



NORTH CAROLINA

Department of Transportation



NCDOT's Integrated Mobility Division (IMD) – Introduction and Programs

Piedmont Transportation Professionals

February 24, 2022



Integrated Mobility Division
N.C. DEPARTMENT OF TRANSPORTATION



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

AGENDA

- IMD Intro
- IMD Programs and Projects
- IMD Coordination with Other Modes/NCDOT
- Multimodal Planning Strategy
- On the Horizon



Integrated Mobility Division

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IMD Intro

- IMD Mission & Goals
- Organization Chart
- Regions



Multiple Modes Under One Division



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Integrated Mobility Division

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Mission

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

Core Goals:

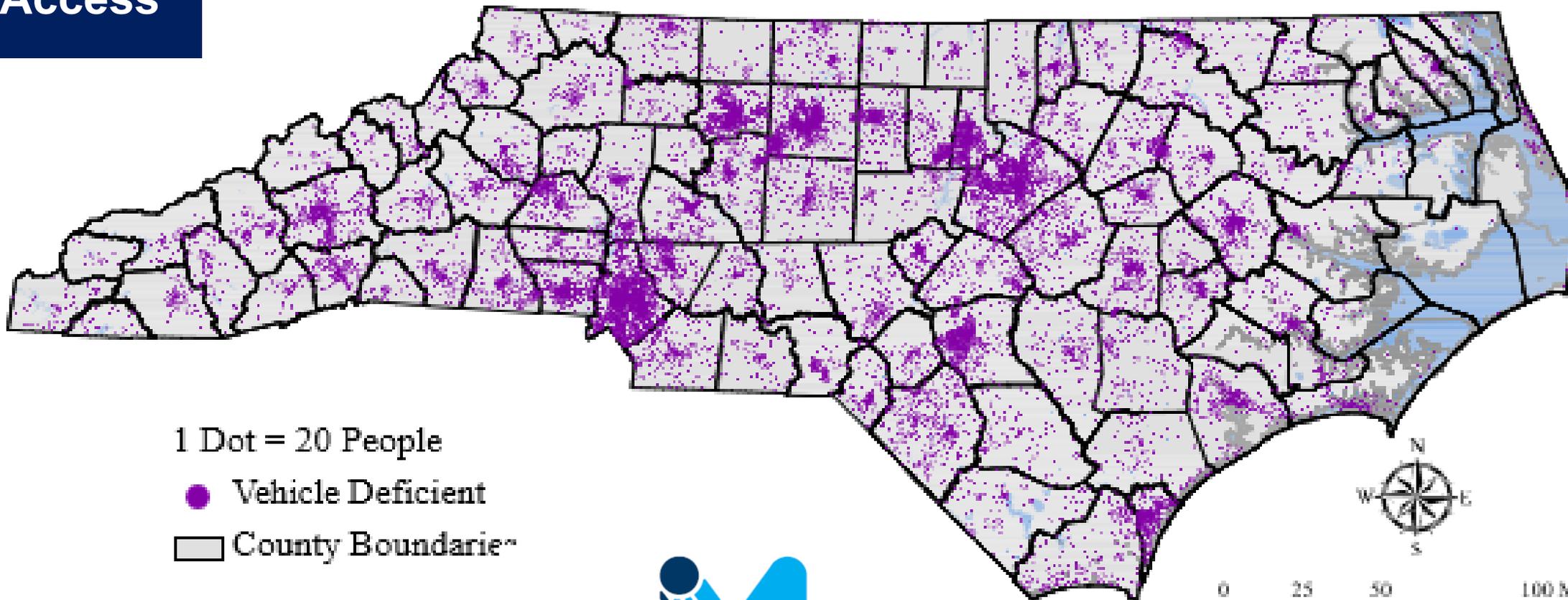
**Increase
Access**

**Enhance
Quality of Life**

**Ensure
Safety**

Increase
Access

Adults Without a Vehicle in NC



1 Dot = 20 People

● Vehicle Deficient

▭ County Boundaries



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Enhance Quality of Life



Multimodal options lead to healthier lifestyles



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



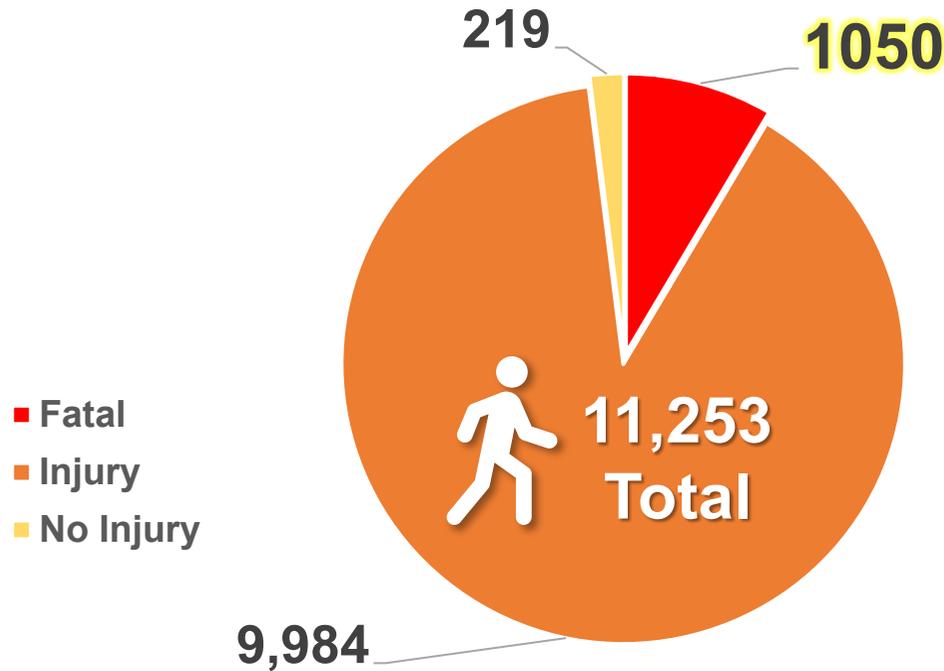
Multimodal options lead to better environmental outcomes



Ensure Safety

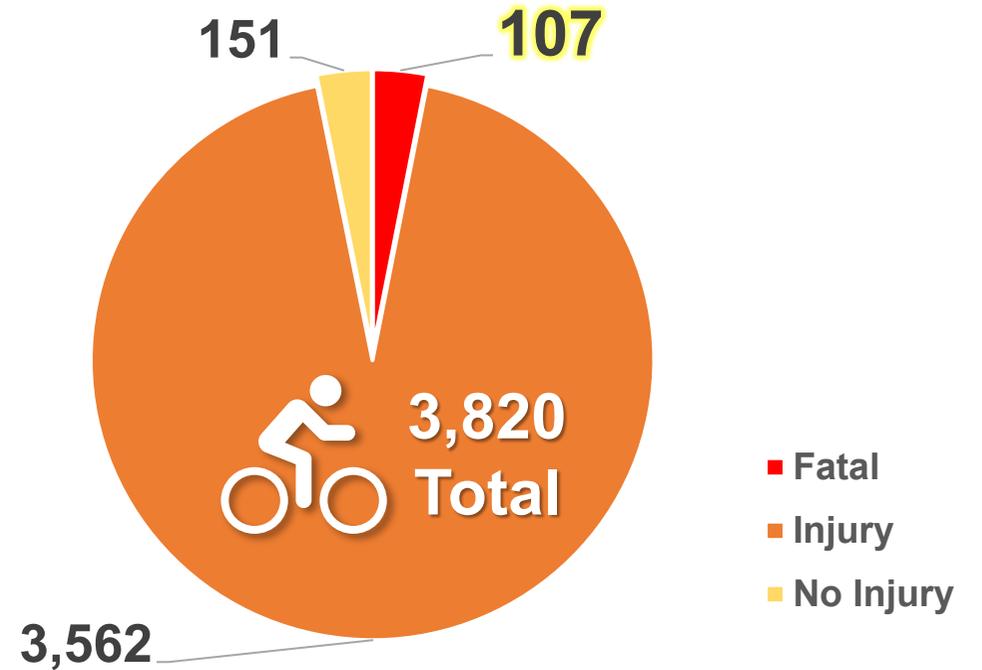
Bicycle & Pedestrian Safety Trends

Pedestrian Crashes, 2015-2019



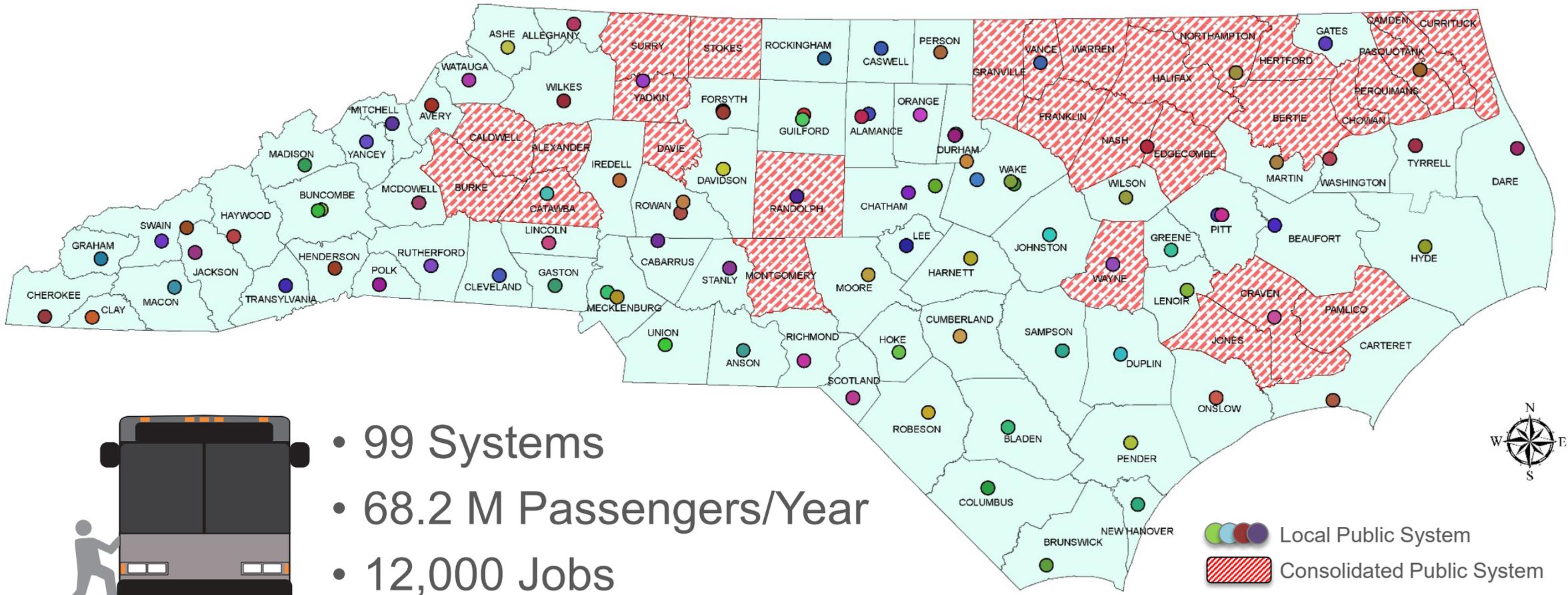
NC 7th highest total pedestrian fatalities by state

Bicycle Crashes, 2015-2019

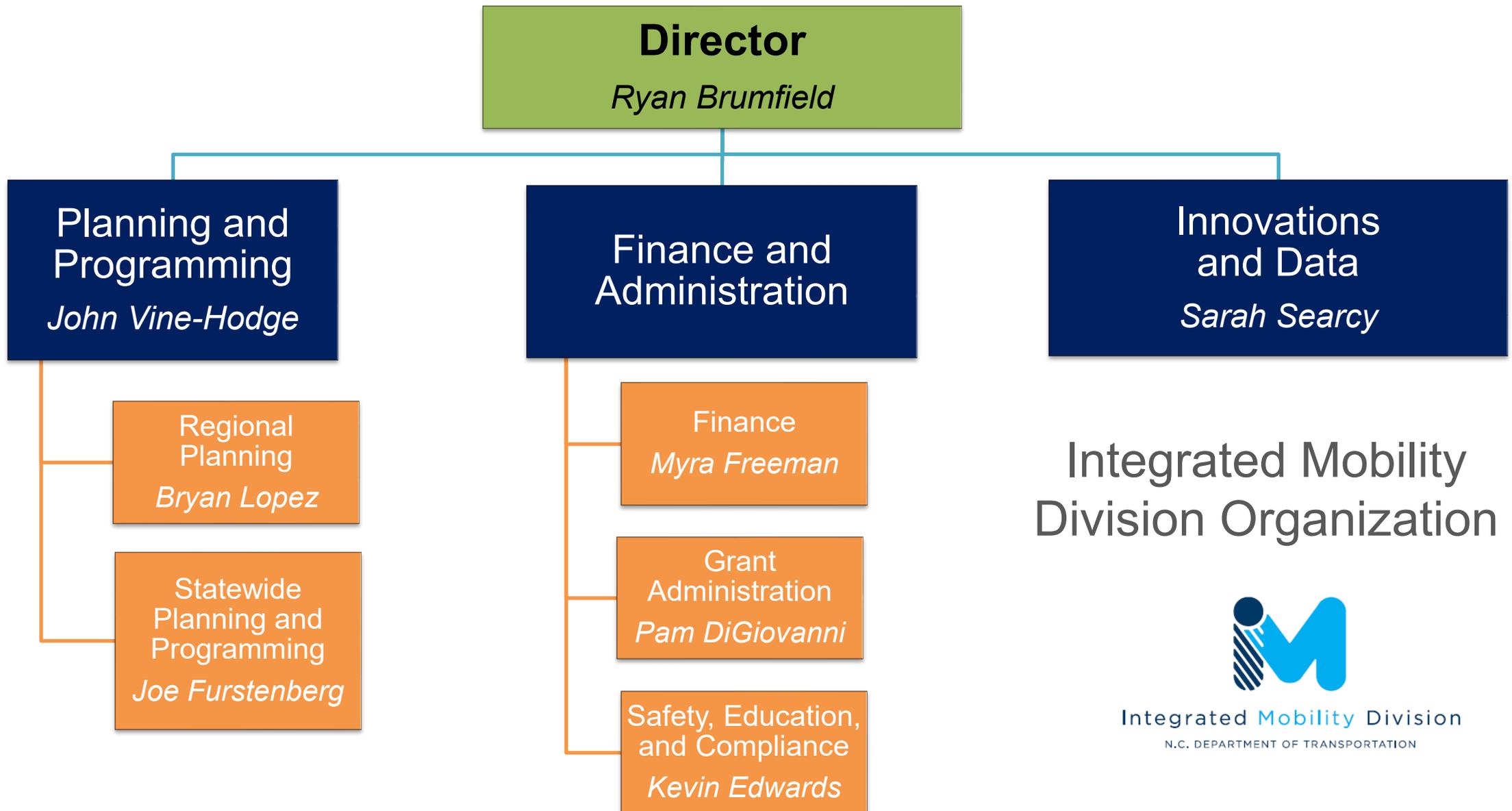


NC 10th highest rate of bicycle fatalities per

NC's Public Transportation Systems



- 99 Systems
- 68.2 M Passengers/Year
- 12,000 Jobs



Integrated Mobility Division Organization

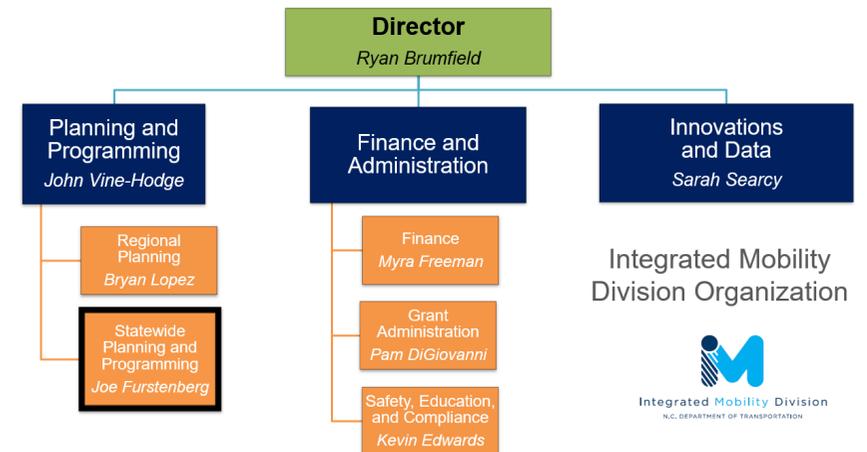


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Statewide Planning and Programming

