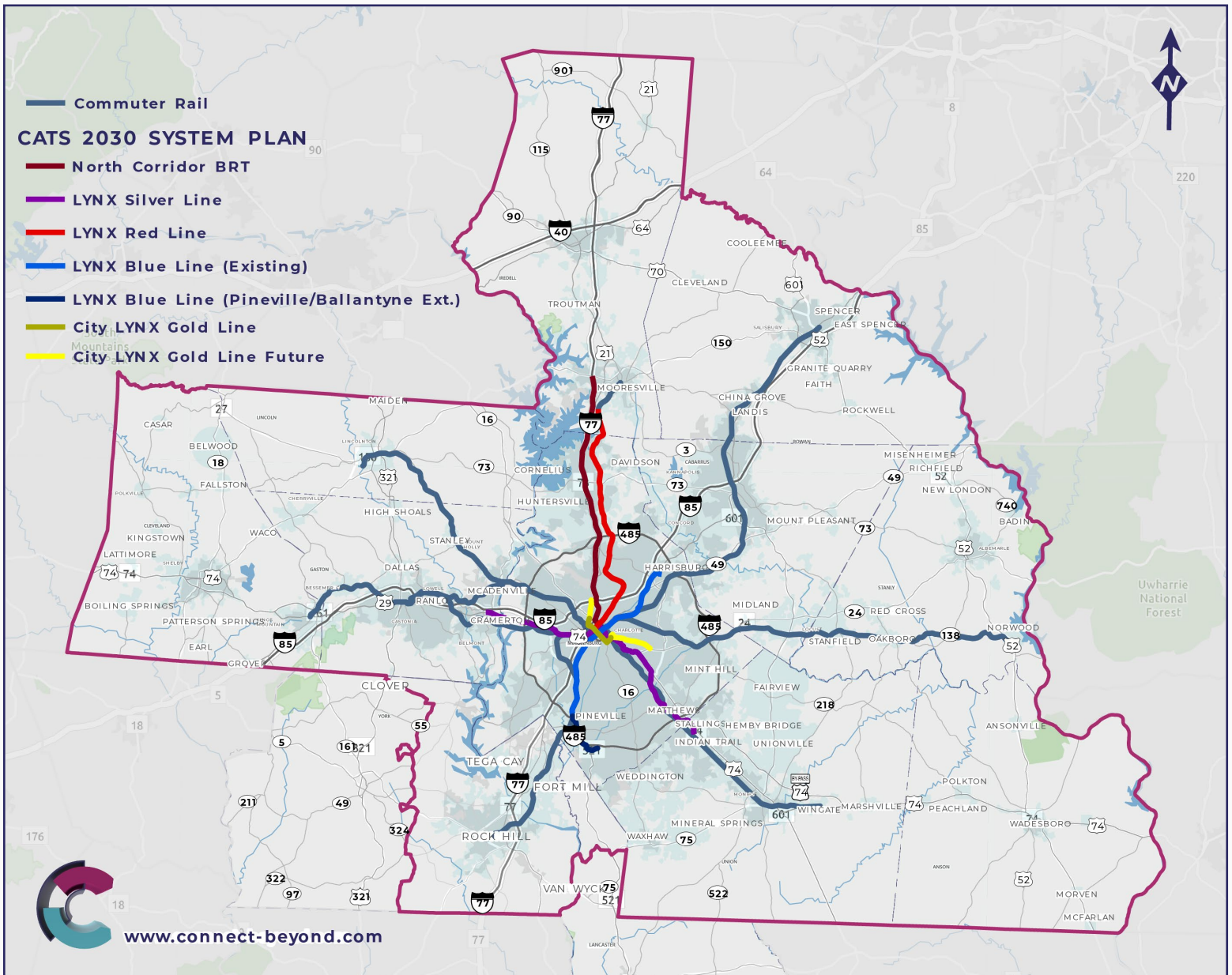
From the Commuter Rail Assessment, the CONNECT Beyond Team found that each of the seven Candidate Commuter Rail Corridors are technically feasible and would provide access to Uptown Charlotte from points across the region. As part of the Commuter Rail Assessment process, the CONNECT Beyond Team advanced four corridors that are more prepared for a commuter rail investment as **Initial Commuter Rail Corridors** and three corridors that are not currently as ready for a commuter rail investment but should continue to be considered as **Long-Term Commuter Rail Corridors**.

The **Initial Commuter Rail Corridors** include: the LYNX Red Line Extension Corridor, the Piedmont Corridor, the NS Charlotte-Rock Hill Corridor, and the NS Charlotte-Kings Mountain Corridor. As part of the Commuter Rail Assessment process, the CONNECT Beyond Team advanced three corridors as **Long-Term Commuter Rail Corridors**, which include the CSX Queen City Express Corridor, CSX Charlotte-Lincolnton Corridor, and the Aberdeen, Carolina and Western (AC&W) Corridor. The CSX Queen City Express Corridor connecting Monroe, Wingate, and Wadesboro shows future potential as Union County grows, but high capacity transit services may better serve the county's growth areas better in the immediate future. The CSX Charlotte-Lincolnton Corridor connecting Charlotte to Lincolnton and the AC&W Corridor connecting Charlotte and Norwood should remain on the list as future Long-Term Commuter Rail Corridors but show less immediate ridership potential.

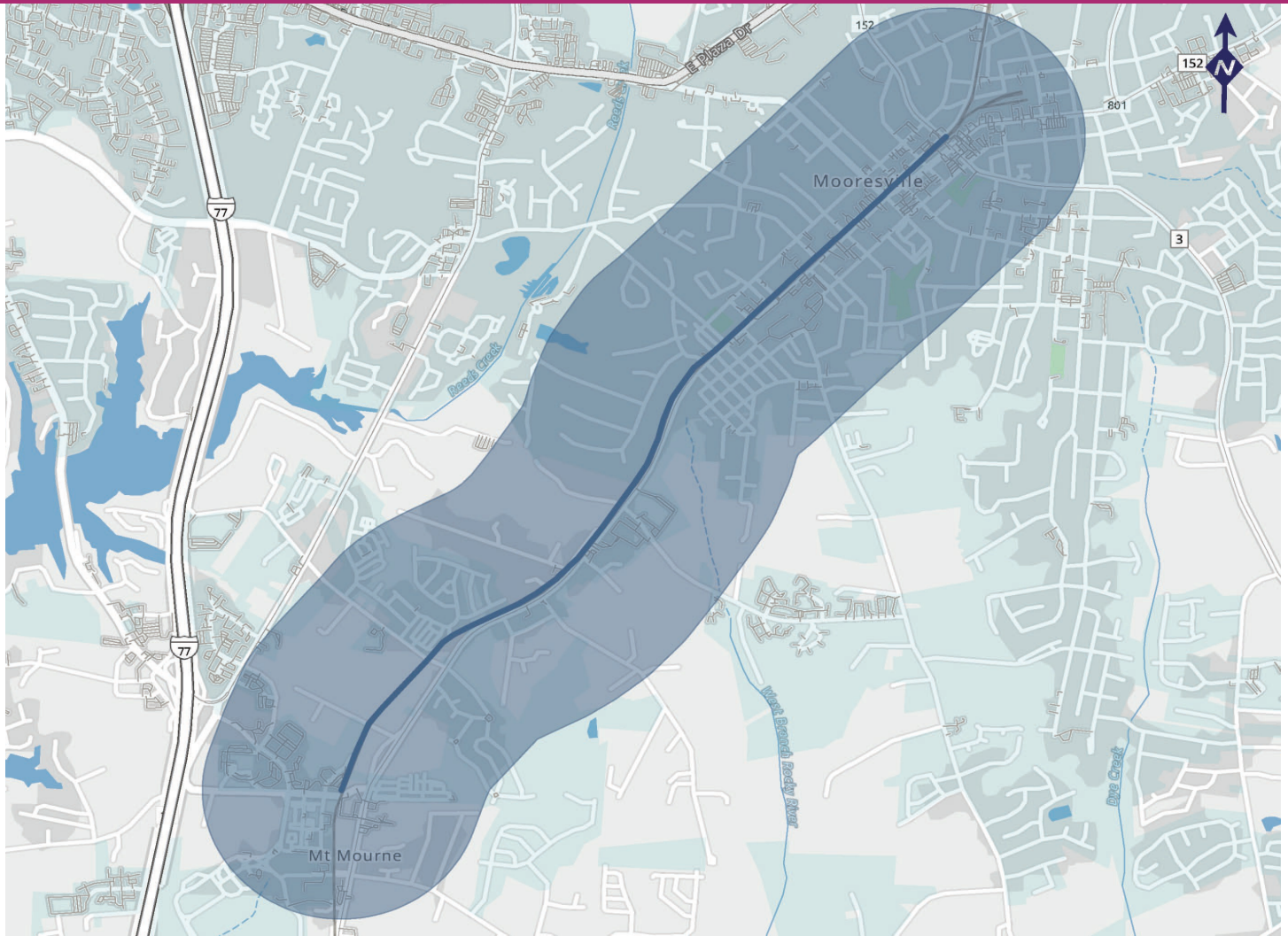
# Next Steps for Commuter Rail

The Strategic Mobility Corridor recommendations (which include the Recommended Commuter Rail Corridors, the Recommended High Capacity Transit Corridors, and the Emerging Mobility Corridors) represent a vision and foundation, but each of these recommended corridors will need further study and refined analysis. To advance planning for a specific commuter rail corridor, the next steps could include:

