



# NORTH CAROLINA

Department of Transportation



## NCDOT's Integrated Mobility Division (IMD) – Multimodal Updates

March 2, 2022



Integrated Mobility Division  
N.C. DEPARTMENT OF TRANSPORTATION



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

# AGENDA

- IMD Intro
- IMD Planning and Programming
- Statewide Program Updates
- Regional Program Updates



## Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

### **Mission**

Provide leadership for safe, affordable, and innovative multimodal transportation throughout North Carolina

### **Core Goals:**

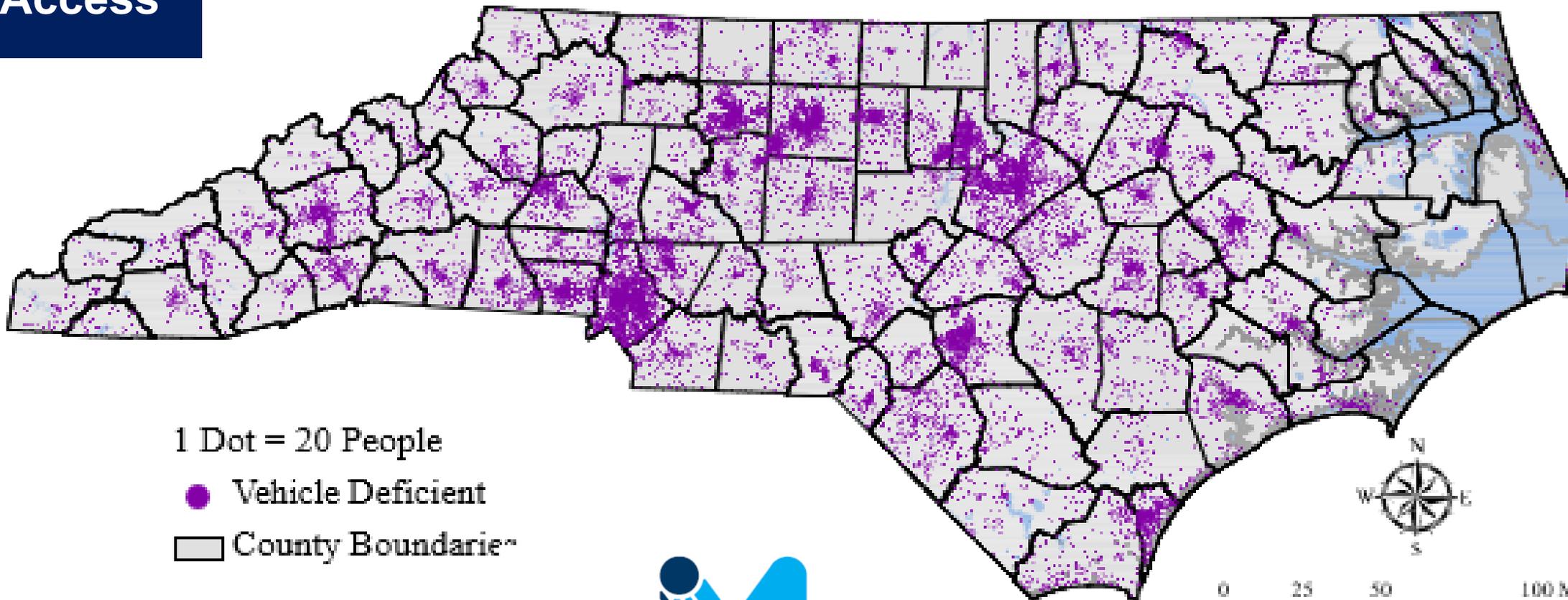
**Increase  
Access**

**Enhance  
Quality of Life**

**Ensure  
Safety**

Increase  
Access

# Adults Without a Vehicle in NC



1 Dot = 20 People

● Vehicle Deficient

▭ County Boundaries



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

# Enhance Quality of Life



Multimodal options lead to healthier lifestyles



Replace 2 miles of driving with walking or biking x 365 days =

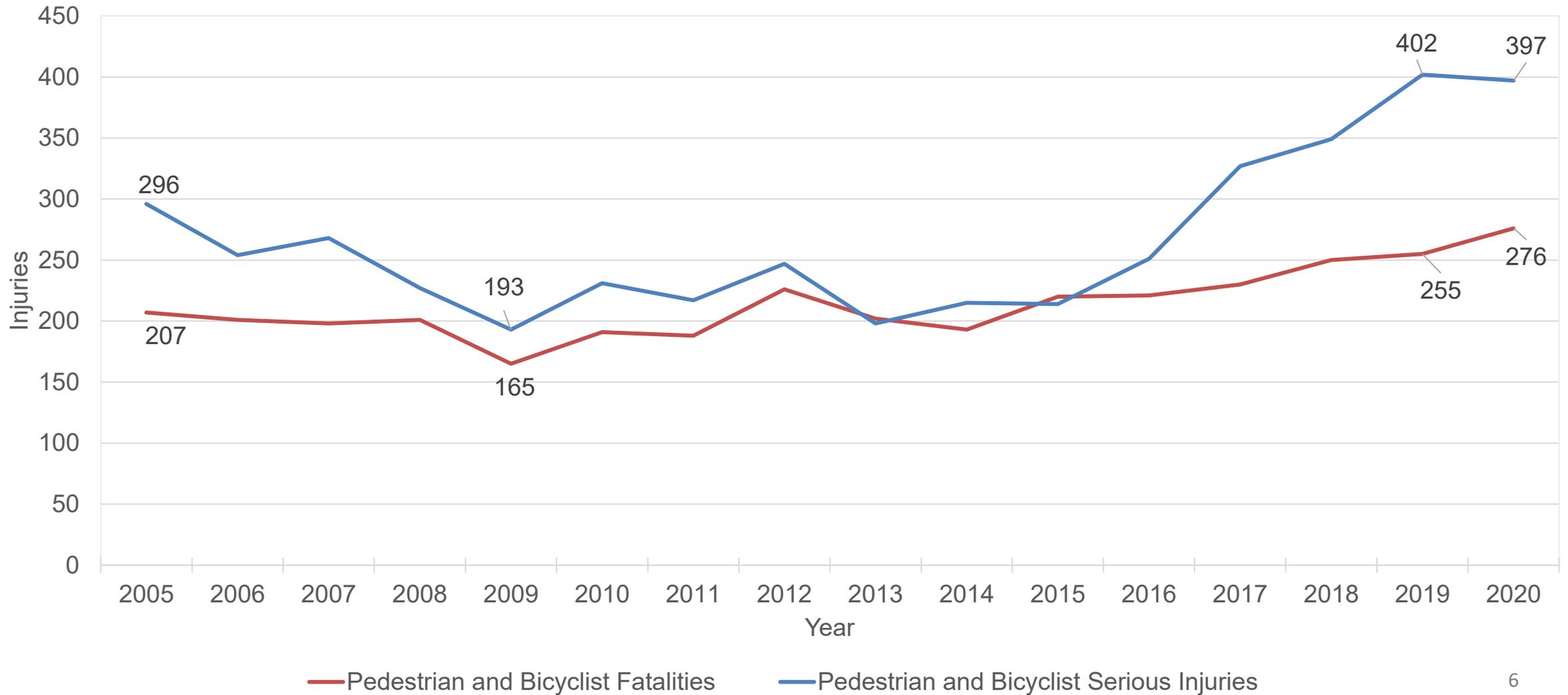


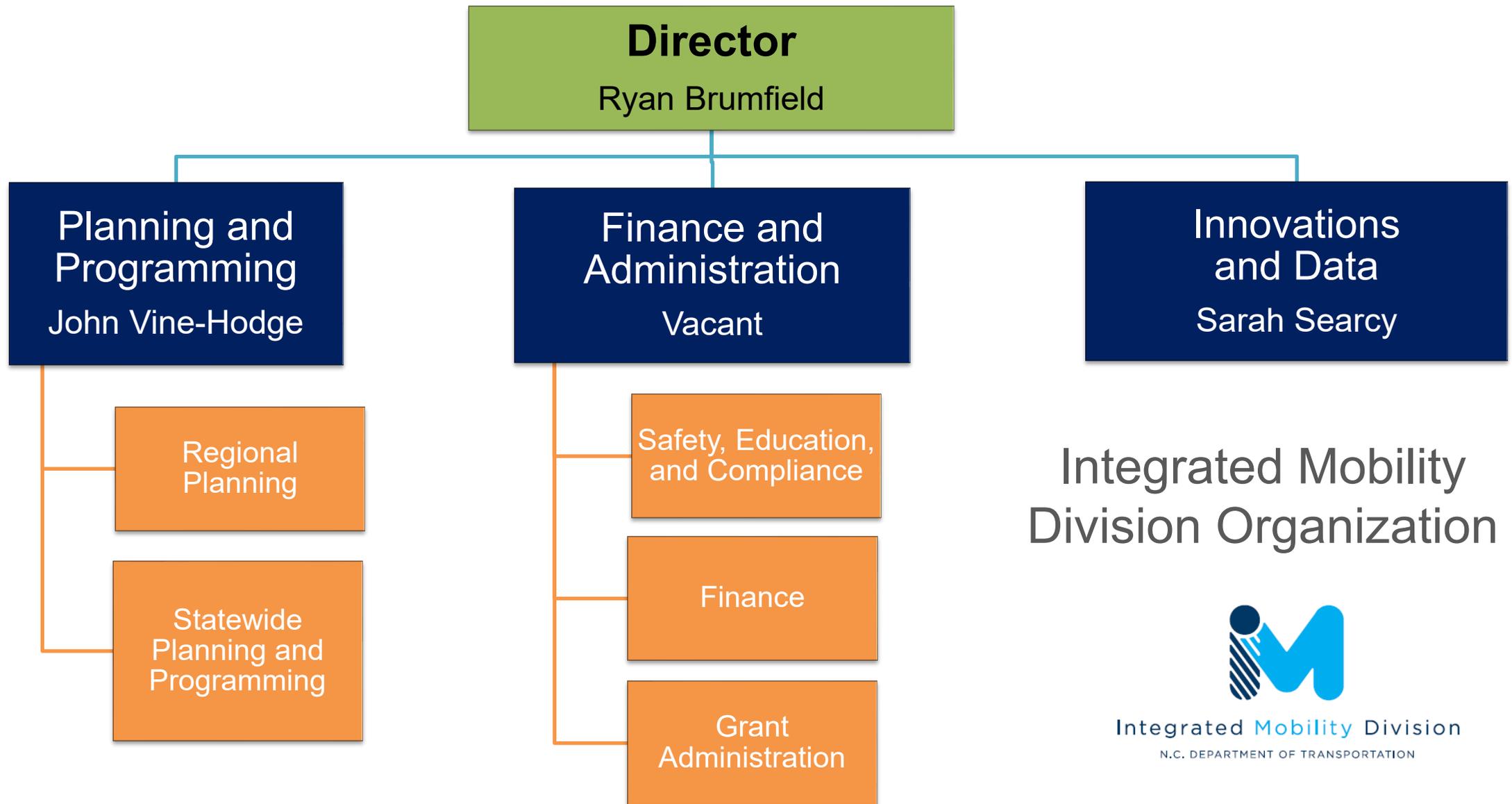
Multimodal options lead to better environmental outcomes



Ensure  
Safety

## NC Bicycle &amp; Pedestrian Safety Trends





## Integrated Mobility Division Organization



Integrated Mobility Division  
N.C. DEPARTMENT OF TRANSPORTATION

# Good Data Leads to Better Innovations

**Problem** – What problem are we solving?

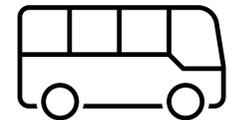
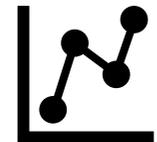
**Baseline** – What are our assets, resources and conditions?