Manager – Joe Furstenberg

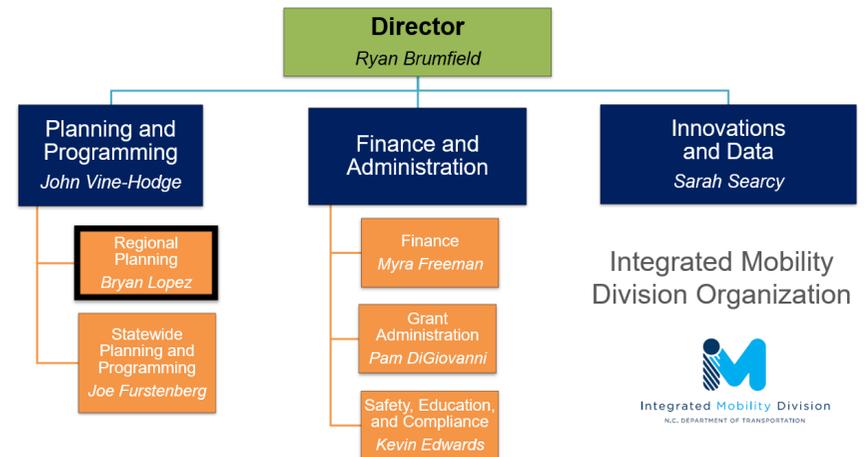
- Complete Streets Policy & Project development review
- Feasibility Studies
- Safe Routes to School Coordination
- Local Programs Project Coordination (EB projects)
- Transit STIP Coordination
- Title VI Compliance
- Research Projects



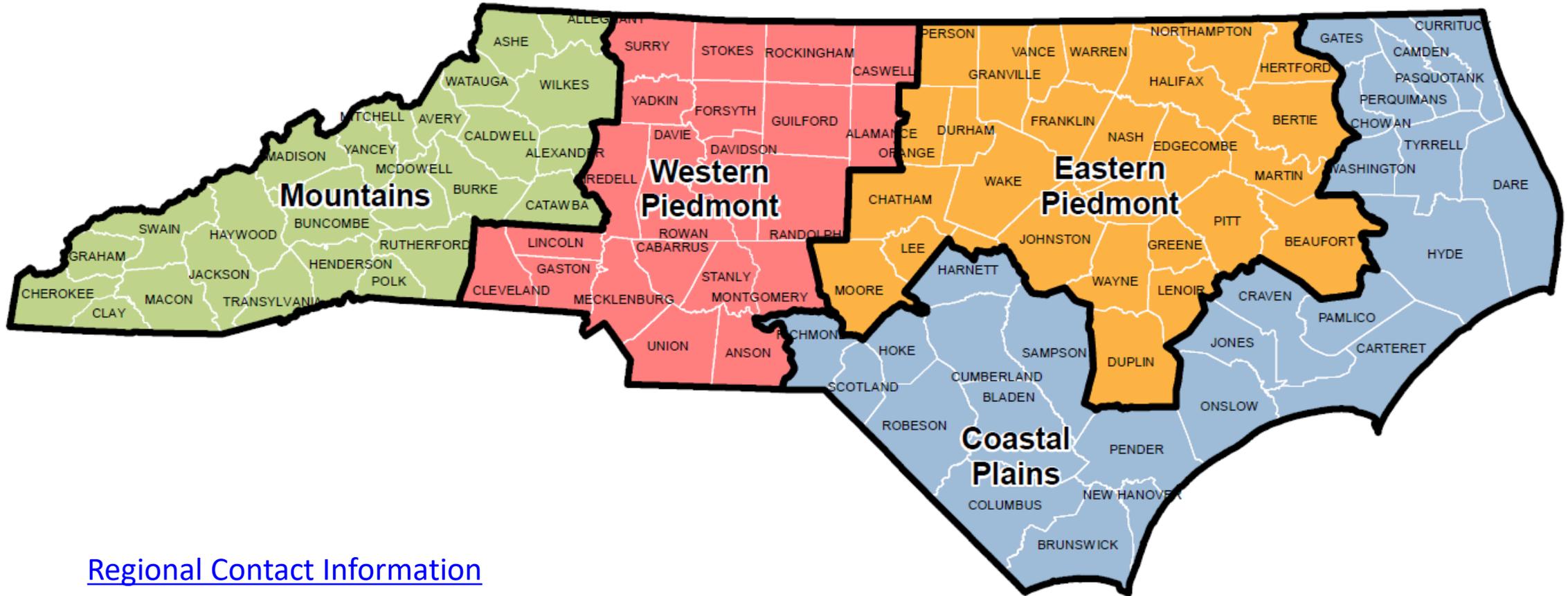
Regional Planning

Manager – Bryan Lopez

- Engagement with Transportation Planning Division and CTP's
- Engagement with MPO's
- Project Administration: Multimodal Planning Grants
- Technical assistance with facilities or implementation process
- General coordination



IMD Regions

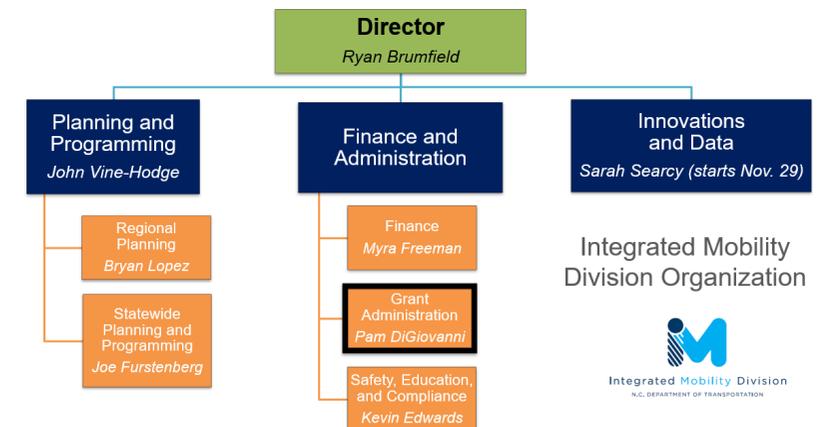


[Regional Contact Information](#)

Grants Administration

Manger – Pam DiGiovanni

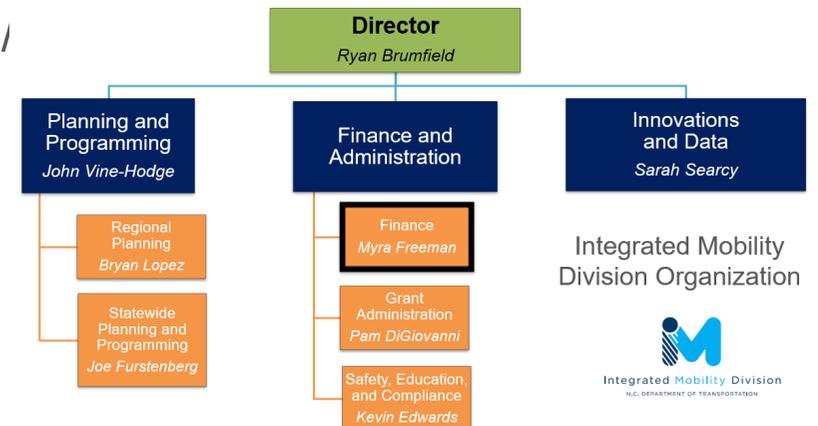
- 5311 Admin/Operating
- 5310 Operating
- 5310 Capital – Purchase of Service
- Rural State Operating
- STI – Capital – Rural
- Non-STI Rural Exp.Vehicle
- Combined Capital
- Mobility Manager
- ConCPT
- Travelers' Aid
- STI-Capital-Urban
- 5303
- 5307
- TDM



Finance Unit

Manager – Myra Freeman

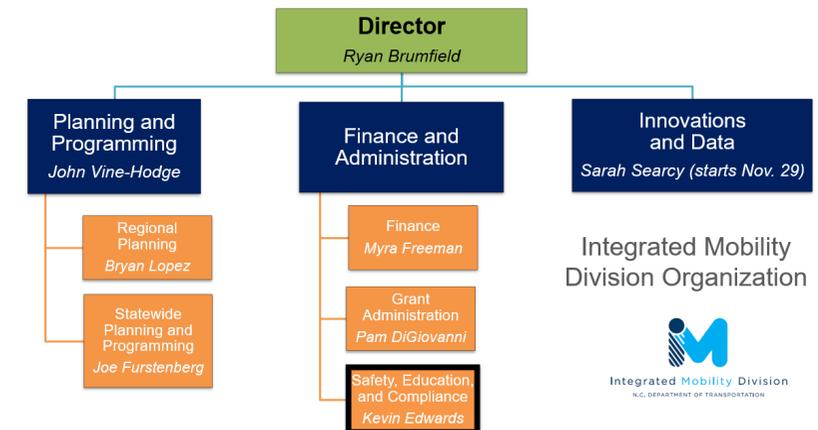
- Manage department budget of State/Federal funds
- Reconciliation of State/Federal funds
- Prepare Federal Financial reports (FFRs)
- Train staff and Subrecipients
- Provide technical assistance to Subrecipients, staff and internal/external customers
- Contract/budget preparation for approximately 460 contracts/year
- Review supporting documentation and process claim reimbursements for projects and Limited-Service Agreements (LSA)



Safety, Education and Compliance

Manager – Kevin Edwards

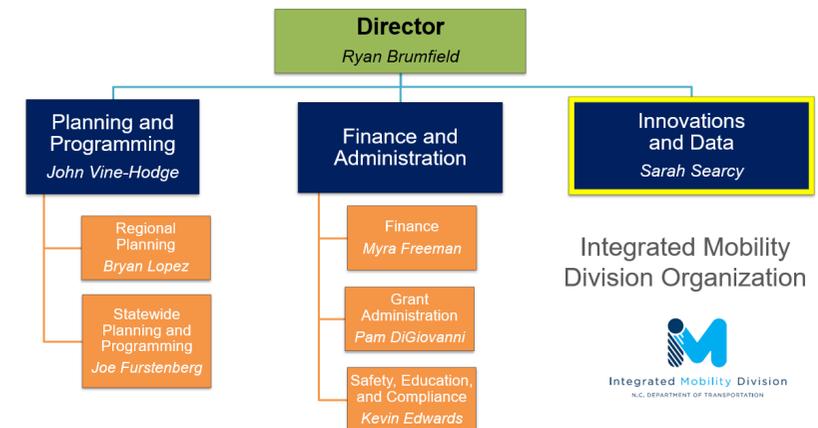
- Provide subrecipients with a resource for compliance related topics, concerns and questions
- Provide NCDOT-IMD with compliance oversight utilizing a “risk-based” approach
- Conduct Proficiency and Compliance Reviews of subrecipients – provide follow-up and corrective action guidance
- Provide leadership and guidance while insuring subrecipient & DOT compliance with the FTA Drug and Alcohol Program
- Create a method of reporting and maintaining an informational database on transit related Accidents and Incidents involving subrecipients, and their vehicles



Innovations & Data

Deputy Director – Sara Searcy

- Goals include:
 - Implement data-driven policies and practices (data inventory, consolidation, warehousing and analysis of data)
 - Coordination with DIT, enhance EBS dashboards
 - Pursuing discretionary grants for innovation pilots
 - Engage national committees about emerging trends & innovations
- Projects:
 - Zero-Emission transit vehicle transition plan
 - Fare Free Research project
 - CASSI deployments
 - Microtransit technical assistance guidance





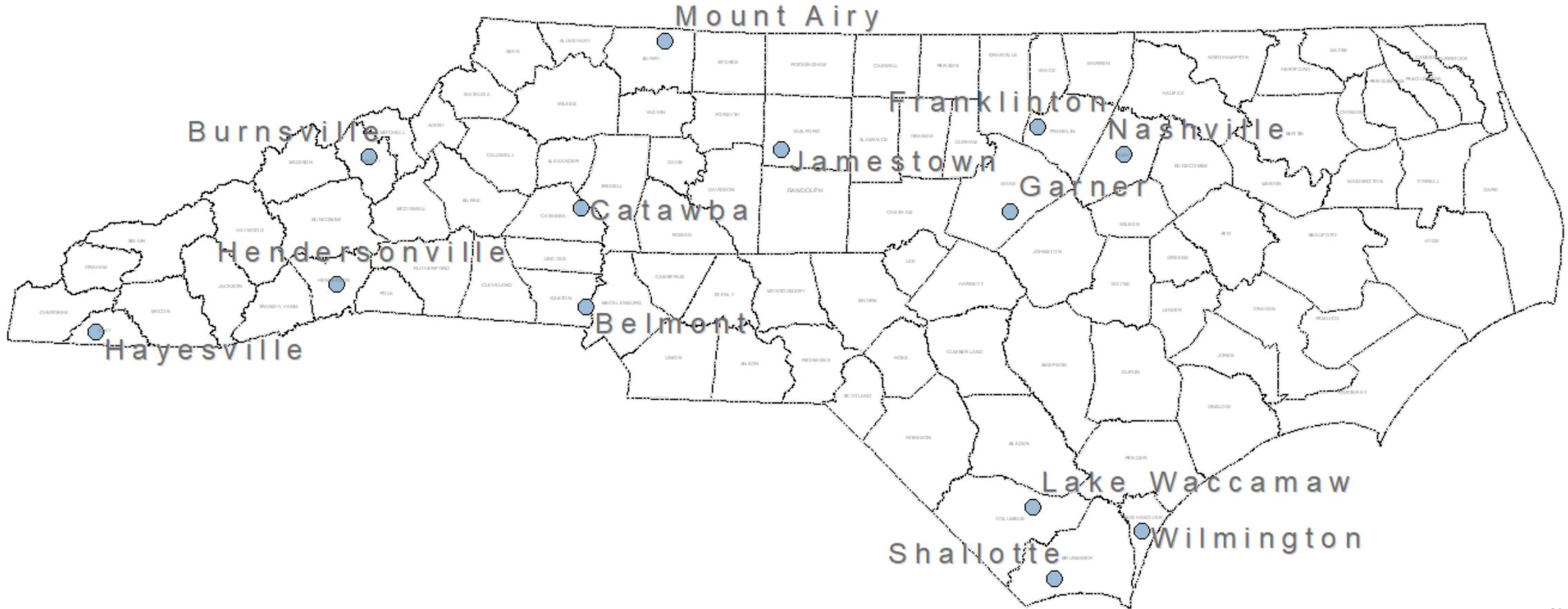
Integrated Mobility Division

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IMD Programs and Projects

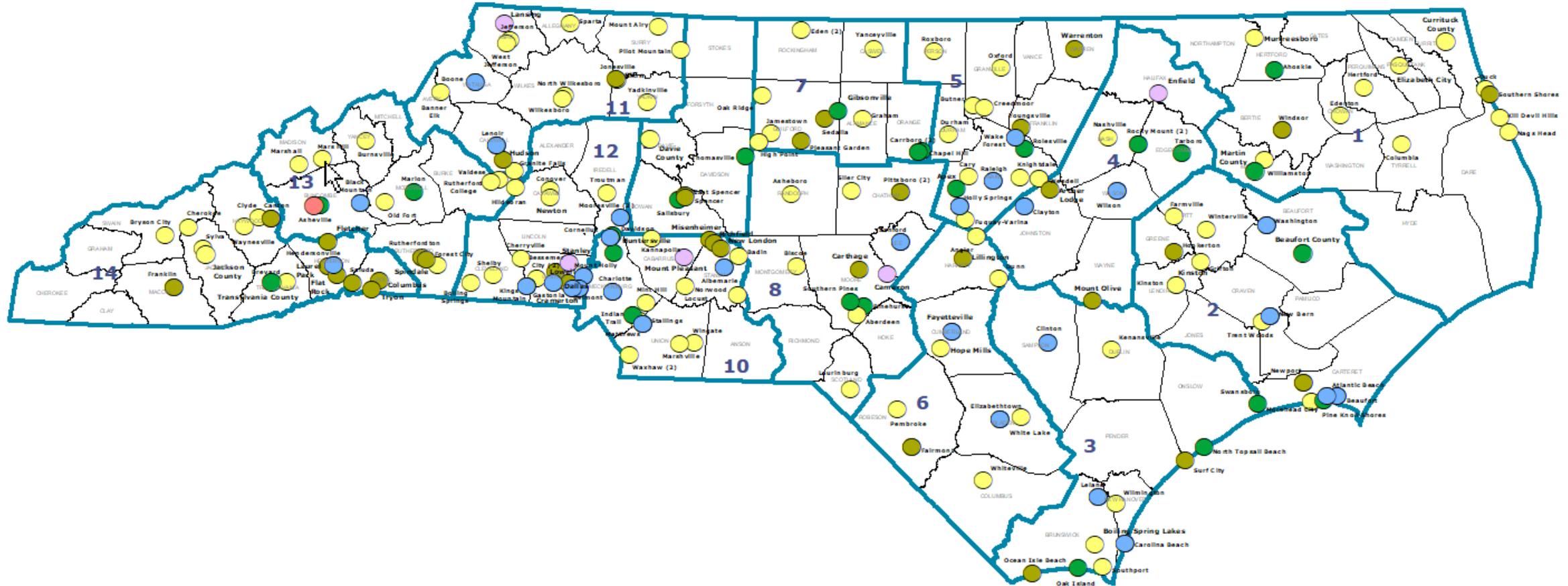
- Multimodal Planning Program
- Regional Transit Plans
- Great Trails State Plan
- Transportation Demand Management
- State Bicycle Routes
- Bicycle Helmet Initiative
- SRTS Non-Infrastructure Grants

FY22 Bike and Pedestrian Planning Grants



Current Program: 245 Plans across 85 Counties

Bicycle and Pedestrian Planning Grants



245 Plans across 85 Counties

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

Multimodal Program Strategy



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.



