



**CONNECT
Beyond**

A Regional Mobility Initiative

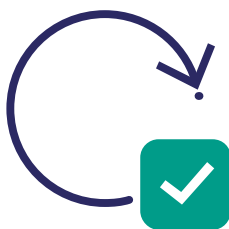
Technical Advisory Committee
June 24, 2020

High Capacity Transit & Commuter Rail Analysis



**CONNECT
Beyond**

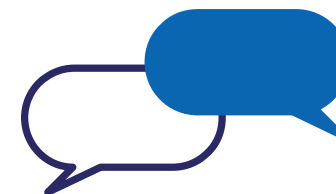
Meeting Objectives



Update you on the status of the CONNECT Beyond Project



Kick off the HCT and commuter rail analysis



Get your feedback/ local area expertise to inform our analysis

Agenda

1. Welcome
2. Project Update & Schedule
3. Purpose, Goals & Vision Update
4. Total Mobility Network, High Capacity Transit and Commuter Rail Overview
5. Small Group Breakouts



Technical Overview

- To help this meeting run as smoothly as possible, please consider the following tips:
 - Use headphones with a microphone; make sure you are muted when not speaking.
 - Send all questions and comments through the chat feature.
 - You may choose to disconnect from any VPN or third-party connection sources during the meeting to maintain connectivity and bandwidth.
- The main portion of this meeting will be recorded and shared with committee members who were unable to attend

Committee Packet

- Fact Sheet
 - Project Study Area
- Key Messages Document
- Project Coordination List
- Transit Types