**Actions** – What are we doing to solve the problem?

**Outcomes** – What are we achieving?

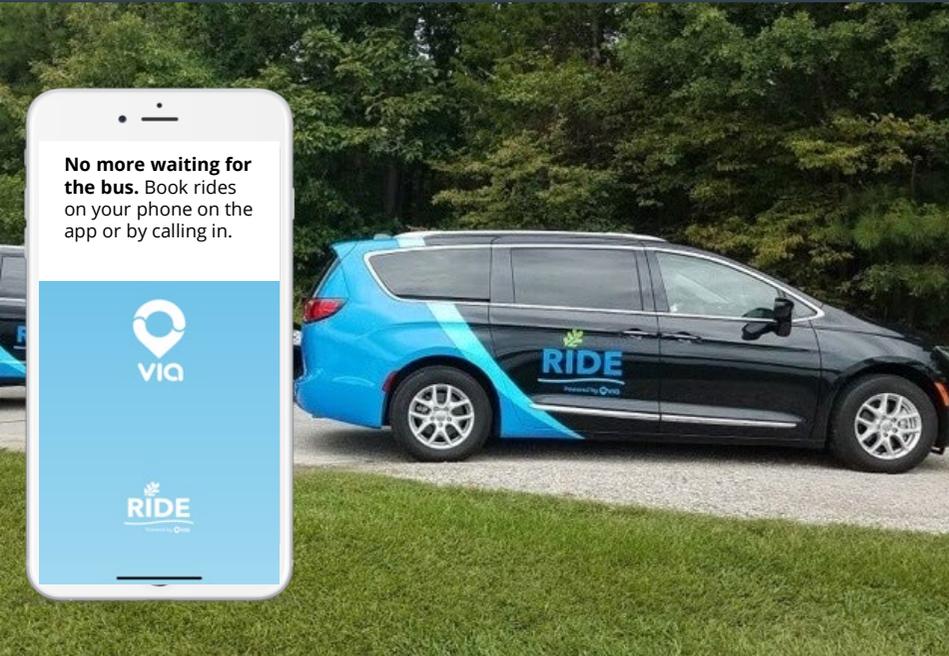
**Gaps** – Where are we falling short?

**Innovation** – What creative solutions can close the gaps?



## Envision the Future of Transportation

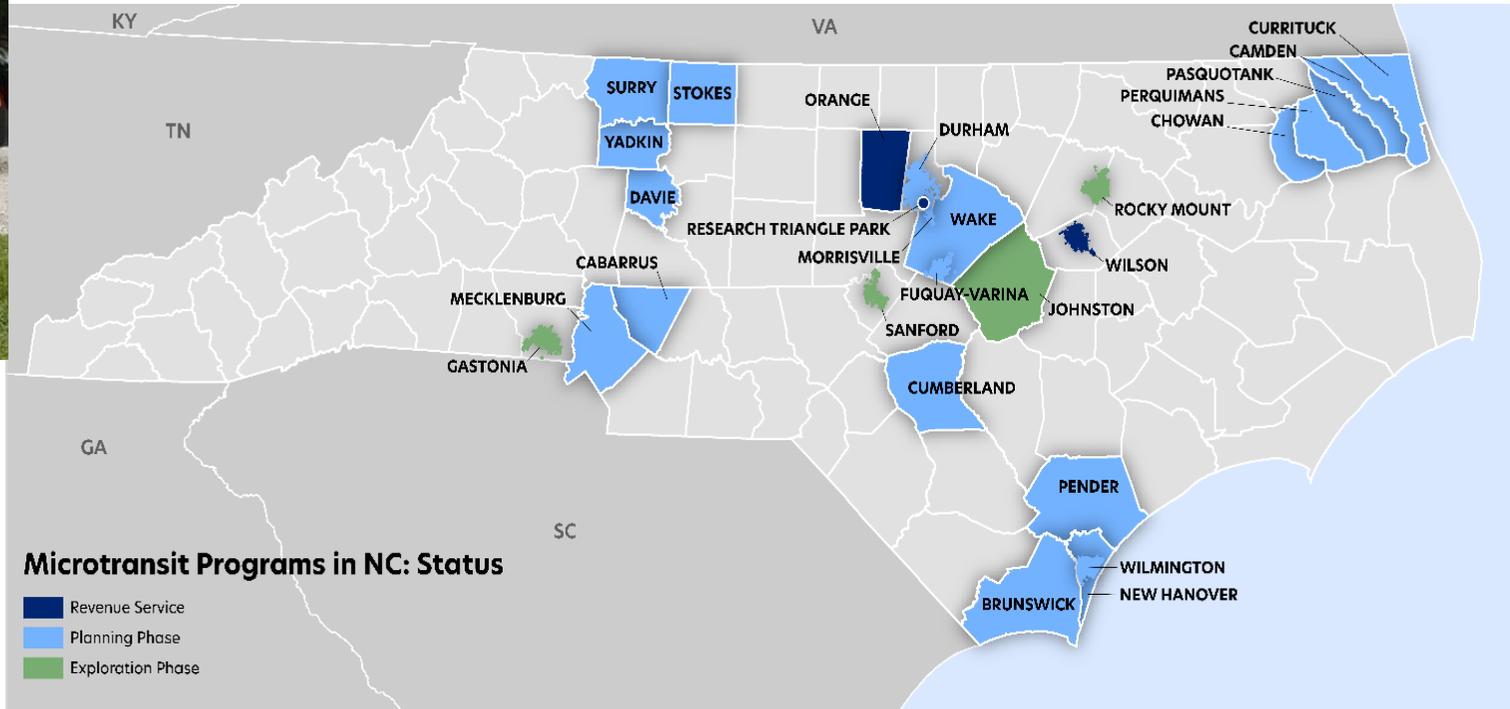
- Technology and innovation make all modes of transportation quicker, cheaper, more convenient, and safer.
- Multimodal options rival driving in terms of time, convenience and cost.
- All transportation network users are accommodated safely.
- Land use and transportation planning are intertwined.
- Residents are happier, healthier, and more likely to participate and succeed in the economy.



## On-Demand Microtransit

- Similar to rideshare services like Uber or Lyft, but subsidized and provided as a form of public transportation.
- 15 minute average wait time after requesting a ride.
- First pilot launched in September 2020 and has been highly successful, doubling transit ridership in Wilson, even amid the pandemic.
- NCDOT is actively exploring additional deployments with communities throughout the state, including Wake and Lee Counties

# Leading on Technology and Innovation to Improve Quality of Multimodal Options

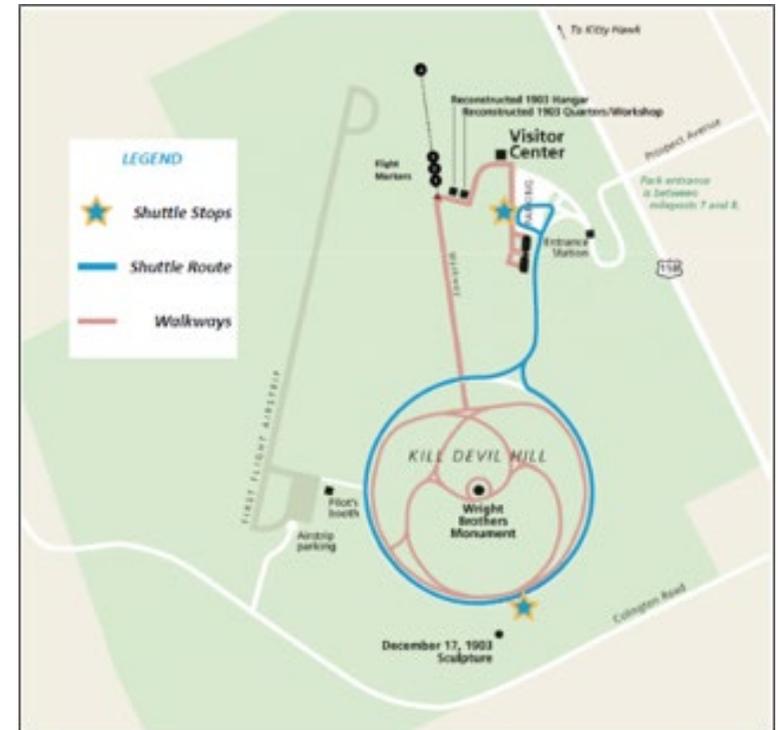


Mobility-as-a-Service (MaaS) – Journey planning, trip scheduling, payment, and real time tracking across all modes of transportation in one common application.

*Making transit, walking and biking as easy as driving*

# Planning for a Connected, Autonomous, Multimodal Transportation Future

The Connected Autonomous Shuttle Supporting Innovation (CASSI) was deployed at the Wright Brothers National Memorial in 2021 – the first autonomous shuttle deployment at a National Parks site.