- Conduct a more detailed corridor planning study to refine the accuracy of the alignment
- Determine location of stations and maintenance facilities
- Estimate the capital and operating costs
- Further coordinating with the railroad companies
- Develop a governance plan and structure to build and operate a regional commuter rail program



# LYNX Red Line Extension Corridor



**Linkage Locations:**  
Mount Mourne to Mooresville

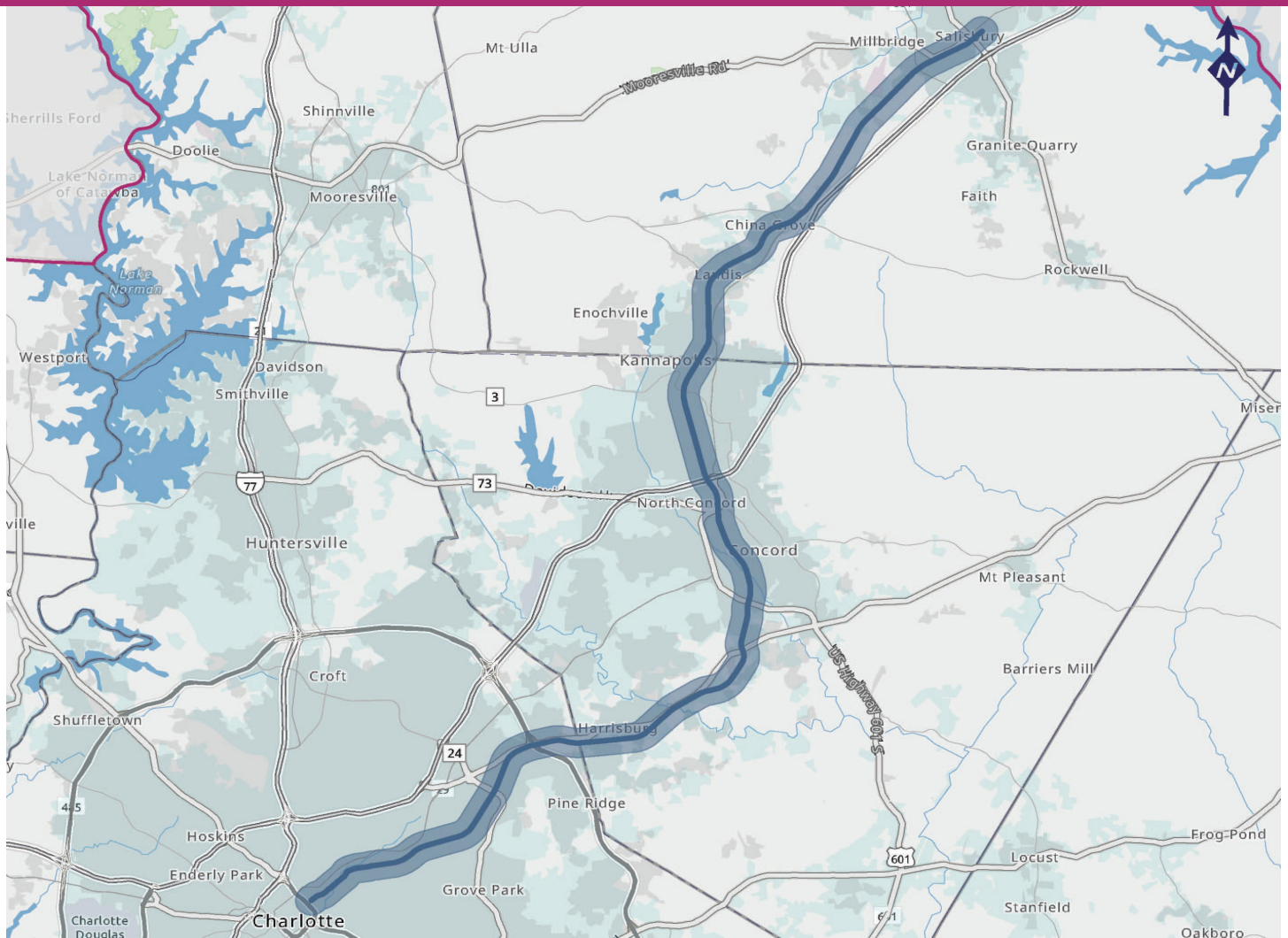
## Strengths and Opportunities

- Provides critically-needed commuter service to north Mecklenburg County and portions of Iredell County within the I-77 commuter corridor
- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
  - » Trackway may need upgrades, but less costly than a new track
- Community and local leadership support for the corridor

## Constraints

- Portions of the existing trackway north of Cornelius need investment and rehabilitation
- Coordination and agreements required with Norfolk Southern
- Extension to Downtown Mooresville would require new trackway construction

# Piedmont Corridor



## Linkage Locations: Charlotte to Salisbury

### Strengths and Opportunities

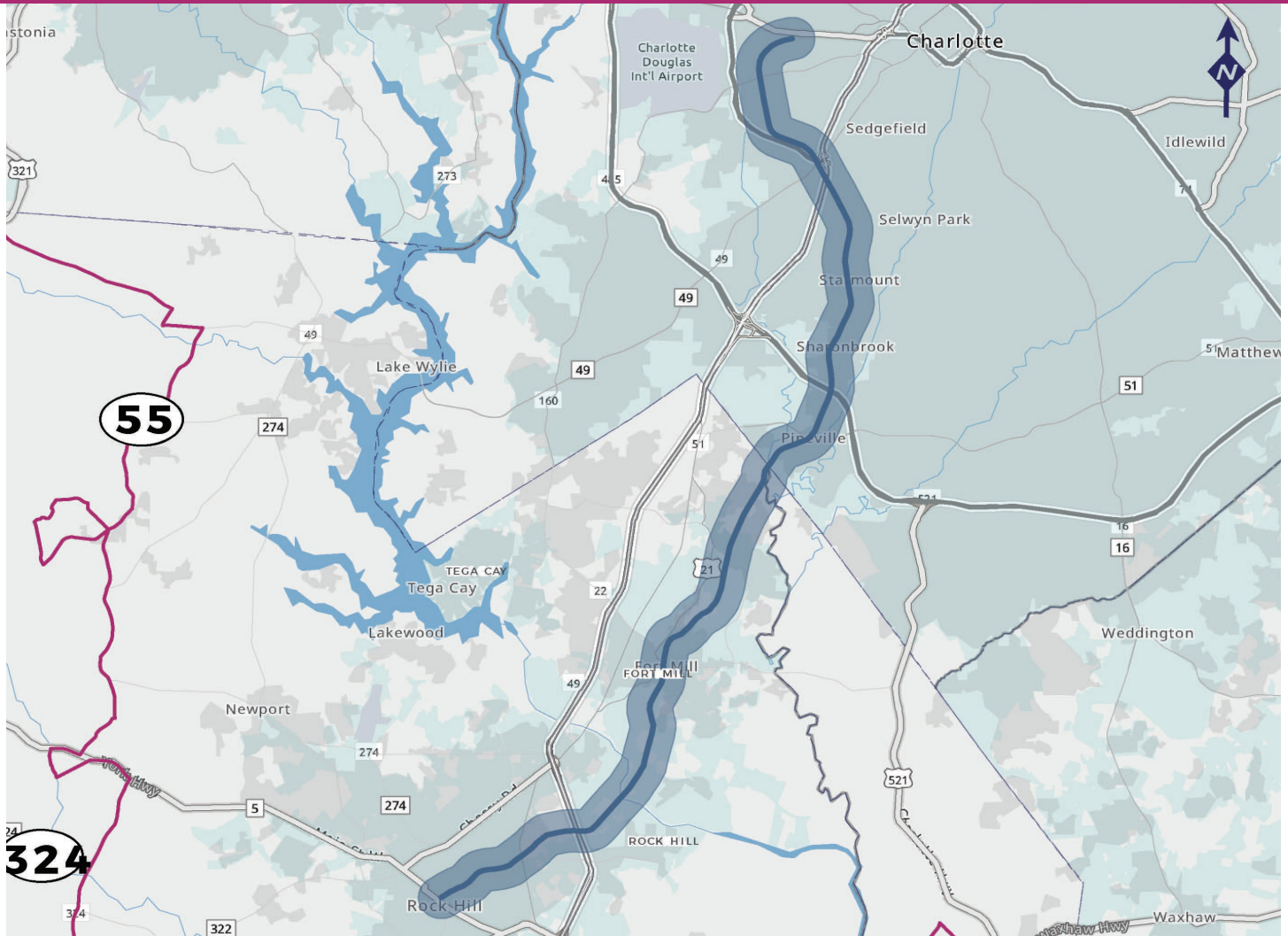
- Strong commuter service potential linking Cabarrus and Rowan Counties with Charlotte
- Corridor may be straightforward to implement:
  - » Existing trackway and ROW served by intercity passenger rail already grades, but less costly than new track
  - » Requires grades, but less costly to implement than new track.
- Community and local leadership support for the corridor