Project Update

Jorge Luna, HDR, Project Manager

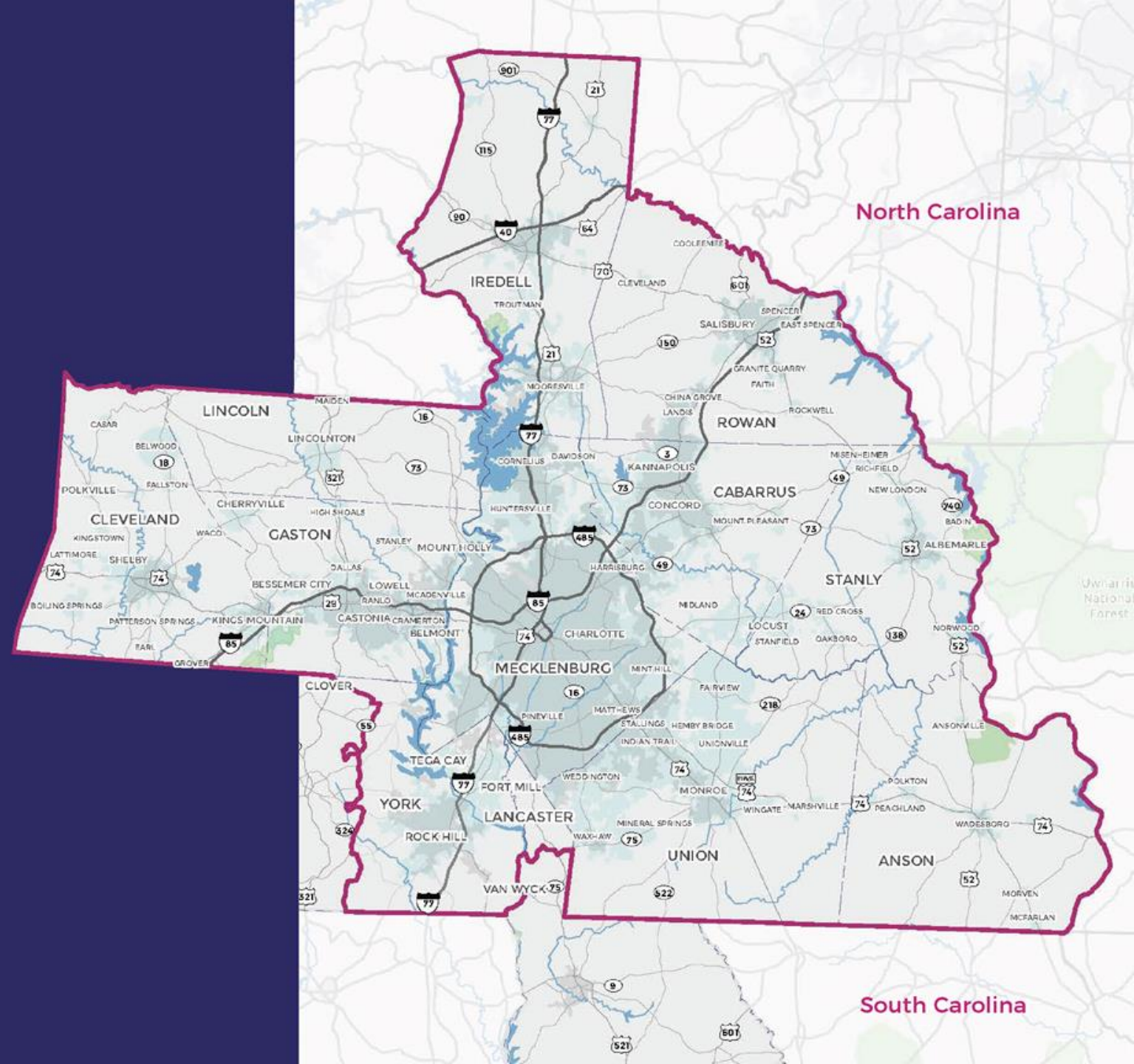
Our Region

2 States

12 Counties

5K Square Miles

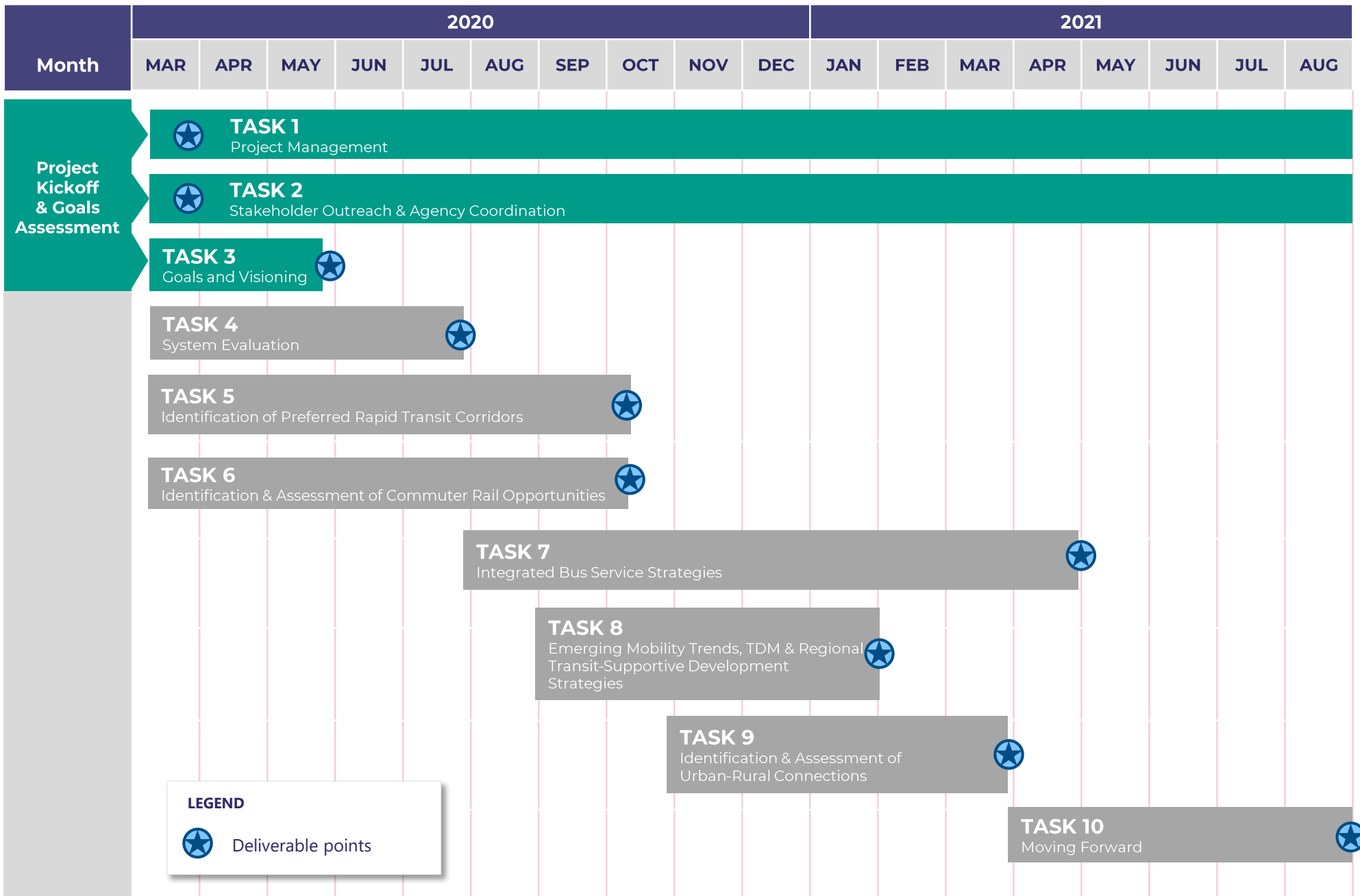
2.5 Million People

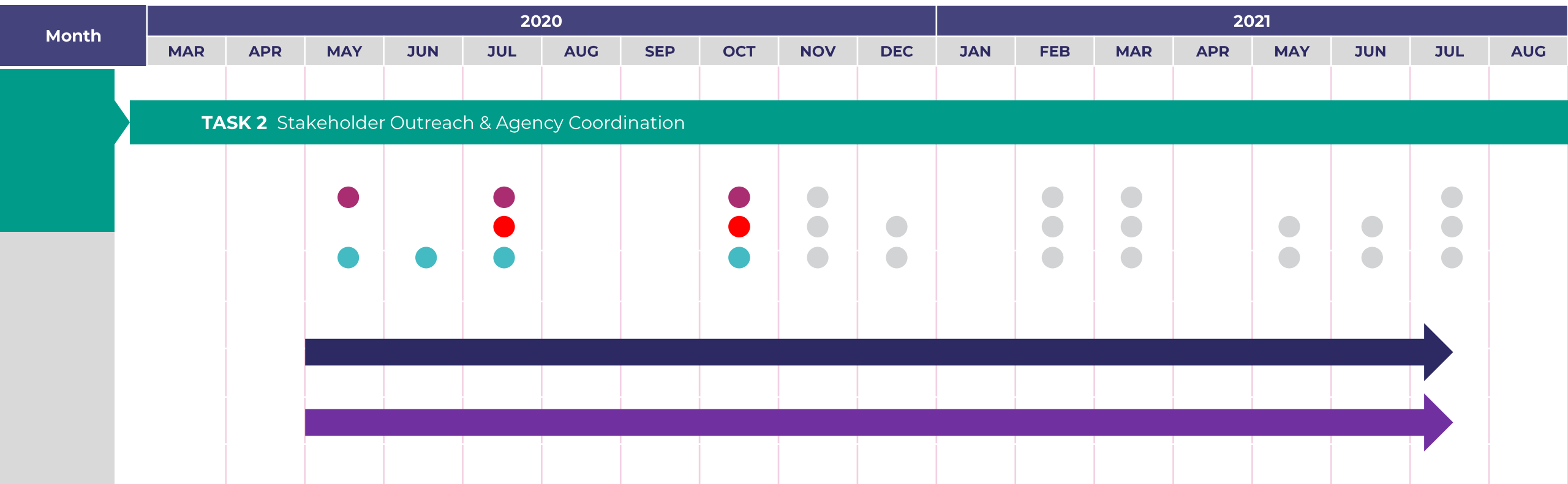


CONNECT Beyond will...

- **Define** a transit vision
- **Identify** corridors and complement plans and infrastructure
- **Strategize** coordination opportunities
- **Develop** implementation tools







- Policy Advisory Committee (PAC)
- Community Advisory Committee (CAC)
- Technical Advisory Committee (TAC)
- Future Committee Meetings (TBD)
- ➡ CCOG Board, MTC, and other Study Area MPO Boards*
- ➡ Community Outreach & Focus Group Meetings*

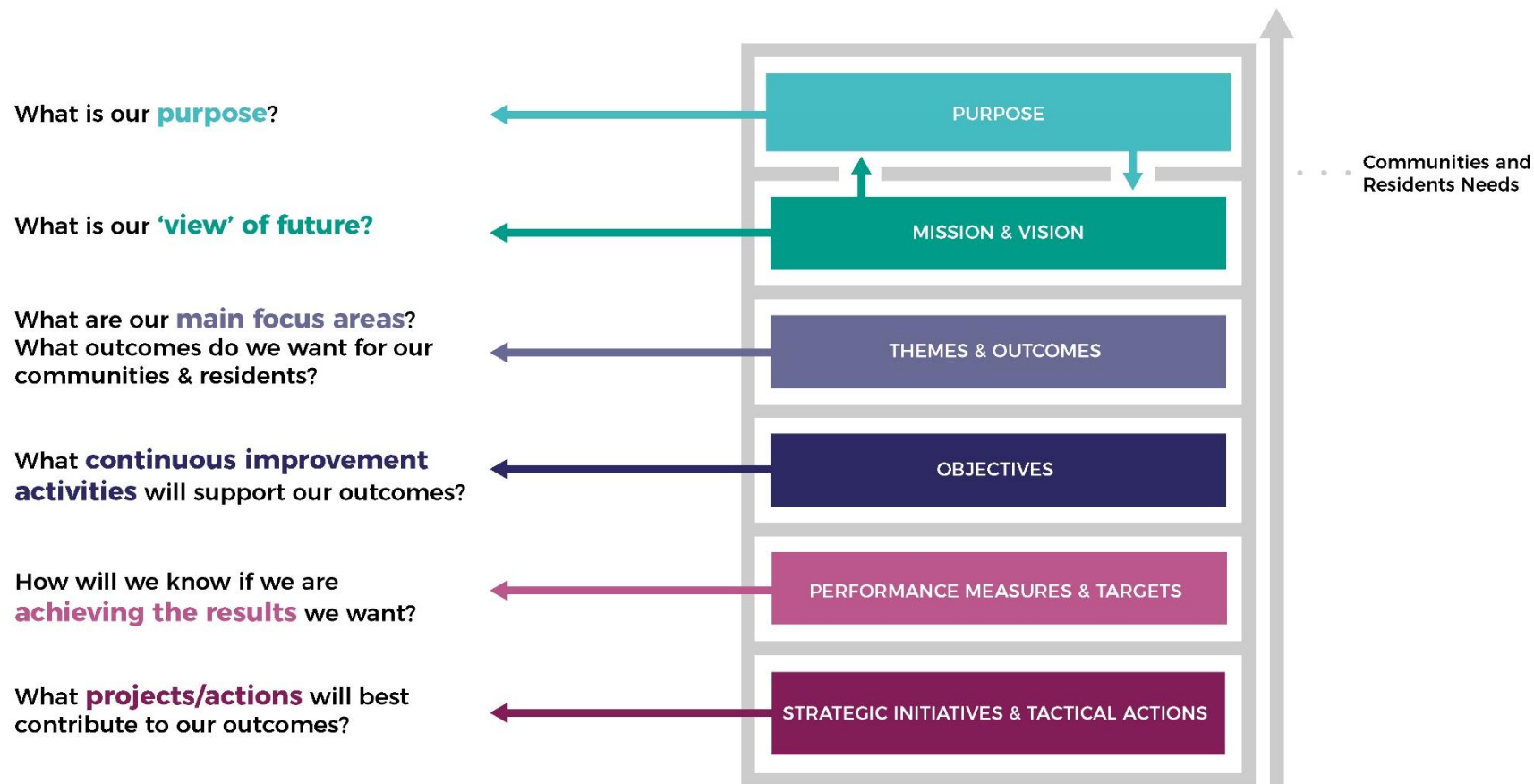
**The timing of Board meetings, Community Outreach and Focus Group meetings will be refined in the Public Involvement Plan*

The background is a solid magenta color. It features several overlapping circles of varying shades of magenta, creating a layered effect. A thick, dark magenta curved line sweeps across the middle of the frame, partially obscuring the circles.

Purpose, Goals & Vision

Jason Wager, CONNECT Beyond Project Manager

Strategic Planning Model



Project Purpose

Over the past two decades, our region has experienced unprecedented growth and has remained resilient through turbulent national economic cycles. Access to reliable, affordable and well-connected public transportation is one of the most important factors in ensuring that everyone can participate in and benefit from economic prosperity.

We need solutions to continue to promote economic competitiveness, while helping our neighbors and visitors easily get where they want and need to go. With the increasing pressures of growth, we need a bold mobility vision that inspires creativity and collaboration.



What We've Heard (TAC)

Strongly disagree

How well do you feel this statement captures the purpose of a regional mobility initiative?

8.9

Strongly agree

What We've Heard (PAC)

Strongly disagree

How well do you feel this statement captures the purpose of a regional mobility initiative?

8.5

Strongly agree

What We've Heard (TAC)

What, if anything, is missing from this purpose?



A word cloud of transportation-related terms, including:

- upward mobility
- person centered
- coordination
- more focus on users
- economic development
- long-term environment
- linkages more directly
- alternative modes
- opportunities
- holistic approach for all
- no mention of demand resp
- future of sustainability
- tnc model - how can we
- reference operational
- customer focus
- mobility solutions
- economic mobility
- tdm needs
- tdm
- social equity
- world class
- equity
- sustainability
- mobility options
- regional air quality
- mobility for all
- reliability
- seamless
- integrated
- choices

What We've Heard (PAC)

What, if anything, is missing from this purpose?

too broad

strategic

post-covid

too absolute

traffic or congestion

environmental benefits

need to narrow focus

environmental impacts

Project Purpose

Over the past two decades, our region has **experienced unprecedented growth** and has remained resilient through turbulent national economic cycles. Access to **safe**, reliable, affordable and well-connected public transportation is one of the most important factors in ensuring that **everyone can participate in and benefit from economic prosperity**.