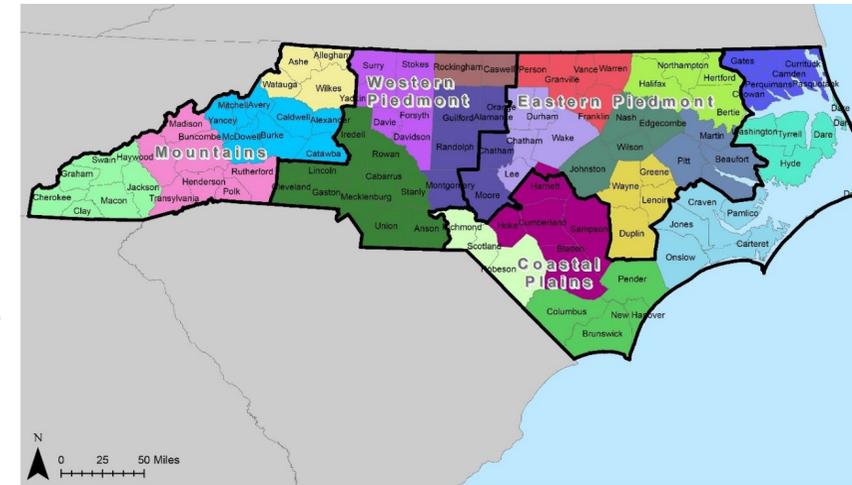
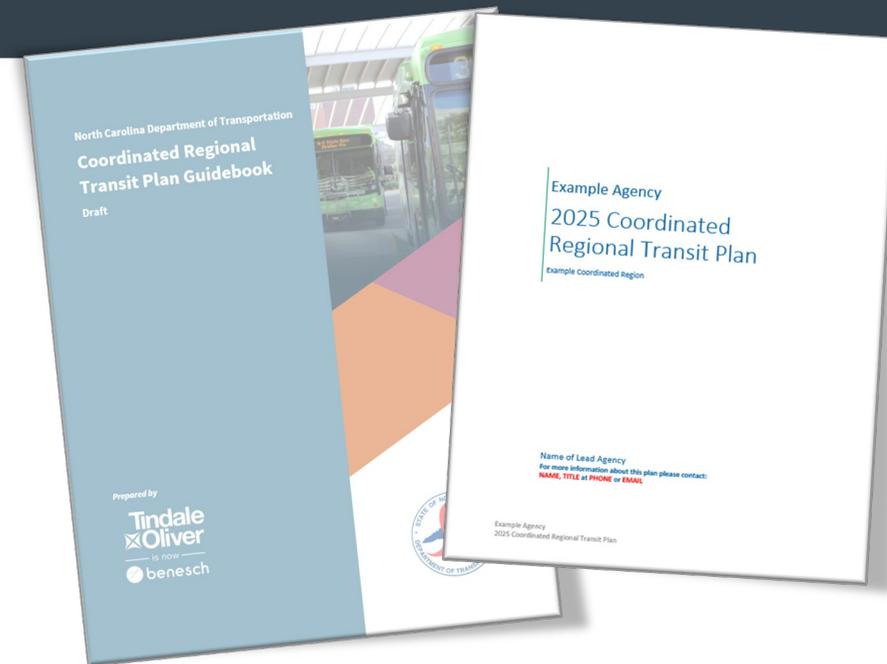
Rural/Urban Coordinated Region

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



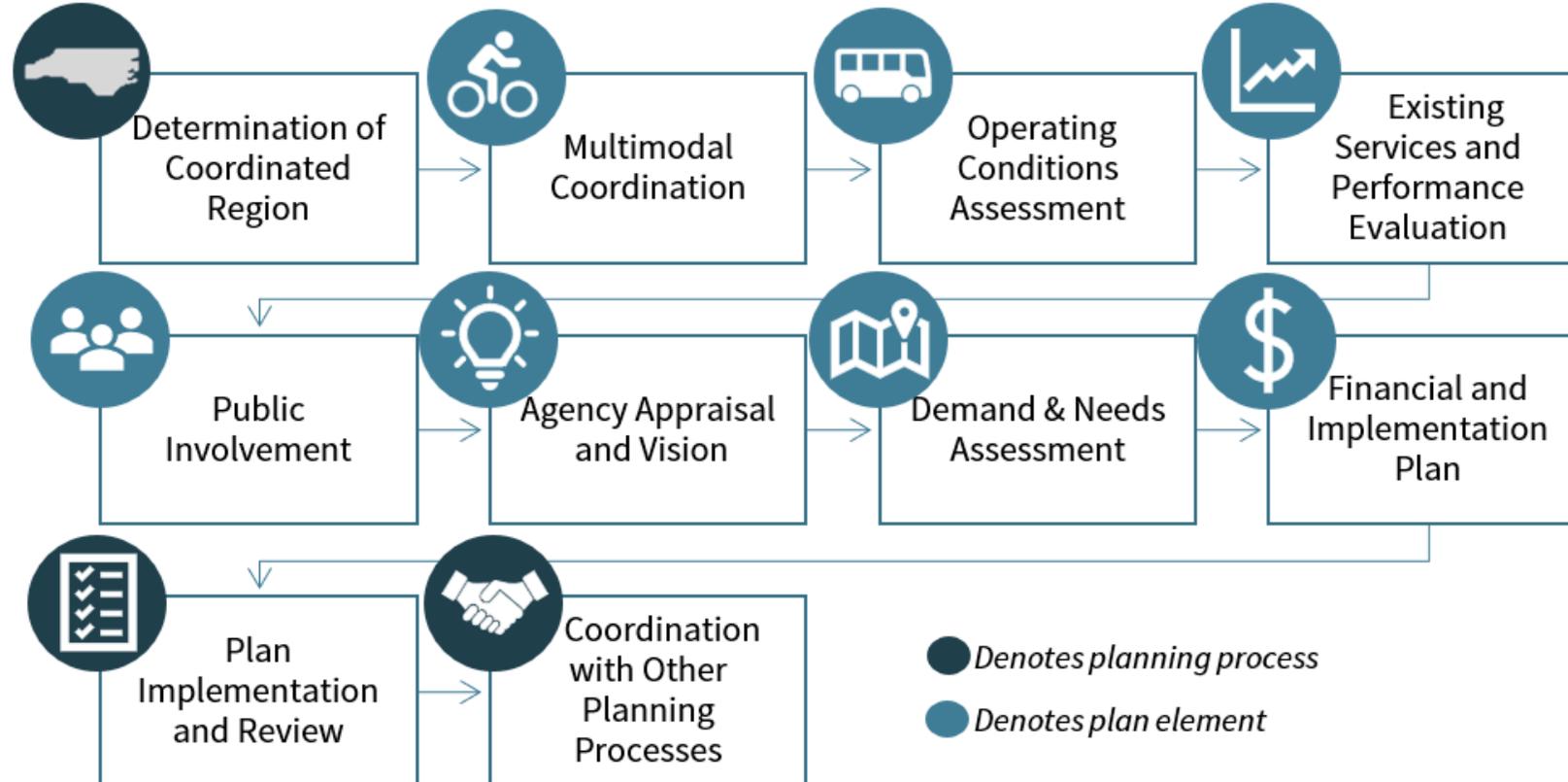
Urban Coordinated Region

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



Great Trails State Plan: A Visionary Plan for North Carolina



- Decades in the making, through hundreds of local plans and initiatives, the Great Trails State is ready to become a reality.
- For the first time in the state's history, this plan identifies a proposed network of trails that would connect all 100 counties throughout the state, creating lasting investments in rural and urban areas alike.

Great Trails State Plan: Existing Networks

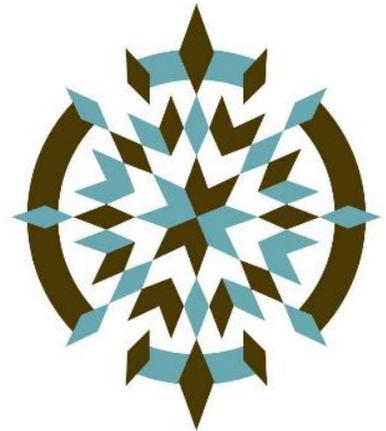
Progress across the state for long-distance trails and local/regional trail networks



East Coast



Greenway



CAROLINA
THREAD
TRAIL



PIEDMONT
LEGACY
TRAILS

Great Trails State Plan: Public Engagement

40 COMMITTEE MEMBERS



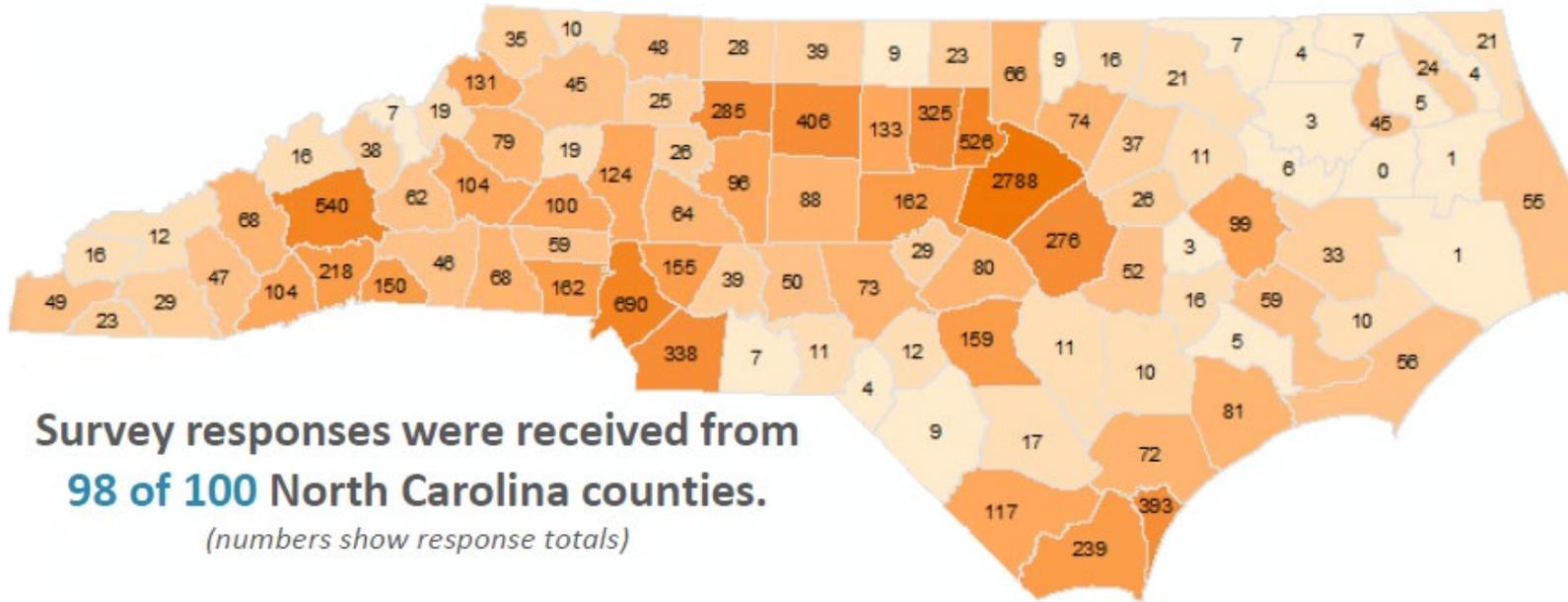
provided direction, representing NCDOT's 14 Divisions, 7 RPOs and MPOs, and relevant statewide departments and organizations.

600+ STAKEHOLDERS

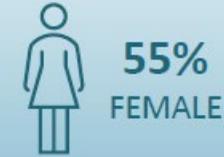


reviewed the proposed corridors, including town and county managers, planners, parks directors, land trusts, advocacy organizations, and many others.

Great Trails State Plan: Community Engagement



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



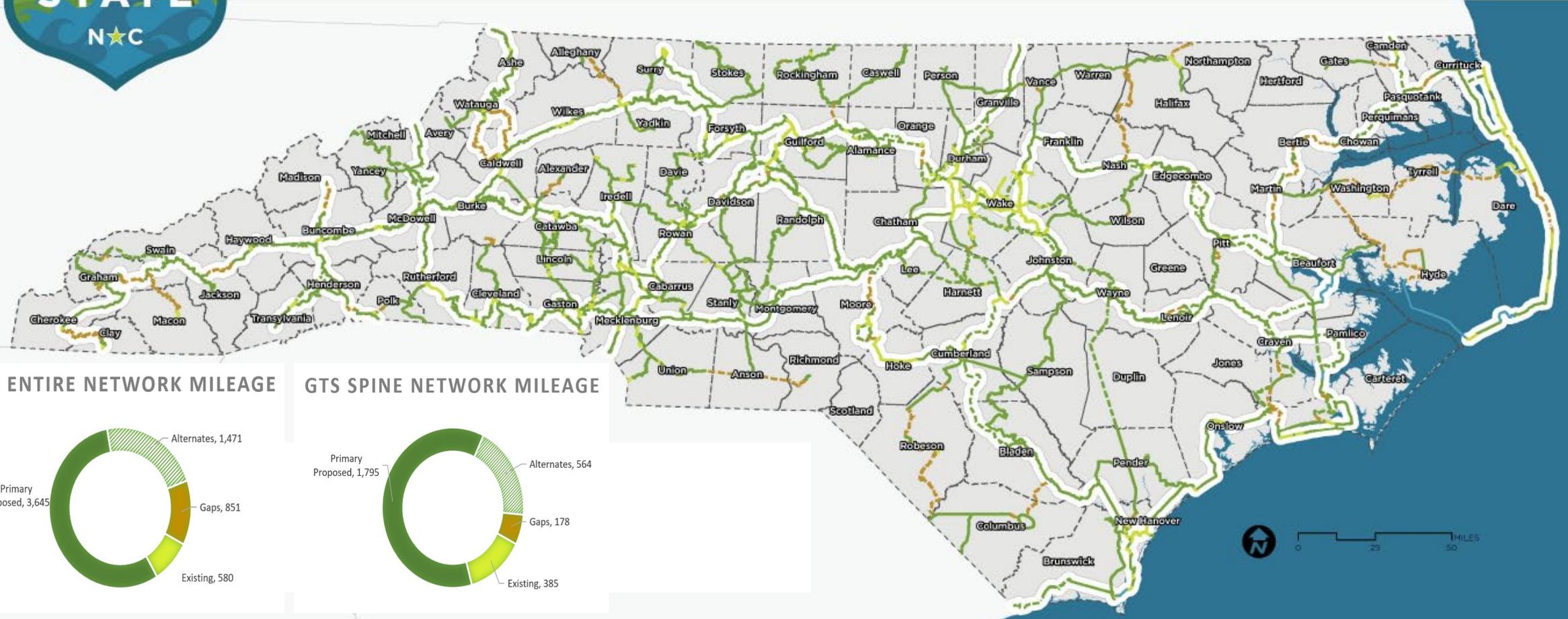
Age Group		Home Area Type	
<24	2%	Suburban	41%
25-35	14%	Small Town	26%
36-44	19%	Rural	18%
45-60	40%	Urban	14%
>60	25%		

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

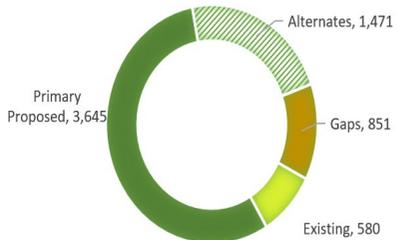
Great Trails State Plan: Trail Network



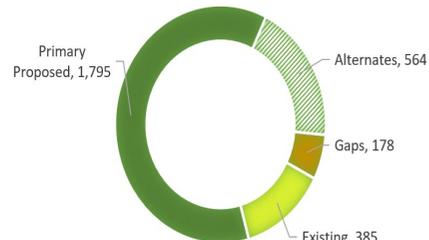
-  **Proposed Shared Use Path**
Best route based on existing plans and input to-date
-  **Existing Shared Use Path**
Existing SUPs within the proposed GTS Network
-  **Gap**
Connection desired, but lacks specific route planning
-  **Draft Alternate Route**
This or another parallel alternate should be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