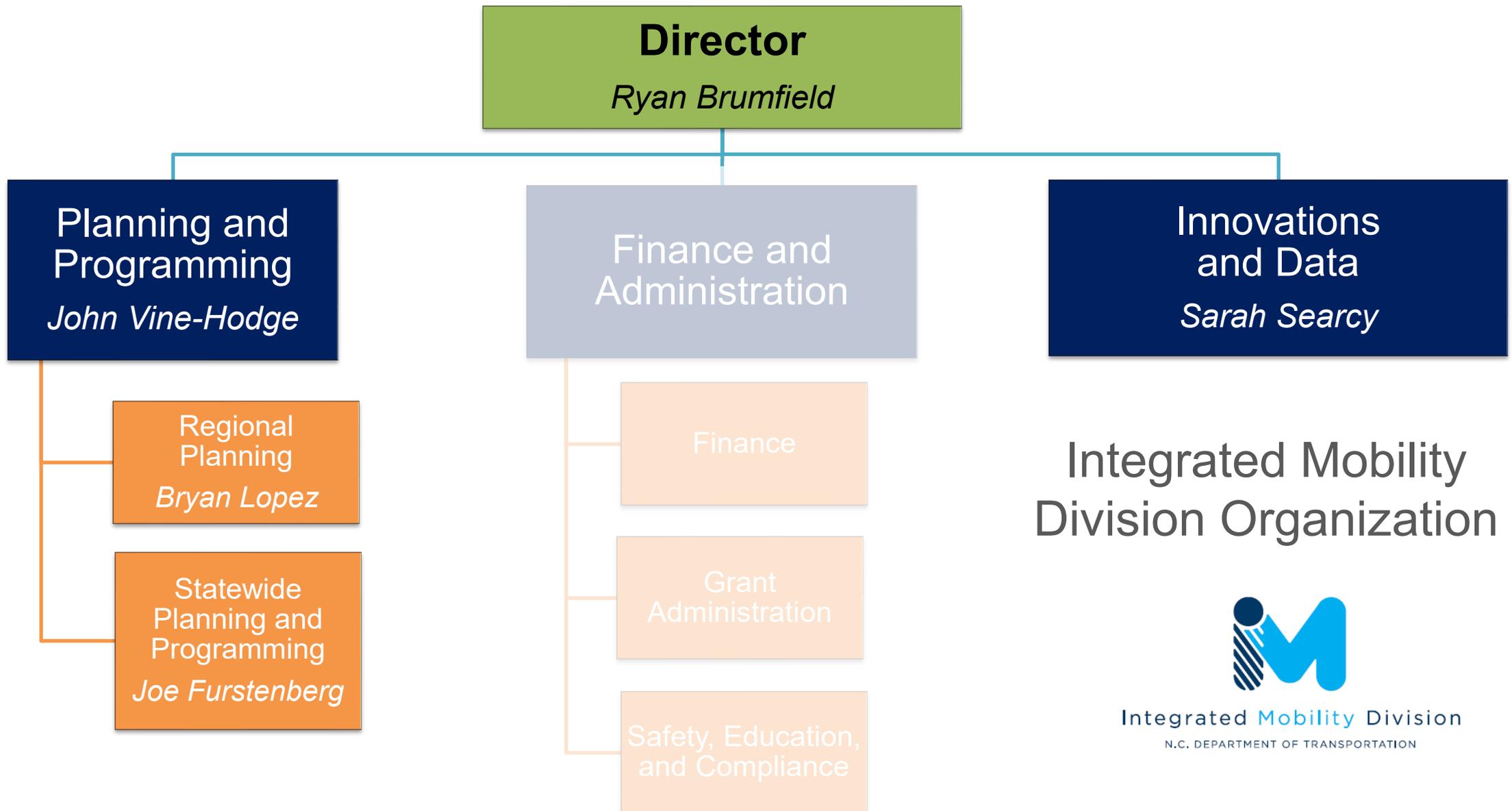


Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

# IMD Planning & Programming

- Sections and Roles
- Regions



## Integrated Mobility Division Organization

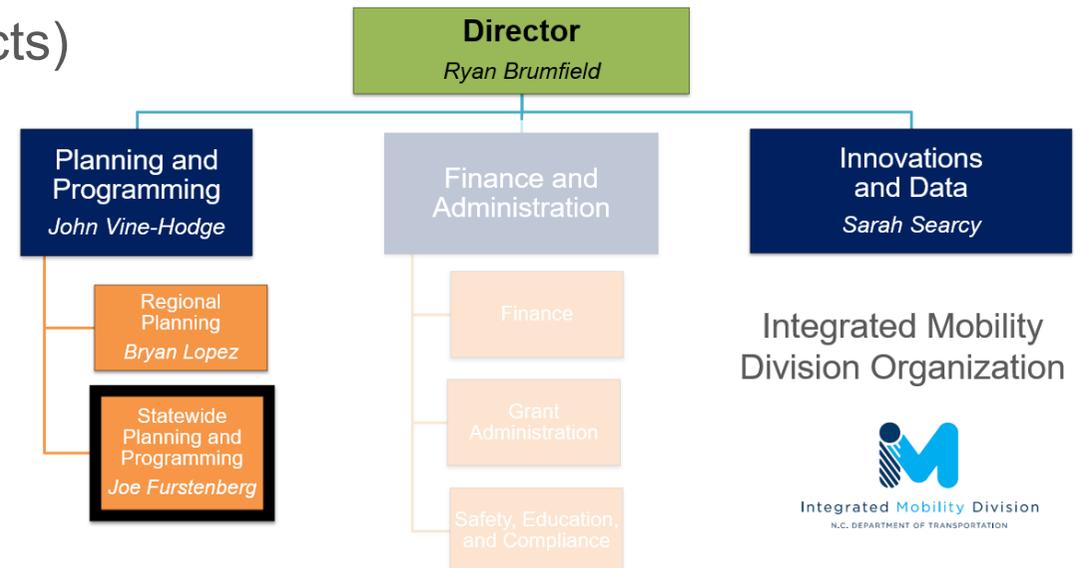


Integrated Mobility Division  
N.C. DEPARTMENT OF TRANSPORTATION

# Statewide Planning and Programming

Manager – Joe Furstenberg

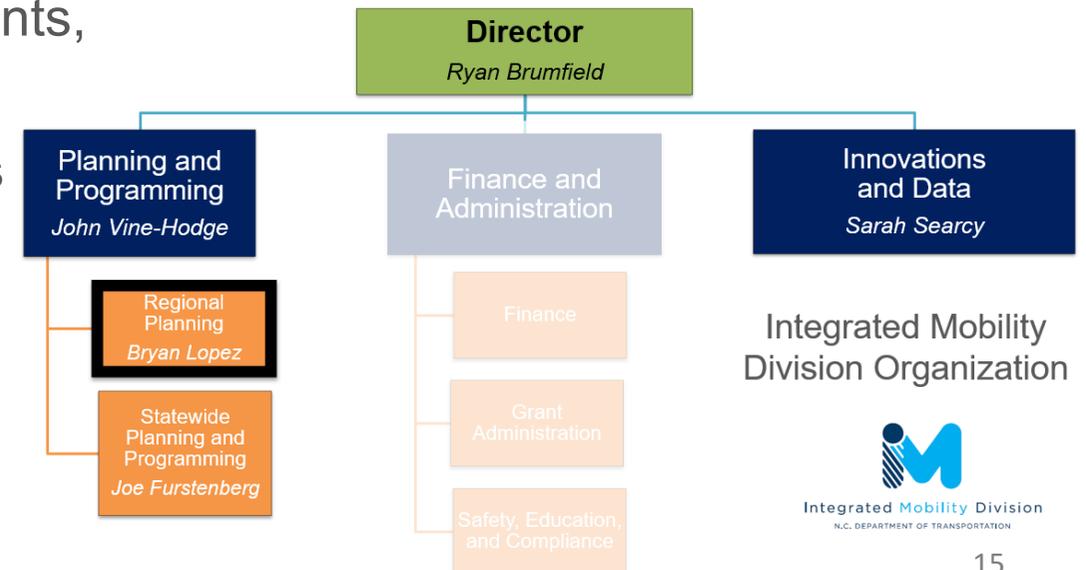
- Complete Streets Policy & Project development review
- Feasibility Studies
- Safe Routes to School Coordination
- Local Programs Project Coordination (EB projects)
- Bicycle Helmet Initiative
- Statewide Planning
- Prioritization/STIP Coordination
- Research Projects



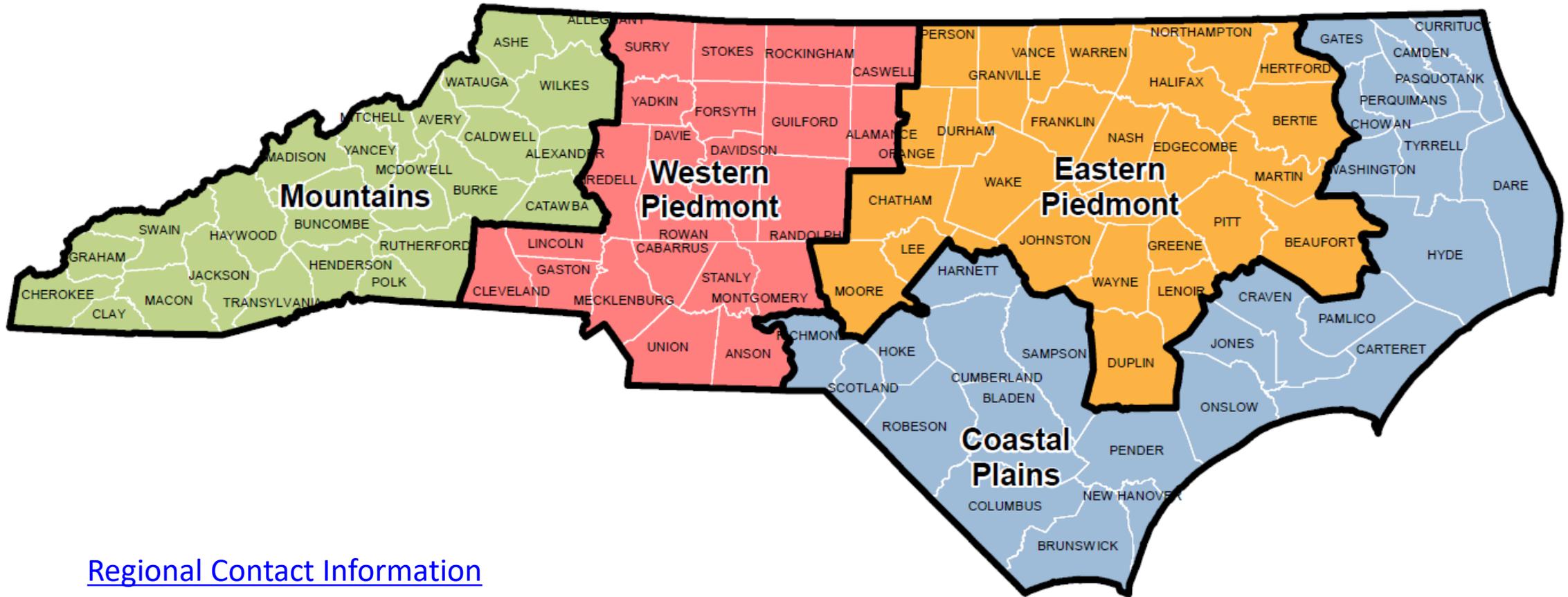
# Regional Planning

Manager – Bryan Lopez

- Engagement with Transportation Planning Division and CTP's
- Engagement with MPOs/RPOs
- Engagement with Highway Divisions
- Project Administration: Multimodal Planning Grants, Local/Regional Studies, etc.
- Technical assistance to Regional/Local Partners
- TDM



# IMD Regions



[Regional Contact Information](#)