The purpose of CONNECT Beyond is to provide mobility solutions to continue to promote economic competitiveness, while helping our neighbors and visitors easily get where they **want and need to go**. With the increasing pressures of growth, we need a bold mobility vision that inspires **creativity and collaboration**.



Project Vision & Mission

CONNECT Beyond will culminate in a regional transit plan that includes innovative transportation solutions to enhance mobility and access for people living and visiting our region.

- To set the foundation for a unified public transportation network that allows residents and visitors to seamlessly cross municipal, county, and state lines using public transportation options.
- To grow our national and global competitiveness as a region, including attracting industry, growing businesses and retaining jobs.
- Promote upward social mobility by providing better access to jobs, workforce housing services, medical facilities, and other destinations to those that may not have access to other means of transportation.



What We've Heard (TAC)

How well do you feel these statements capture your vision and mission for this initiative?



What We've Heard (PAC)

How well do you feel these statements capture your vision and mission for this initiative?



What We've Heard (TAC)

What, if anything, is missing from this vision and mission?



What We've Heard (PAC)

What, if anything, is missing from this vision and mission?

define transit
simplicity of use
transformational invest
education in last bullet
environmental concerns
community character
while protecting
nothing to add

environment

Project Vision & Mission

CONNECT Beyond will culminate in a regional transit plan that includes innovative transportation solutions to enhance mobility and access for people living and visiting our region.

- To set the foundation for a **unified public transportation network** that allows residents and visitors to **seamlessly cross municipal, county, and state lines** using public transportation options.
- **To elevate public transportation as a preferred mobility choice and community asset.**
- To grow our national and global competitiveness as a region, including attracting industry, growing businesses and retaining jobs.
- **Promote upward social mobility** by providing better access to **jobs, workforce housing services, medical facilities, educational resources and other destinations** to those that may not have access to other means of transportation.



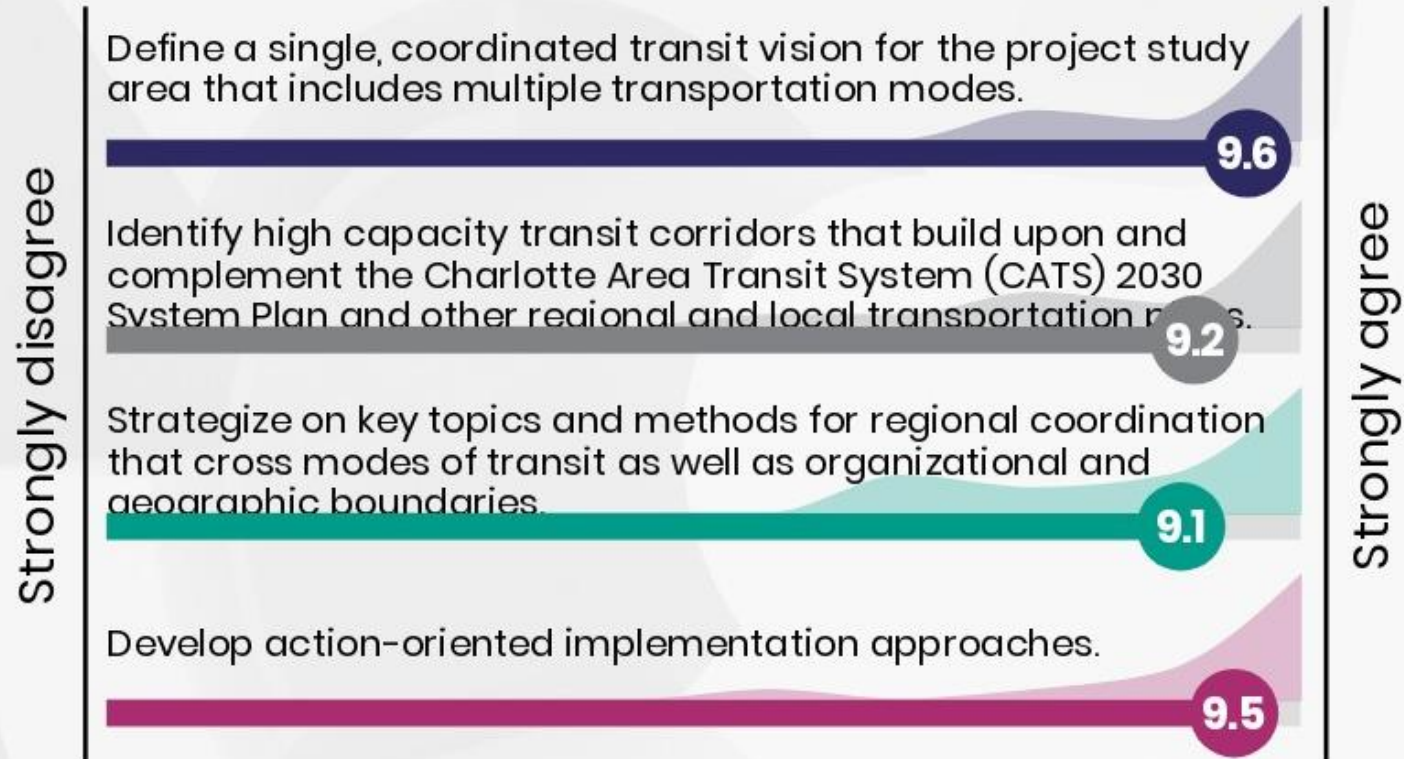
Goals

- Define a single, coordinated transit vision for the project study area that includes multiple transportation modes.
- Identify high capacity transit corridors that build upon and complement the Charlotte Area Transit System (CATS) 2030 System Plan and other regional and local transportation plans.
- Strategize on key topics and methods for regional coordination that cross modes of transit as well as organizational and geographic boundaries.
- Develop action-oriented implementation approaches that support:
 - Improved mobility and access.
 - Effective, regionally coordinated transit investments.
 - Coordinated transit operations to meet the needs of a growing and changing region.



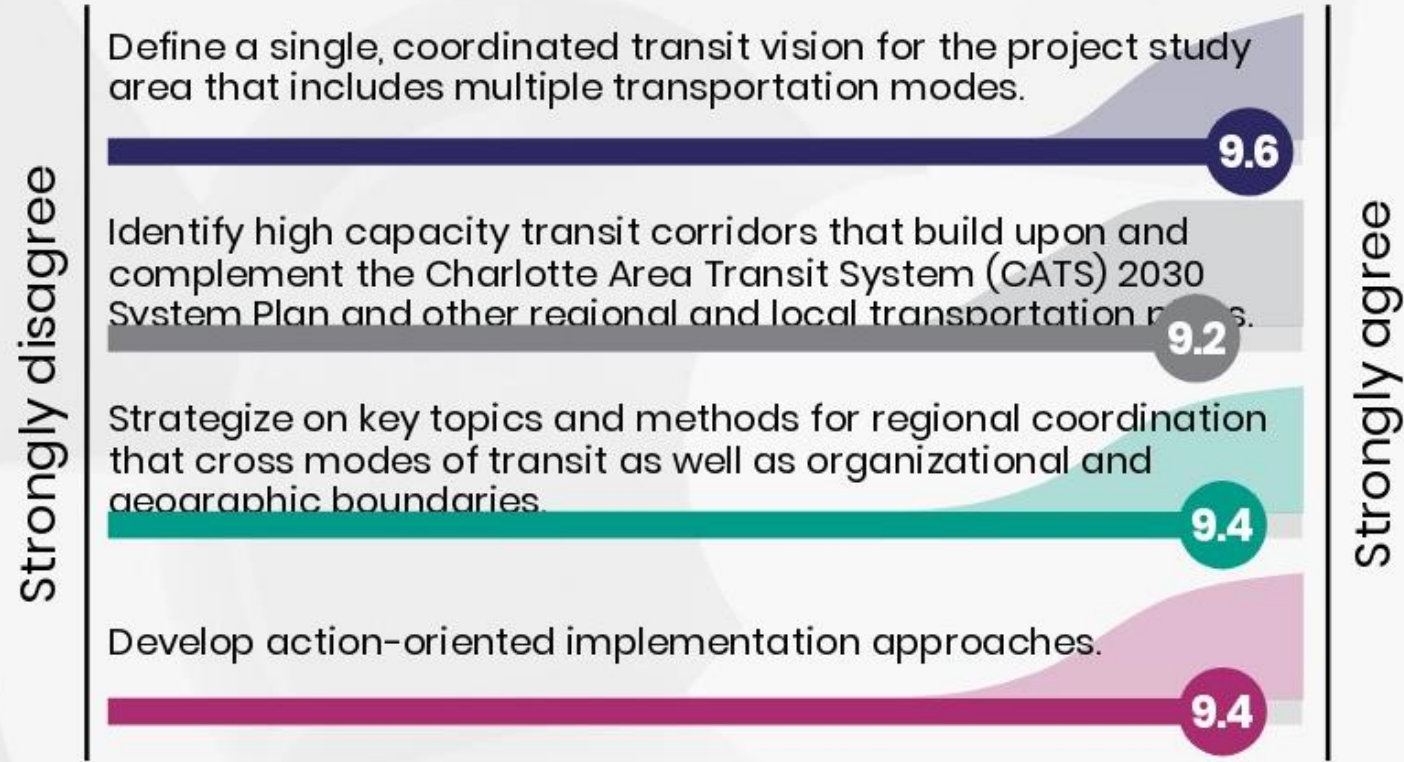
What We've Heard (TAC)

How well do you feel these goals capture your goals for this initiative?