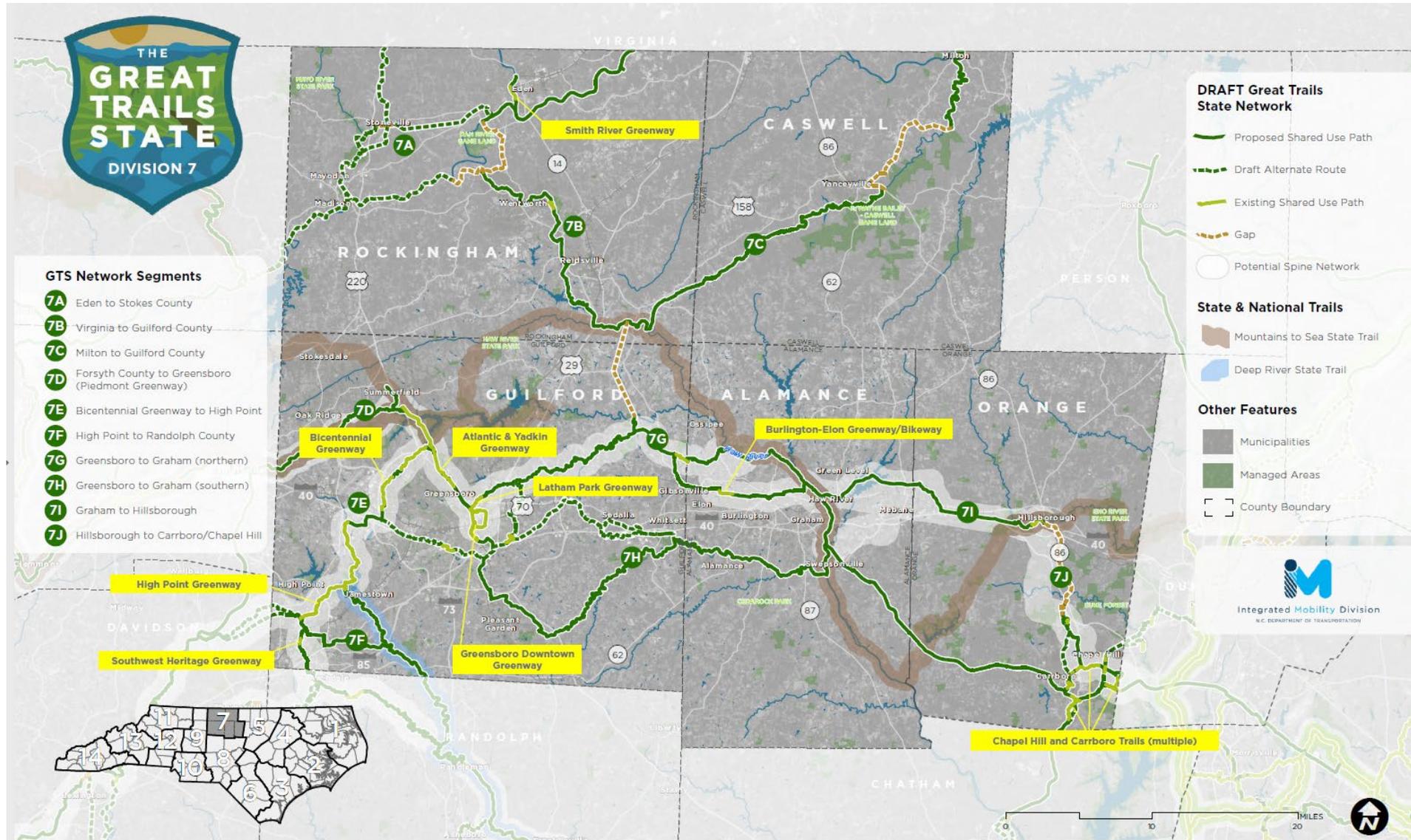
GTS ENTIRE NETWORK MILEAGE



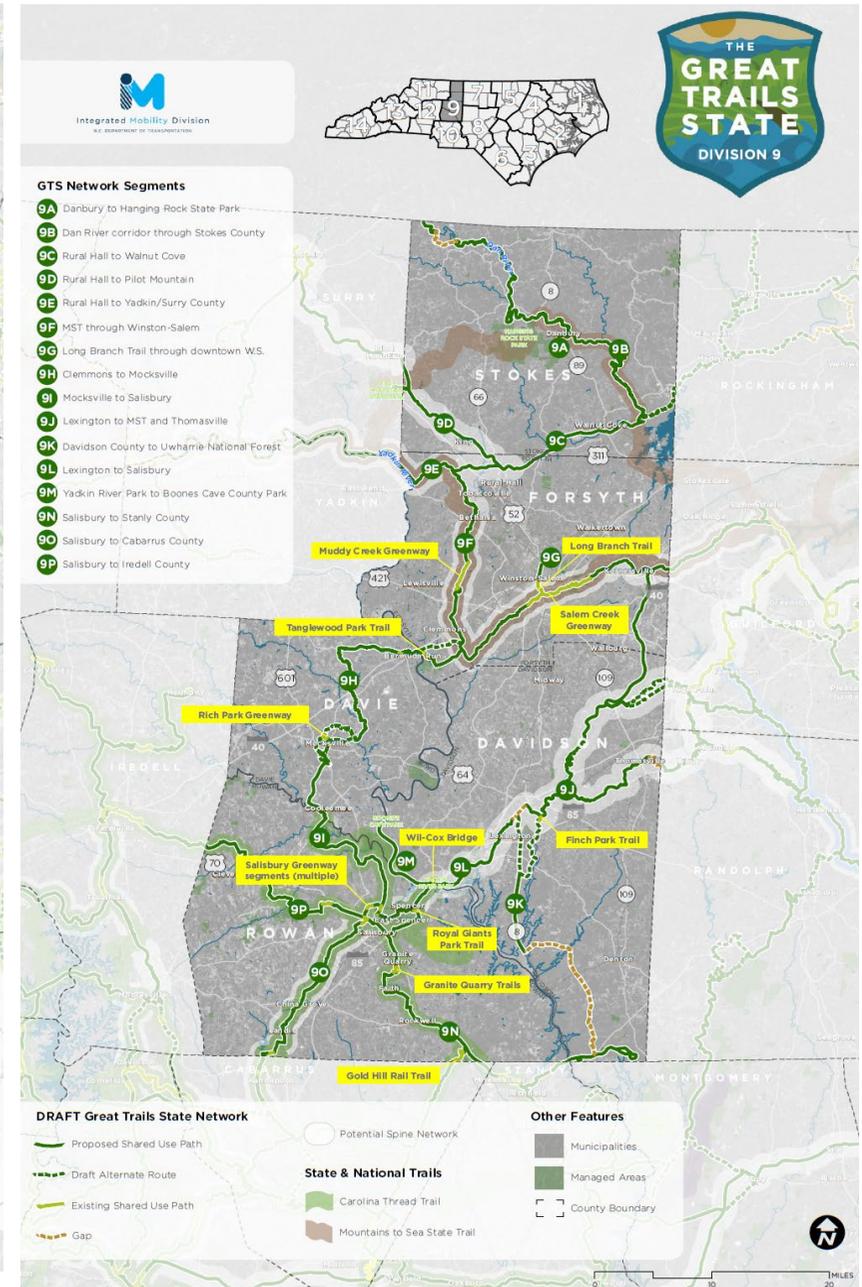
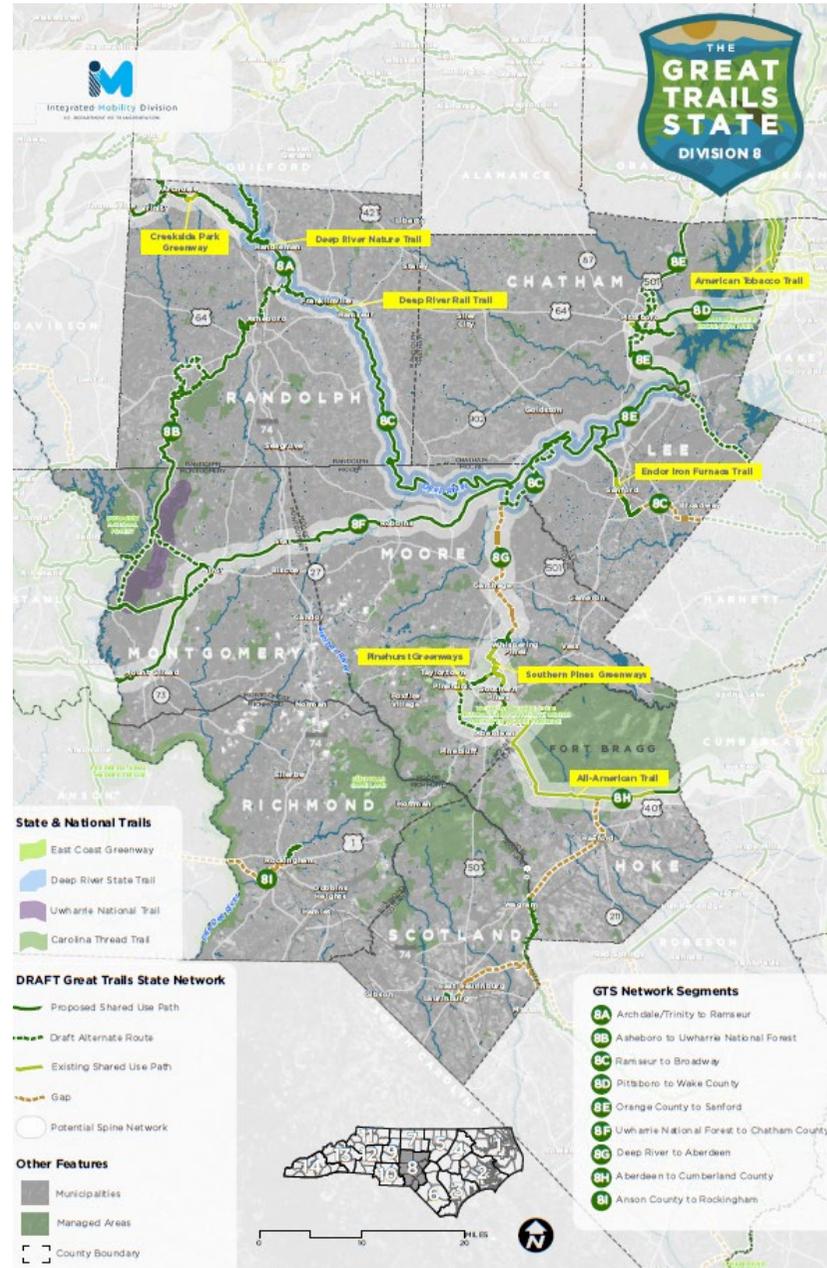
GTS SPINE NETWORK MILEAGE



Great Trails State Plan: Trail Network (Division 7)



Great Trails State Plan: Trail Network (Divisions 8 and 9)



Great Trails State Plan: Major Recommendations

- Refine and Design Connections
- Trail Designation, Branding and Wayfinding
- Trail-Friendly Policies
- Coordinate with Implementation Partners
- Create Accountability
- Evaluate and Update the GTS Plan
- Tourism and Engagement

The Trail Development Process



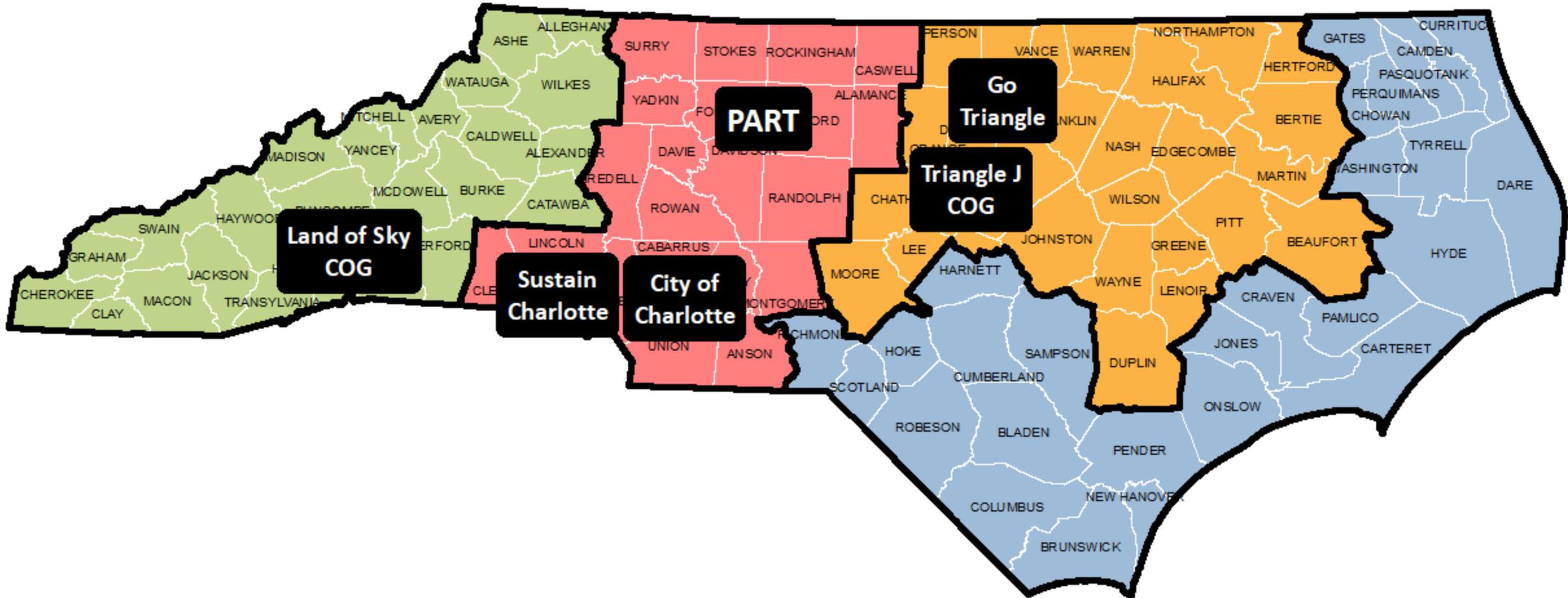
These are the steps typically involved in trail development. Certain funding sources may have additional requirements, and some steps may occur simultaneously.