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

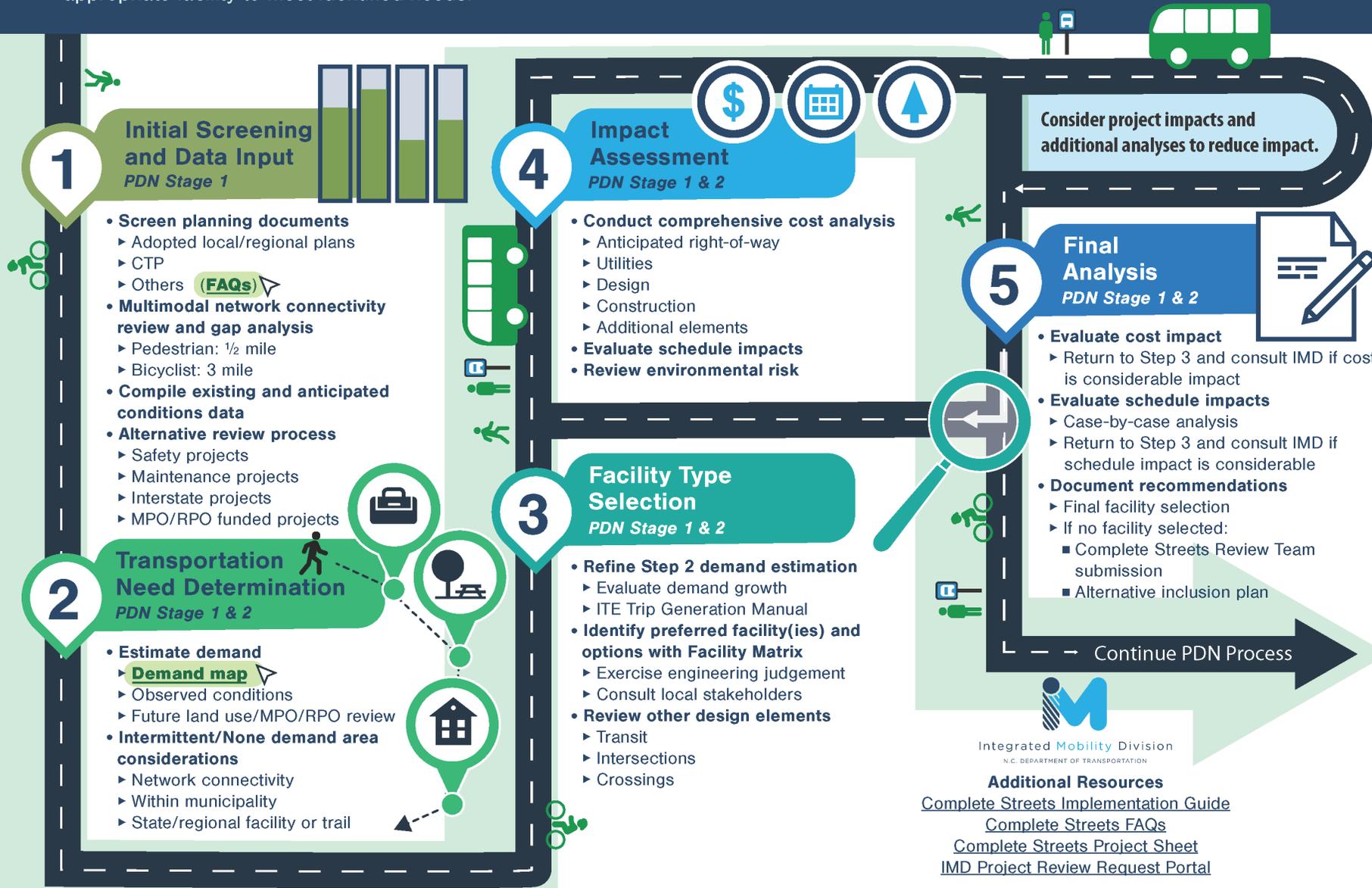
# Statewide Program Updates

- Complete Streets
- Transportation Disadvantaged Index Tool
- Great Trails State Plan
- State Bicycle Routes
- Bicycle Helmet Initiative
- Feasibility Studies
- Interim Design Safety Project
- Accessibility Metrics

# Complete Streets Implementation

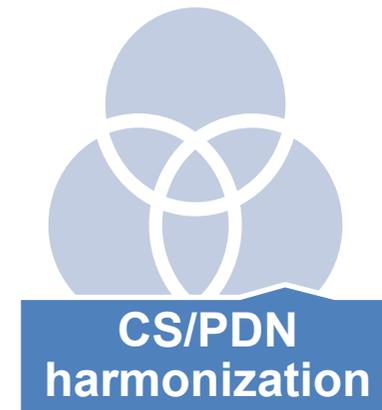
- NCDOT Roadway Design Manual Update (Fall 2021)
  - Methodology, Facility Selection Matrix, and Flowchart are to be referenced in the RDM's summer update.
- Project Development guidance and methodology released (February 2022)
  - First two weeks of training – 520 staff and stakeholders trained
    - March 14<sup>th</sup> – FHWA Ped-Safe Webinar Series
    - March 15<sup>th</sup> – Joint-Webinar with IMD and NC APA
- Workgroups starting in March to address remaining policy gaps, and further support implementation in planning, prioritization, and maintenance activities.
- Tentative guidance update later this summer to reflect recommendations of the workgroups

The **Complete Streets Project Evaluation Methodology process** serves as guidance to aid in the evaluation of highway projects for Complete Streets elements. This guidance is intended to support Project Leads and Managers throughout the PDN stages, beginning with all five steps in PDN Stage 1 and select steps revisited in PDN Stage 2. Project Leads and Managers should supplement this process with local conversations, detailed analysis of conditions, and engineering judgement to design the appropriate facility to meet identified needs.



# Work Groups

- Convening three work groups to refine PDN harmonization, cost estimates, and maintenance issues.
- Representatives from Divisions, other units, and MPO/RPOs.
- Anticipated discussions March – July
- Recommendations incorporated in next CS updates.

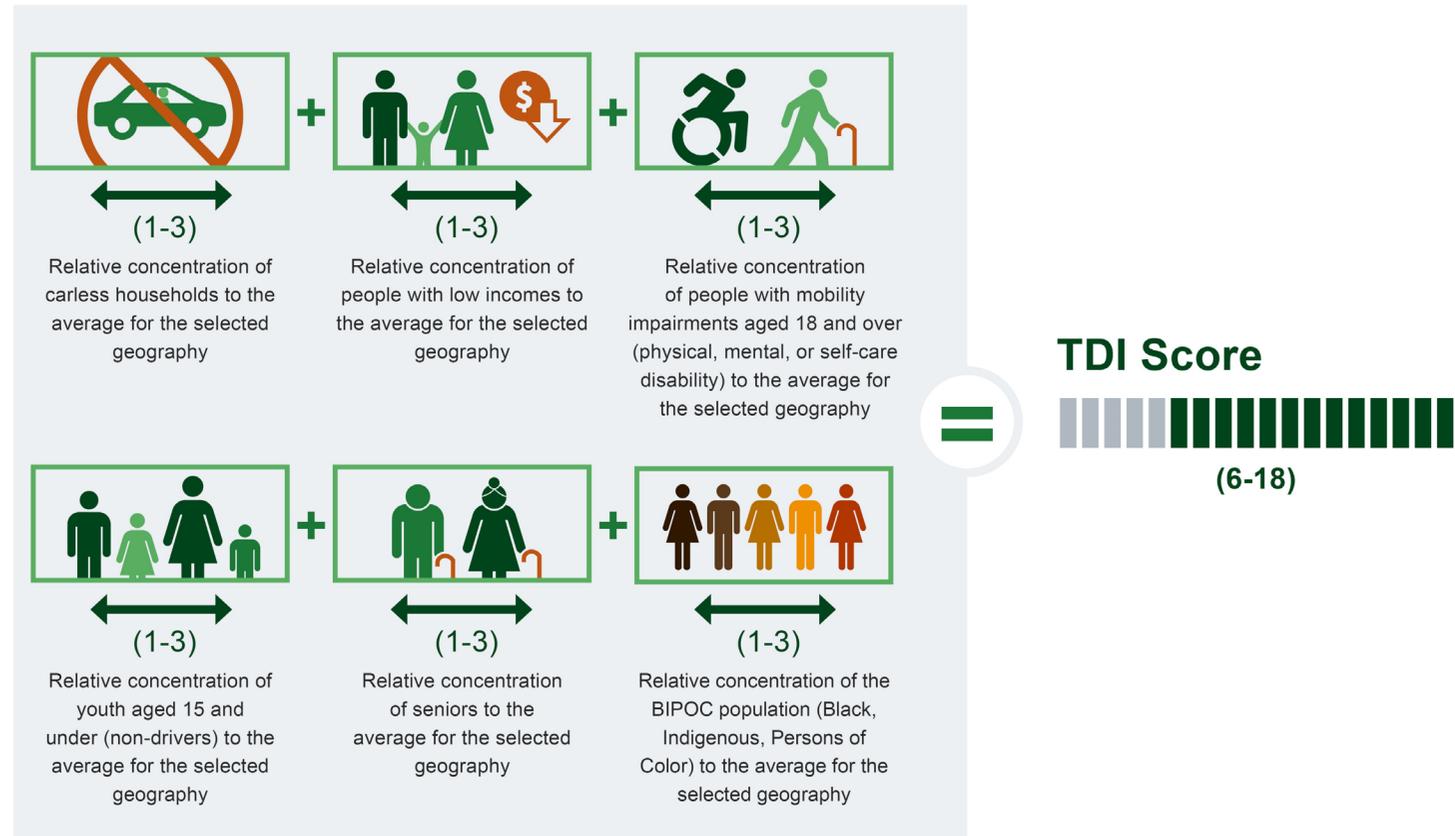


## Next Steps Summary

- 
- Finalize and execute training/outreach (ongoing)
  - Convene work groups (ongoing)
  - Conduct trainings, make updates as needed (ongoing)
  - Collect data, monitor implementation, and identify additional improvements to guidance (ongoing 4-6 months)
  - Initiate projects to address planning, prioritization and maintenance activities with stakeholders (pending)

# Transportation Disadvantage Index (TDI) - Methodology

- Data sourced from the 2015-2019 American Community Survey
- Available at the Block Group level
- Incorporated previous methodology with updated data sources
- Six indicators to generate a Block Group score based on variance from the geographic mean
- **Higher score = greater level of transportation disadvantage**
- **Different geographic scales:** MPO/RPO, County, Division, and Statewide
- Emerging methodology, open to data updates, and exploring queryable and downloadable data sets



# TDI Dashboard

Indicator panels default to showing statewide averages.

Selecting a geography will zoom the map and update the statistics shown in the top row of indicator panels.

Color shading of each individual block group reflects the block group's score relative to the selected geography, or to the state as a whole (if no selection).