### Constraints

- Coordination and agreements required with North Carolina Railroad
- Schedule coordination with intercity passenger rail service and freight rail

COMMUTER RAIL CORRIDOR C

# Norfolk Southern Charlotte-Rock Hill Corridor



**Linkage Locations:**  
Charlotte to Rock Hill

### Strengths and Opportunities

- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
- Could provide expedient connections within a rapidly growing travel shed with huge volumes of daily commuting traffic

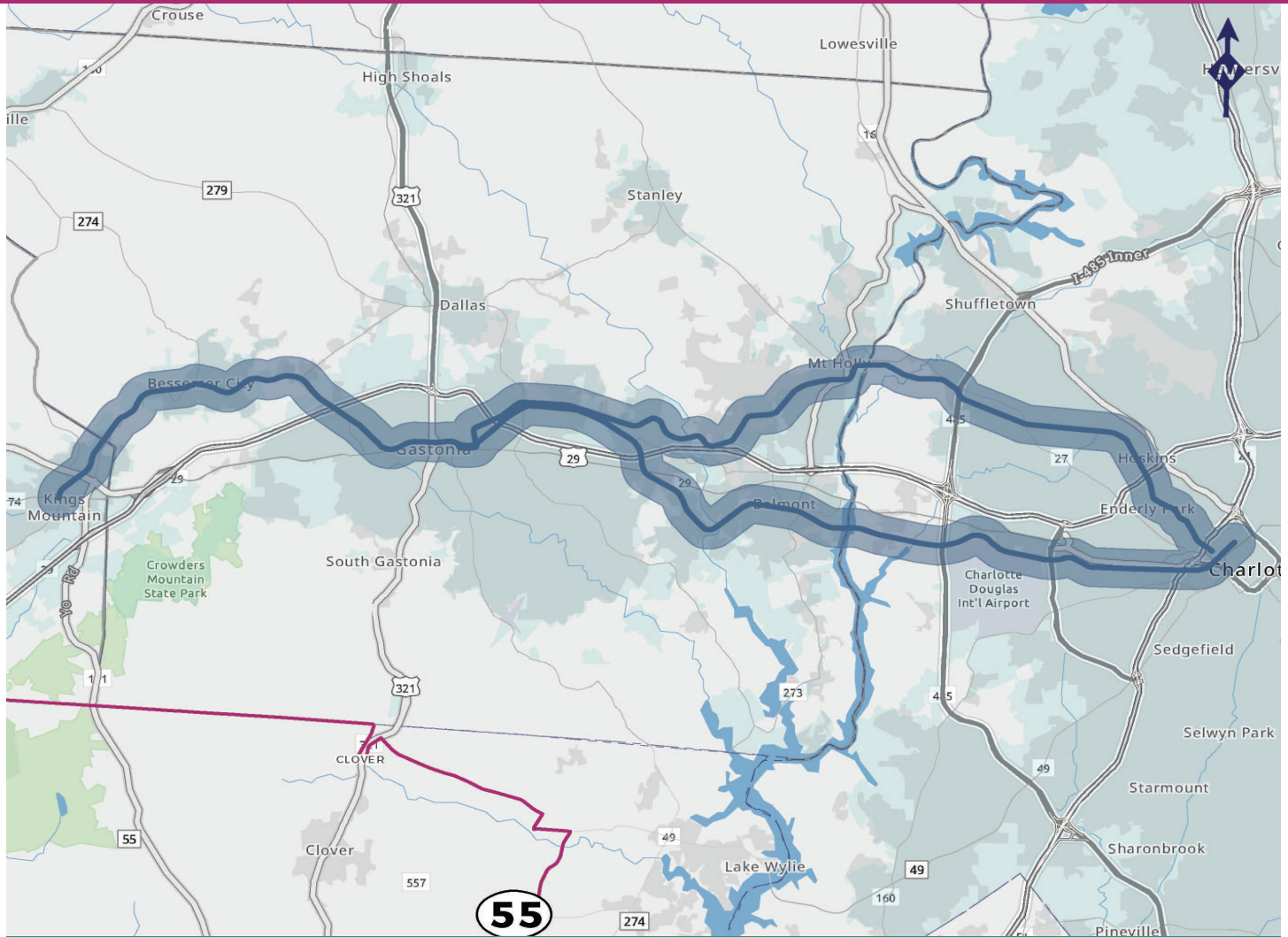
### Constraints

- Coordination and agreements required with Norfolk Southern
- Schedule coordination with freight rail service



COMMUTER RAIL CORRIDOR D

# Norfolk Southern Charlotte-Kings Mountain Corridor



**Linkage Locations:**  
Charlotte to Kings Mountain

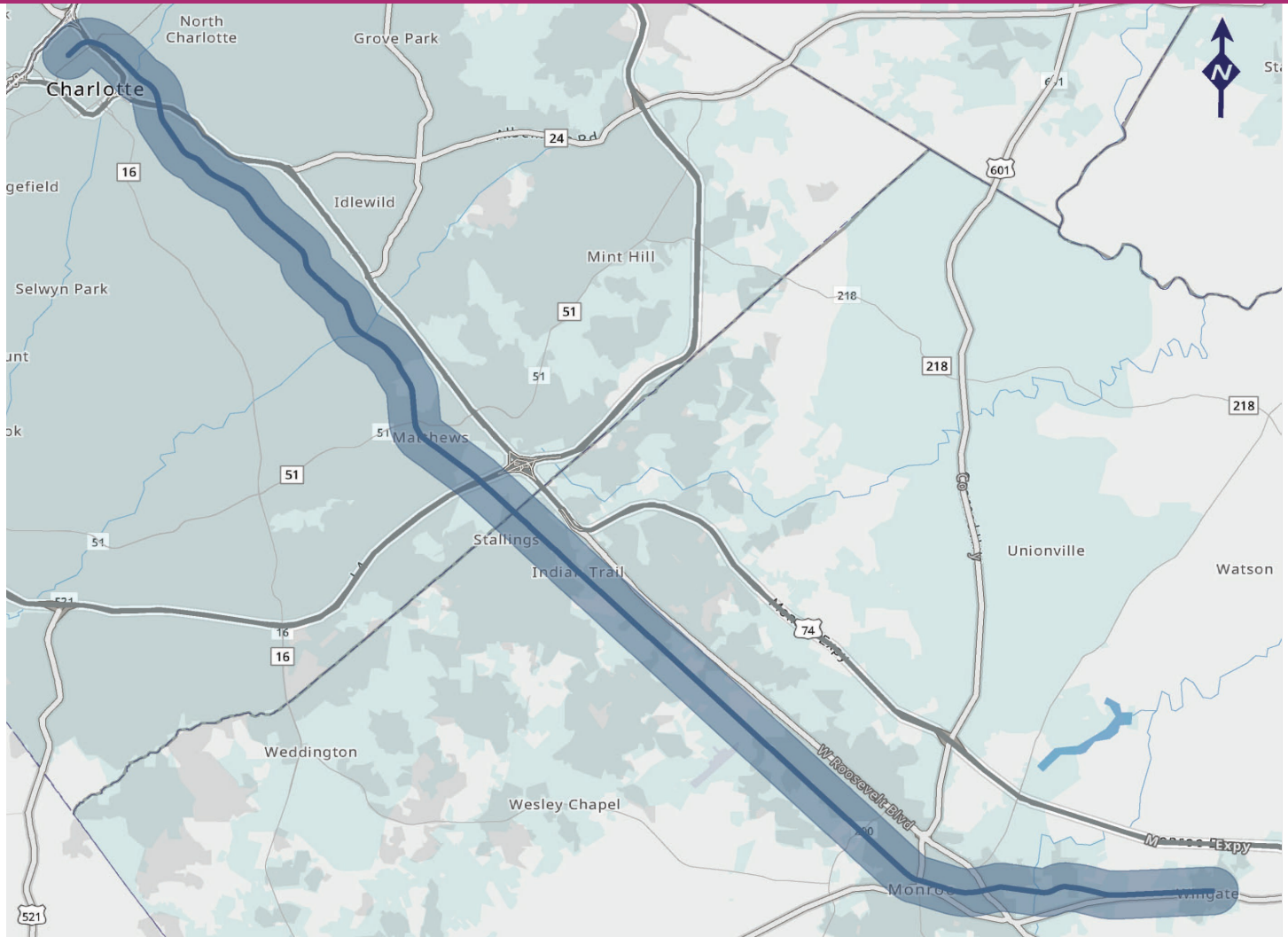
### Strengths and Opportunities

- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
- Could provide expedient connections within a rapidly growing travel shed with huge volumes of daily commuting traffic