Great Trails State Plan: A Few Next Steps

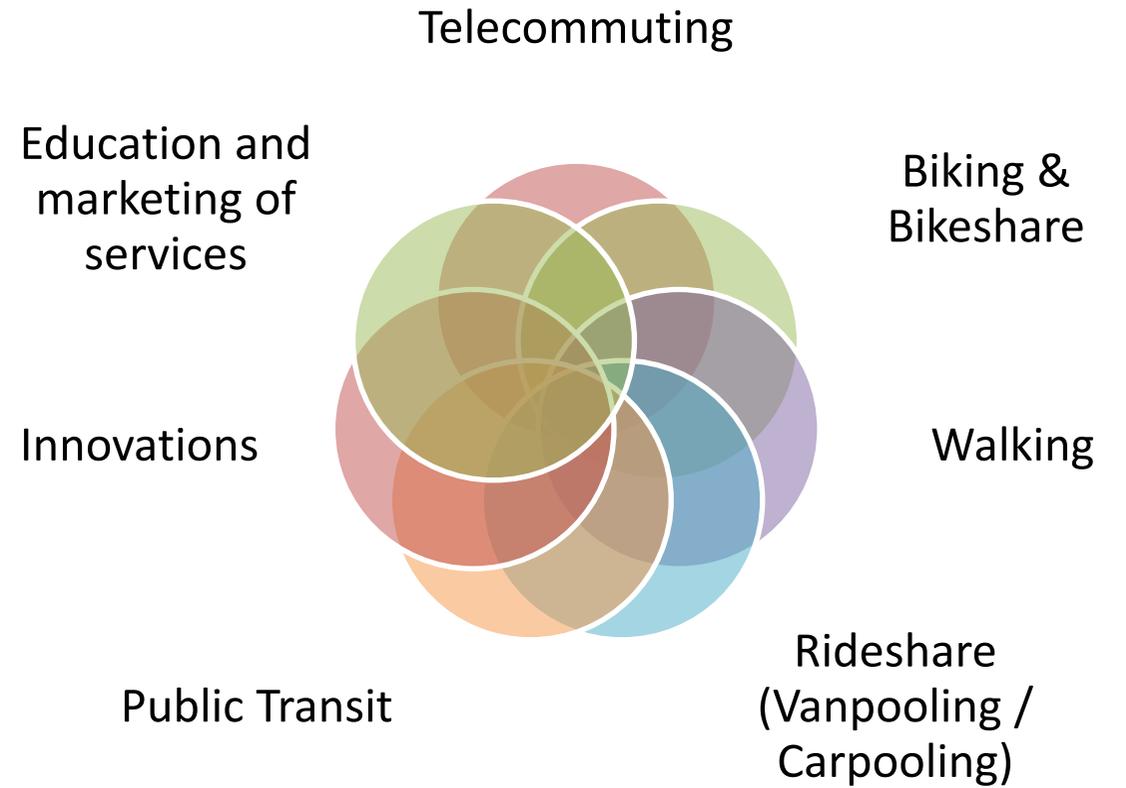
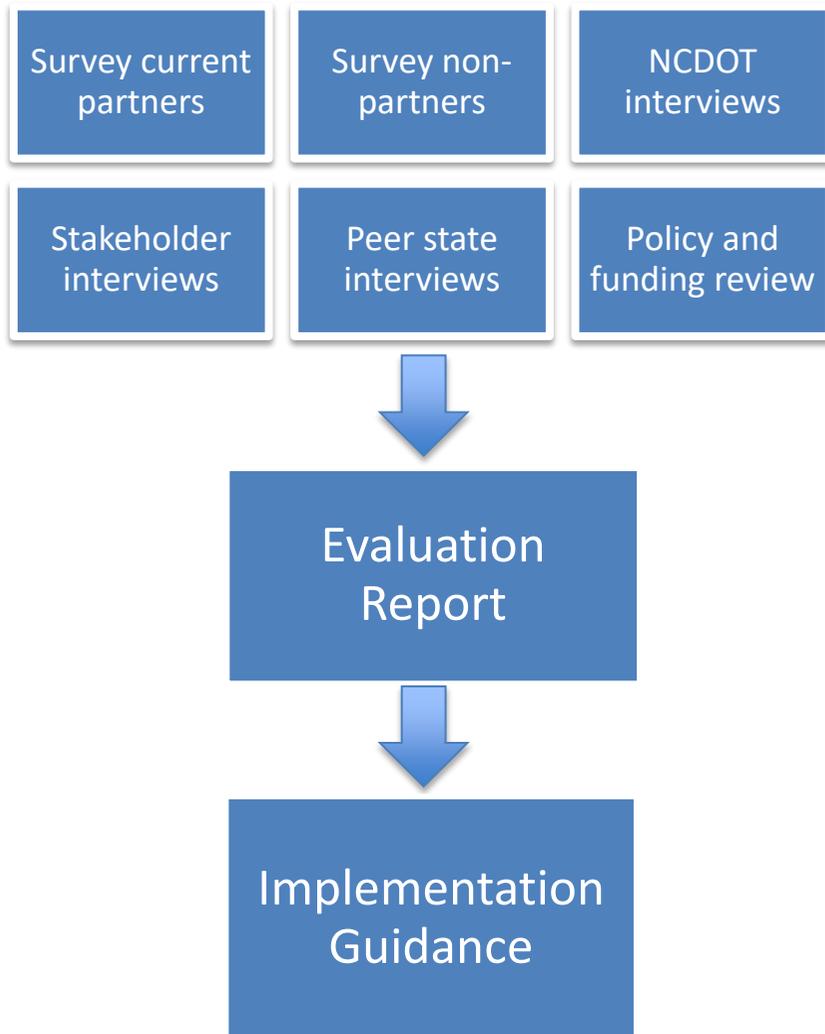
- Action Plan
- Great Trails State Coalition
- 2023 North Carolina's Year of the Trail
- Feasibility Studies Program
- Complete Streets implementation
- **Phase II**
 - Identification/feasibility analysis of trail projects in transportation disadvantaged areas
 - Natural surface trail connections
 -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



TDM Partners



TDM Program Evaluation



Travel Options Program 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

FY2022 Program – only provided recommended TDM strategies

- marketing plan, transportation/land use coordination, ridematching, commuter programs, data collection

Annual TDM Workplan & Scorecard

- TDM Workplan - Prime Elements
 - Travel Options Structure
 - Roles and Responsibilities
 - Annual Workplan – Goals, Objectives, Timeline

- TDM Scorecard
 - Travel Options Structure
 - Quantifiable Metrics
 - Baseline and Quarterly Inputs

Implementation / Recommendations

- Statewide TDM Programming
 - Statewide Brand and Marketing Resources
 - Trip Planning
 - Telework
 - Employer Recognition
 - Biannual Statewide Commuter Survey

Implementation / Recommendations

- TDM Coordinator
 - Program Oversight
 - Training
 - Collaboration
 - Education
 - Best Practices / Research
 - Roles and Responsibilities

- New Staff, Regional Planners, Mobility Managers

Implementation / Recommendations

- Continued Program Evaluation
 - Conduct Annual Survey
 - Analyze Metrics
- CMAQ Funds + Other Funding Sources
- Funding Formula
- Small Urban and Rural Partners
- Evolving TDM strategies: MaaS, Microtransit, Micromobility
- TDI and Accessibility



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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.

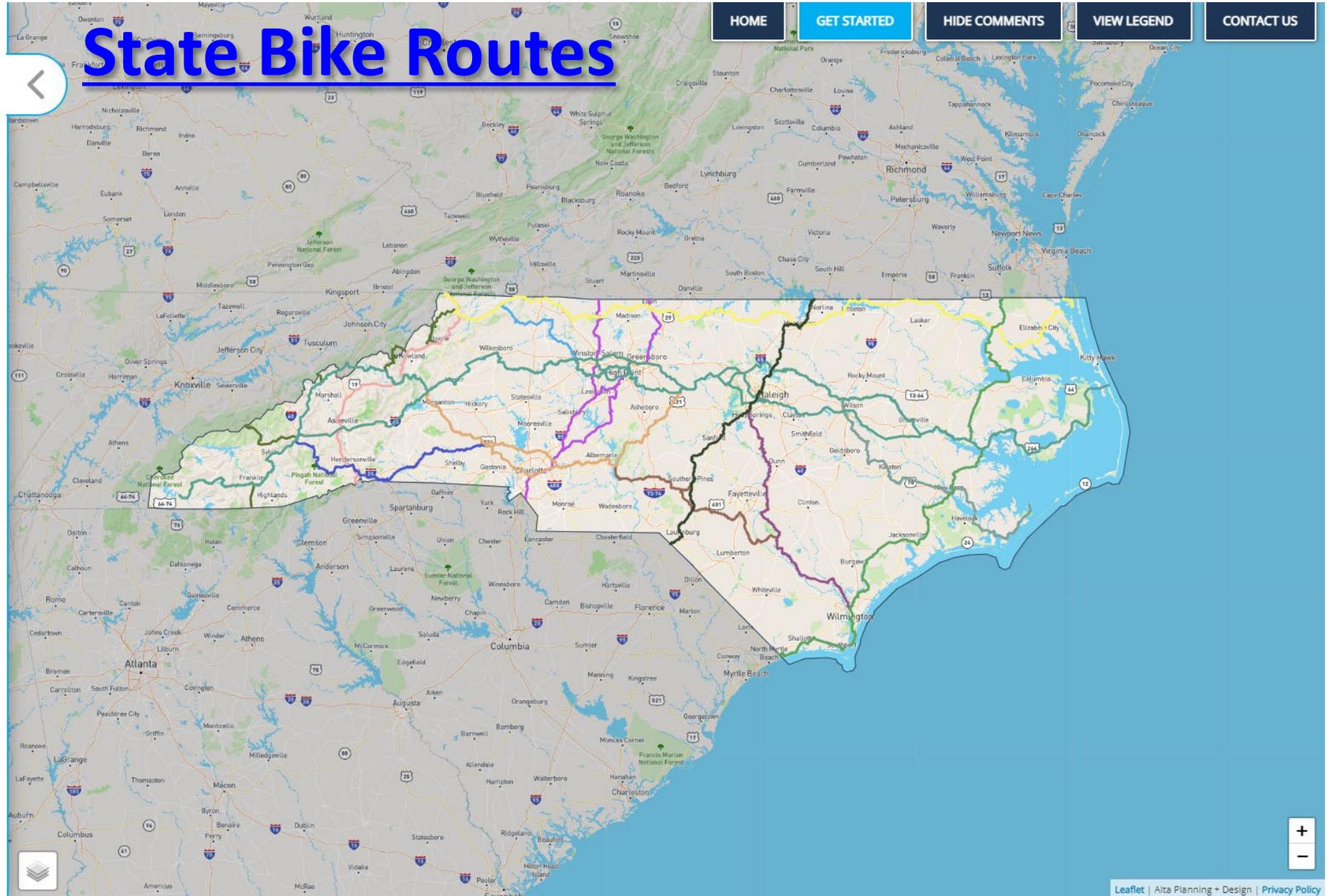
You can switch to satellite view and
add or remove layers of data by
clicking the button (stacked layers)
in the bottom left corner of the map.

User Comments

 Potential change/update
needed

 Map correction needed

 Potential change/update



State Bike Routes

HOME GET STARTED HIDE COMMENTS VIEW LEGEND CONTACT US

Leaflet | Alta Planning + Design | Privacy Policy

State Bike Routes

HOME

GET STARTED

HIDE COMMENTS

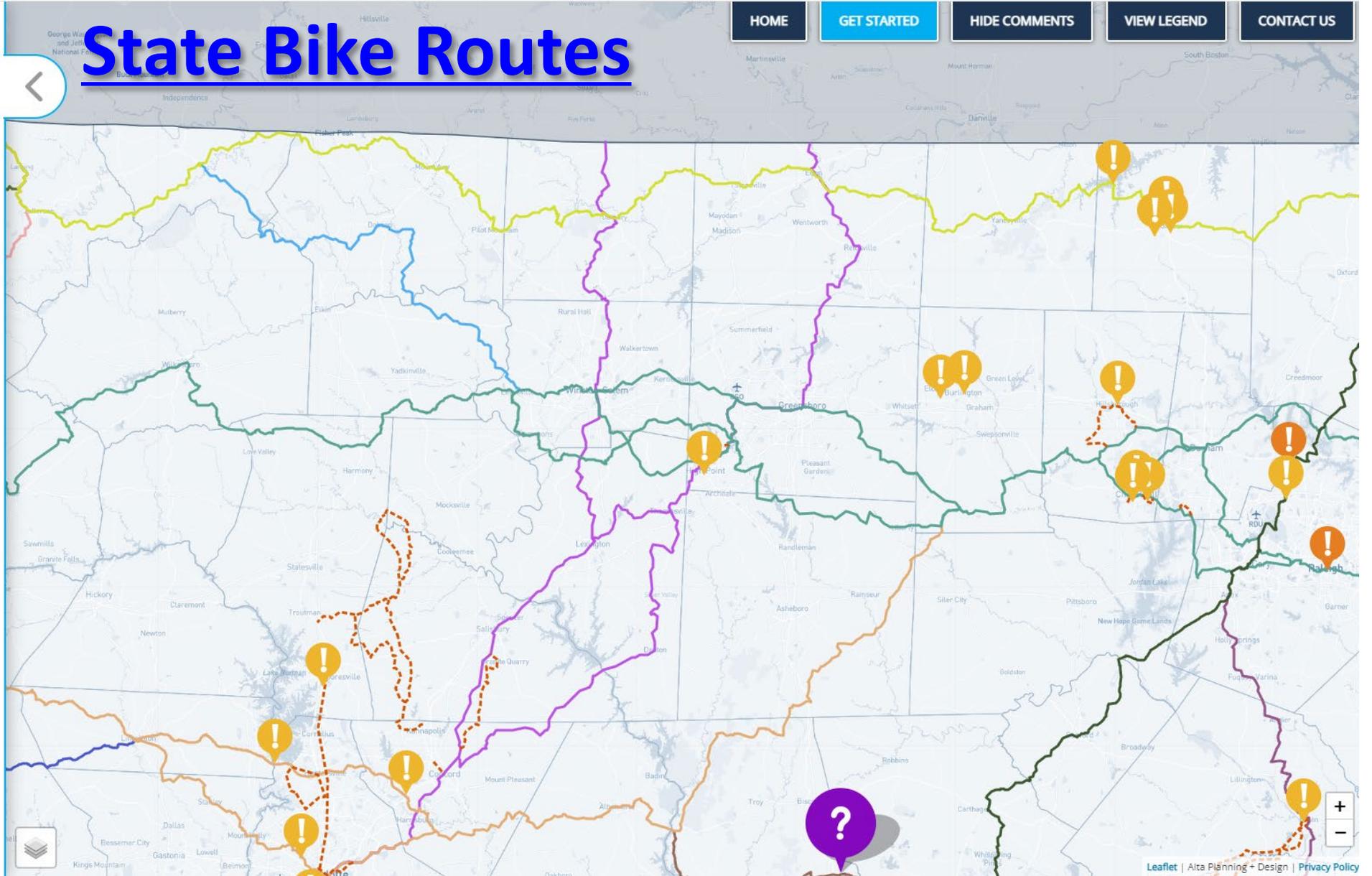
VIEW LEGEND

CONTACT US

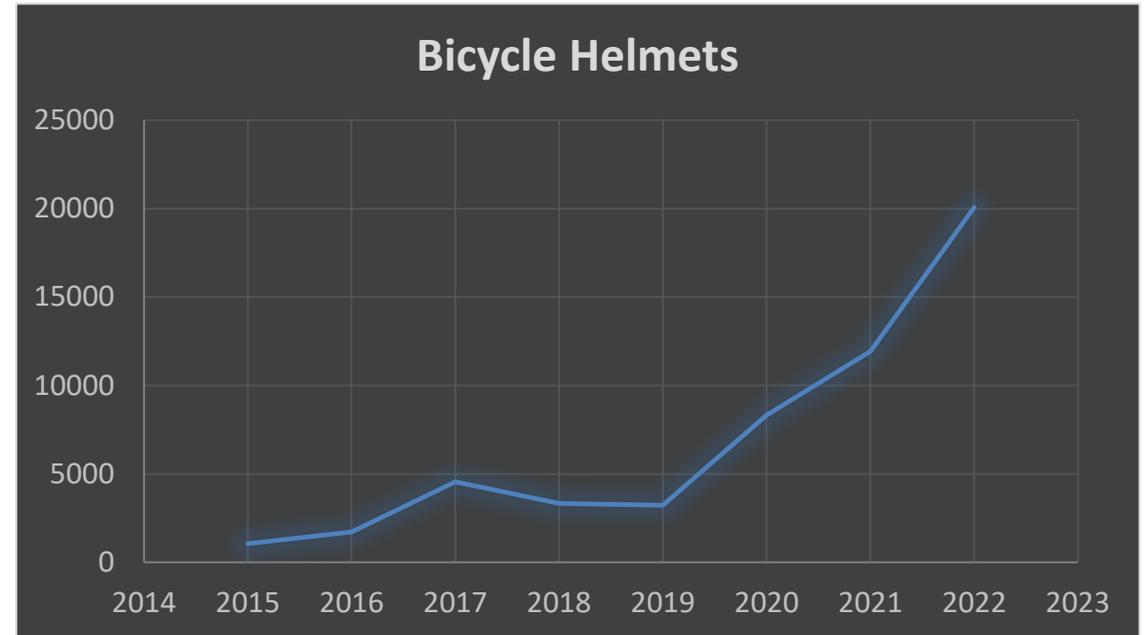
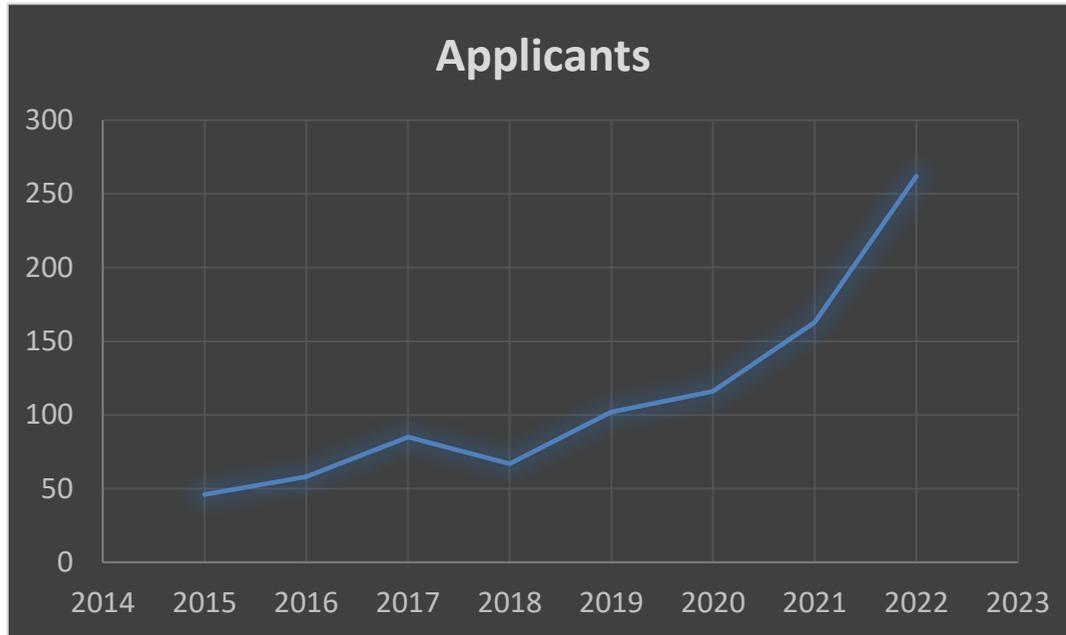
 Potential change/update needed