County:  
(None Selected)

NCDOT Division:  
(None Selected)

MPO/RPO:  
(None Selected)

STIP Project - Corridor:  
(Search by TIP number)

STIP Project - Point:  
(Search by TIP number)

**\* Select only ONE geography (County, Division, or MPO/RPO) at a time, and RESET selection before choosing another.**

**Having geographies selected in multiple dropdowns will cause an ERROR!**

**Population Average for North Carolina**

Age 15 and Under: <b>18%</b>	Age 65 and Over: <b>16%</b>	Poverty: <b>24%</b>	BIPOC Population: <b>31%</b>	Zero-Car Households: <b>6%</b>	Disability (Adult Population): <b>16%</b>
---------------------------------	--------------------------------	------------------------	---------------------------------	-----------------------------------	--

**Transportation Disadvantage Index Scores**

Values will appear when a block group is selected from the map

**Transportation Disadvantage Factors**

Block Group ID: 371830509002

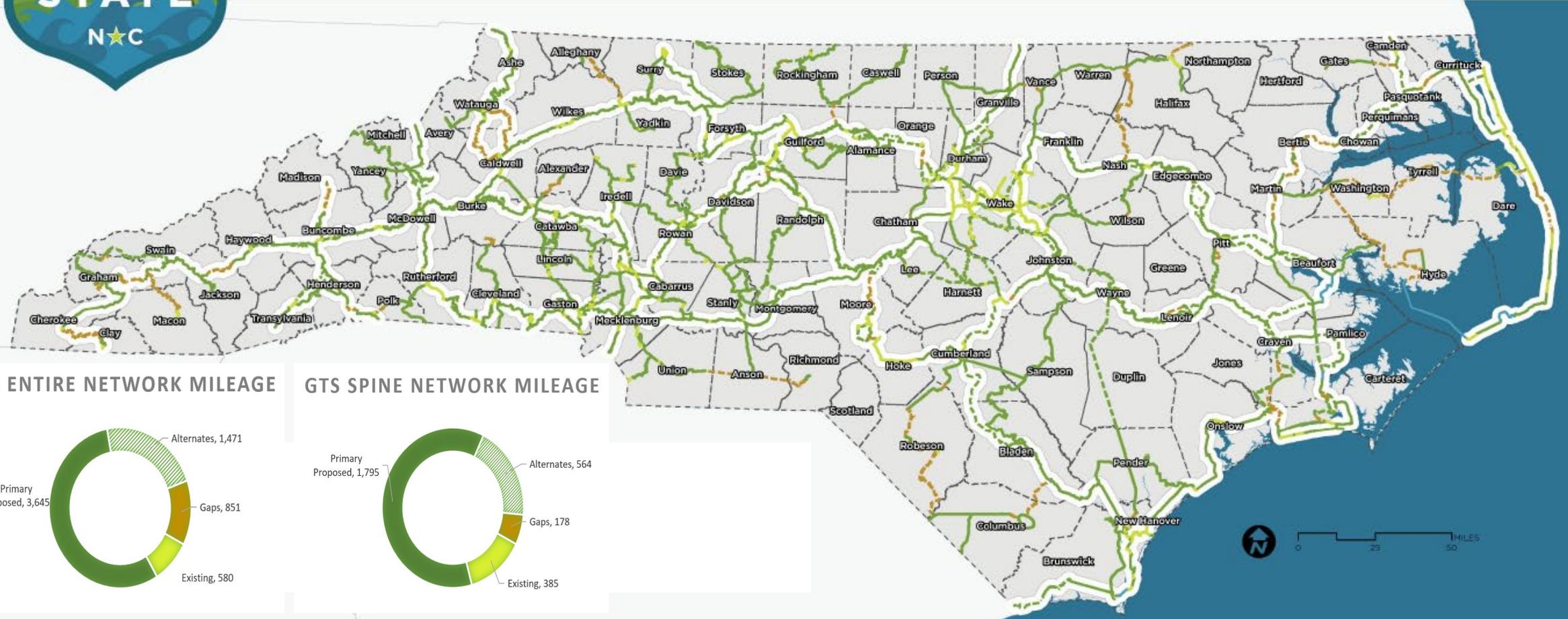
TDI Score, relative to State (max=18)	13.05
TDI Index Score, relative to County	13.05
TDI Index Score, relative to Division	13.05
TDI Index Score, relative to MPO	13.05
Age 15 and Under	20%
Age 65 and Over	6%

Map data © OpenStreetMap contributors, CC-BY-SA | NCDOT Transportation Planning Branch, | City of Raleigh, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA | NCDOT... Powered by Esri

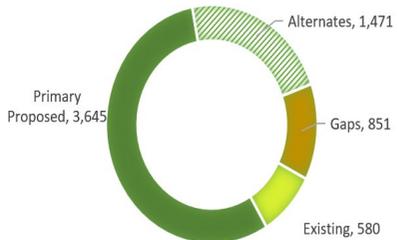
# Great Trails State Plan: Trail Network



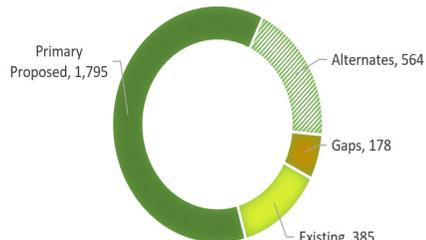
-  **Proposed Shared Use Path**  
*Best route based on existing plans and input to-date*
-  **Existing Shared Use Path**  
*Existing SUPs within the proposed GTS Network*
-  **Gap**  
*Connection desired, but lacks specific route planning*
-  **Draft Alternate Route**  
*This or another parallel alternate should be selected*
-  **Potential Spine Network**  
*Routes w/ greatest potential for regional connections*
-  **Ferry**



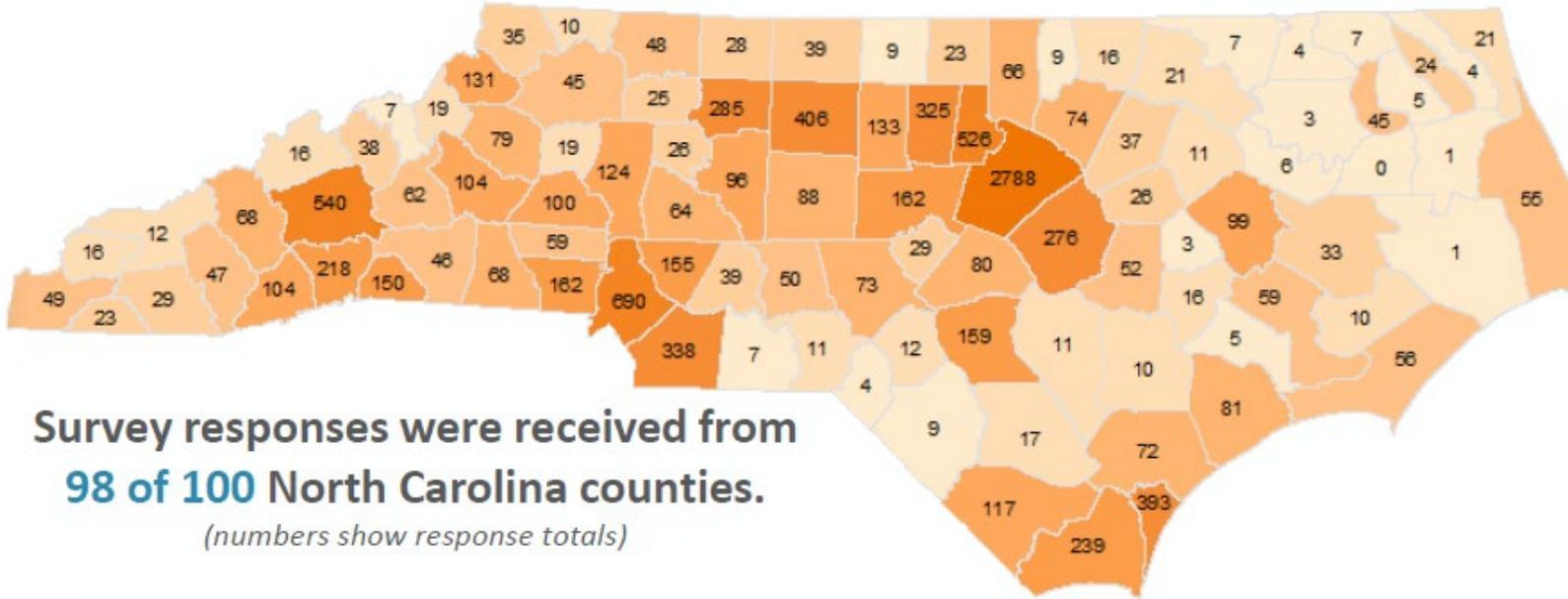
GTS ENTIRE NETWORK MILEAGE



GTS SPINE NETWORK MILEAGE



# Great Trails State Plan: Community Engagement



NCDOT – Winner in “Excel Award Without a Consultant” at the annual AASHTO Committee on Transportation Communications Annual Skills Contest

A wide variety of the state’s demographic responded to the survey.



**55%**  
FEMALE



**43%**  
MALE

Age Group		Home Area Type	
<24	2%	Suburban	41%
25-35	14%	Small Town	26%
36-44	19%	Rural	18%
45-60	40%	Urban	14%
>60	25%		

**40 COMMITTEE MEMBERS**

provided direction, representing NCDOT's 14 Divisions, 7 RPOs and MPOs, and relevant statewide departments and organizations.

**600+ STAKEHOLDERS**

reviewed the proposed corridors, including town and county managers, planners, parks directors, land trusts, advocacy organizations, and many others.

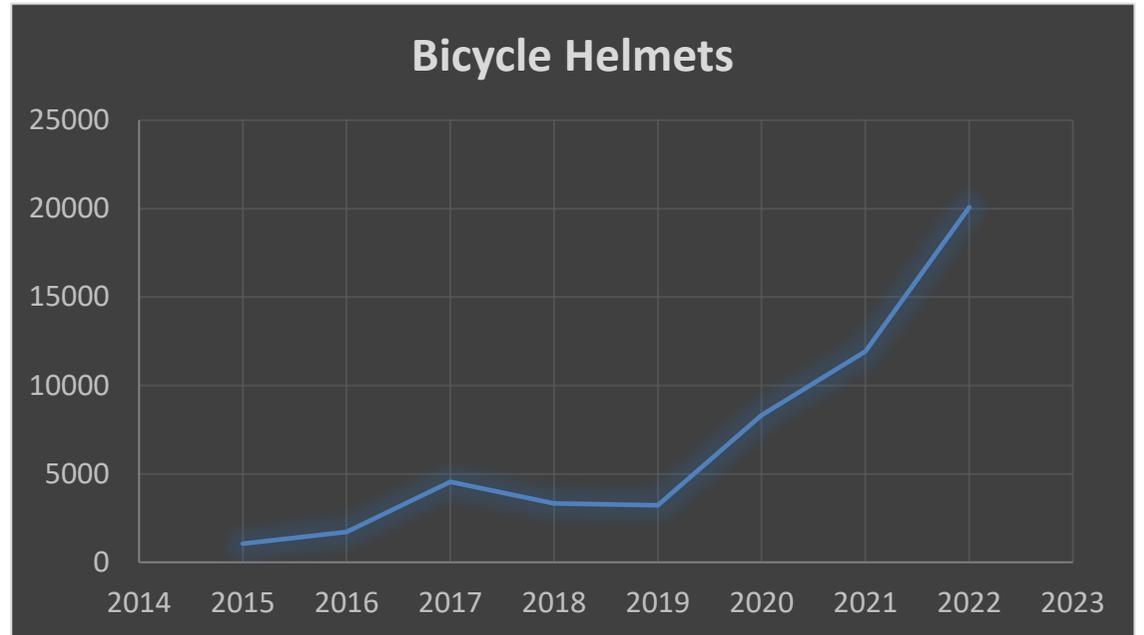
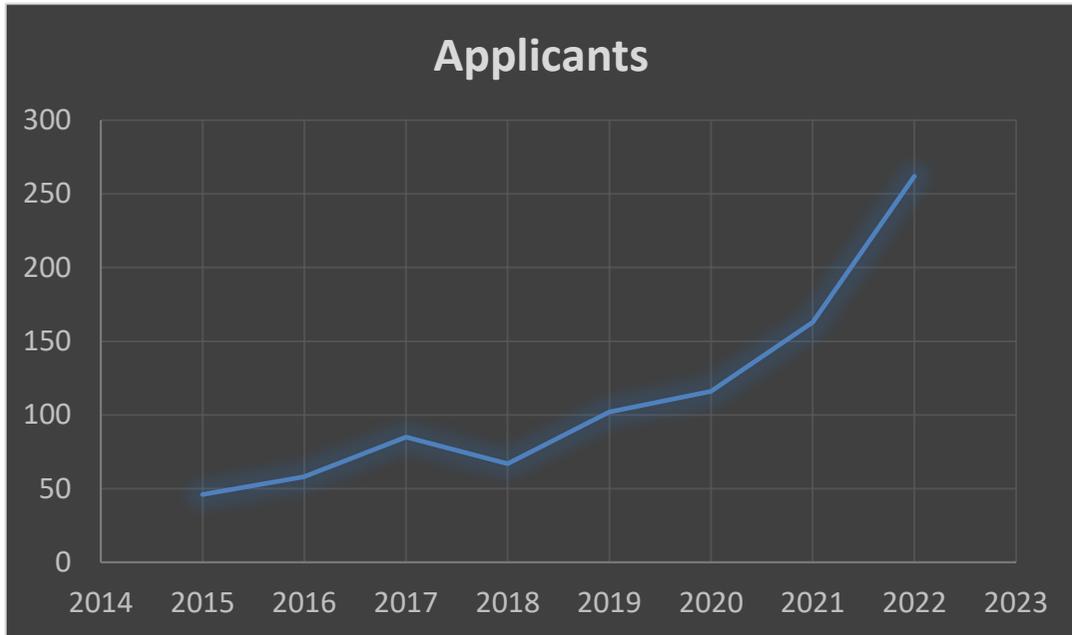