What We've Heard (PAC)

How well do you feel these goals capture your goals for this initiative?



What We've Heard (TAC)

What, if anything, is missing from these goals?



What We've Heard (PAC)

What, if anything, is missing from these goals?

community
participation
local comm character
environmental impacts
shared funding
cost to users
marketing
engage
diverse
ease of use
feasibility

Goals

- Define a single, coordinated transit vision for the project study area that includes **multiple transportation modes**.
- Identify high capacity transit corridors that build upon and **complement** the Charlotte Area Transit System (CATS) 2030 System Plan and other **regional and local transportation plans**.
- Strategize on key topics and methods for **regional coordination** that cross modes of transit as well as organizational and geographic boundaries.
- Develop **action-oriented implementation approaches** that support:
 - Improved mobility and access.
 - Effective, regionally **coordinated transit investments**.
 - **Coordinated and resilient transit operations** to meet the needs of a growing and changing region.
 - **Environmentally sustainable investments and policies.**
 - **Advancement of equitable and community-driven improvements.**





**CONNECT
Beyond**

Mentimeter Code

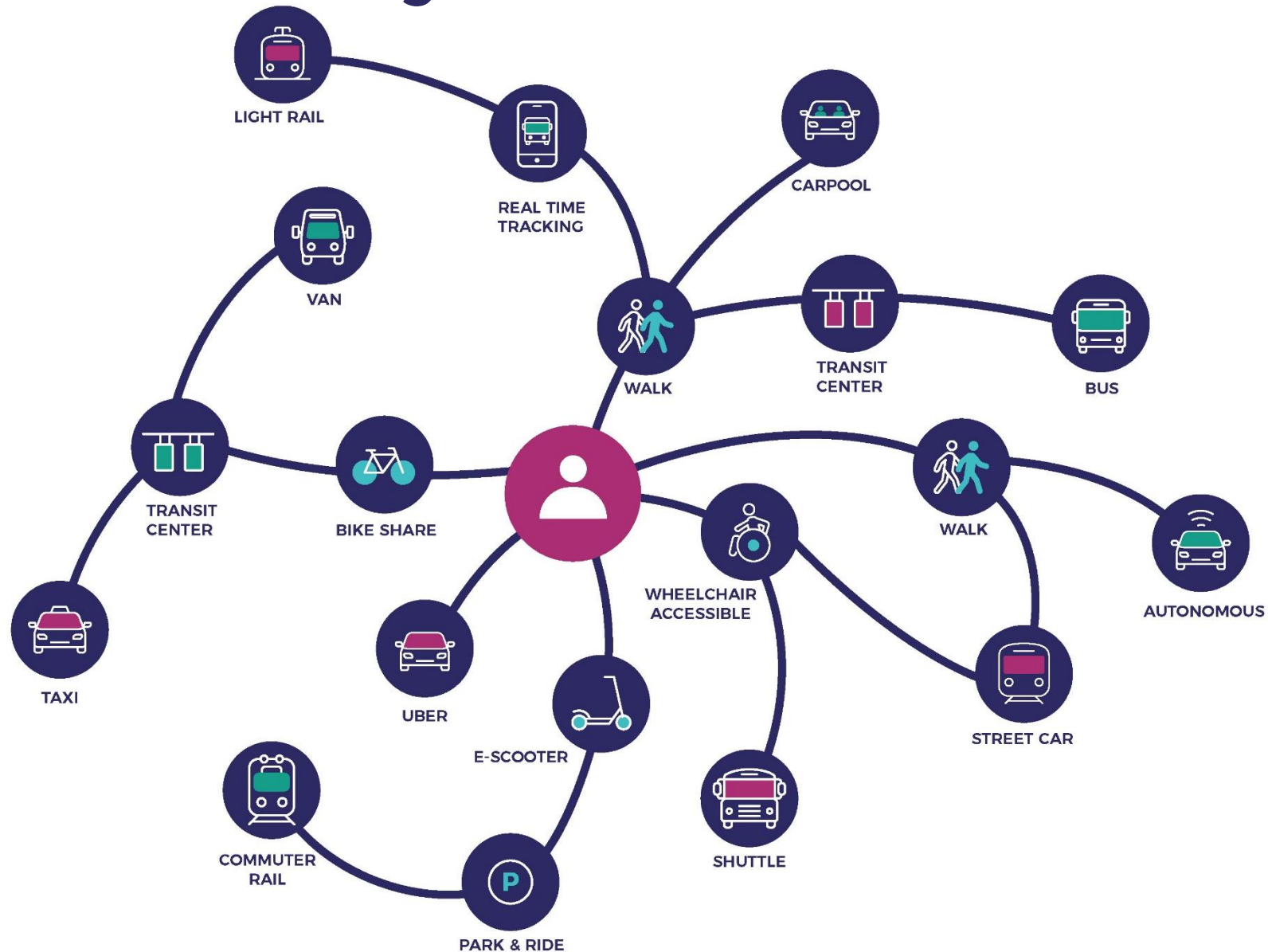
Go to **www.menti.com** and use the code **58 80 97** when prompted.

































Total Mobility Network































Jorge Luna, HDR, Project Manager











Total Mobility Network




Transit Mode/Type	Average Passenger Capacity (per vehicle)	Average Service and Frequency	Average Capital Cost Per Mile	Average Operating Cost	Service Area	Average Service Range	Average Distance between Station/Stops
HIGH CAPACITY TRANSIT							
 <div>Express Bus</div>	 <div>50-60</div>	<div>5AM-9AM 3PM-8PM Various Trips</div>	<div>\$+</div> <div>\$100K +</div>	<div>\$70/hr. to \$230/hr.</div>	 <div>Regional Suburban Urban</div>	<div>15-20 miles</div>	 <div>Regional Service = 5 miles Urban Areas = > 1 mile</div>
OTHER TRANSIT TYPES							
 <div>Local</div>	 <div>40-60</div>	 <div>6AM to Midnight 20/90 min.</div>	<div>\$+</div> <div>\$100K +</div>	<div>\$70/hr. to \$100/hr.</div>	 <div>Regional Suburban Urban</div>	<div>15 miles</div>	 <div>0.25 - 1 mile</div>
 <div>Circulator</div>	 <div>14-20</div>	 <div>6AM to 9PM 40/60 min.</div>	<div>\$+</div> <div>\$100K +</div>	<div>\$70/hr. to \$100/hr.</div>	 <div>Suburban</div>	<div>5 miles</div>	 <div><0.25 - 0.5 miles</div>
 <div>Demand Responsive Transport</div>	 <div>4 - 20 per vehicle</div>	<div>Varies</div>	<div>< \$</div>	<div>\$70/hr. to \$100/hr.</div>	 <div>Regional Suburban Urban</div>	<div>Varies</div>	<div>Curb to Curb</div>
 <div>Flex Bus</div>	 <div>4 - 20 per vehicle</div>	<div>Varies</div>	<div>< \$</div>	<div>\$70/hr. to \$100/hr.</div>	 <div>Suburban Rural</div>	<div>Varies - measured in sq. miles</div>	<div>Curb to Curb</div>

Transit Mode/Type	Supportive Land Use	Peer City Examples	Existing In Our Region	Under Consideration/ Development in Our Region
HIGH CAPACITY TRANSIT				
 <div>Express Bus</div>	<ul style="list-style-type: none"> Residential (Medium-Density) Residential (Low-Density) Retail (Community-Serving) 	<ul style="list-style-type: none"> Boston Dallas Indianapolis New York 		
OTHER TRANSIT TYPES				
 <div>Local</div>	<ul style="list-style-type: none"> Residential (Medium-Density) Commercial/Office Retail (Community-Serving) 	<ul style="list-style-type: none"> Austin Greenville New York Philadelphia 		
 <div>Circulator</div>	<ul style="list-style-type: none"> Residential (Medium-Density) Commercial/Office Retail (Community-Serving) 	<ul style="list-style-type: none"> Orlando 		
 <div>Demand Responsive Transport</div>	None Required	<ul style="list-style-type: none"> Fixed Route Supportive 		
 <div>Flex Bus</div>	<ul style="list-style-type: none"> Residential (Low-Density) 	<ul style="list-style-type: none"> Tallahassee 		