Existing

-  US 1 Carolina Connection
-  NC 2 Mountains to Sea
-  NC 3 Ports of Call
-  NC 4 North Line Trace
-  NC 5 Cape Fear Run
-  NC 6 Piedmont Spur
-  NC 7 Ocracoke Run
-  NC 8 Southern Highlands
-  NC 9 Sandhills Sector
-  NC 10 Triad Charlotte
-  NC 11 Mountain Route
-  NC 12 Yadkin Valley

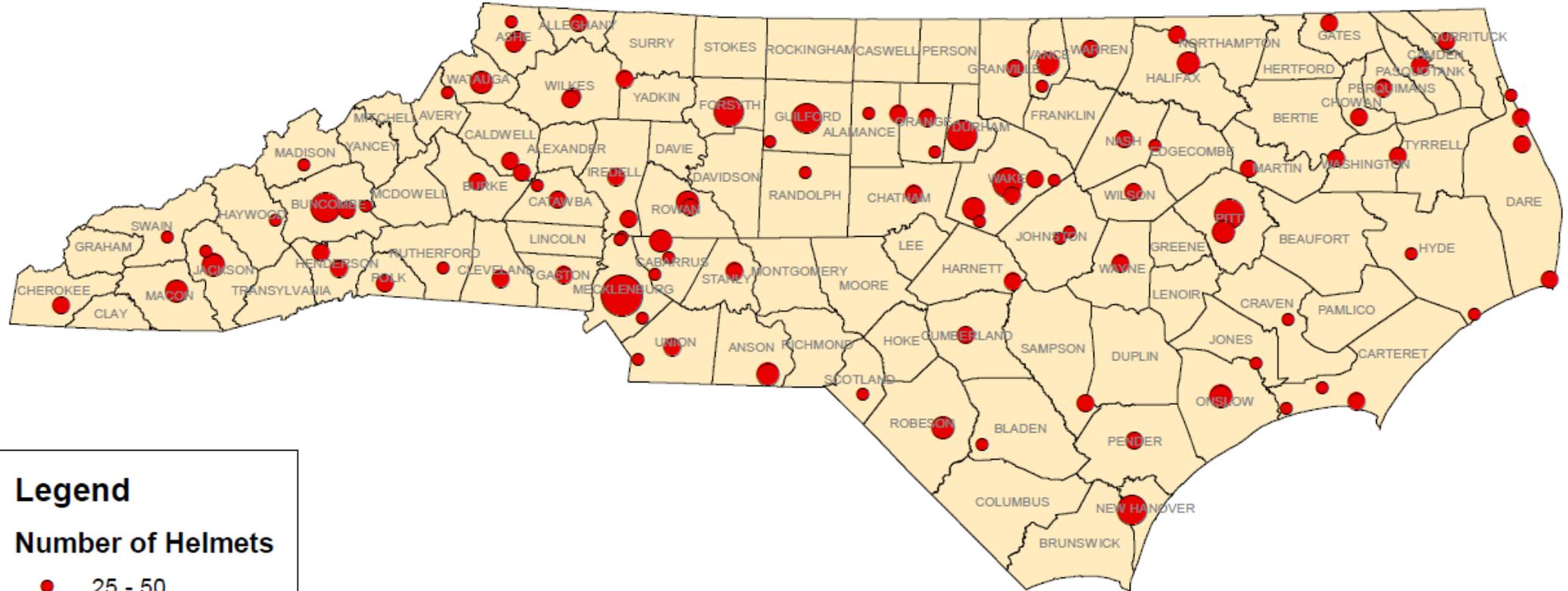


Bicycle Helmet Initiative



[Web Link](#)

2021 Bicycle Helmet Initiative



Legend

Number of Helmets

- 25 - 50
- 51 - 125
- 126 - 200
- 201 - 500
- 501 - 975

[Web Link](#)

SRTS Non-Infrastructure Grants

- 2019 Award Recipients – 11 entities, including the City of Greensboro and City of Winston-Salem
- \$1,500,000 per year of Transportation Alternative Program (TAP) funds for non-infrastructure programs and activities over a three-year period
- \$50,000 to \$100,000 per project.
- Support activities for community-wide, regional or statewide programs
- Local governments, regional transportation agencies, school districts, nonprofit organizations can apply
- Next call – ?2022?



[website](#)

City of Winston-Salem SRTS N-I Grant

- **Ongoing Success from Original SRTS N-I Grant**
 - Bicycle Education Program
 - 2021-2022: ~800 students with training and properly-fitted helmets
 - Since 2012: ~10,000 students
- **Program Expansion with Current SRTS N-I Grant**
 - Enhance Walking Education Program
 - Add Emphasis on Walking School Bus, Bike/Walk to School Days, Remote Drop Off
 - Menu of Activities and Materials for Schools
- **Engagement with Winston-Salem / Forsyth County Schools**
 - 174 survey responses from teachers and staff in WSFCS
 - Assistant Superintendent for Operations, Assistant Director of Transportation, Director of Healthful Living Program, Director of Safety and Security, and Principals



Note: Slide from the City of Winston-Salem



Integrated Mobility Division

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IMD Coordination with Other Modes/NCDOT

- Project Reviews
- Transportation Planning Division
- Division Planning Engineers
- SPOT/STIP
- Ferry
- Rail (S-Line TOD Planning Study)
- Mobility & Safety

Coordination with Other Business Units

- Business units involved in project reviews / complete streets
 - Divisions 1-14 - project reviews
 - Project Management Unit - project reviews
 - Structures Management Unit - project reviews
 - Value Management Unit - VE Studies/CLEAR
 - Operations Program Management - HMIP/Maintenance projects
 - Signing & Delineation - pavement marking, signal timing, and signage technical assistance
 - Design Build – cost estimation support

Coordination with Other Business Units

- Transportation Planning Division (TPD)
 - Regional Planners
 - Comprehensive Transportation Plans (CTP)
 - Complete Streets / CTP Coordination
 - Planning Grants
 - Regional Transit Plans

- Division Planning Engineers
 - Regional Planners
 - Complete Streets
 - Planning Grants
 - Transportation Disadvantage Index tool

Coordination with Other Business Units

- **Regional Planning Team Coordinating with CTP process**
 - Introductions in December 2021 & January 2022
 - Presence at CTP meetings

- **Roles of Regional Planner:**
 - Presentations on bike-ped topics to CTP committees
 - Analysis of bike-ped crashes, BLOS
 - Review of recommendations, purpose & need statements, etc.

- **Future roles after evaluation in 2022**

Coordination with Other Business Units

- MPO Engagement in Q1 2022 in coordination with TPD

- **Regional Planners** building partnerships with MPO & RPO's
 - Updates on TCC meeting agendas
 - Special committees or BPACs
 - Presentations on programs and policy
 - Inventory requests

Coordination with Other Business Units

- SPOT/STIP – Prioritization Workgroup, Complete Streets
- Locally-Administered Independent Bicycle/Pedestrian Projects ([Scoping Guidance](#) - PDF)
 - Local Programs – agreements
 - Planning and Programming – STIP
- Ferry Division – Research: Strengthening Access to NC Ferries to Support Coastal Community Resiliency, Health and Mobility
- Research and Development

Strategic Prioritization

- IMD Role:
 - Provide input to Prioritization Workgroup
 - Review Bicycle/Pedestrian & Transit Project Submittals

Bike/Ped Eligibility:

- Minimum project cost = \$100,000
- 20% of total project costs is required as non-federal match by local governments
- Project must be included in an adopted plan

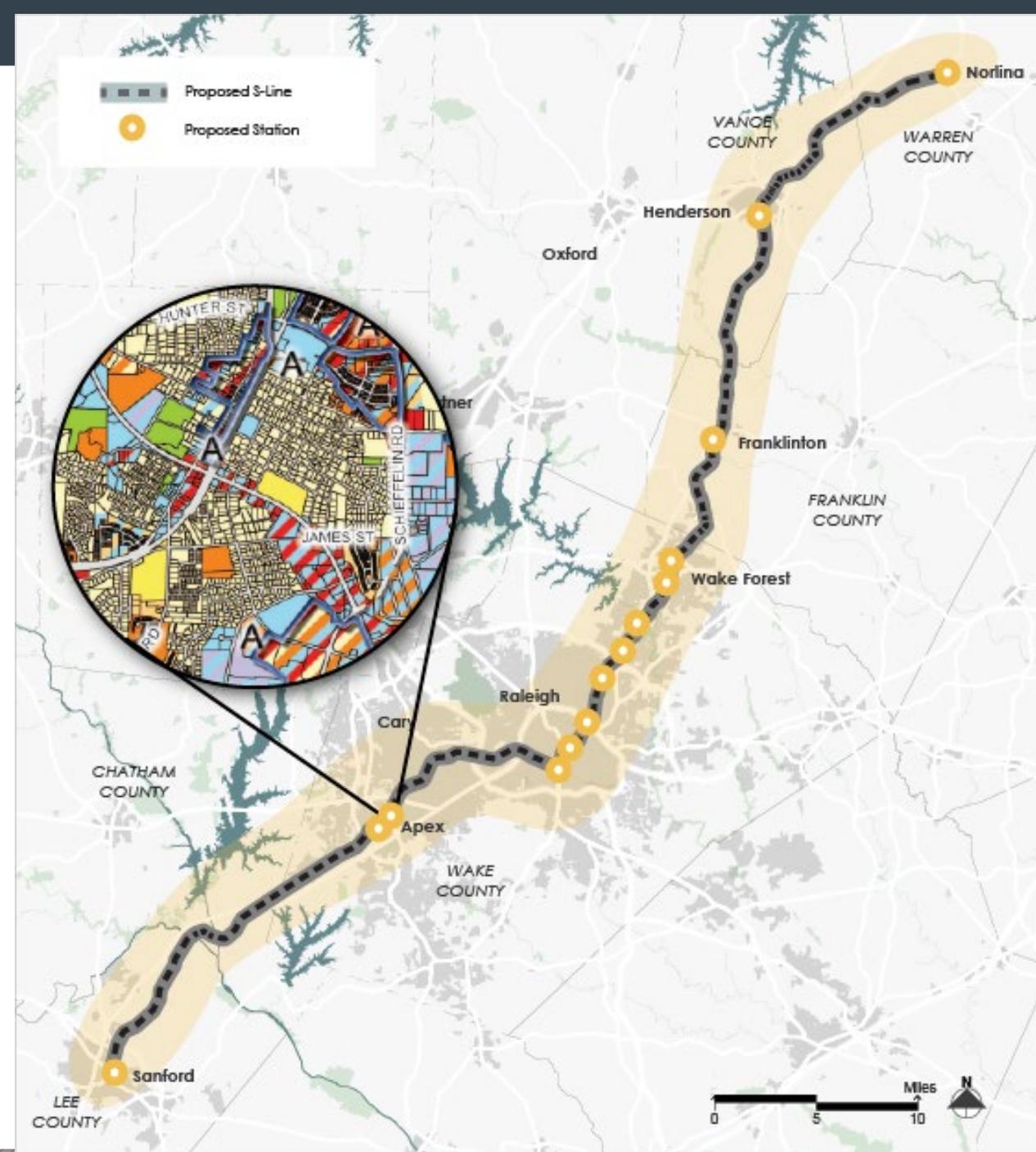
Criteria	Measure	Division Needs (50%)
Safety	(Number of crashes x 40%) + (Crash severity x 20%) + (Safety risk x 20%) + (Safety benefit x 20%)	20%
Accessibility/ Connectivity	Points of Interest pts + Connections pts + Route pts	15%
Demand/ Density	# of households and employees per square mile near project	10%
Cost Effectiveness	(Safety + Accessibility/Connectivity + Demand/Density) / Cost to NCDOT	5%

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



S-Line TOD Planning Study

(IMD & Rail Division)



- Community Engagement
 - Stakeholder Engagement
 - Public Workshops
 - Municipal Working Group Meetings
 - TOD Symposiums
 - Market Study Interviews
- TOD Readiness Report
 - Land use analysis
 - Policy and regulatory conditions
 - Socio-economic conditions
 - Multimodal transportation
 - Freight rail coordination
 - Transit operations coordination
 - Environmental and historic resources
- Market Assessment
 - Corridor-wide market assessment
 - Station area market potential
 - Affordable housing assessment
- Vision Summary
 - Station location confirmation
 - Corridor vision & urban design guidelines
 - Station area planning
 - Visualizations & branding
- Implementation Plan
 - Regulatory tools
 - Infrastructure financing strategies & funding sources
 - Public & private partnership opportunities

NCDOT Mobility & Safety Unit

- Research [Web Link – NCDOT Research Projects](#)
 - IMD championed projects
 - Quantification of Systemic Risk Factors for Pedestrian Safety on North Carolina
 - Comparing Intersection Safety Performance using the “20-Flags” Method and Crash Data
- Pedestrian Safety Program
- Crash Data – Reports, Map, Dashboard
- Non-Motorized Data Collection Program



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

Multimodal Planning Strategy

- Complete Streets
- Transportation Disadvantage Index
- Research
- Data and Tools
- Bicycle and Pedestrian Counts

Complete Streets: Goals

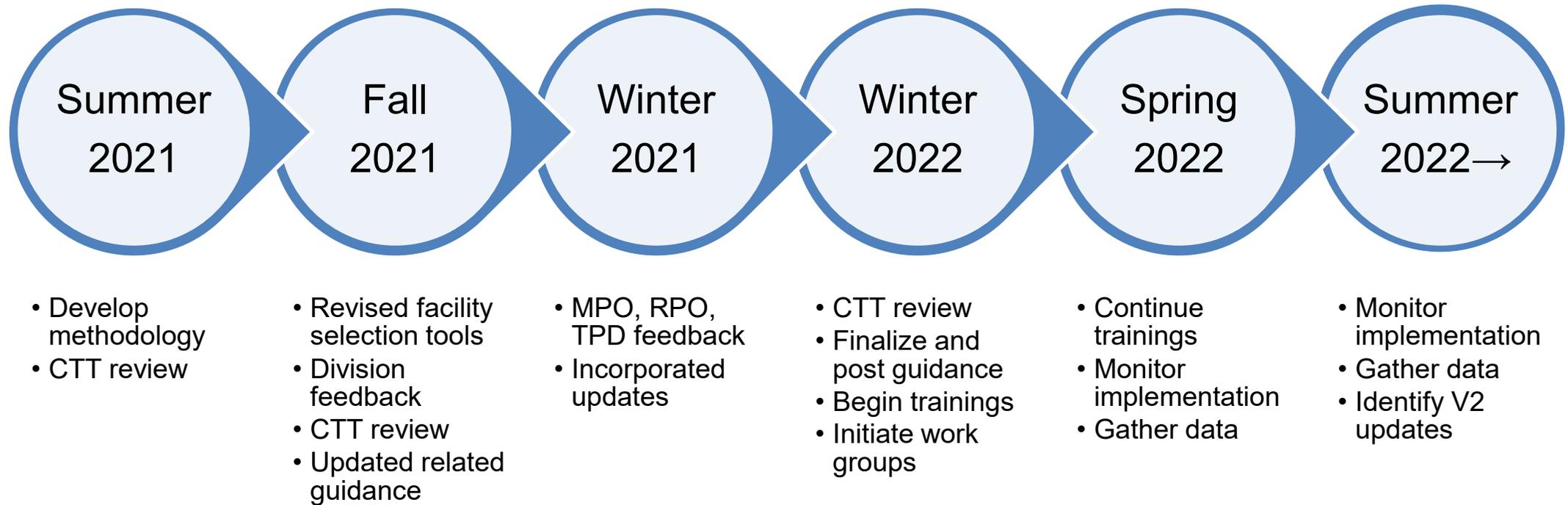
- Reduce pedestrian crashes and unsafe conditions
- Improve access and mobility for those without a vehicle
- Enhance quality of life by providing transportation choices
- Ensure NCDOT has an equitable transportation system that works for everyone