# Great Trails State Plan: A Few Next Steps

- Action Plan
- Great Trails State Coalition
- 2023 North Carolina's Year of the Trail
- Feasibility Studies Program
- Complete Streets implementation
- **Phase II**
  - Identification/feasibility analysis of trail projects in transportation disadvantaged areas
  - Natural surface trail connections
  - ArcGIS StoryMap

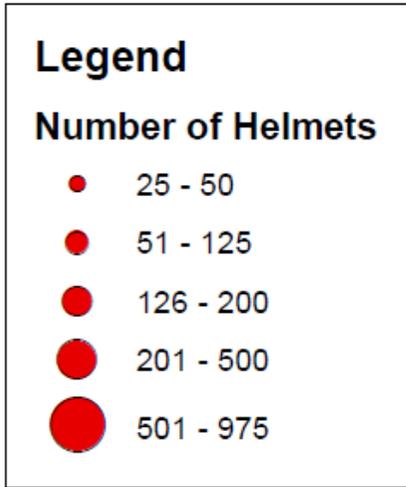
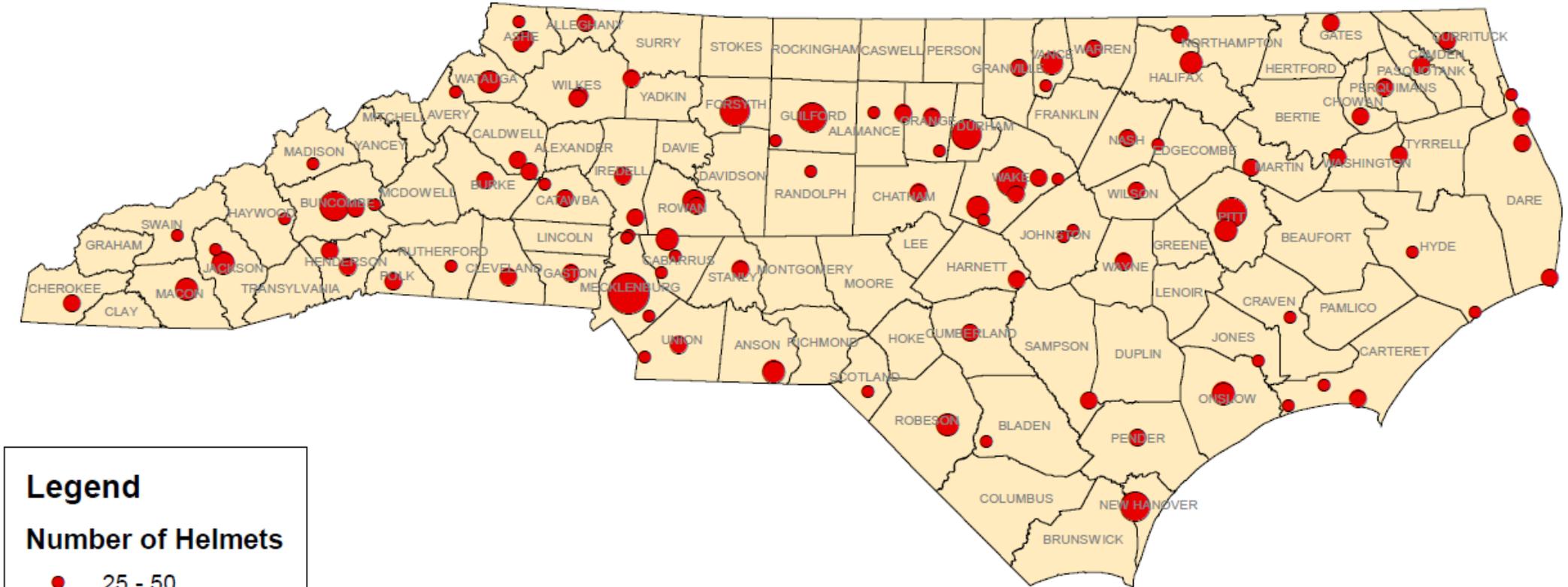


# Bicycle Helmet Initiative



[Web Link](#)

# 2021 Bicycle Helmet Initiative



[Web Link](#)



Integrated Mobility Division  
N.C. DEPARTMENT OF TRANSPORTATION

## Tell us about the NCDOT State Bike Route System

Use the buttons below to drop  
comments on the map.

Potential change/update needed  
(point)

Potential change/update needed  
(line)

Map correction needed

If someone placed a point that you  
agree with, click the "Like" button when  
you select the point to add your  
support.

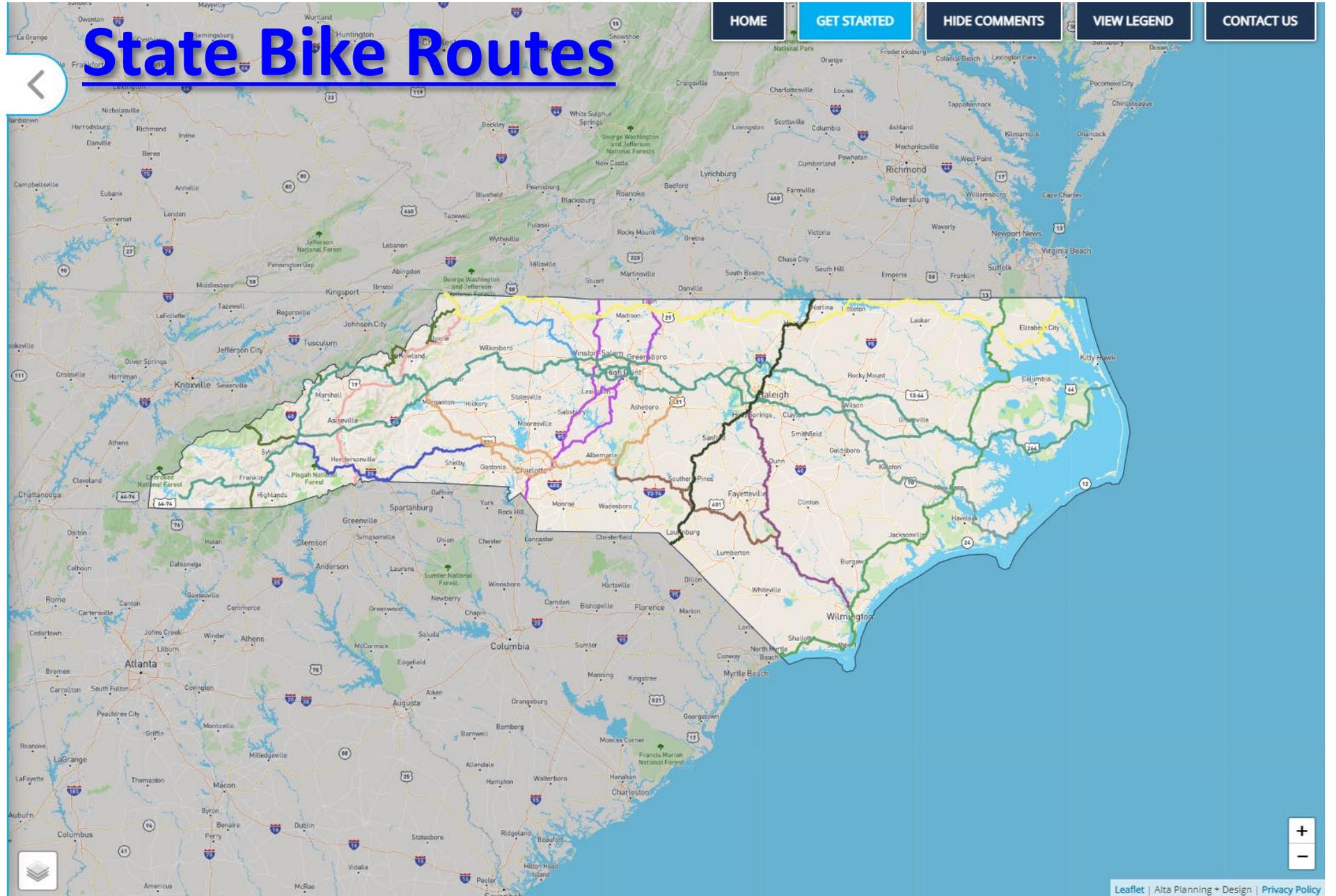
You can switch to satellite view and  
add or remove layers of data by  
clicking the button (stacked layers)  
in the bottom left corner of the map.

### User Comments

 Potential change/update  
needed

 Map correction needed

 Potential change/update



The map displays the State Bike Route System across North Carolina, with routes color-coded by type: green for potential change/update needed (point), red for potential change/update needed (line), and orange for map correction needed. The map includes major cities, highways, and geographical features. Navigation and interaction elements are present:

- Navigation:** Home, Get Started, Hide Comments, View Legend, Contact Us buttons at the top right.
- Map Controls:** A back arrow in the top left and a zoom in (+) / zoom out (-) button in the bottom right.
- Map Layers:** A stacked layers icon in the bottom left corner.
- Map Content:** Numerous colored lines and points are overlaid on the map, representing user comments on the bike route system.

# Feasibility Studies

- Feasibility Studies template and pilot projects
  - Middle Fork Greenway Feasibility Study (connecting the Town of Boone to the Village of Blowing Rock)
  - N. Main Street Sidepath Feasibility Study (City of Marion)
- \$2M – Paved Trails Feasibility Studies
- ?FY23 SP&R? – Sidewalk/Sidepath projects



# Interim Design Safety Project (Tactical Urbanism)

- FHWA STIC project
- Web-based application and materials / cost estimator
- Interim design countermeasures to be evaluated - protected intersections, curb extensions and median refuge islands
- Coordination with Highway Divisions
- Installation
- Evaluation/Data Collection

## CURB EXTENSION



Curb extensions reduce vehicle turning speeds, shorten crossing distances for pedestrians, and increase space for those waiting to cross.