### Constraints

- Coordination and agreements required with Norfolk Southern
- Schedule coordination with freight rail service

# CSX Queen City Express Corridor



## Linkage Locations: Charlotte to Wadesboro

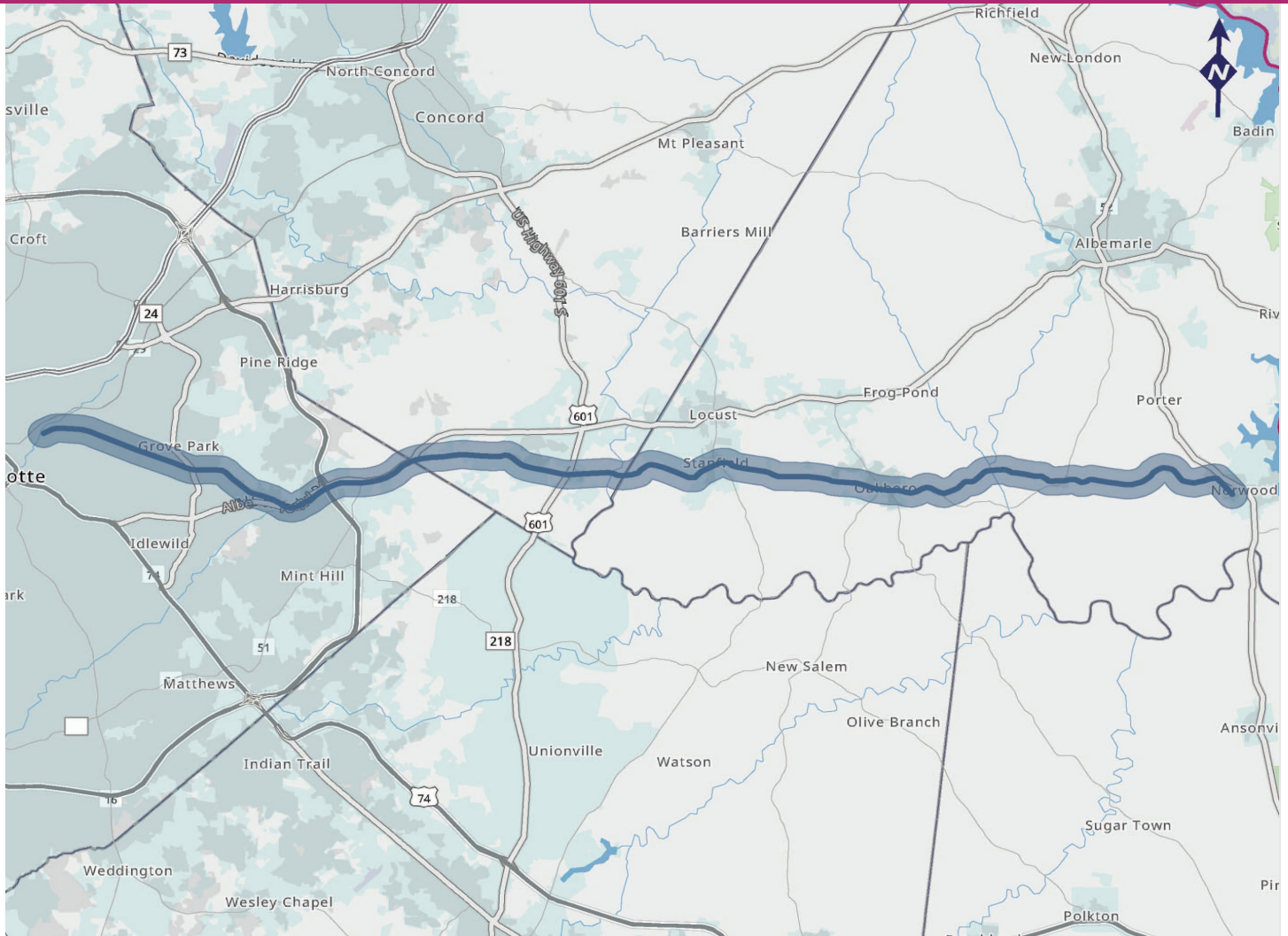
### Strengths and Opportunities

- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
- Could provide expedient connections between growing southeast suburbs and ex-urban centers

### Constraints

- Coordination and agreements required with CSX Railroad
- Schedule coordination with freight rail service
- Likely lower ridership volumes outside of Mecklenburg and unincorporated Union County

# Aberdeen, Carolina and Western (AC&W) Corridor



**Linkage Locations:**  
Charlotte to Norwood

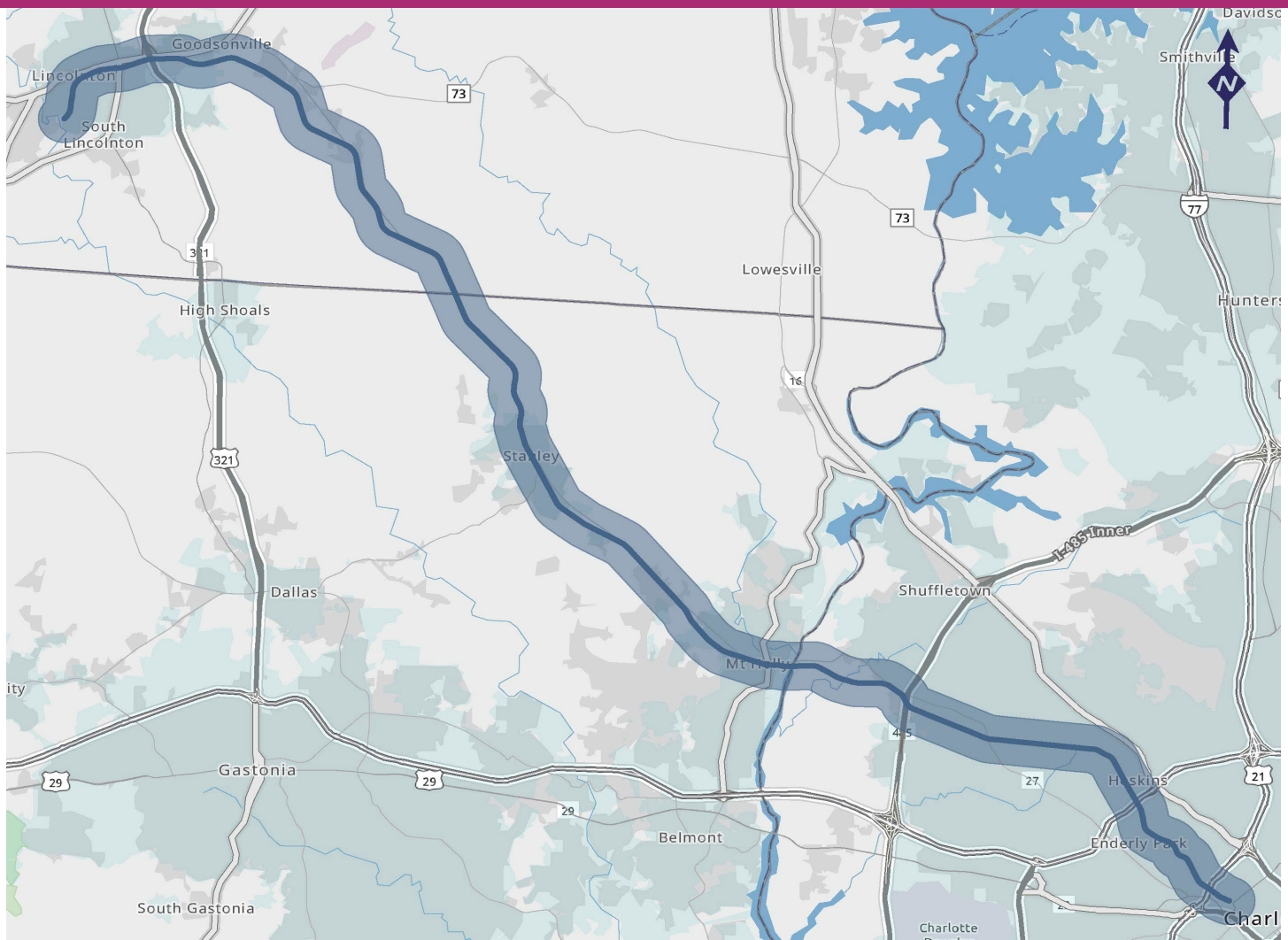
## Strengths and Opportunities

- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
- Could provide expedient connections to northeast

## Constraints

- Coordination and agreements required with AC&W Railroad
- Schedule coordination with freight rail
- Lightly populated communities along line limits ridership potential for the cost of implementation and operation
- Conditions of trackway unknown, likely expensive to upgrade for passenger rail service

# CSX Charlotte-Lincolnton Corridor



**Linkage Locations:**  
Charlotte to Lincolnton

## Strengths and Opportunities

- Corridor may be straightforward to implement:
  - » Existing trackway and ROW
- Could provide expedient connections within a rapidly growing travel shed with potentially huge volumes of daily commuting traffic

## Constraints

- Coordination and agreements required with CSX Railroad
- Schedule coordination with freight rail
- Lightly populated communities along line limits ridership potential for the cost of implementation and operation
- Conditions of trackway unknown, likely expensive to upgrade for passenger rail service

# Key Strategic Mobility Corridor Recommendation

The Strategic Mobility Corridor recommendations (which include the Recommended Commuter Rail Corridors, the Recommended High Capacity Transit Corridors, and the Emerging Mobility Corridors) represent a vision and starting point, but each of these recommended corridors will need further study and more refined analysis. For specific corridors, these next steps could possibly include corridor planning and alternative analysis, environmental review, design, and engineering, and then construction and operations.

CONNECT Beyond is a living effort, an effort that will continue after this regional mobility plan is published. This regional mobility plan is a blueprint for how our regional partners can work together to develop a total mobility network that will include an integrated regional transit system along with other shared mobility services. High capacity transit services will be the backbone and serve as the foundational linkages of our region's total mobility network.

CONNECT Beyond recommends that our regional partners including transportation planning organizations, transit agencies, and local and county government incorporate the Strategic Mobility Corridors (i.e., the Recommended High Capacity Transit Corridors, the Emerging Mobility Corridors, and the Commuter Rail Corridors) into their existing and future planning efforts.



# 05

## Maintaining Our Momentum

Right now, we have the opportunity to proactively shape our region's mobility future and transform the way people travel throughout our region. **CONNECT Beyond** is a bold regional mobility plan that provides a vision for how to better connect the rural, suburban, and urban communities in our 12-county region. This regional mobility plan will guide and coordinate future mobility investments for the next two decades and serve as a blueprint for how our regional partners can work together to implement a total mobility network that will provide a variety of different alternative mobility options for everyone in our region.



Charlotte, NC

## Moving Forward, Together

This regional mobility plan comes at an important time as the CONNECT Beyond region is projected to experience exponential population and employment growth over the next twenty years. As our region grows, we will also see transportation needs substantially increase throughout our region. This plan was created to help our regional partners prepare for and be ready to meet our region's future transportation needs. We need to work together to chart a new way forward and focus on developing a total mobility network that will provide a variety of alternative mobility options that residents and visitors can use to travel seamlessly around our 12-county region. This plan is the blueprint for how to build a total mobility network to better connect our region and the plan's recommendations are the building blocks.

By working together, we can build a total mobility network that would undoubtedly enhance mobility for everyone and make it easier for people to get to where they want and need to go. We can make our region a better, stronger, and more inclusive place to live, work, and play. To make CONNECT Beyond's vision a reality, we must maintain our momentum by continuing to collaborate with our regional partners and our communities to implement CONNECT Beyond's recommendations. Together, we can make CONNECT Beyond's vision of a total mobility network a reality for our region.

## Benefits of Collaboration

- Enhanced understanding of our region's diverse transit needs.
- Build on existing positive collaboration while developing confidence and trust in shared responsibilities for a regional network.
- Ability to optimize the performance of our existing transit services.
- Use our resources most efficiently.
- Leverage technical expertise and staff resources.
- Together, we have the power to:
  - » Secure funding and resources for our region.
  - » Obtain more financial resources to pool to get projects done.
  - » Increase staffing resources to support initiatives.

This benefits all of us and everyone is working towards the same goal. We must all do our part to ensure our transit system is sufficient to handle the significant growth coming to our region.

## CONNECT To Jobs

Over 50% of the region's population works in one county but lives in another.

We want to make it easier to connect people to employment opportunities and support job growth in the greater Charlotte metro region. We're working to connect you to the opportunities of tomorrow.





# Moving Mobility Forward

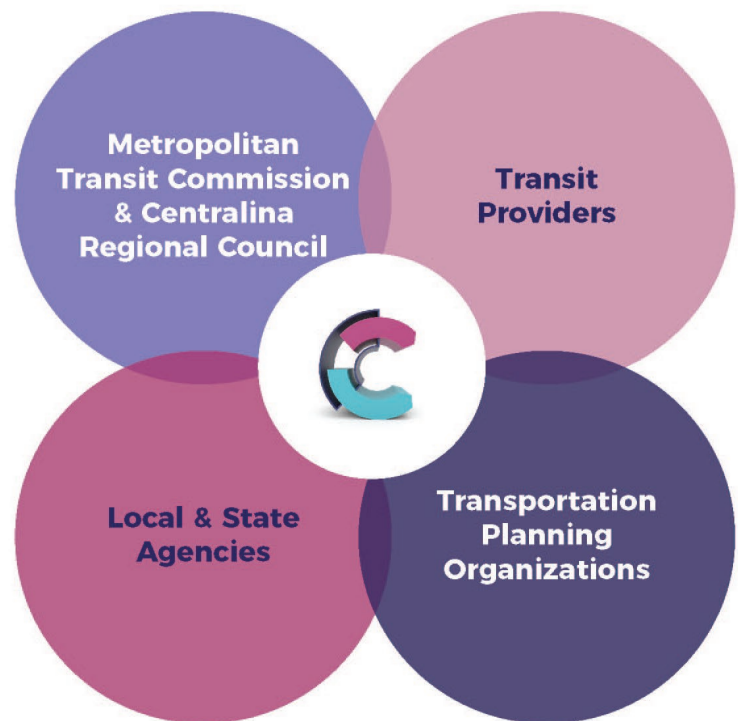
Over the past 18 months, our regional partners have worked together to carefully develop this regional mobility plan to enhance mobility and improve transportation choice in our region. Our regional partners cultivated a vision for our region's mobility future and strategically mapped out recommendations for how to make this vision a reality. Now we must maintain our momentum and continue to move mobility forward by working together to implement the recommendations included in CONNECT Beyond's regional mobility plan.

Many of the recommendations included in CONNECT Beyond's regional mobility plan are purposely high-level and will need further evaluation and more refined analysis before they can be implemented. CONNECT Beyond's recommendations are robust starting points and represent a foundation and vision that our regional partners will need to work together to advance and carry out. The pathway to implementation will vary for each recommendation, but the factor that remains the same for every recommendation in this regional mobility plan is that collaborative partnerships will be the key to success.

## Our Vision:

Foster a region of mobility-friendly communities that are interconnected by a total mobility network made up of a variety of high-quality alternative mobility options.





To maintain our regional momentum, CONNECT Beyond developed a recommended pathway to implementation that will help guide our regional partners as they work together to implement CONNECT Beyond's recommendations. We believe the pathway to implementation should be divided into two phases. **The First Implementation Phase** should focus on implementing CONNECT Beyond's immediate and near-term recommendations, while the **Second Implementation Phase** should focus on implementing CONNECT Beyond's mid-term and long-term recommendations. How our regional partners can most effectively work together as we move along this implementation pathway is a key factor that CONNECT Beyond considered and created recommendations to address.

**During the First Implementation Phase, CONNECT Beyond recommends that our regional partners work together to:**

- Create a Phase 1 Implementation Team.
- Hire a CONNECT Beyond Implementation Manager.

Reconvene the CONNECT Beyond Partnerships & Funding Working Group to explore regional partnership structures.

**During this Second Implementation Phase, CONNECT Beyond recommends that our regional partners work together to:**

- Establish the regional partnership structure recommended by the reconvened CONNECT Beyond Partnerships & Funding Working Group.
- This regional partnership structure will become the CONNECT Beyond Phase 2 Implementation Team.

# CONNECT Beyond Implementation Manager

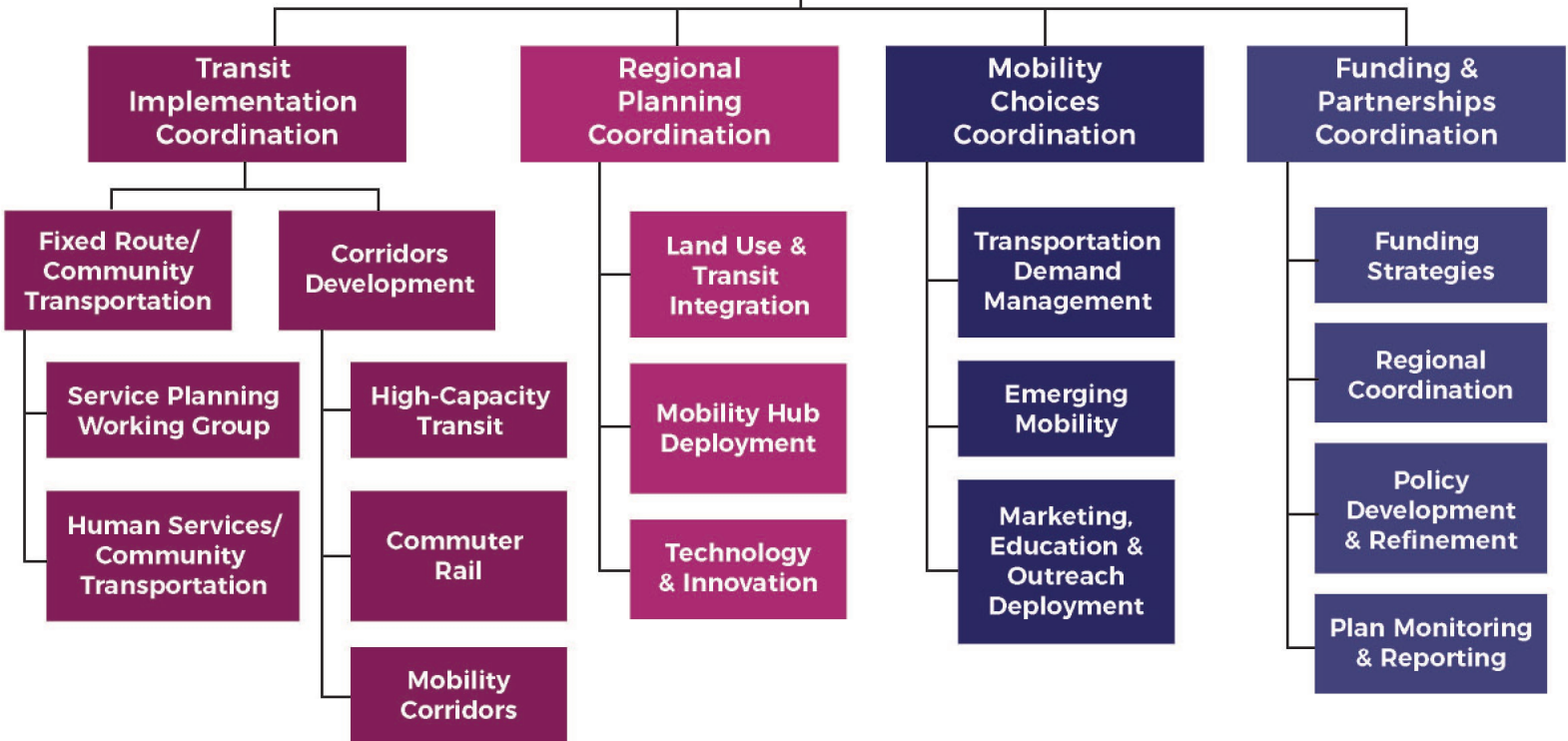
Timeframe: Immediate

To ensure regional coordination during implementation, we recommend establishing near-term working agreements among the CONNECT Beyond regional partners and seeking funding from the metropolitan planning organizations to create a dedicated CONNECT Beyond Implementation Manager position. This CONNECT Beyond Implementation Manager will work to facilitate collaboration between regional partners and lead the CONNECT Beyond Phase 1 Implementation Team as they implement the immediate and near-term CONNECT Beyond recommendations.



## CONNECT Beyond Implementation Manager

CONNECT Beyond Implementation Sponsor/Advisor



## **Develop CONNECT Beyond Phase 1 Implementation Team**

Timeframe: Immediate

Centralina Regional Council should identify funding and increase staffing capacity to support the CONNECT Beyond Phase 1 Implementation Team. Regional partners, including transportation planning organizations and area transit agencies, should assign and allocate necessary staff time and resources to support the CONNECT Beyond Phase 1 Implementation Team. The Phase 1 Implementation Team will be tasked with carrying forward the immediate and near-term CONNECT Beyond recommendations until a more formal region-wide partnership structure can be implemented (i.e., the Phase 2 Implementation Team). The CONNECT Beyond Phase 1 Implementation Team will be led and supervised by the CONNECT Beyond Implementation Manager and will report to regional partners on a bi-annual basis about the progress of implementing CONNECT Beyond's recommendations.

The CONNECT Beyond Funding & Partnership Working Group will help the Phase 1 Implementation Team to define and launch the regional partnership structure that will make up the Phase 2 Implementation Team. The Phase 2 Implementation Team will be responsible for carrying out the mid-term and long-term CONNECT Beyond recommendations and will lead and coordinate regional mobility planning efforts in the future.

## **Explore Regional Partnership Structures**

Timeframe: Immediate

CONNECT Beyond's Funding & Partnership Working Group will reconvene and expand to continue exploring potential regional partnership structures to help guide the full implementation of CONNECT Beyond's regional mobility plan, specifically, mid-term and long-term recommendations, and help coordinate a cross-county funding strategy to pay for these programs and initiatives. It is important that the CONNECT Beyond Funding & Partnership Working Group explores potential structures and makes a recommendation for the type of regional partnership structure that they believe would be best suited for our region, because the regional partnership structure that is recommended will become the CONNECT Beyond Phase 2 Implementation Team.

The Phase 2 Implementation Team will be responsible for carrying out the mid-term and long-term CONNECT Beyond recommendations and will lead and coordinate regional mobility planning efforts in the future. It is our hope that the regional collaboration, partnerships, and personal relationships developed during the creation and implementation of CONNECT Beyond will benefit our region long after this regional mobility vision plan is released.

## Analyze Agency Staffing Needs

Timeframe: Near-Term

Existing agency staff, from technical personnel to operators, have enabled the region to sustain the current level of service; however, CONNECT Beyond is a vision that will expand the region beyond our current level of service. The first step in completing this vision is to assess current agency staffing levels and how those match the recommended vision of CONNECT Beyond. Regional partners should then work towards increasing the funding available to planning and transit agencies to hire additional employees, increasing the number of planning and transit operations staff.

## Create a Regional Partnership Structure to Carry Out CONNECT Beyond

Timeframe: Mid-Term

After the CONNECT Beyond Funding & Partnership Working Group explores regional partnership structures and makes a recommendation, our regional partners need to work together to implement a regional partnership structure that can help carry out CONNECT Beyond's vision. This regional partnership structure will be the CONNECT Beyond Phase 2 Implementation Team. We suggest that this Phase 2 Implementation Team develops a cross-county funding strategy for CONNECT Beyond and works together to implement the mid-term and long-term CONNECT Beyond recommendations.



CATS City LYNX Streetcar

# Grow Funding

Determining how we are going to fund the CONNECT Beyond recommendations is vital to the overall success of this regional mobility plan. Funding is a key component of our recommended Pathway to Implementation.

In order for this regional mobility plan to be implemented, developing clear cost estimates and finding funding sources will be essential. Together, we have more power to secure resources for our region. CONNECT Beyond's funding recommendations help ensure that no one is left behind and that all jurisdictions can proceed forward on their own timelines.

## Key Funding Recommendations

### Conduct Revenue Source Analysis

Timeframe: Near-Term

We recommend that in the near-term, CONNECT Beyond's regional partners work together to develop a methodology for a revenue source analysis and conduct the analysis for each county in the CONNECT Beyond region. This analysis would evaluate potential revenue streams that could provide potential funding for the recommendations included in CONNECT Beyond's regional mobility plan. One example of a potential revenue stream is a sales tax yield. Understanding the different possible revenue streams for each county and how much each potential revenue stream would produce is an essential step in the process of developing a collaborative cross-county funding strategy to pay for the implementation of CONNECT Beyond.

### Conduct a Regional Financial Capacity Assessment

Timeframe: Near-Term

We recommend that CONNECT Beyond's regional partners work together to conduct a regional financial capacity study to better understand the level of funding and resources needed to implement the CONNECT Beyond. This analysis will not only help our regional partners understand the estimated funding necessary to implement specific recommendations, but also to identify potential funding sources and necessary next steps to secure specific funding streams.

## Coordinate Regional Funding Requests

Timeframe: Near-Term

We recommend that CONNECT Beyond's regional partners work together as a voluntary coalition to coordinate a strategy for how to seek a funding authorization request from the North Carolina General Assembly, South Carolina General Assembly, and the Federal Transit Administration (FTA). This voluntary coalition of CONNECT Beyond's regional partners should include local elected officials from around the region, local government staff leadership, transportation planning organization staff, and agency executives from both fixed-route and community service transit providers.

This coalition will work together to develop a lobbying strategy for how they are going to approach the funding authorization request, what they are going to jointly communicate to lawmakers and federal agency staff about CONNECT Beyond and the need for funding, and when they are going to start making this request. Having a coordinated strategy to guide the funding authorization request process will be more impactful than any single regional partner making this funding request alone. Developing a coordinated strategy will demonstrate to state lawmakers and the FTA that this voluntary coalition of regional partners are united by a shared vision and have developed a data-driven, action-oriented regional mobility plan that will utilize a two-phase approach to implement proactive recommendations to enhance mobility in the CONNECT Beyond region.

We believe it is important to formalize coordination while also enabling each jurisdiction to define their own approach and timing. While each county will be ready at different times, this coalition aims to develop a pragmatic approach for how to ensure these recommendations are continually implemented over the next twenty years.



Charlotte, NC

# Overview of Recommendations

## Recommended Groups

- CONNECT Beyond Service Planning Working Group
- CONNECT Beyond Emerging Mobility Working Group
- CONNECT Beyond Funding & Partnerships Working Group
- CONNECT Beyond Phase 1 Implementation Team
- CONNECT Beyond Phase 2 Implementation Team
- Regional Transportation Demand Management Advisory Committee
- Regional Paratransit Working Group
- Regional Educational Outreach Working Group
- Regional Fare Policy Working Group
- Centralina Center for Land Use/Transportation Coordination

## Recommended Positions

- CONNECT Beyond Regional Mobility Manager
- CONNECT Beyond Implementation Manager

## Recommended Plans

- Regional TDM Plan
- Regional Transit Standard and Performance Measures
- Regional Transit Asset Management Plan
- Five-Year Implementation Plan (Short Range Transit Program)
- Regional Mobility Hub Implementation Strategy
- Parking Policies Toolkit
- Regional Transit Amenity Guidelines



## **Recommended Studies**

- Job Task Analysis Study
- Revenue Source Analysis
- Regional Financial Capacity Assessment
- Emerging Mobility Suitability Assessment
- Electric Fleet Suitability Analysis
- Electric Infrastructure Suitability Analysis
- Regional Fixed-Route Scheduling Integration & Implementation Study
- Regional Paratransit Scheduling Integration & Implementation Study
- Regional Fare Integration & Implementation Study
- Regional Park-and-Ride Study
- Bicycle, Pedestrian, Multi-Use Trails & Greenway Connectivity to Transit Study
- System Consolidation Study
- Economic Impact Analysis of Transit Modes
- Corridor Alternatives Analyses
- Corridor Visioning & Planning Studies
- Regional Operations & Maintenance Facility Needs Assessments

## **Recommended Programs**

- Livability Planning Grant Program
- Commuter Choice Program
- Mobility Hub Pilot Program
- Workforce Training Program
- Volunteer Transportation Services Program
- Comprehensive Safety and Convenience Program
- Comprehensive Regional Mobility Management Program



# Acknowledgments

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CONNECT Beyond is a joint effort of Centralina Regional Council and the Metropolitan Transit Commission (MTC).

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Project Kick-off February 2020

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# Glossary of Terms

**Accessibility:** refers to a person's ability to reach key destination or activity centers throughout the region using public transit services. Transit accessibility is especially important for individuals with disabilities, and that's why it is so important for transit planners and service providers to design transit systems and services that can be easily accessed and used by travelers with disabilities and comply with all requirements established by the Americans with Disabilities Act.

**Automobile Dependency:** when area residents and visitors rely heavily on private automobiles to get to and from key destinations, rather than using public transit, walking or riding a bike. When there are limited transportation options available in a region, then most people will decide to drive private automobiles. Automobile dependency increases traffic congestion and air polluting emissions.

**Bus Rapid Transit:** a bus-based public transportation system that uses large, modern buses that can operate in dedicated-BRT lanes or in mixed-traffic lanes. BRT buses have a variety of convenient features, including double door station-level boarding to enhance boarding accessibility. BRT systems have specialized, modern BRT stations where passengers can buy tickets and wait for their specific bus in a comfortable and safe station atmosphere.

**Commuter Rail:** passenger trains that operate along railroad tracks and offer fixed-route scheduled regional services often between a central metropolitan hub and the adjacent suburbs

**CONNECT Beyond:** a regional mobility initiative that is being led by the [Centralina Regional Council](#) for our 12-county region. CONNECT Beyond will create a bold regional transit vision and develop implementation strategies that will guide the future development of our region's transit system and services.

**CONNECT Beyond Region:** the CONNECT Beyond region is a diverse region made up of rural counties with small towns, suburban counties with regional cities, and a metropolitan area - the City of Charlotte. This region includes 12 counties across 2 states, encompasses 5,000 square miles and is home to approximately 2.5 million residents. The CONNECT Beyond region includes Anson County, Cabarrus County, Cleveland County, Gaston County, Iredell County, Lincoln County, Mecklenburg County, Rowan County, Stanly County, and Union County in North Carolina and Lancaster County and York County in South Carolina.

**CONNECT Our Future:** a three-year regional visioning and planning process for the 14-county greater Charlotte region that was led by the [Centralina Regional Council](#). CONNECT Our Future developed a Regional Growth Framework to guide future growth and development in our region. CONNECT Our Future identified ten growth priorities for our region and five of these growth priorities were directly related to regional transportation, public transit, and coordinated land use development. Learn more about CONNECT Our Future by visiting [www.connectourfuture.org](http://www.connectourfuture.org).



**Equity:** To provide for the individual needs of residents based on their unique circumstances, so that all members of a community have fair access to a service or benefit. There is a common phrase that goes “equity is the process; equality is the outcome”. This means that because of the structural inequalities that exist in our society, transit planners and service providers need to prioritize transit investments that provide better transportation access for minority and low-income communities. According to the [Transit Center](#), “access to high-quality public transportation can make cities more inclusive by increasing mobility and opportunity, particularly for people with low incomes and people of color.” Public transportation options are crucial for providing access to education, jobs, and housing, which create economic opportunities that can help close the opportunity gap and promote economic and social mobility.

**Fixed-Route Transit Services:** transit services that operate on a regular set schedule and follow a predetermined route making stops at certain assigned bus stops or transit stations. Fixed-route transit services include local buses, bus-rapid transit, light rail, and commuter rail.

**High Capacity Transit:** refers to transit modes that have more capacity than traditional buses and provide rapid transportation services, such as light rail, bus rapid transit, express bus or commuter rail.

**Housing and Transportation Affordability Index:** the [Center for Neighborhood Technology](#) developed the [Housing + Transportation Affordability Index](#) that provides a more nuanced view of housing affordability within a community and region. While traditional housing affordability measures consider a home affordable if its price is less than 30 percent of a family’s income, the H+T Affordability Index goes a step further considering the transportation cost related to the home’s location, including the cost of commuting and other daily travel needs. Using the H+T Affordability Index, a home is considered affordable if the cost of housing and transportation combined do not exceed 45 percent of a family’s income.

**Intergenerational Mobility:** refers to changes in the social position and economic status of a family that occur between one generation (parents) and the next (their children). The well-known [Chetty study](#) found that Charlotte ranked last among large U.S. cities for intergenerational mobility.

**Land Use Planning:** the process of regulating how land will be used and what types of developments, such as residential, commercial, industrial, institutional, cultural, and entertainment development can be built in a specific area. Land use planning helps to regulate the allowable density and development styles that are implemented within a community.

**Light Rail:** a high capacity transit service provided by electric trains running along fixed-route tracks. Our region currently has one light rail line, the Lynx Blue Line, which is approximately 19.3 miles, has 26 stops and runs from UNC Charlotte to just north of Pineville.

**Mixed-Use Development:** a blend of development and land use types, such as residential, commercial, industrial, institutional, cultural, and entertainment, in a specific area. Mixed-use development helps to create pedestrian-friendly areas and livable communities where residents can live, work, shop and play.

**Mobility:** having access to various quality modes of transportation, which allow people to efficiently get to key destinations, such as home, work and entertainment venues. Quality transportation options are convenient, affordable and safe. Mobility is the ability to move about freely and easily.

**Mobility Hubs:** major transit centers that act as primary connection points in the total mobility network. A mobility hub is a multi-modal public transit station that connects various transportation options. Mobility hubs are located in pedestrian-friendly areas that usually have a variety of mixed-use development including employment, housing, recreation, and shopping. Transit-supportive development typically occurs around mobility hubs, which means that compact, walkable, mixed-use development usually occurs within a  $\frac{1}{4}$  to  $\frac{1}{2}$  mile radius of the “mobility hub” public transit station.

**Multimodal Public Transportation:** a public transportation system that includes a variety of transit modes like commuter rail, light rail, bus rapid transit, and local buses. Having a variety of transit modes in a regional public transportation system allows transit providers to best serve a diverse region and meet the needs all different types of transit riders.

**Performance Metrics:** measurements to see how the performance and productivity of the region’s transit services have changed over the past five years, such as transit riders per hour, transit riders per mile, cost per transit rider, and miles per passenger. These performance metrics will also be compared against national benchmarks and transit systems in similar cities. CONNECT Beyond used performance metrics to analyze and evaluate all urban fixed-route transit services in the CONNECT Beyond region.

**Placemaking:** a community design concept that focuses on creating environments designed to be enjoyed by residents and visitors. Placemaking is about creating places for meaningful community interactions, such as lively public squares or community parks. To truly utilize placemaking principles in community design planning, it is important for communities to have a variety of housing and transportation options.

**Regional Mobility:** access to quality public transportation options that allow people to easily travel anywhere within the region using convenient, affordable and safe public transportation services.

**Regional Transit Engagement Series:** a three-phase engagement series that involved local, state, and federal elected officials; local government staff, planners, and transportation professionals; economic development organizations; educational institutions; major employers; and the general public from eight counties to discuss their aspirations, concerns, values, and interests around mobility needs, transportation, and public transit in the region.

**Regional Transit Plan:** a long-term collaborative plan that includes a vision and implementation strategies to guide future transportation and transit projects in the region. This regional transit plan is intended to be used by CONNECT Beyond’s regional partners to guide individual planning efforts and capital investment projects.

**Regional Transit System:** a system that is made up of multiple modes of public transit, such as local buses, paratransit, light rail, commuter rail or bus rapid transit], that offers transportation services throughout the region. A modern, highly efficient regional transit system allows transit riders to easily access key destinations throughout the region using convenient, affordable and safe public transportation services.

**Rural:** the [NC Rural Center](#) classifies rural counties as counties that have “an average population density of 250 people per square mile or less.” The CONNECT Beyond region has four counties that would be considered rural counties based on these metrics. Those rural counties are Anson County, Cleveland County, Lancaster County and Stanly County. The rural counties in the CONNECT Beyond region could be categorized as urban-adjacent rural areas, because of their proximity to suburban and urban areas.

**Suburban:** The [NC Rural Center](#) classifies suburban counties as counties that have “an average population density between 250 and 750 people per square mile.” The CONNECT Beyond region has seven counties that would be considered as suburban counties based on these metrics. Those suburban counties are Cabarrus County, Gaston County, Iredell County, Lincoln County, Rowan County, Union County, and York County.

**Sustainability:** the UN World Commission on Environment and Development defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” CONNECT Beyond is concerned with three areas of sustainability: environmental sustainability, sustainable development and sustainable investments.

**Environmental Sustainability:** responsibly using and consciously protecting Earth’s natural resources so that future generations can enjoy and benefit from them. Environmental sustainability is about embracing practices that curb resource consumption and pollution in order to protect our finite and precious natural resources and the natural environment. Making transportation more sustainable is vital to protecting our natural environment and resources. Cars and trucks that burn fuels like gasoline and diesel emit carbon dioxide, which is a greenhouse gas, along with other pollutants into the air. The buildup of greenhouse gases in Earth’s atmosphere is causing climate change. According to [NASA](#), climate change is the current warming trend of Earth’s climate that is proceeding at a significantly increased rate because of the increased amounts of heat-trapping greenhouse gases in Earth’s atmosphere. According to the [U.S. EPA](#), transportation is the biggest contributor to greenhouse gas emissions in the United States. This is why it is so important that our region adopts more sustainable transportation practices and increase public transit services. Using public transit is an inherently sustainable practice that lowers the carbon footprint for each person that chooses to use transit rather than drive a private automobile. Public transit services help reduce air pollution and greenhouse gas emissions, while also reducing gasoline and diesel consumption.

**Sustainable Development:** meets the needs of the present without compromising the ability of future generations to meet their own needs. As a result of the exponential regional population, employment growth and development over the past few decades, our region has grown in a decentralized, spread-out development pattern, which is often called urban sprawl. Sprawling growth patterns accelerates land use consumption by rapidly converting open space and rural land into suburban and urban development. Sprawling urban expansion is not sustainable for our region, as our land and other natural resources are finite. In order to safeguard our natural environment while continuing to allow our human environment to flourish, our region must adopt more sustainable development patterns. Mobility-supportive development is a sustainable development pattern that pair strategic transportation investments with coordinating land use policies. Mobility-supportive development can help correct past sprawling development patterns and promote future development and growth patterns that are more sustainable.

**Sustainable Investments:** planning for how to fund the long-term costs to operate new or improved transit systems or services. Our region needs to make strategic transit investments that are manageable and realistic to operate in for the long-term. CONNECT Beyond is focused on creating a regional transit vision that suggests making transit investments that are sustainable for the region's transit providers.

**Total Mobility Network:** a holistic approach that looks at how different transportation options can be combined and work seamlessly together to best meet the mobility needs of our region's residents and visitors. Each user has different mobility needs and often users combine transportation modes to accomplish a trip. A total mobility network looks at how an individual could use and combine various mobility modes to get to and from key destinations. Using a total mobility network approach, transit planners can examine ways to improve first and last last-mile connections in order to encourage people to use transit services, as well as evaluate what kind of transportation solutions are needed in what areas to best meet the varying mobility needs of our region's residents and visitors.

**Transit Connectivity:** measures a transit rider's ability to easily use more than one mode of transportation for a single trip. For example, if a regional transit system offers good connectivity, it may be easy for a transit rider to take a short walk from their home to the closest light rail station, then take the light rail to their designated stop. At that designated station, the transit rider may easily board the streetcar and then take the streetcar to a stop that is located one block from the transit rider's office. This example illustrates good connectivity between different transit services that are part of the larger regional transit system.

**Transit Market Analysis:** a transit planning tool that evaluates transit services to match the potential transit demand of a certain area. Since the demand for public transit services varies across the CONNECT Beyond region, a Transit Market Analysis was conducted to better understand the varying transit demand in different areas throughout the region. As part of this analysis, the CONNECT Beyond region was divided into 54 Transit Market Areas. To determine the potential transit demand for each Transit Market Area, our Project Team evaluated population density, employment density, projected growth, land use patterns, demographics, transit propensity, area attractions, travel patterns, traffic congestion, current transit services, and existing transportation/land use plans. This Transit Market Analysis will help inform the candidate corridors for high capacity transit and other transit service suggestions that will be included in CONNECT Beyond's regional transit vision.

**Transit-Oriented Development:** often called TOD, is a land use planning principle that encourages compact, mixed-use development within a  $\frac{1}{4}$  to  $\frac{1}{2}$  mile radius of public transportation stations to create more sustainable, livable, and walkable communities.

**Transit Propensity:** demographic factors (such as income, age, household car ownership, etc.) that indicate the likelihood that residents in an area will be to use public transit.

**Transit Ridership:** the number of people who use public transit services. Transit planners want to plan transit services that will have high ridership, but they also balance this with making sure that there is good transit coverage throughout the region. Good transit coverage ensures that everyone, especially those who are transit-dependent, have access to high quality and frequent transit services.

**Transportation Choice:** the variety of transportation options available to residents and visitors within a region, such as driving a private automobile, taking public transit, riding a bike, walking, or using a rideshare service. When there are several modes of transportation available within a region, residents and visitors are more likely to choose public transit, walk, bike, or use a rideshare service over driving a private automobile.

**Transportation Demand Management:** strategies that are implemented to manage travel demand in order to improve mobility and reduce traffic congestion during peak daily travel times. There are various different strategies, but some popular examples include: enhanced pedestrian and bicycle accommodations, encouraging rideshares and carpooling, public information campaigns to promote public transit services, employer pass programs for public transit, flex-time work schedules, and restrictive parking measures. The goal of these strategies is to reduce the number of vehicles, especially single-occupancy vehicles, traveling along key roadways during peak travel times.

**Transportation Infrastructure:** the foundational structures and systems that support our transportation system. Transportation infrastructure includes roads, railways, bridges and tunnels, and rail and bus stations.

**Travel Patterns:** transit planners analyze where residents and visitors are traveling in our region, when they are traveling, and how often they are making these trips. CONNECT Beyond analyzed travel patterns in the region by conducting travel demand modeling using data from the Metrolina Regional Travel Demand Model and the NC Statewide Travel Model. This travel demand model splits our region into smaller transportation analysis zones (TAZs) and then uses population, employment and other socioeconomic data to predict the number of trips that start or end in each TAZ. Then the travel demand model identifies the mode of transportation used for each trip, such as if the person was driving alone in a private automobile, carpooling with others, riding the bus, taking light rail, walking or biking. Finally, the model predicts the specific road or transit route likely used to make the trip given travel conditions, roadway traffic and transit ridership. Understanding current and projected travel patterns helps transit planners identify candidate corridors for high capacity transit and make suggestions for transit service improvements that will help service providers best meet the region's varying mobility needs.

**Urban:** The NC Rural Center classifies urban counties as counties that have “an average population density that exceeds 750 people per square mile.” The CONNECT Beyond region has one county that would be considered an urban county based on these metrics, Mecklenburg County, which includes the metropolitan area of the City of Charlotte.

**Urban Sprawl:** when growth occurs in a decentralized, spread-out development pattern around a central metropolitan area. Sprawling growth patterns accelerates land use consumption by rapidly converting open space and rural land into suburban and urban development. A recent study by Smart Growth America found that the greater Charlotte region is the fifth most sprawling large metropolitan area with a population of more than one million residents in the United States.

**Workforce Housing:** housing that is affordable to workers and close to their jobs. Housing is considered ‘affordable’ if an individual or family spends no more 30 percent of their income on housing costs.

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