Evolution of **Complete Streets** and NCDOT

- NC first State to establish a Bicycle Program (1974)
 - Expanded in 1992 to also address Pedestrian accommodations.
- NCDOT Board adopts Complete Streets Policy (2009)
 - Supplemental planning and design guide created
 - Bicycle and Pedestrian Policies continue
- NCDOT Board updates Complete Streets Policy (2019)
 - Rescinded and replaced previous policies and guidelines
 - Integrated into IPD, Roadway Design Manual, and ATLAS (ongoing)
- Bike/Ped Merger with Public Transit to become the Integrated Mobility Division (IMD) (2019-2021)
- Release of updated methodology for Complete Streets Review (2022)

Complete Streets - Methodology Update Process to Date



Complete Streets within the Project Development Context

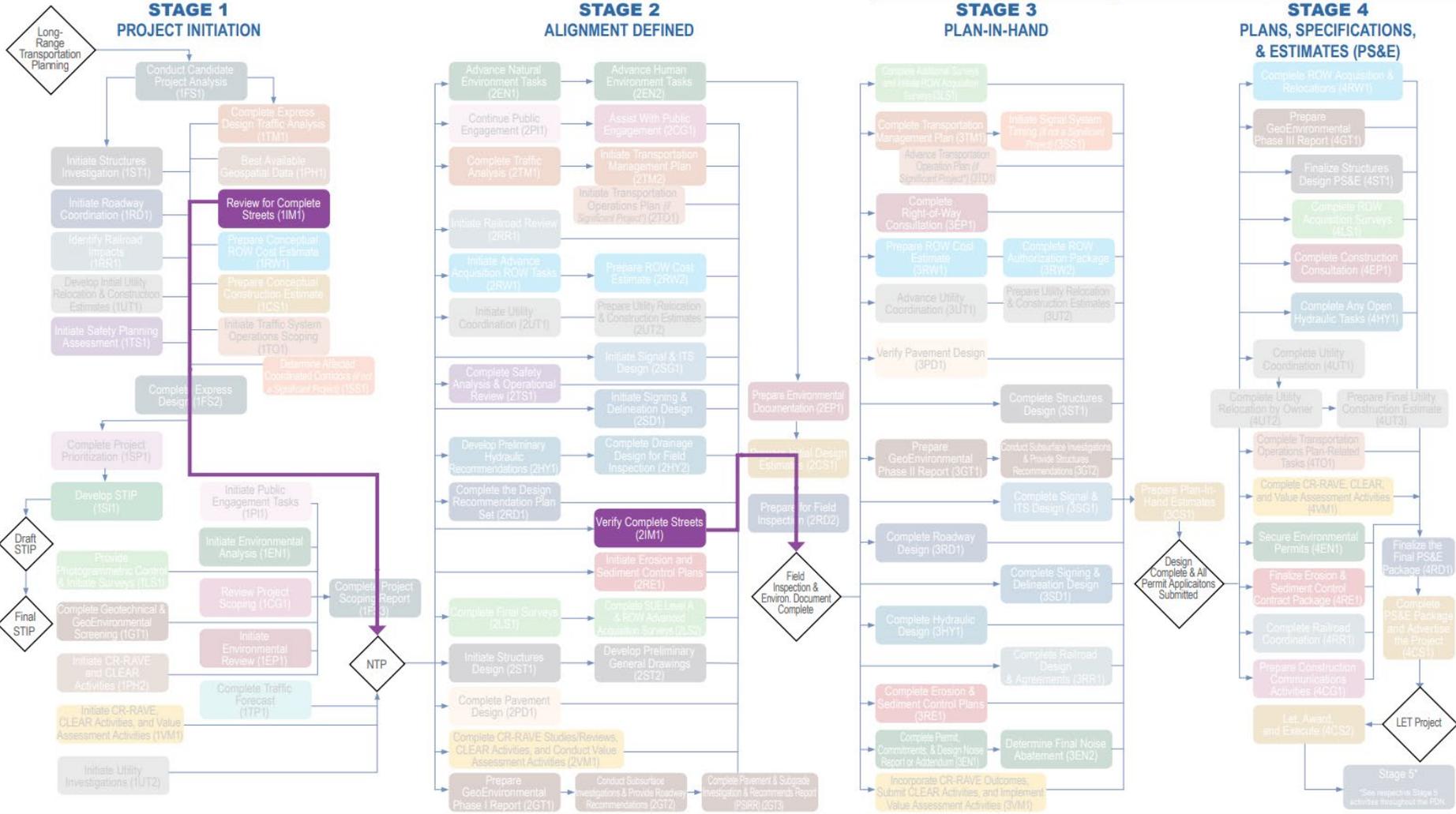
Integrated Project Delivery (IPD) – NCDOT’s new approach to the project delivery process to improve communication, coordination, and scope, budget, and schedule decision-making.

Project Delivery Network (PDN) – NCDOT’s new project management document that specifies the logical project development progression through the initiation, environmental, and design phases.

- 5-Stages: Initiation, Alignment Defined, Plan-in-Hand, Letting, and Construction.
- Disciplines specified at each Stage.
- Integrated Mobility Division (IMD) supports Complete Streets in PDN Stage 1 and Stage 2.
- Complete Streets-related actions in other activities.

November 2021

NCDOT Project Delivery Network



DISCIPLINE LEGEND

- SHOW ALL
- Communication Group (CG)
 - Contract Standards & Development (CS)
 - Environmental Analysis (EN)
 - Environmental Policy (EP)
 - Feasibility Studies (FS)
 - Geotechnical (GT)
 - Hydraulics (HY)
 - Integrated Mobility (IM)
 - Location & Surveys (LS)
 - Pavement Design (PD)
 - Photogrammetry (PH)
 - Public Involvement (PI)
 - Roadside Environmental (RE)
 - Roadway (RD)
 - Rights-of-Way (RW)
 - Right-of-Way (RW)
 - Signaling & Delineation (SD)
 - Transportation Signals & ITS Design (SG)
 - State Transportation Improvement Program (SI)
 - Strategic Prioritization Office (SP)
 - Signal System Timing Operations (SS)
 - Structures Design (ST)
 - Traffic Management (TM)
 - Traffic Systems Operations (TO)
 - Transportation Planning (TP)
 - Traffic Safety (TS)
 - Utility Coordination & Design (UT)
 - Value Management (VM)

Complete Streets: Implementation Challenges

There have been challenges to implementation, including:

- Inconsistent implementation across Divisions.
- Lack of standards and need to streamline.
- Policy gaps in key areas (e.g. maintenance).
- Limited metrics, data and tracking.
- Need for enhanced training.



Complete Streets: Role of the Updated Guidance

- The Complete Streets policy requires NCDOT to evaluate all projects for bicycle and pedestrian needs and include enhancements to address needs.
- The policy is unchanged, and NCDOT is updating the implementation approach to ensure the policy is successfully implemented going forward.
- The new evaluation methodology is standardized and streamlined and will guide project managers through a process of identifying needs, selecting the appropriate facility type, and estimating added impacts to the project.
- Numerous consultation points with LGAs and MPOs/RPOs during the process.

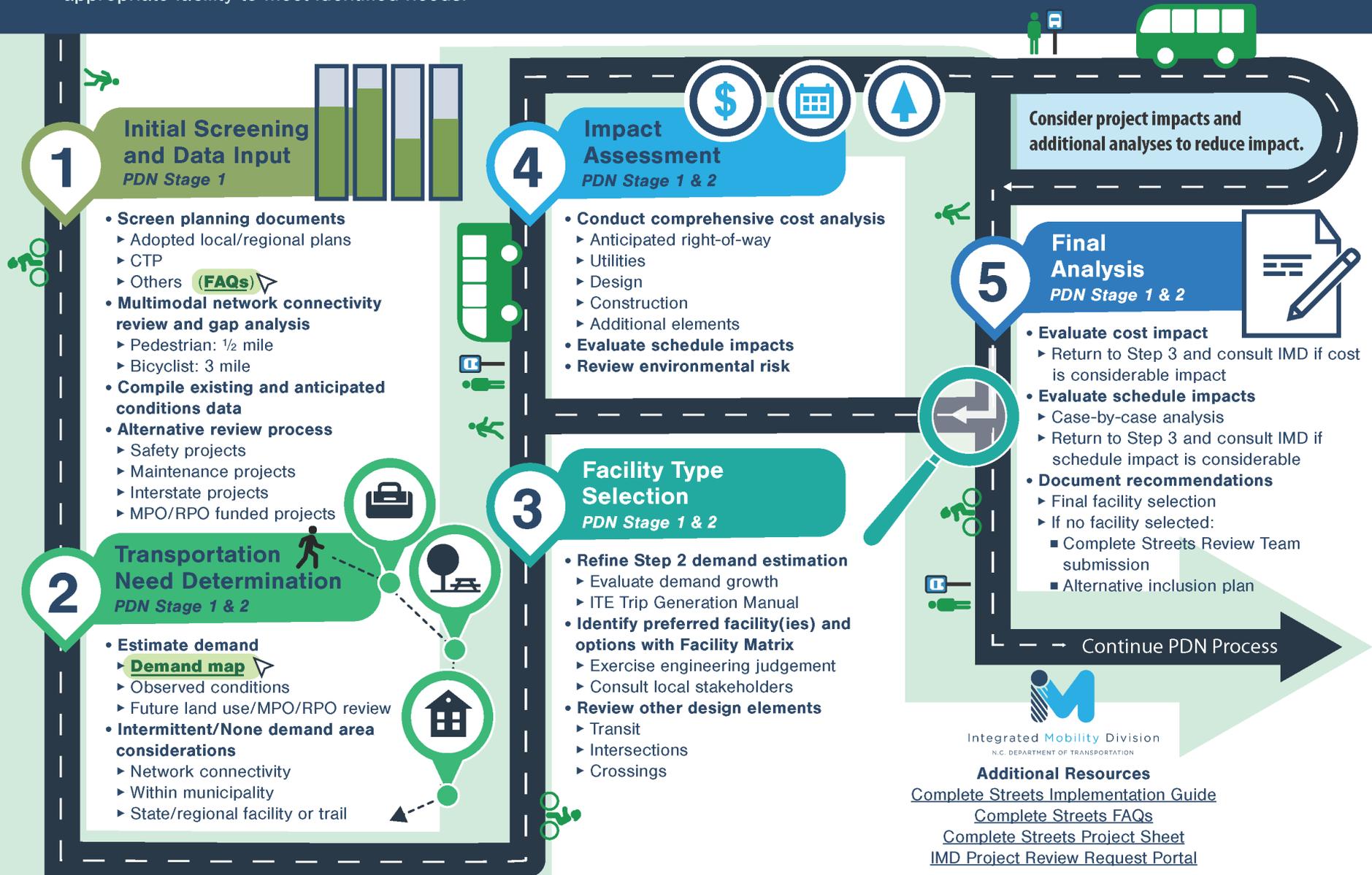


Complete Streets - Guidance Release

- January release of CS guidance and supporting materials to Connect NCDOT:
 - Evaluation Methodology (*new*)
 - Overview Presentation and Video (*new*)
 - Implementation Guide (*updated*)
 - FAQs (*updated*)
 - Project Sheet (*updated*)
 - CS Review Assessment Form (*new*)
 - Complete Streets [Dashboard](#) (*new*)
- Guidance release paired with online training sessions
- Track implementation and identify needed process improvements



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.



Complete Streets: Key Process Reminders

- Tools/guidance should be supplemented with local conversations and project-specific information when making decisions within each step.
- Local coordination/concurrence is critical to fully understand needs and select the appropriate facility to address identified needs.
- This guidance is iterative, and we welcome feedback as we continue to refine it.
- Future guidance iterations will be closely informed by data; important to gather as much data as possible and document appropriately so it can contribute to broader understanding.
- IMD's role as main project reviewer will transition eventually and Divisions will take the lead on most project reviews.

MPO and RPO Feedback

- **Demand Estimation:** Concern that proposed methods underestimate growth.
- **Maintenance:** Preference for NCDOT to maintain separated facilities.
- **CTP Alignment:** Preference for a common Complete Streets/CTP need determination process.
- **Local Coordination:** Concern that NCDOT PMs will not sufficiently coordinate with MPOs, RPOs, and LGAs.
- **Cost Impacts:** Request for consideration of economic benefits.
- **Work Groups:** Desire to join the PDN, cost impact, and maintenance work groups.
- **Clarifications:** Terminology, need determination options, and MPO/RPO funded projects.

Incorporating MPO and RPO Feedback

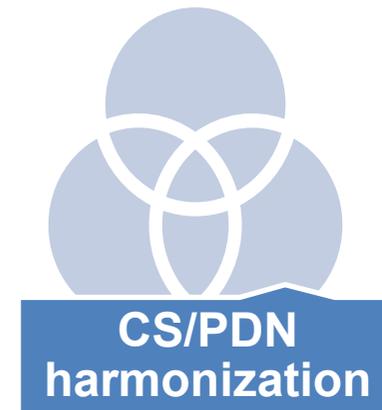
- **Demand Estimation:** Promote future land use discussions between PMs and LGAs/MPOs/RPOs and will refine demand estimation in V2.
- **Maintenance:** Work group forming and may determine appropriate exceptions.
- **CTP Alignment:** Further coordination with TPD on terminology and need determination.
- **Local Coordination:** Guidance, training, and technical assistance to emphasize coordination.
- **Cost Impacts:** Work group forming and establishing a data framework for CS benefits.
- **Work Groups:** RPO and MPO members invited to participate in the three work groups.
- **Clarifications:** Updated terms, expanded factors for need, and guidance for MPO/RPO projects.

Complete Streets: Ongoing Discussions on Key Issues

- Maintenance of separated multimodal facilities, particularly outside of municipal boundaries
- Inclusion of complete streets enhancements on maintenance projects
- Harmonization of complete streets processes with the Project Delivery Network (PDN)
- Alignment of pedestrian/bike need determination between CTP and complete streets methodologies
- Determining costs and benefits of complete streets elements

Complete Streets: 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 in February and March.
- Recommendations incorporated in next CS updates.

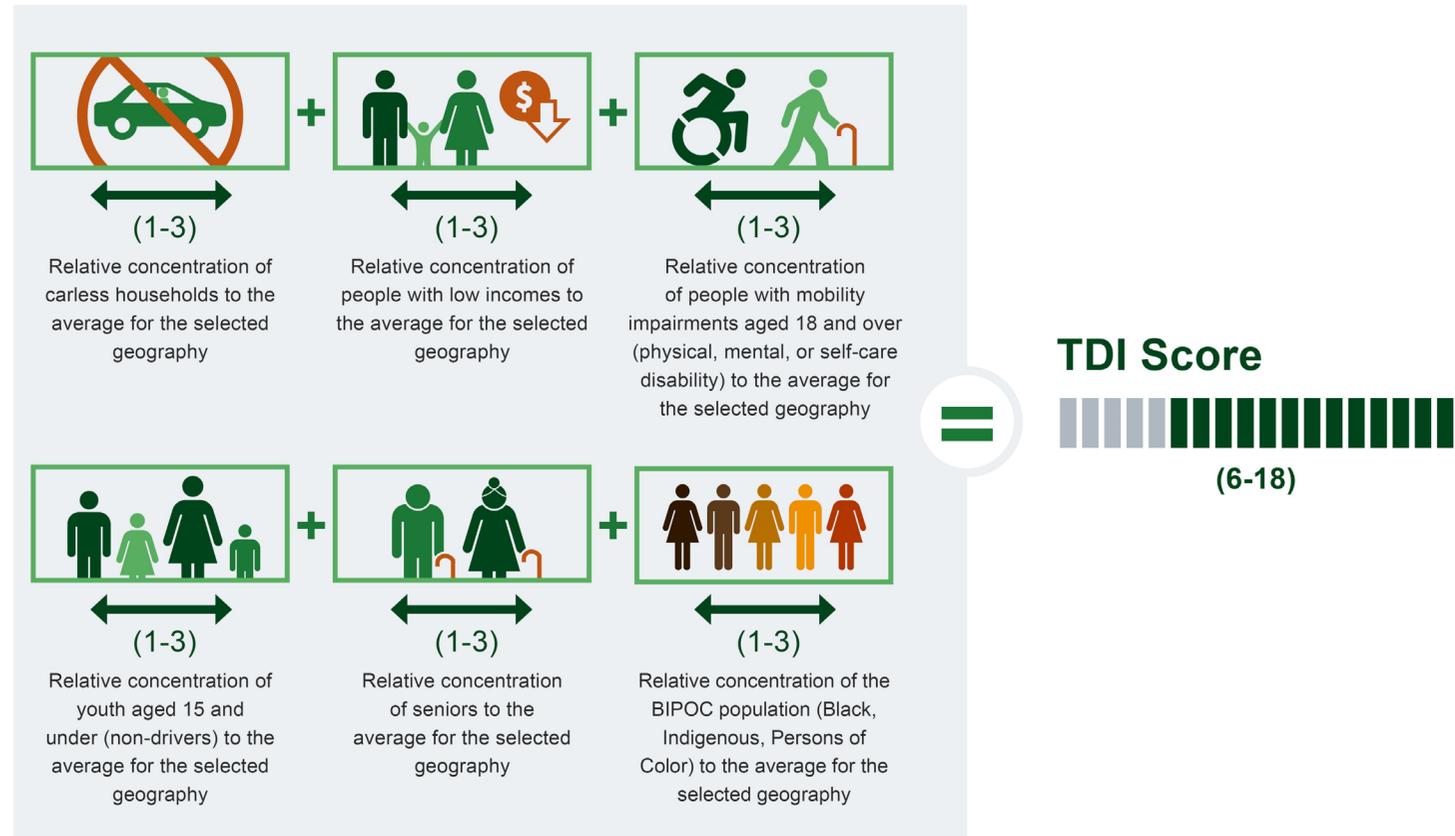


Complete Streets - Next Steps Summary

- 
- Finalize and announce guidance (completed – February 11)
 - Convene work groups
 - Conduct trainings
 - Collect data, monitor implementation, and identify improvements to guidance

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: 18%	Age 65 and Over: 16%	Poverty: 24%	BIPOC Population: 31%	Zero-Car Households: 6%	Disability (Adult Population): 16%
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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

Current Research

Assessment of Separated Bike Lane Applications in NC

Yielding Compliance at High Visibility Crosswalks

Crossing Treatment Process for Safer Shared Use Path Crossings

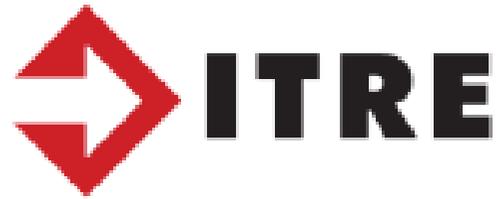
Public Microtransit Pilots in the State of North Carolina: Benefits, Costs and Lessons Learned

Economic Impacts of Transit Investments, Social Challenges, and Strategies for Sustaining High Ridership

Quantifying the Economic, Mobility, and Health Benefits of Multimodal Projects (Technical Assistance)

Other Data Tools & Resources

- Bicycle Level of Service (BLOS) – ([map](#))
- Pedestrian and Bicycle Infrastructure Network (PBIN) – ([map](#)) ([website](#))
- Non-Motorized Volume Data Program – ([website](#))
- Bicycle and Pedestrian Crashes – ([map](#)) ([dashboard](#))
- Complete Streets Demand Estimation Map ([map](#))
- Bicycle and Pedestrian Cost Estimation Tool ([website](#))
- ?Pedestrian Crossing Guidance – [Flowchart?](#)



NC Non-Motorized Volume Data Program (NC NMVDP)

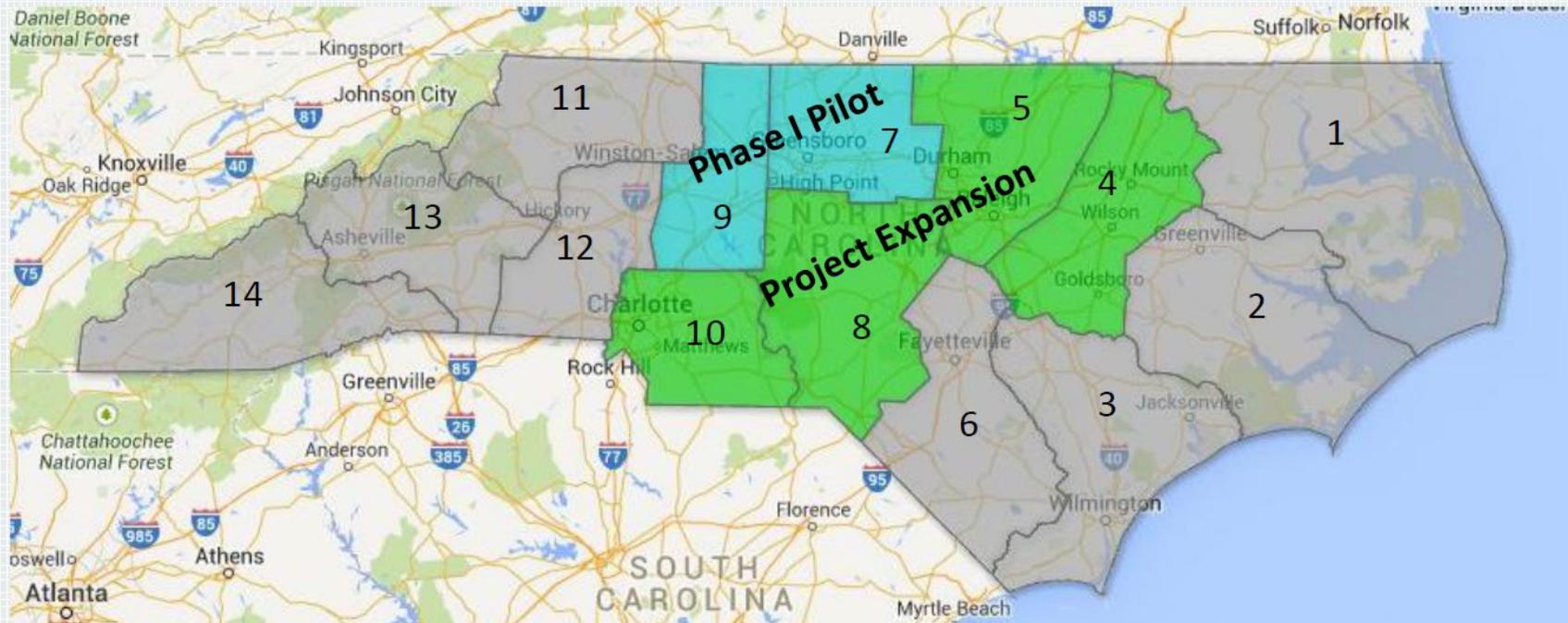
- NC State Institute for Research and Education (ITRE) – installation, QA/QC, data management

- Eco-counter – equipment

- Agreement/ownership structure



Phase 1 (Pilot), Phase 2, and Future Expansion



- November 2013 – Phase 1 Pilot Project kicks off; Divisions 7 & 9
- September 2014 – First counter installed
- December 2014 – Phase 1 installs completed
- April 2015 – Phase 2 begins; Divisions 4, 5, 8 & 10
- June 2018 – Phase 2 installs completed; 48 stations installed (71 individual loggers or 141 unique bicycle & pedestrian sensors)
- Future – Divisions 1-3, 6, 11-14



Counter Locations

Brevard
CAMPO

- Raleigh
- Apex
- Cary

Wake Forest
Charlotte

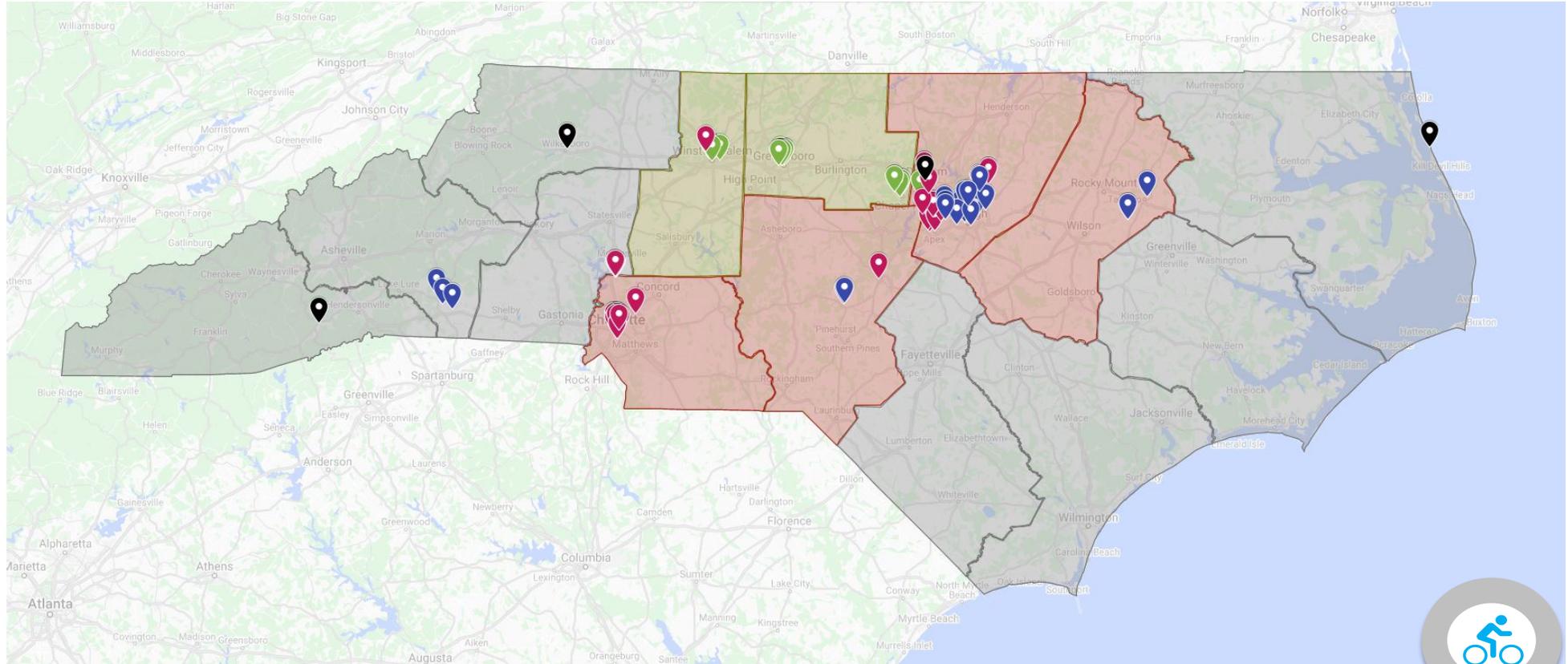
Davidson
DCHC MPO

- Durham
- Chapel Hill
- Carrboro

Duck
Durham

Greensboro
North Wilkesboro

Sanford
Winston-Salem



Onboarded Locations (not on map)
City of Raleigh Parks/Rec/Cultural Res Dept
Town of Cary
NC DHHS (DHHS)
Isothermal Plan/Dev Comm
+ and more

Eco-Visio: <https://itre.ncsu.edu/focus/bike-ped/nc-nmvd/>



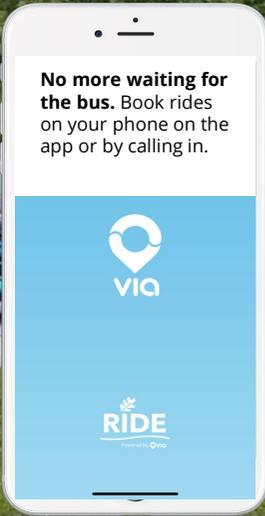


Integrated Mobility Division

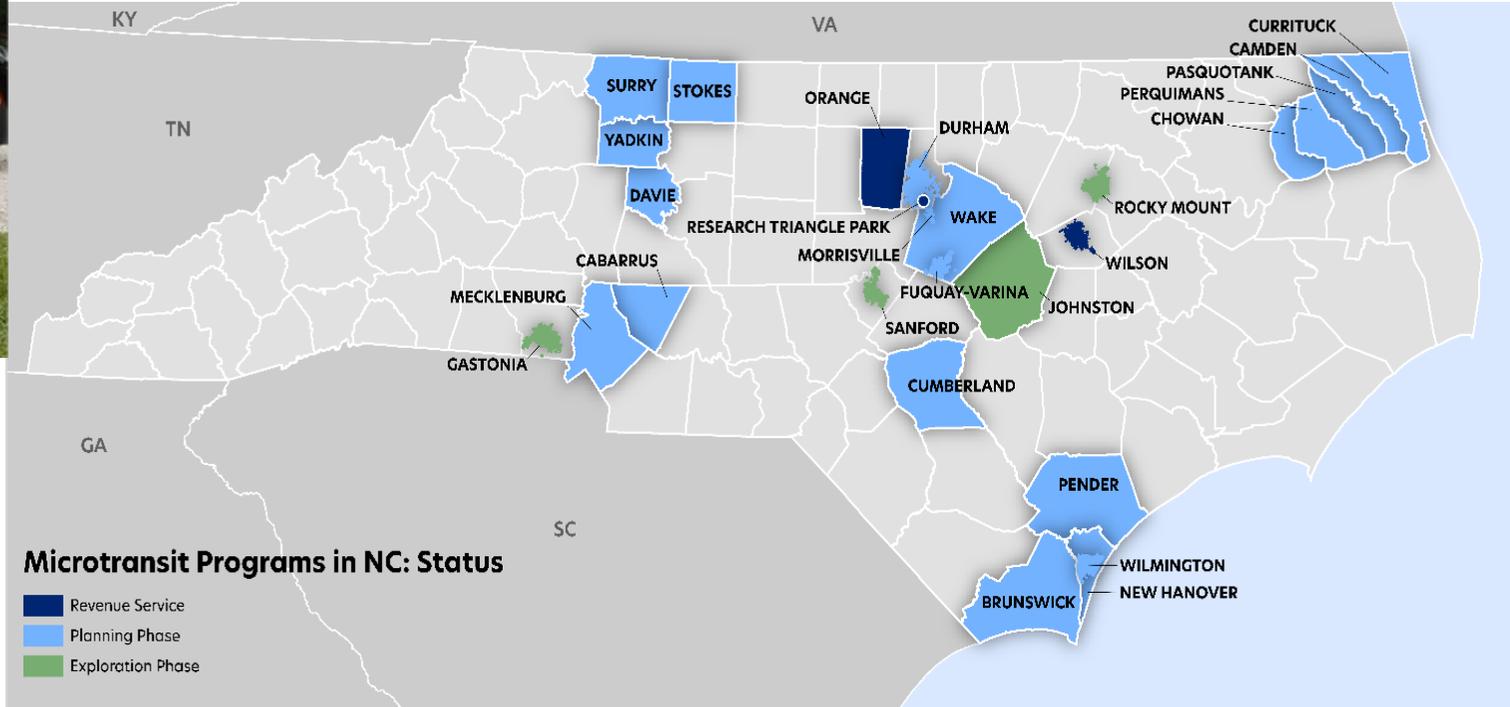
N.C. DEPARTMENT OF TRANSPORTATION

On the Horizon

- Microtransit
- CASSI
- Visioning Workshops
- More Planning Studies
- Feasibility Studies
- Interim Design Safety Project
- Accessibility Metrics
- Multimodal Innovations Webinar Series



Leading on Technology and Innovation to Improve Quality of Multimodal Options



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

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

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

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>

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



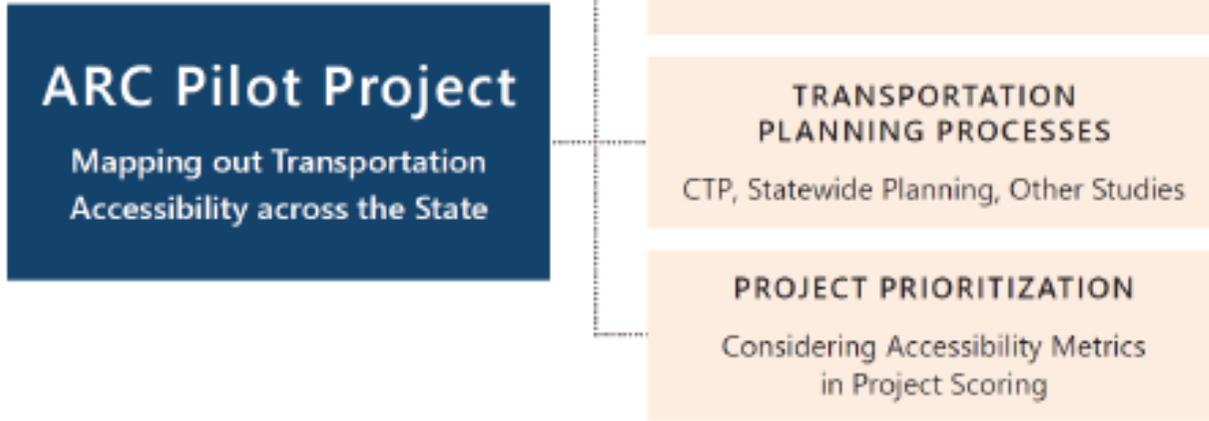
Median refuge islands reduce crossing distances and provide protected space in the center of the roadway for pedestrians and bicyclists.

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



Multimodal Innovations Webinar Series



2022

March

Complete Streets

April

Multimodal Data/Mobility
Technology

2021

Past

- New Census Data and What it Means to Transit Planning
- Autonomous Vehicles/ Connected Autonomous Shuttle Supporting Innovation
- Equity in Transportation: Ensuring Equal Access to Opportunities and Services for All North Carolinians

[website](#)





Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION



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