## MEDIAN REFUGE ISLAND



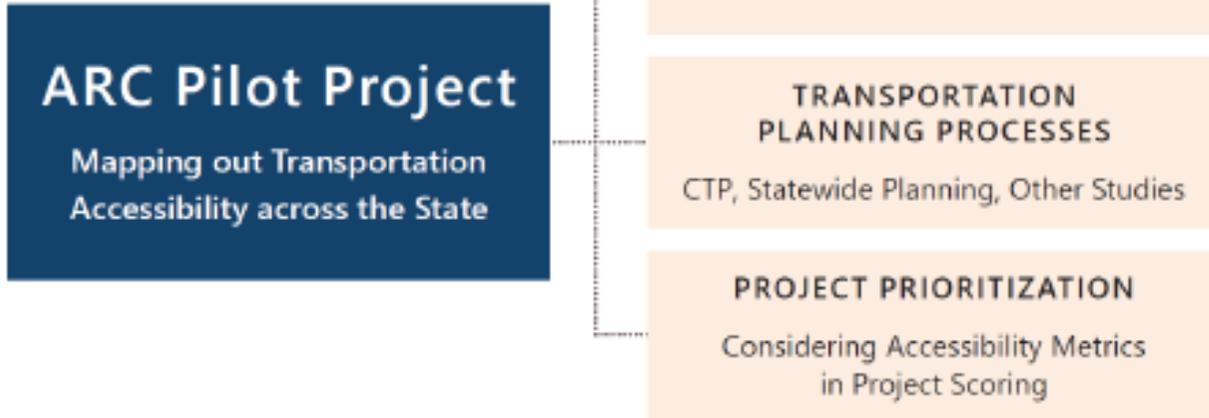
Median refuge islands reduce crossing distances and provide protected space in the center of the roadway for pedestrians and bicyclists.

## PROTECTED INTERSECTION



Protected intersections reduce vehicle turning speeds, improve sight lines, and provide people on bicycles advanced queuing to travel through an intersection.

# Accessibility Metrics



PROPOSAL | JUNE 2021





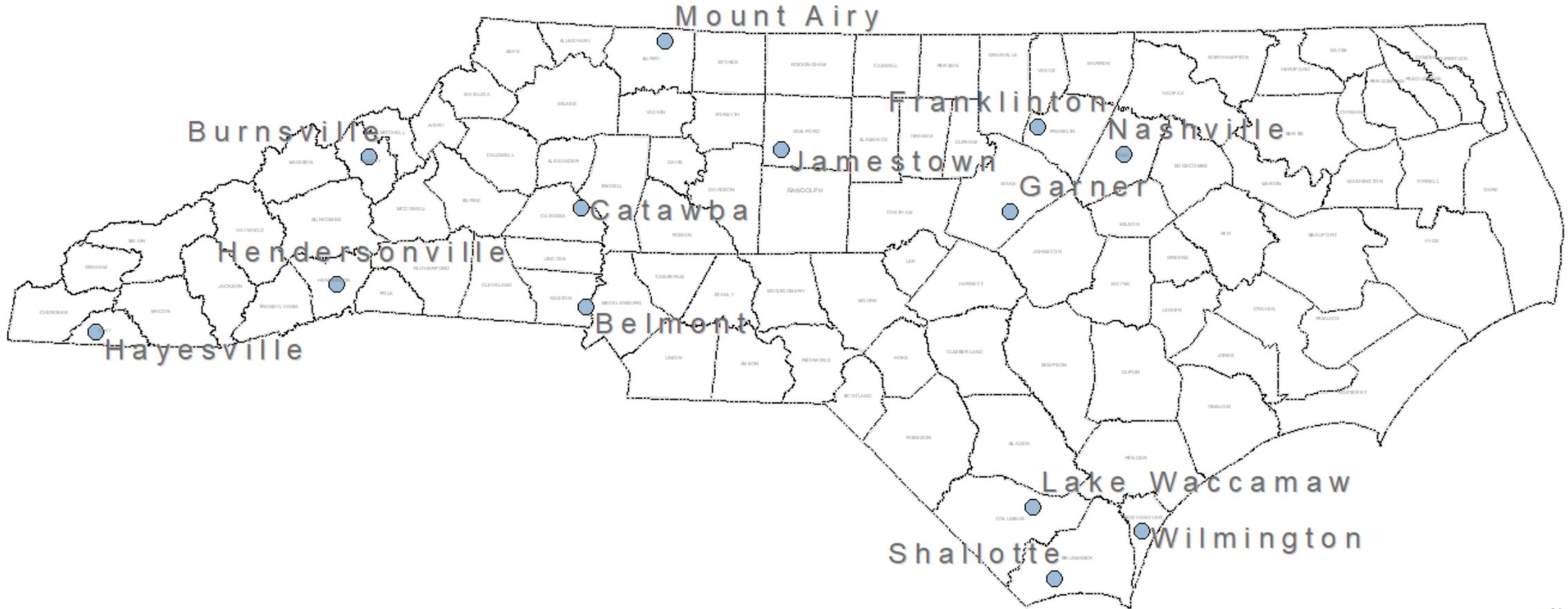
Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

# Regional Program Updates

- Multimodal Planning Program
- Regional Transit Plans
- Transportation Demand Management
- S-Line TOD Planning Study
- Regional Visioning Workshops

# FY22 Bike and Pedestrian Planning Grants



# NCDOT Multimodal Planning Grant Initiative Overview

## What Content is needed for the Plan chosen for my community?

NCDOT grant funding is provided for 4 different types of projects depending on the population size and local context.



Stand Alone Pedestrian or Bike Plan Update	Multimodal Network Plan	Project Acceleration Study
--	-------------------------	----------------------------

Survey of Existing Conditions	Overview of the community (demographics, physical characteristics, transportation network, etc.),	
	Assess current conditions for bicyclists and pedestrians within the local transportation system.	
	Review the existing plan's interaction within local transit system.	
	Describe and provide map of existing bicycle and/or pedestrian facilities	
Public and Stakeholder Engagement	Identify: key generators/attractors, origins and/or destination points. Any special population/user groups and equity concerns. Relevant local, regional and state plans, policies and institutional frameworks.	
	Prepare Public Engagement plan to reach community and underserved groups.	
	Three to four (3-4) meetings with the Steering Committee, Hold stakeholder interviews with 3-10 key local government departments and state agency.	
Recommendations	Summarize public and stakeholder engagement results as part of final report.	
	Develop a methodology for prioritizing projects, Identify and list potential projects.	
	Bike and pedestrian or multimodal system plan.	
Implementation Plan	Provide policy encouragement, education, and enforcement programs.	
	Overview of implementation recommendations, outline administrative, implementation action steps with a timeframe, Identify agencies and organizations for support. Discuss some prime funding sources/opportunities.	
	Provide performance measures that can be used as evaluation and monitoring metrics. Provide a summary of design guideline resources/links including how to use them, where to find them, etc.	
Final Deliverables	Project inventory, prioritization list and maps, 4-6 project visualizations.	Cut sheets for the top five priority projects.
	Final bike or pedestrian network Plan.	Final multimodal network plan.
	Final project implementation plan.	
Final supporting documents and GIS deliverables.		

# Multimodal Planning Grant

- Standalone Bicycle and/or Pedestrian Plan
- Multimodal Network Plan
- Project Acceleration Study

# Multimodal Planning Grants - Plan Types

Jurisdiction Type	Stand-Alone Pedestrian or Bicycle Plan (or Plan Update)	Multimodal Network Plan	Project Acceleration Study
Town or city with pop. <5,000	☑	☑	☑
Town or city with pop. between 5,000 & 9,999 & no transit	☑	☑	☑
Town or city with pop. Between 5,000 & 9,999 & existing transit	☑	☑	☑
Town or city with pop. >10,000	☑	☑	
Counties with pop. <100,000	☑	☑	
Counties with pop. <100,000 with fixed or deviated fixed transit		☑	

[Planning Grant Initiative Connect Page](#)  
**March Call for Projects**

## NCDOT Multimodal Planning Grant Initiative Overview Draft Plans

### What Content is needed for the Plan chosen for my community?

NCDOT grant funding is provided for different types of plan types depending on the population size and local context.

### Under Construction

#### Microtransit or Shared Mobility Study

#### Access to Transit

#### Small Area Study or Corridor Study

Survey of Existing Conditions	Identify the target study area		Identify the corridor /study area	
	Overview of the community (demographics, physical characteristics, transportation network, etc.),			
	Assess current transportation conditions for bicyclists and pedestrians			
	Review up to five peer agencies' microtransit solutions	Describe and provide map of existing bicycle and/or pedestrian facilities		
	Identify key generators/attractors, origins and/or destination points. Any special population/user groups and equity concerns. Relevant local, regional and state plans, policies and institutional frameworks.			
Public and Stakeholder Engagement	Prepare Public Engagement plan to reach community and underserved groups.			
	Three to four (3-4) meetings with the Steering Committee, Hold stakeholder interviews with 3-10 key local government departments and state agency.			
	Summarize public and stakeholder engagement results as part of final report.			
Recommendations	Evaluate likely demand for microtransit or other shared mobility solutions		Develop a methodology for prioritizing projects, Identify and list potential projects.	
			Provide map(s) of recommended network or improvements	
			Develop conceptual plan graphics	five to ten priority project cutsheets
Implementation Plan	Determine if microtransit / shared mobility solutions are feasible		Overview of implementation recommendations, outline administrative, implementation action steps with a timeframe, Identify agencies and organizations for support.	
	Prepare Implementation Steps		Provide performance measures that can be used as evaluation and monitoring metrics.	
	Map potential service area/stations			
	Review existing funding and determine prime funding sources/opportunities.			
Final Deliverables	Cut sheets for the top five priority projects.		Project inventory, prioritization list and maps, 5-10 project visualizations.	
			Final Access to Transit Plan	Final corridor/small area multimodal plan.
	Final supporting documents and GIS deliverables.			

## More Planning Studies

- Microtransit / Shared Mobility Study
- Access to Transit
- Small Area / Corridor Study

\* Please note the following graphic is only intended as an contextual overview of the following plans. For more detailed information on the exact requirements and expected contents, please review the guideline documents for the selected plan or click the link to go to: <https://connect.ncdot.gov/municipalities/PlanningGrants/Pages/Planning-Grant-Initiative.aspx>

# Coordinated Regional Transit Plan Program

- Resources to support coordinated regional planning
  - ✓ Guidebook
  - ✓ Document Template
  - ✓ Analytical Template
  - ✓ Map Template
- Defined coordinated regions
  - 100 counties → 20 suggested Coordinated Regions
  - Each classified as:



## Rural Coordinated Region

Comprising one or more RPOs and not located within an urbanized area.