Transit Mode/Type	Average Passenger Capacity (per vehicle)	Average Service and Frequency	Average Capital Cost Per Mile	Average Operating Cost	Service Area	Average Service Range	Average Distance between Station/Stops
HIGH CAPACITY TRANSIT							
 <div>Heavy Rail (Amtrak)</div>	 <div>100 - 150</div>	 <div>All day, Peak and Off Peak Services 10/60 min.</div>	 <div>\$75M to \$100M</div>	\$190/hr. to \$370/hr.	 <div>Regional Urban</div>	Varies	 <div>Regional Service = 1-5 miles Urban Areas = < 1 mile</div>
 <div>Regional/Commuter Rail</div>	 <div>70-190</div>	 <div>Peak and Limited Off Peak Services 20/30 min.</div>	 <div>\$3M to \$30M</div>	\$280/hr. to \$660/hr.	 <div>Regional Urban</div>	30 + miles	 <div>2-5 miles</div>
 <div>Light Rail</div>	 <div>60-175</div>	 <div>4AM to 1AM 10/20 min.</div>	 <div>\$80M to \$125M</div>	\$190/hr. to \$370/hr.	 <div>Regional Urban</div>	10-20 miles	 <div>1 mile</div>
 <div>Streetcar</div>	 <div>30-100</div>	 <div>4AM to 1AM 10/20 min.</div>	 <div>\$5M to \$50M</div>	\$130/hr. to \$250/hr.	 <div>Urban</div>	1 - 7 miles	 <div>0.25 - 0.5 miles</div>
 <div>Bus Rapid Transit</div>	 <div>40-60</div>	 <div>4AM to 1AM 10/20 min.</div>	 <div>\$4M to \$36M</div>	\$70/hr. to \$210/hr.	 <div>Regional Suburban Urban</div>	10-25 miles	 <div>0.5 - 2 miles</div>

Transit Mode/Type	Supportive Land Use	Peer City Examples	Existing In Our Region	Under Consideration/ Development in Our Region
HIGH CAPACITY TRANSIT				
 <div>Heavy Rail (Amtrak)</div>	<ul style="list-style-type: none"> Residential (High Density) Commercial/Office Retail (Community-Serving) Retail (Passenger-Serving) 	<ul style="list-style-type: none"> Chicago New York San Francisco 		
 <div>Regional/Commuter Rail</div>	<ul style="list-style-type: none"> Residential (High-Density) Residential (Medium-Density) Commercial/Office Retail (Community-Serving) Retail (Passenger-Serving) 	<ul style="list-style-type: none"> Boston Dallas Fort Worth San Francisco San Jose 		
 <div>Light Rail</div>	<ul style="list-style-type: none"> Residential (High Density) Commercial/Office Retail (Community-Serving) Retail (Passenger-Serving) 	<ul style="list-style-type: none"> Denver Dallas Houston Seattle 		
 <div>Streetcar</div>	<ul style="list-style-type: none"> Residential (Medium-Density) Residential (Low-Density) Commercial/Office Retail (Community-Serving) 	<ul style="list-style-type: none"> Atlanta Little Rock Portland Tampa 		
 <div>Bus Rapid Transit</div>	<ul style="list-style-type: none"> Residential (Medium-Density) Residential (Low-Density) Commercial/Office Retail (Community-Serving) 	<ul style="list-style-type: none"> Boston Cleveland Eugene Pittsburgh 		



High Capacity Transit & Commuter Rail Analysis

Jorge Luna, HDR, Project Manager

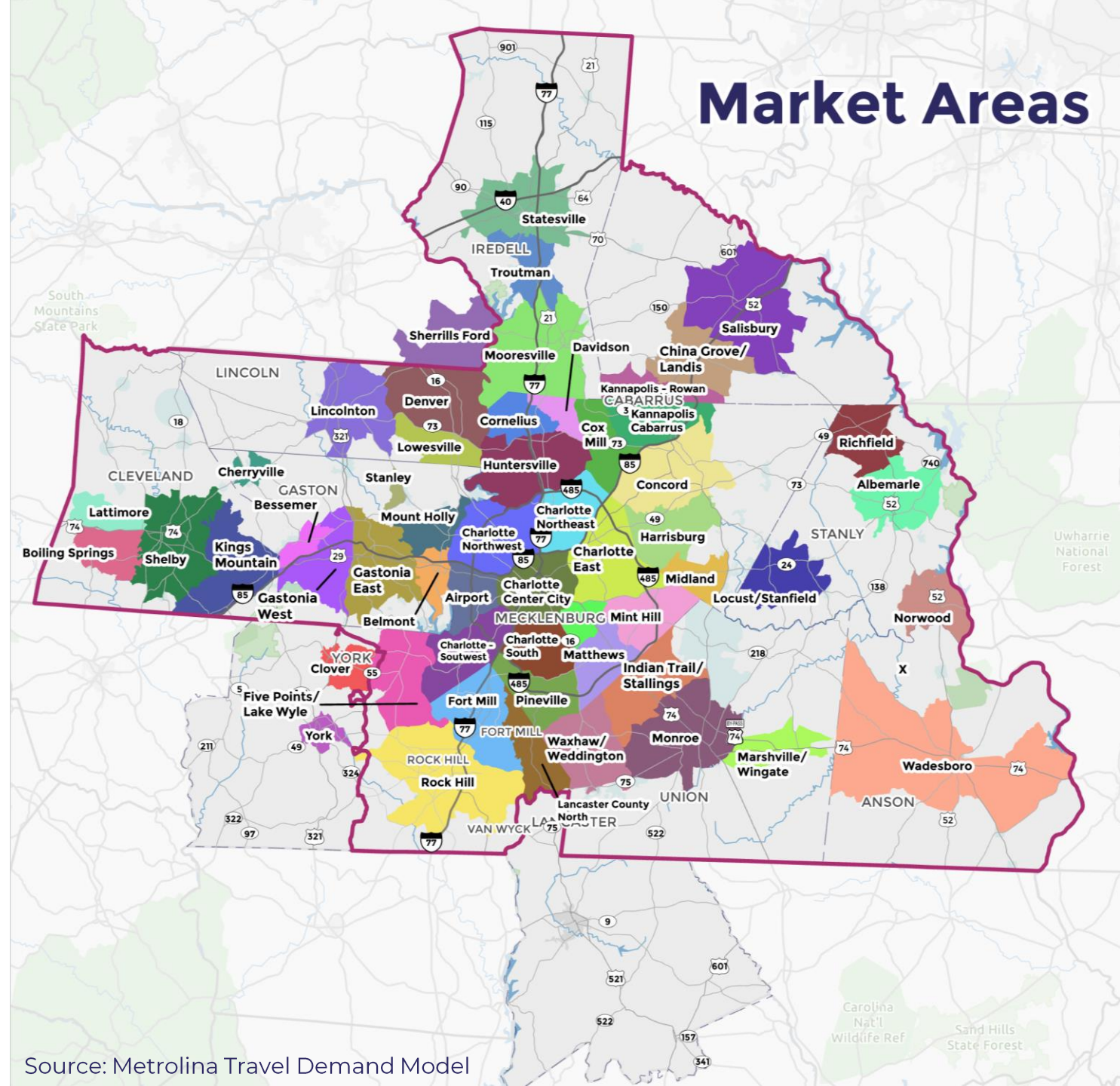
Task 4 – System Evaluation

- Evaluate Available Service Data (currently assessing)
- Prepare Inventory of Transit Services (currently developing)
- Transit Market Analysis (currently developing)
- Analyze System Level Performance (next step)
- Service Standards (next step)



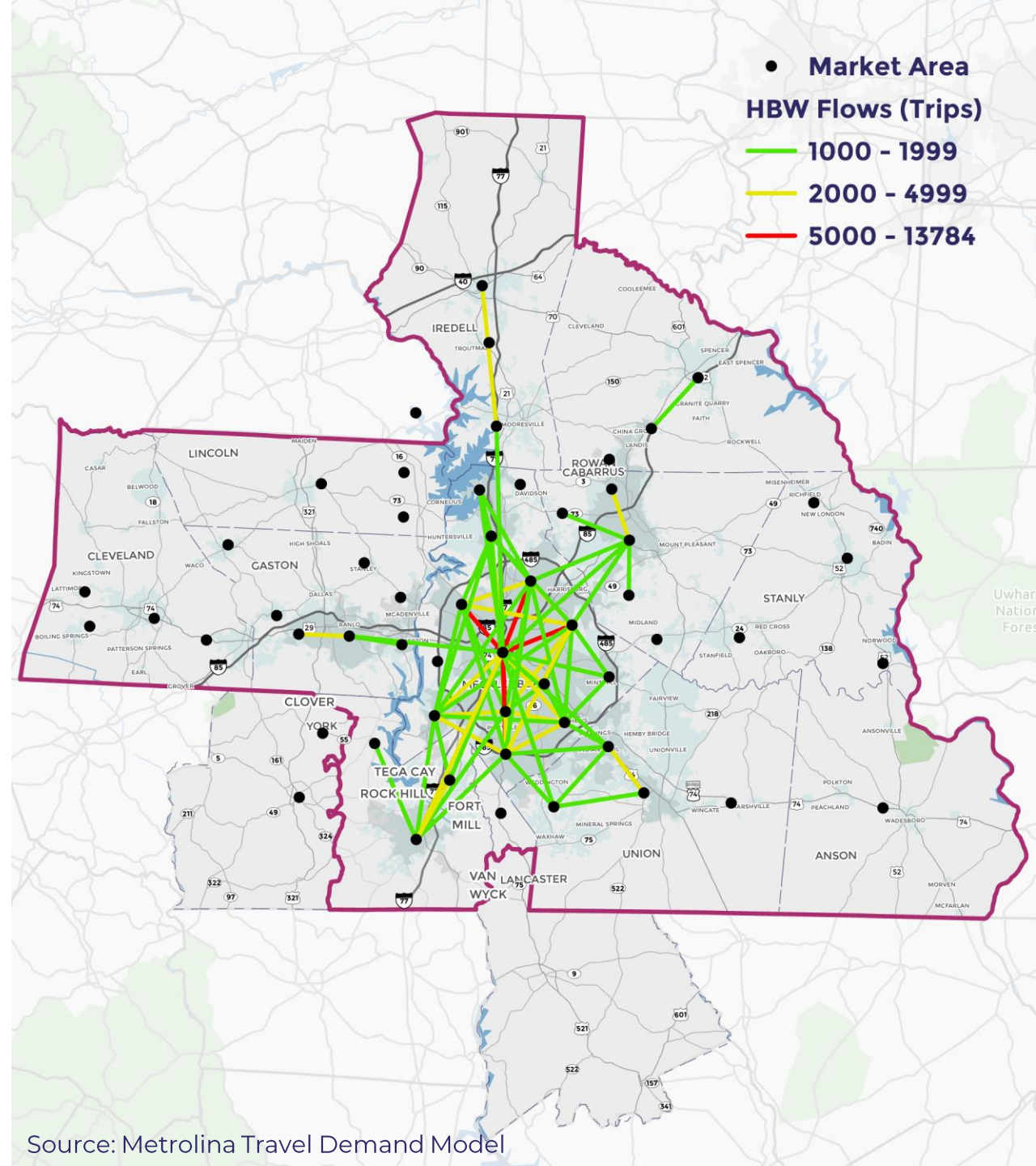
Task 4 – Travel Markets

- Metrolina Travel Demand Model (2045)
 - Over 3,500 TAZs
 - Capture >75% of
 - population density
 - employment density
 - trip production / attraction
 - 54 Market areas
- Identify transit markets
 - Trip generators & attractors
 - Travel patterns
- Help screen for
 - Fixed route service areas
 - Other mobility strategies



Task 4 – Travel Markets

- Home based work trips
- Market area flows
- Preliminary observations
 - Strong Uptown attraction
 - North/south & east/west patterns
 - Strong market area to market area trip production and attraction
- Future work
 - Analyze internal market area flows
 - Other service options



Source: Metrolina Travel Demand Model

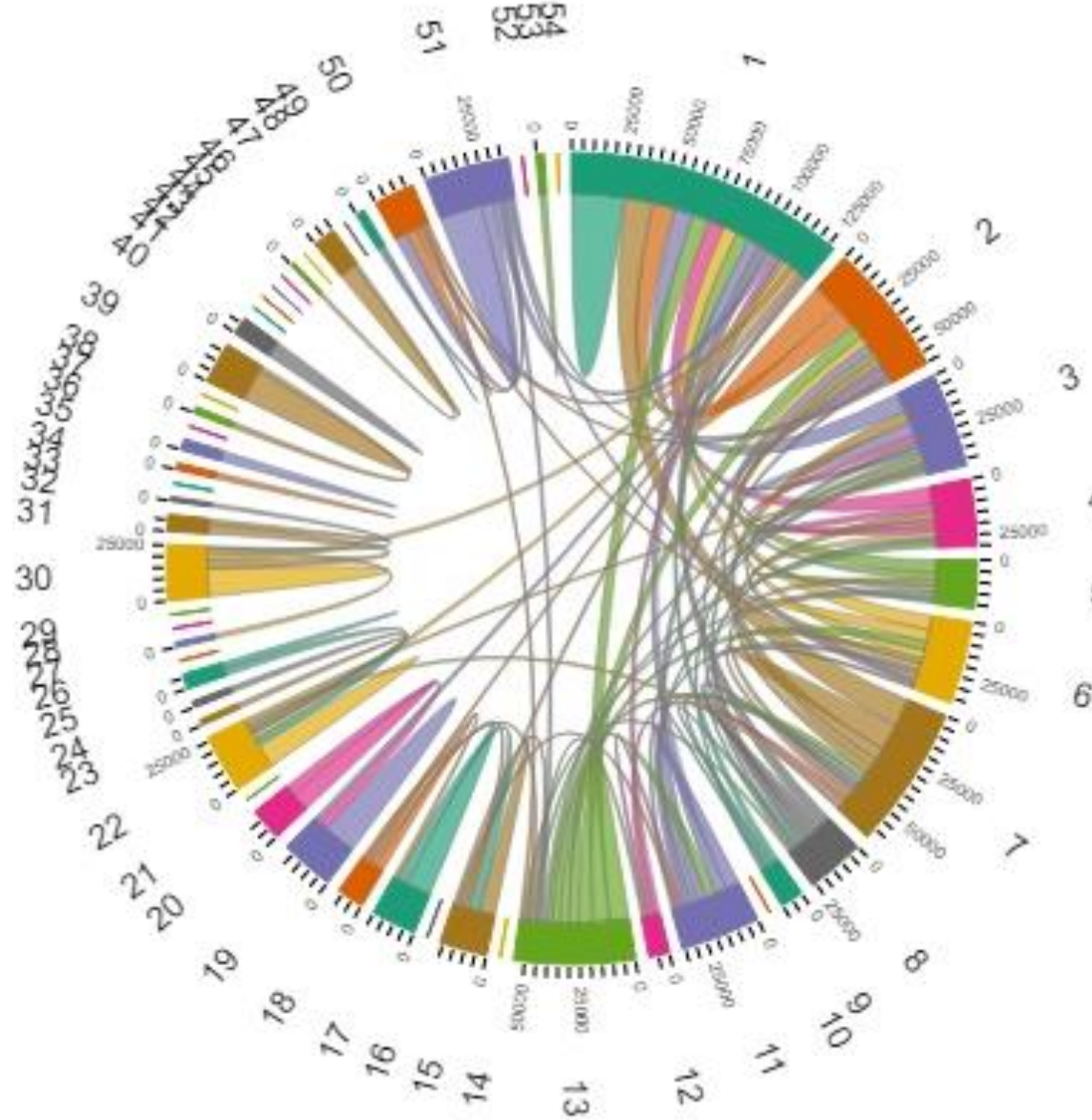
Major Work Trip O-D Flows

Year 2015

Preliminary

(Flow values of 1,500 trips or more)

1: Charlotte - Center City	28: Bessemer
2: Charlotte - South	29: Cherryville
3: Charlotte - Northeast	30: Gastonia - East
4: Charlotte - Northwest	31: Gastonia - West
5: Charlotte - Southeast	32: Mount Holly
6: Charlotte - Southwest	33: Stanley
7: Charlotte - East	34: Denver
8: Huntersville	35: Lincolnnton
9: Cornelius	36: Lowesville
10: Davidson	37: China Grove/Landis
11: Matthews	38: Kannapolis - Rowan
12: Mint Hill	39: Salisbury
13: Pineville	40: Albemarle
14: Airport	41: Locust/Stanfield
15: Indian Trail/Stallings	42: Norwood
16: Marshville/Wingate	43: Richfield
17: Monroe	44: Boiling Springs
18: Waxhaw/Weddington	45: Kings Mountain
19: Mooresville	46: Lattimore
20: Statesville	47: Shelby
21: Troutman	48: Clover
22: Concord	49: Five Points/Lake Wylie
23: Cox Mill	50: Fort Mill
24: Harrisburg	51: Rock Hill
25: Kannapolis - Cabarrus	52: York
26: Midland	53: Lancaster County - North
27: Belmont	54: Sherrills Ford



Source: Metrolina Travel Demand Model

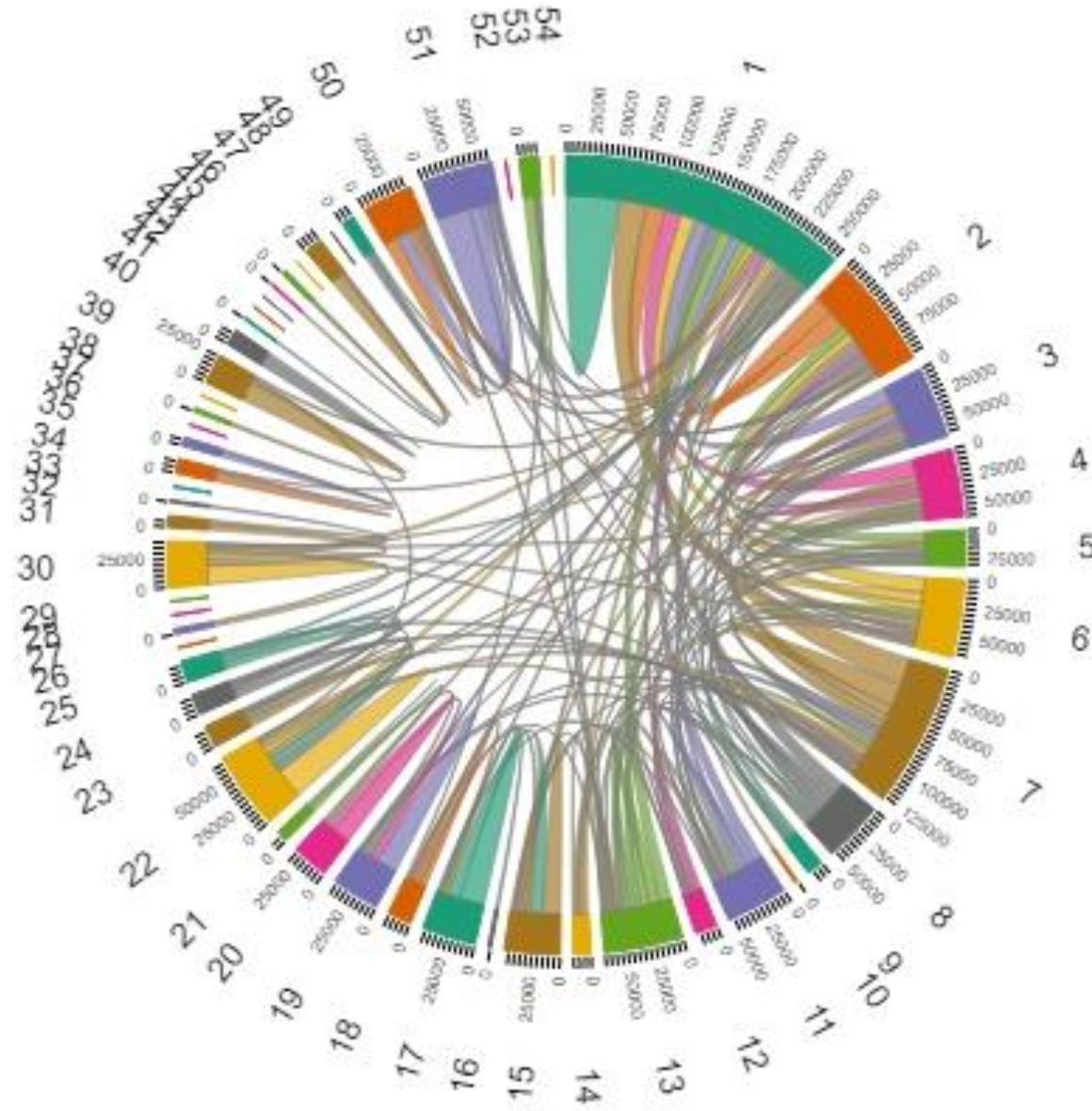
Major Work Trip O-D Flows

Year 2045

Preliminary

(Flow values of 1,500 trips or more)

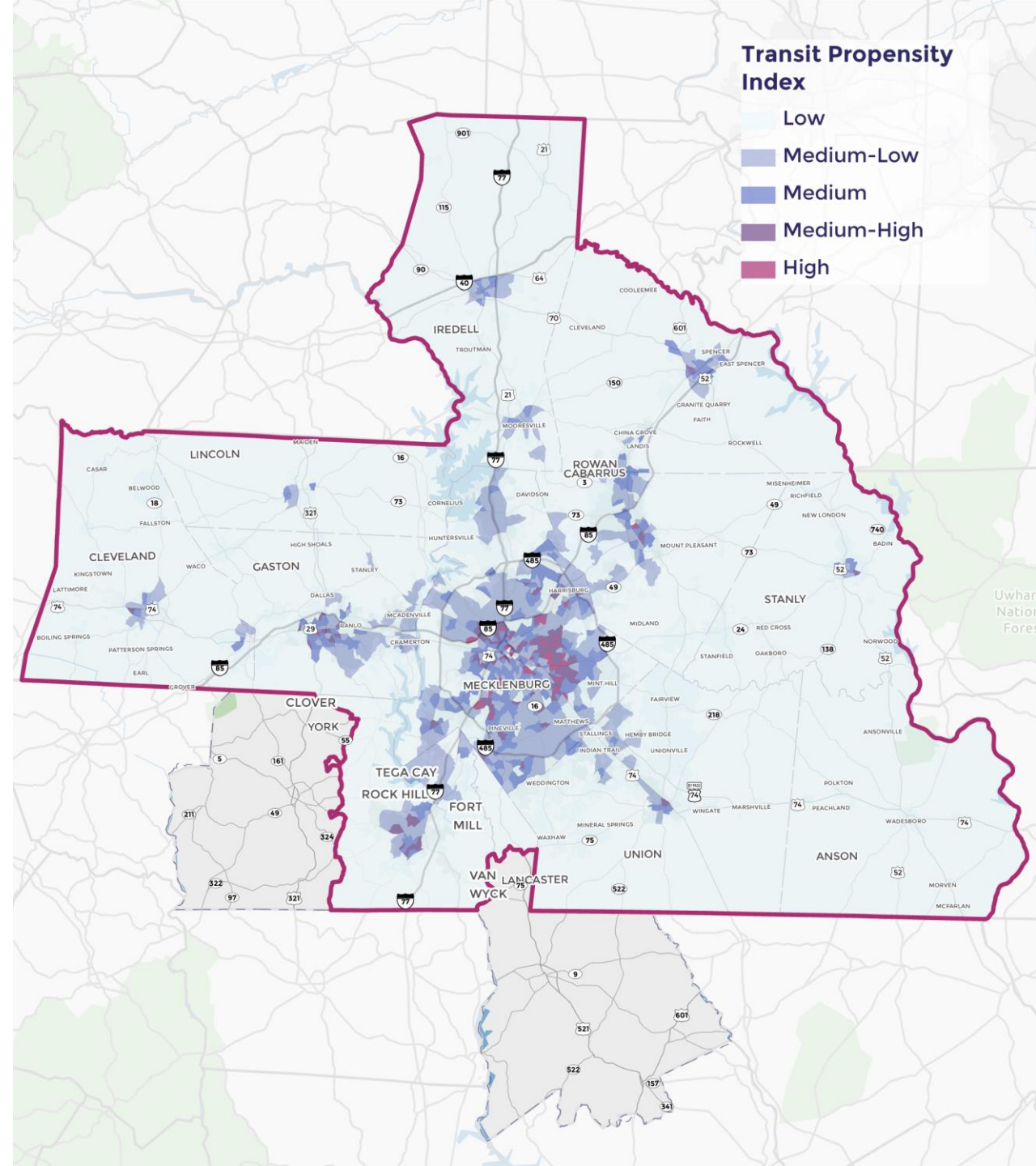
1: Charlotte - Center City	28: Bessemer
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10: Davidson	37: China Grove/Landis
11: Matthews	38: Kannapolis - Rowan
12: Mint Hill	39: Salisbury
13: Pineville	40: Albemarle
14: Airport	41: Locust/Stanfield
15: Indian Trail/Stallings	42: Norwood
16: Marshville/Wingate	43: Richfield
17: Monroe	44: Boiling Springs
18: Waxhaw/Weddington	45: Kings Mountain
19: Mooresville	46: Lattimore
20: Statesville	47: Shelby
21: Troutman	48: Clover
22: Concord	49: Five Points/Lake Wylie
23: Cox Mill	50: Fort Mill
24: Harrisburg	51: Rock Hill
25: Kannapolis - Cabarrus	52: York
26: Midland	53: Lancaster County - North
27: Belmont	54: Sherrills Ford



Source: Metrolina Travel Demand Model

Task 4 – Travel Markets

- Transit Propensity (ACS 2018)
 - Youth
 - Elderly
 - Minority
 - Low Income
 - Disabled
 - Zero Car Households
- Supports
 - Fixed route analysis
 - Other mobility options
 - Network connectivity



Task 4 – Travel Markets

- Still working on data gathering
- Your data will help inform future tasks
- Study team reaching out for data
- Please be on the lookout



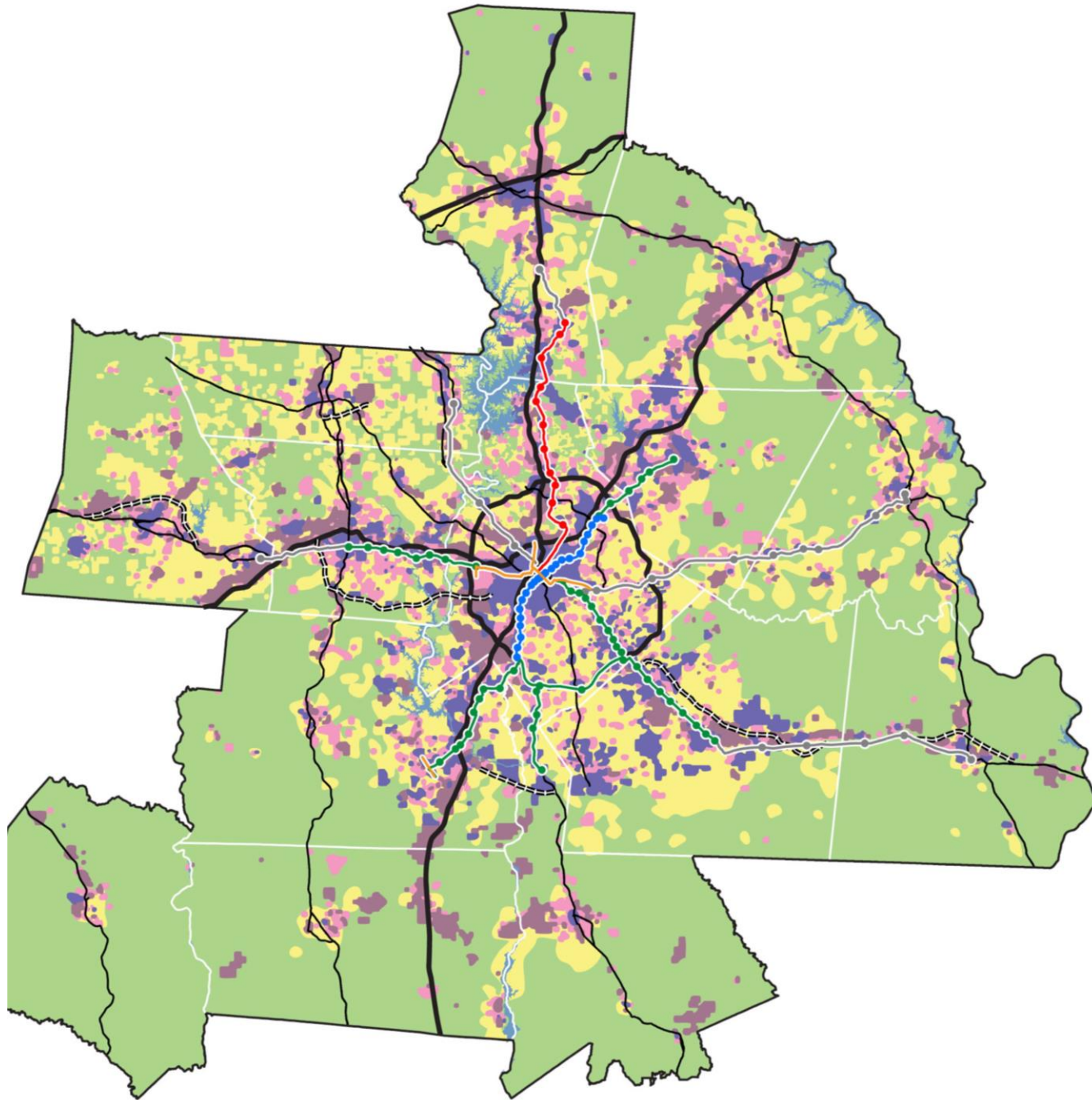
Task 5 – Identification of Preferred Rapid Transit Corridors

- Corridor Alternatives Identification
- Corridor Feasibility Evaluation
- Preferred Corridors Refinement and Next Steps



Task 5 – Identification of Preferred Rapid Transit Corridors

- Anchored on study goals
- Informed by:
 - Corridors identified through CONNECT Our Future
 - CATS 2030 System Plan
 - Existing / adopted plans
 - Travel patterns analysis
- High level and not an Alternatives Analysis



Task 6 – Identify and Assess Commuter Rail Opportunities

- Identify regional candidate corridors for potential commuter rail operation
- Inventory candidate freight corridors
- High-level feasibility and implementation analysis



Future Tasks

- Outreach, engagement, presentations, committee meetings
- Integrated Bus Service Strategies
- Transportation Demand Management
- Identification and Assessment of Urban-Rural Connections
- Moving Forward





Purpose/Instructions



CONNECT Beyond

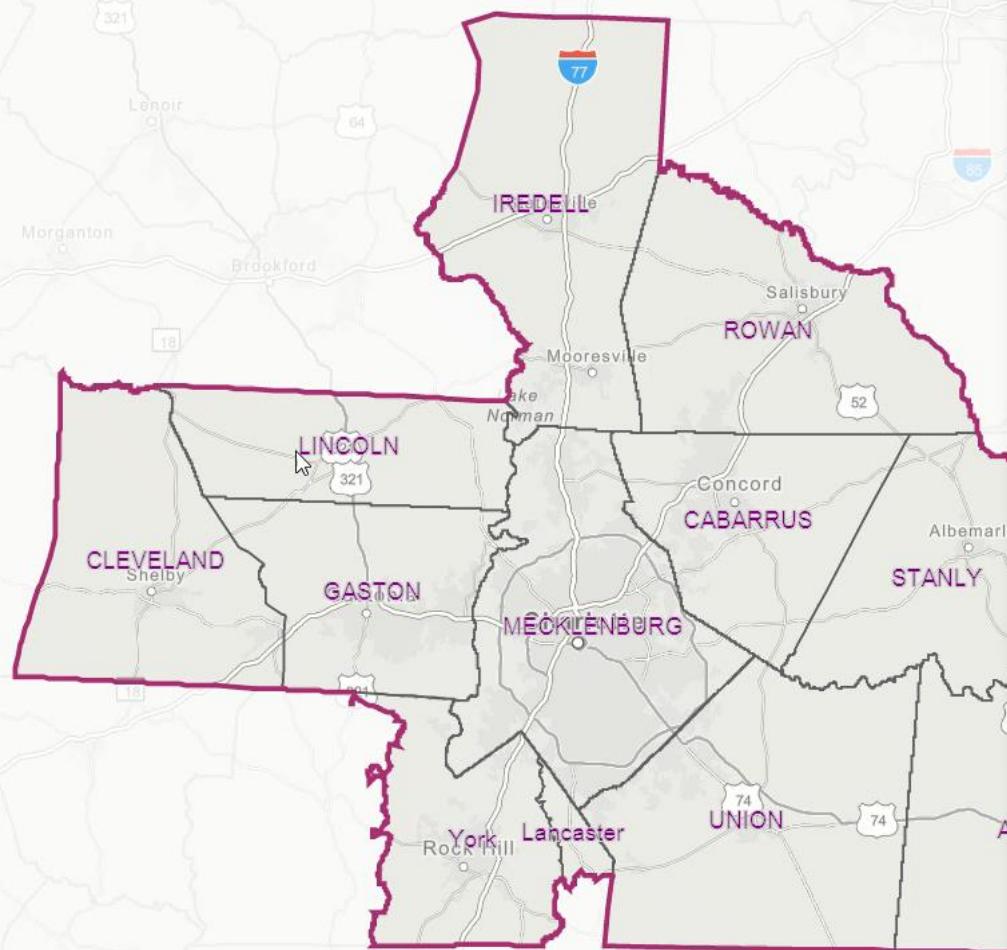
A Regional Mobility Initiative

Welcome to the CONNECT: Beyond Online Map Viewer. This interactive web-based map provides a tool to view a variety of data, including regional transportation components, socioeconomic, and demographic data.

TIPS:



- The map layers widget,  (located at the top right of the screen) allows you to toggle on/off any layers that you want to display. Users can also obtain



Add/Delete Comments



Select a template to create features



Point Comment



Area Comment

Point Comment

Area Comment

Questions

- What plans or planning efforts currently exist that should inform the HCT analysis?
- Based on your local area knowledge, are there any areas that may experience increased growth in the future?
- Are there areas that should be avoided?
- Are there areas of your community that need transit service that are not getting it today?



Breakout Session

Sabrina Colón, HDR

Breakout Groups

Group	Group Facilitator	Co-Facilitator/ Note taker	Technical Resource
CRTPO	Bob Cook	Jerrel Leonard	Curtis Bridges
CRMPO	Jason Lawrence	Bruce Jones	Phil Conrad/ LJ Weslowski
GCLMPO	Michelle Nance	Carina Soriano	Randi Gates
RFATS	Kevin Walsh	Pamela White	David Hooper
RRRPO	Emily Parker	Jessica Hill	Lee Snuggs

Breakout Session

What's Next?

Project Management Team

- Community Advisory Committee
- System Evaluation
- Identification of Preferred Rapid Transit Corridors
- Identification & Assessment of Commuter Rail Opportunities

Committee

- Relatable/applicable studies or resolutions for CONNECT Beyond related to HCT & commuter rail analysis
- Keep an eye out for data needs list
- **Join us for the next meeting July 30, 2020**

Contact Us



contact@connect-beyond.com





Questions