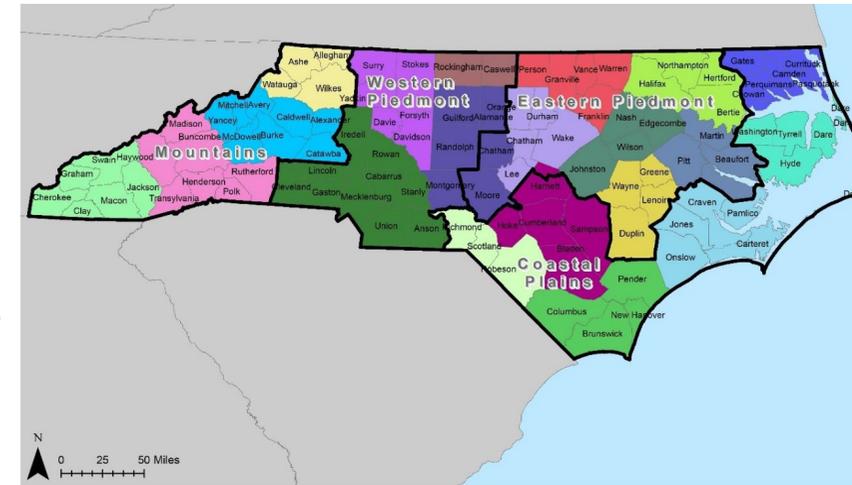
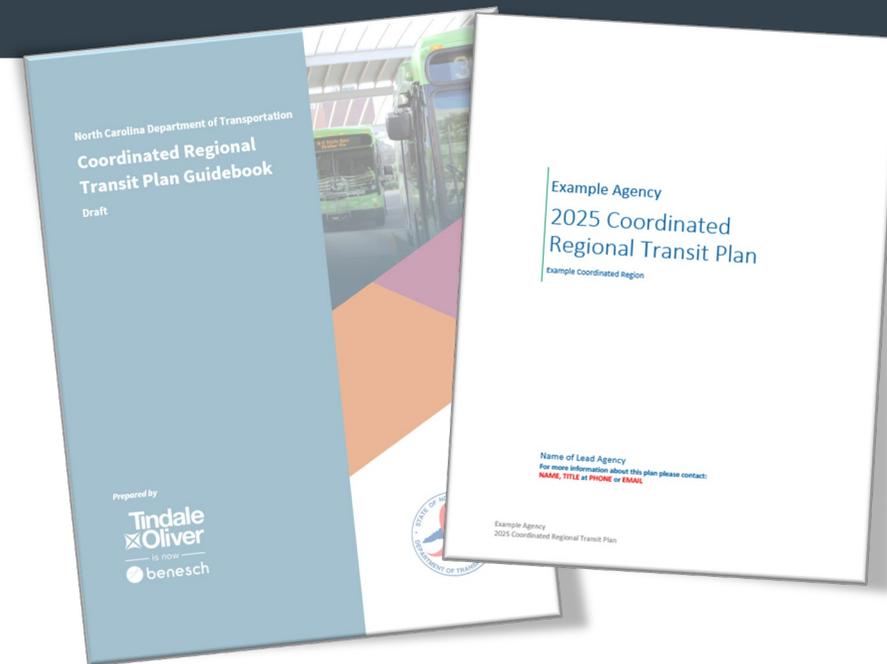
## Rural/Urban Coordinated Region

Includes both RPOs and MPOs and contains characteristics of both the urban and rural Coordinated Region.



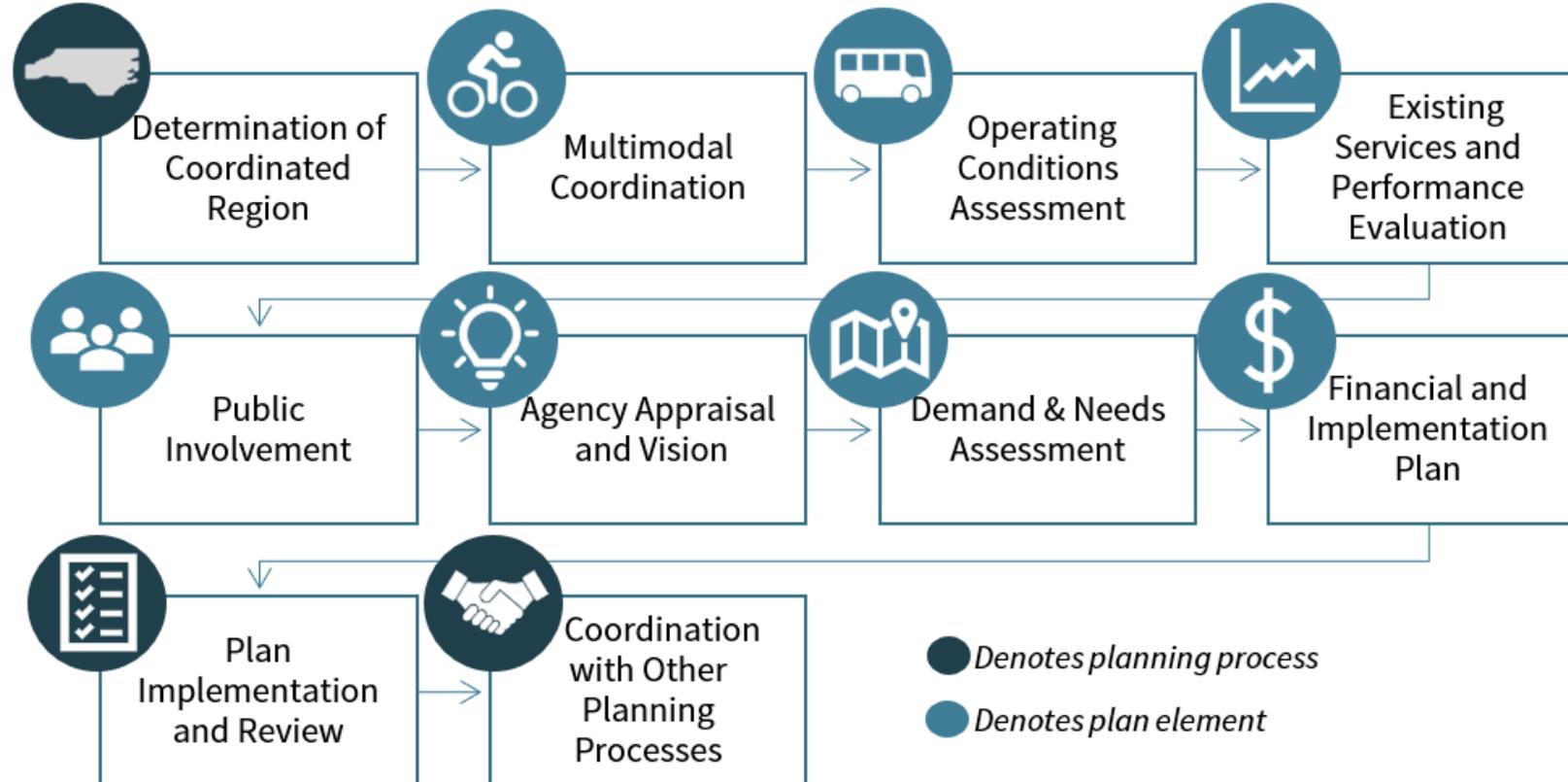
## Urban Coordinated Region

Includes only MPOs and comprises an urbanized area.



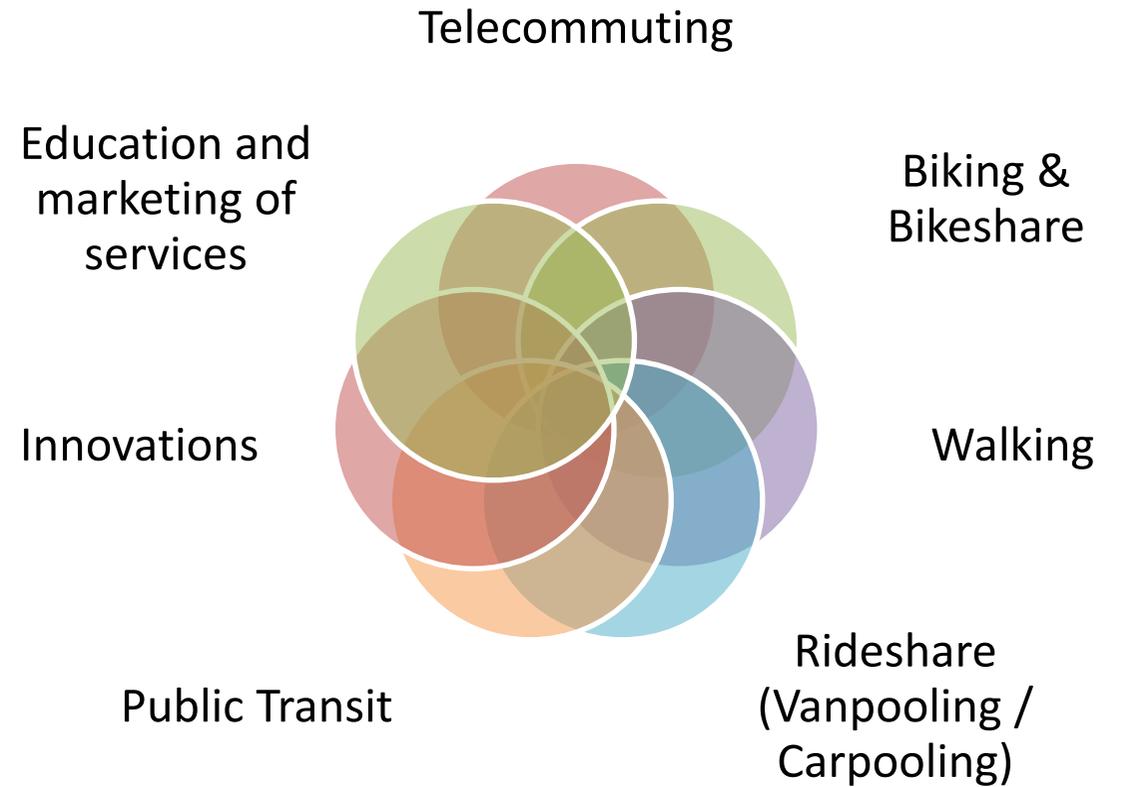
# Coordinated Regional Transit Plan Program

- Standardized regional transit planning process
  - Resources/templates adaptable by the user
  - Guidance based on applicability of each element by Coordinated Region Type





# TDM Program



# TDM – FY2023

- Travel Options Structure
  - Travel Options Coordinator
  - Education of Travel Options (Marketing)
  - Recruitment of Travelers into Non-SOV Modes (Outreach)
  - Tools for Employers and Commuters (Programs)
  - Pilot Programs
  - Transportation Innovations
- Annual TDM Work Plan
- TDM Scorecard

## TDM – Long-Term

- Statewide TDM Programming
- TDM Coordinator – state/region
- Continued Program Evaluation
  - Conduct Annual Survey
  - Analyze Metrics
- CMAQ Funds + Other Funding Sources
- Small Urban and Rural Partners
- Evolving TDM strategies: MaaS, Microtransit, Micromobility
- TDI and Accessibility

# S-Line TOD Planning Study

(IMD & Rail Division)

## Linking Land Use and Transportation Planning

- **Corridor-wide Conversations**
  - Corridor/service vision and goals
  - Station locations
  - Funding / financing
  - Transit operations
- **Local Implementation**
  - Land use plans
  - Zoning
  - Regulatory Policies
  - Infrastructure investments



## Regional Visioning Workshops

- 2022 Timeline
- Purpose: Inspire new practices and services for transit agency operations
- Areas to explore:
  - Emerging technologies, brainstorm ways to adopt locally
  - New types of coordination & regional partnerships
- Regional Vision developed during workshops
  - Potential follow-up



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION