

North Carolina
DEPARTMENT OF TRANSPORTATION

NCDOT: Active Transportation

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- Lack of connectivity
- Unsafe conditions
- Changing demographics
- Worsening health and environmental conditions
- Need for economic growth



- \$\$\$ of total infrastructure needs
- Fewer public financial resources
- Growing interest in walking and biking
- Lack of data and research



Data Collection and Planning

Counts

Crash Data

System Mapping

Promotion and Evaluation

Event coordination

Economic Impacts

Health Impacts

Education and Enforcement

Public education

Law enforcement partnerships

Infrastructure Improvements

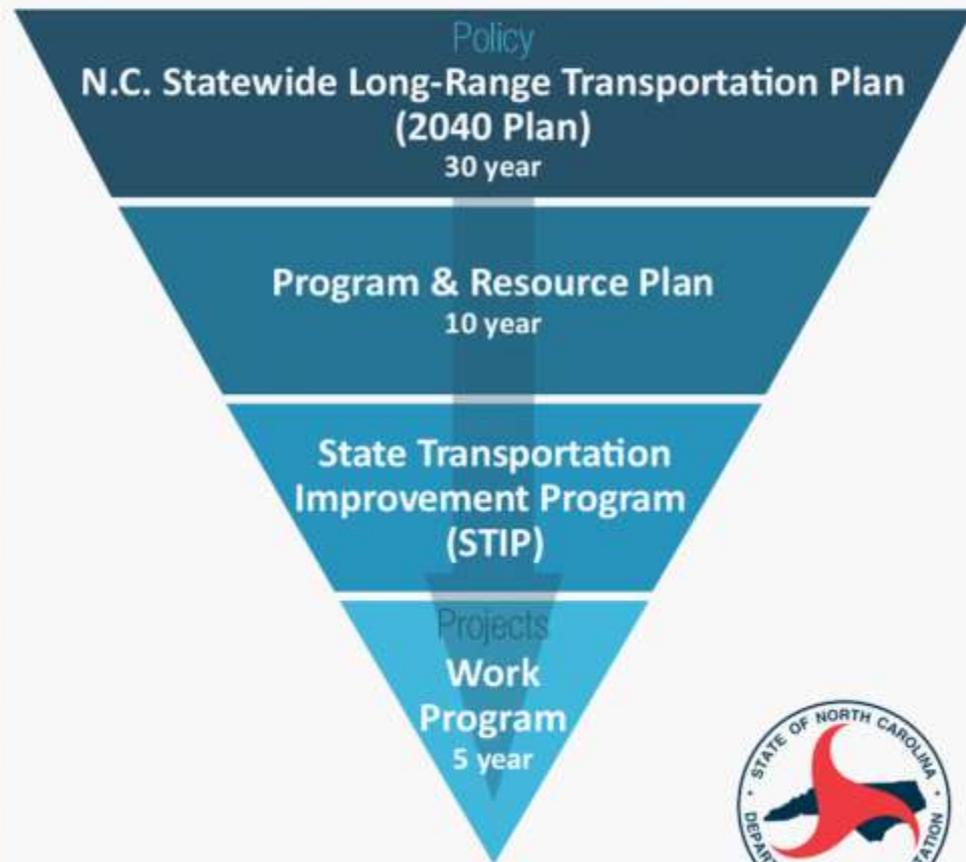
Policy

Funding

Project Delivery

NCDOT

From Policy to Projects



Comprehensive Transportation Plans
Local Bicycle or Pedestrian Master Plans
Corridor Studies

Project Submittals & Prioritization
Fiscal Management
Pre-Construction Scoping and Design

Bicycle or Pedestrian Projects
Safe Routes to School Projects
Complete Streets Projects

STIP projects
Maintenance-assisted projects
Local projects

Planning at Many Levels

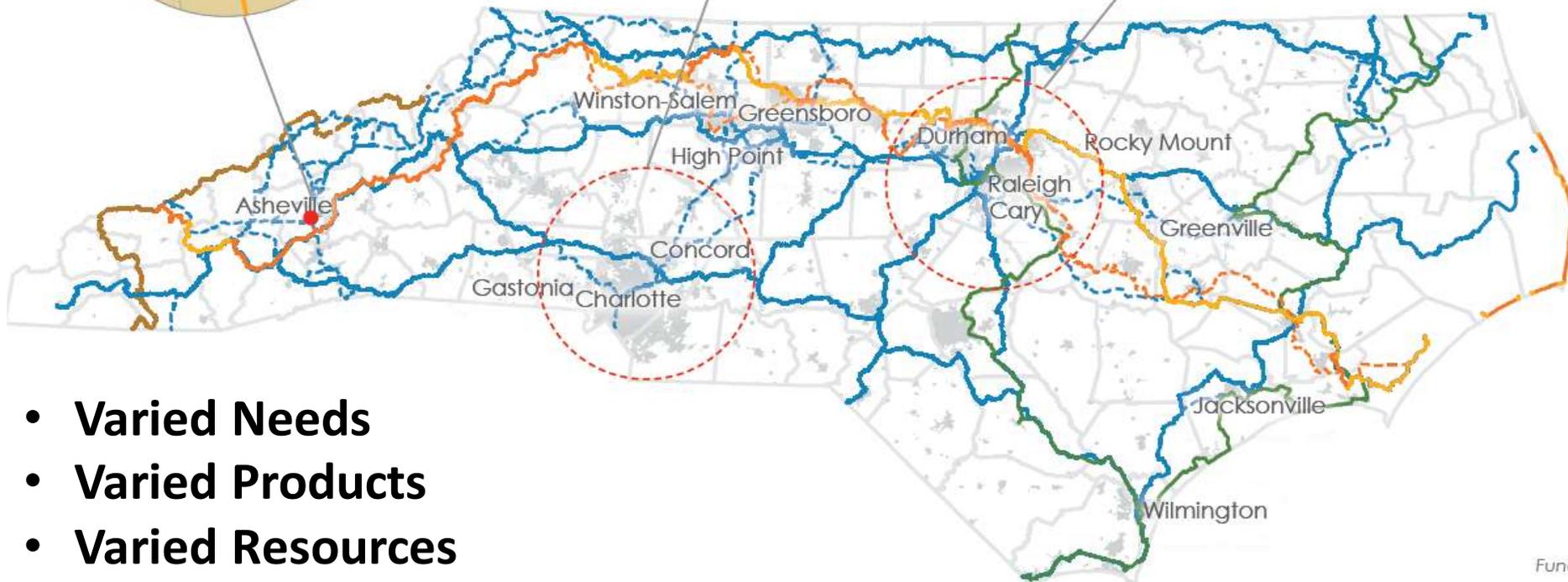
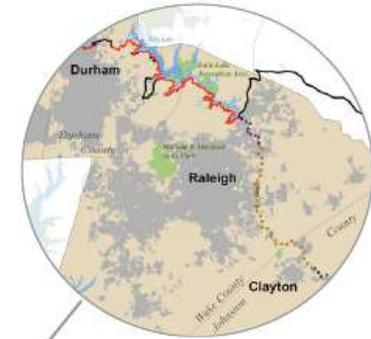
Neighborhood/Local



Community/Region



Journey/Statewide



- **Varied Needs**
- **Varied Products**
- **Varied Resources**

Neighborhood – Transportation

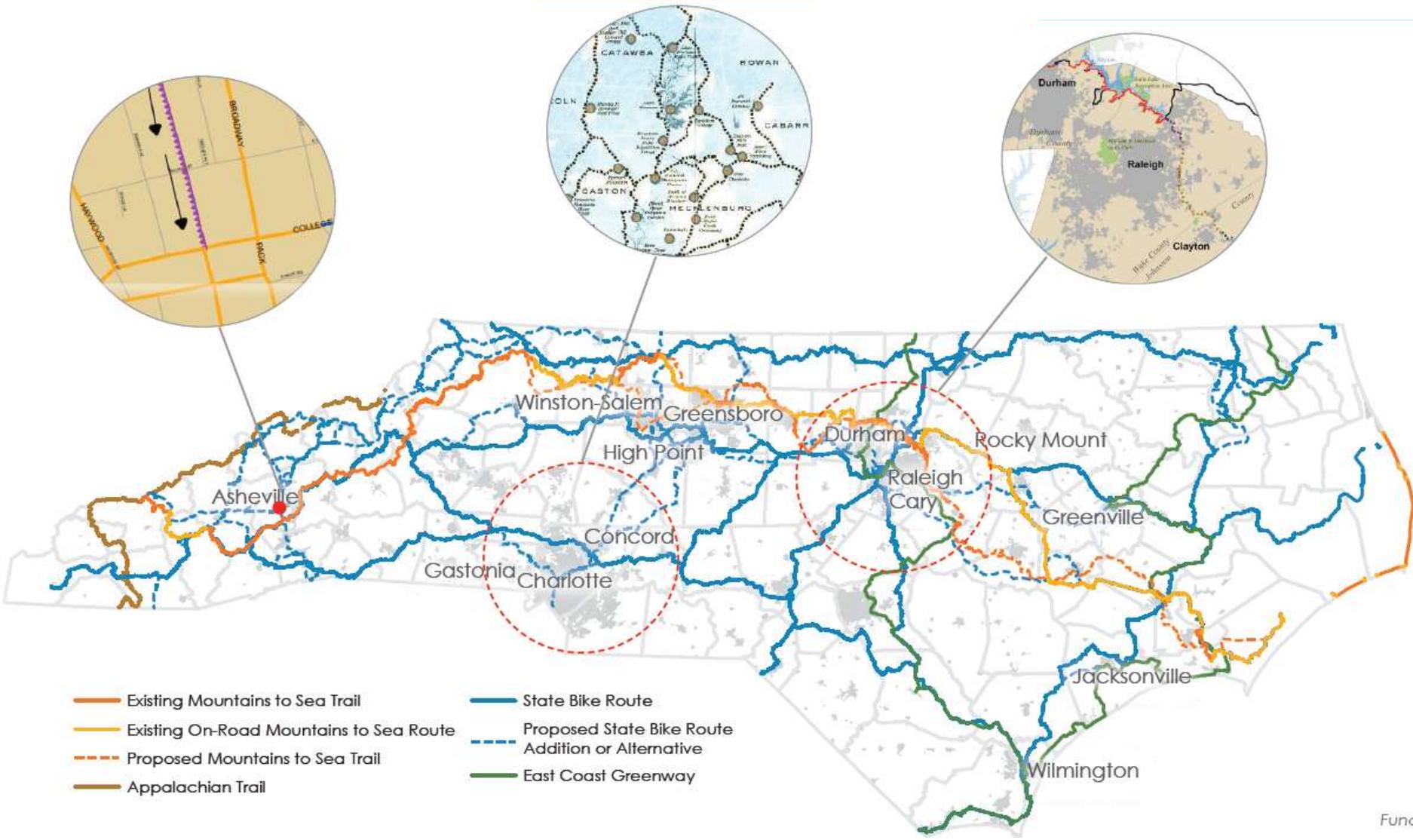
- Daily trips
- Personal Health
- Work and business access

Community – Connectivity

- Explore destinations
- Lifestyle
- Safety and options

Journey – Recreation

- Long distance
- Tourism
- Environmental Awareness



- Existing Mountains to Sea Trail
- Existing On-Road Mountains to Sea Route
- Proposed Mountains to Sea Trail
- Appalachian Trail
- State Bike Route
- Proposed State Bike Route Addition or Alternative
- East Coast Greenway

Neighborhood – Transportation

- Wayfinding and bike racks
- Sidewalks and signals
- Bicycle safety rodeo



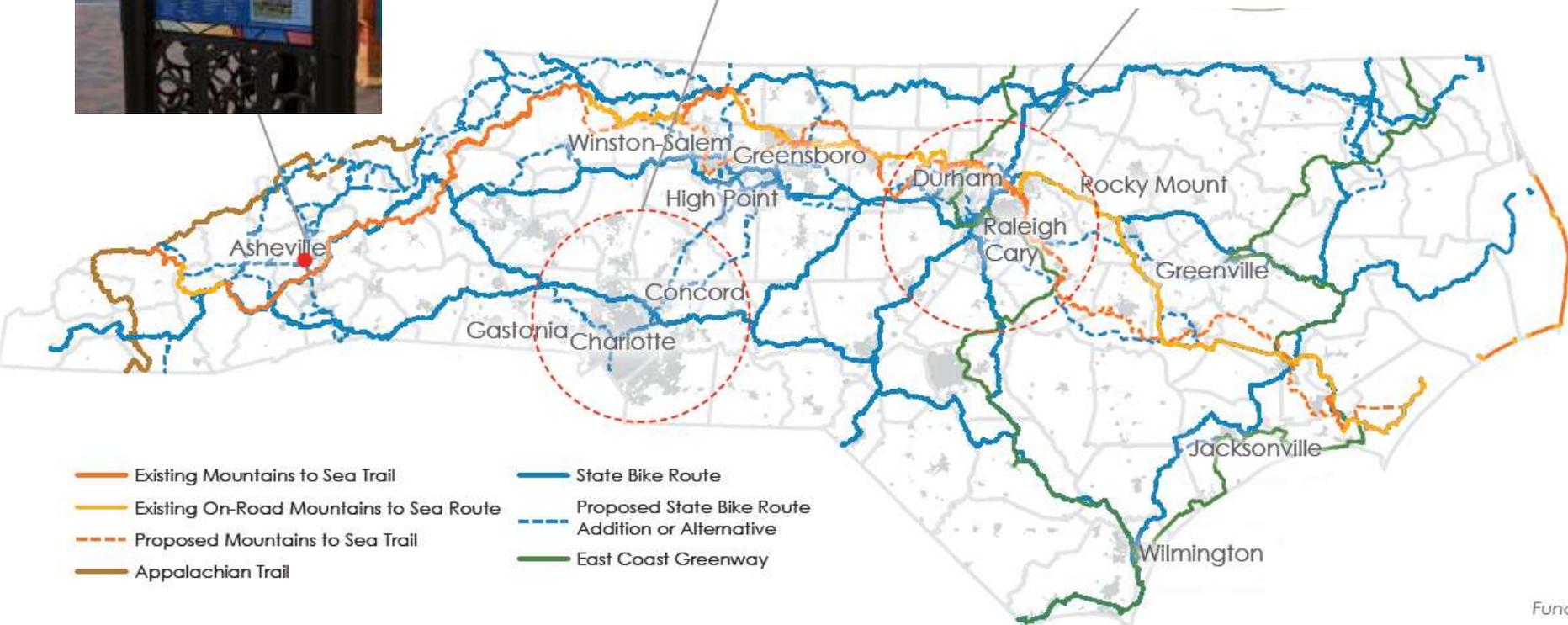
Community – Connectivity

- Greenways
- Complete streets
- Enforcement activities



Journey – Recreation

- Bike routes
- Trails
- Education campaigns



North Carolina

Statewide Pedestrian and Bicycle Plan



Walk Bike NC



alta



PLANNING + DESIGN



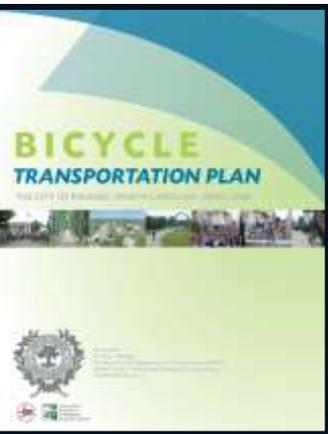
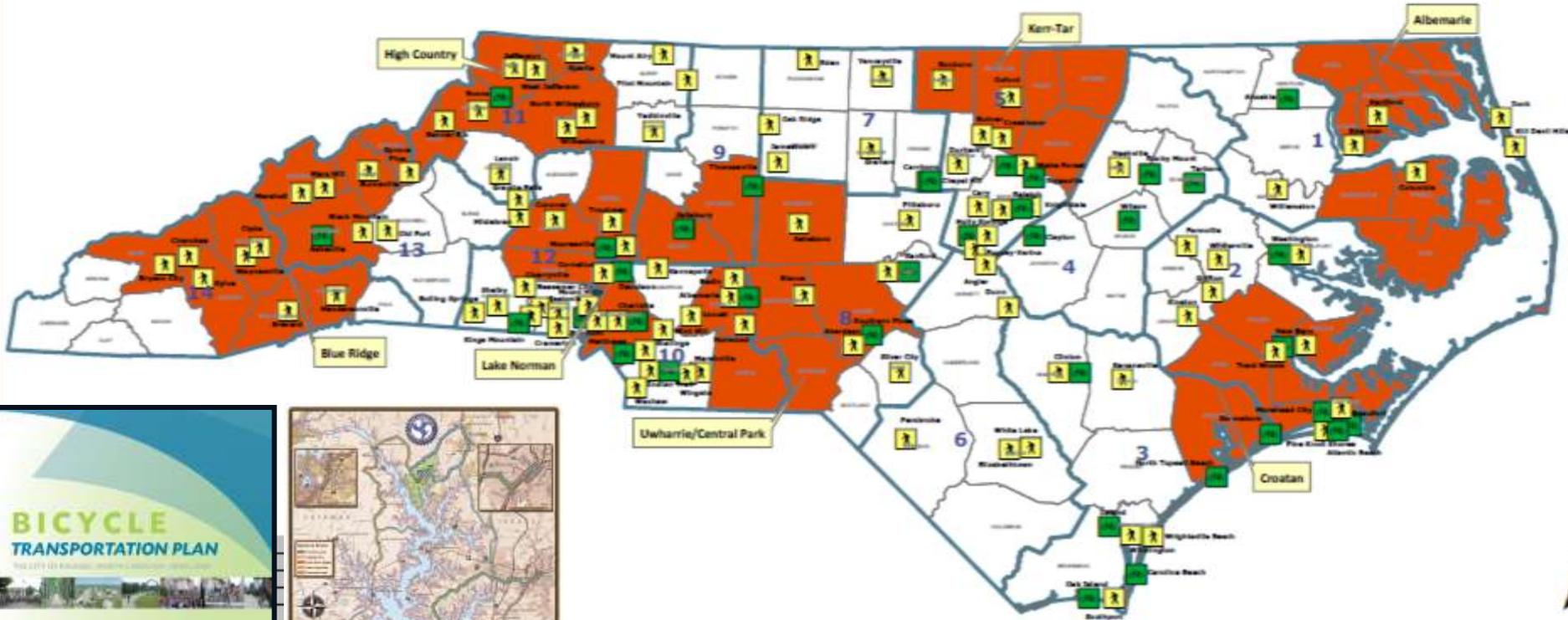
Partnerships

Walk Bike NC

- Engaged partners
- Asked for commitments
- Define a role for each partner
- Group participation ongoing



Bicycle and Pedestrian Plans

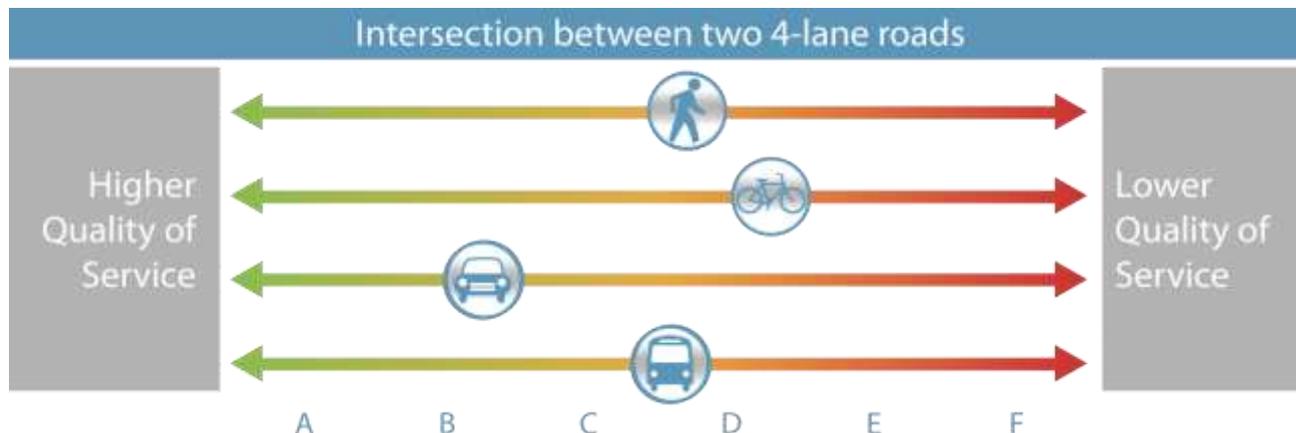


Plans + Policy = Progress

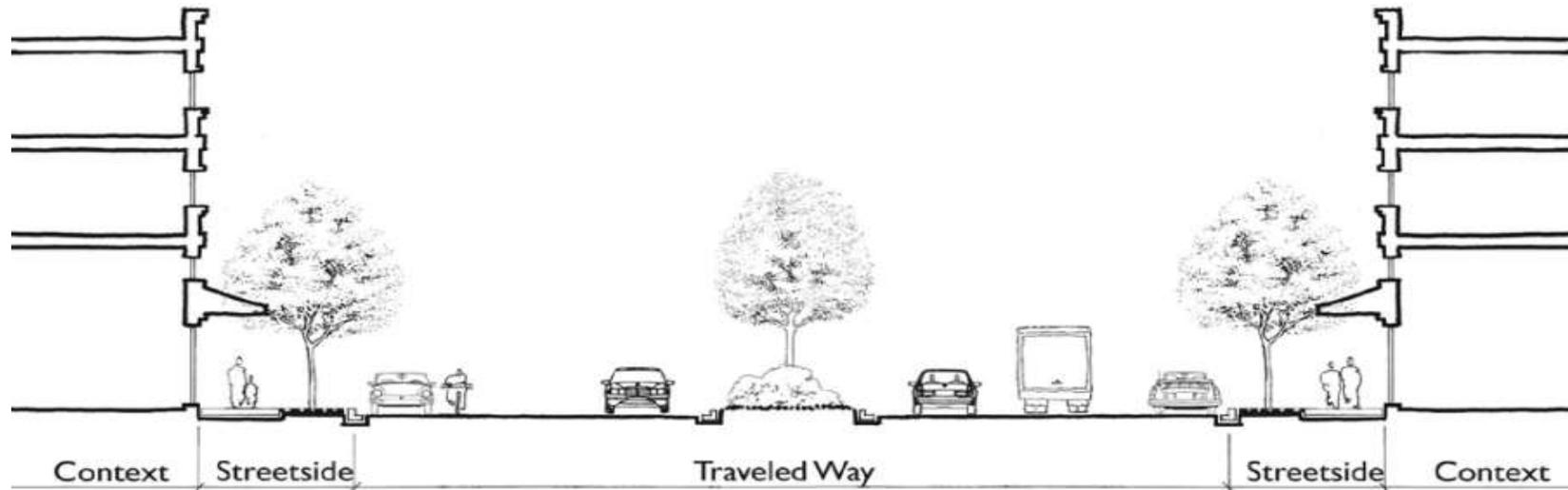
- **Clear decision-making process**
- **Balanced expectations** for convenience and safety for all roadway users
- **Land use and transportation coordination**
- **Comprehensive financial planning**
- **Data collection and evaluation** of land-use and transportation decisions

Understanding User Needs & Context

- ✓ **Understand the built environment and economic influences on street types**
- ✓ **Defining context of an area (both existing and future)**
 - ✓ **Land use and context have significant impact on design and use of street**
- ✓ **Balancing quality of service for all road users**



Economic Influences on the Streetscape/Classification



Local/Regional Travelers: Speed and Connectivity

Visitors/Residents/Employees: Safety and Access

Developers and Owners: “Traffic” Volumes and Goods Movement

Rural Context & User Needs

Needs:

- Connectivity to regional destinations and highways
- Bicycle and pedestrian-supported regional tourism

Response:

- Small town center improvements
- Roadway safety enhancements
- Highway access

Design Factors:

- Moderate to high speed
- Low to moderate volumes
- Low access



Suburban/Edge Context & User Needs

Needs:

- Travel convenience (higher speed, volume capacity)
- Access to transit and regional multi-modal facilities

Response:

- Complete Streets implementation
- Public transportation coordination
- Regional greenway improvements

Design Factors:

- High speed
- Moderate to high volumes
- Moderate to high access



Urban Context & User Needs

Needs:

- Safety and access for all users
- Multimodal connectivity

Response:

- Complete Streets
- Urban transit connectivity
- Streetscape ped-bike support

Design Factors:

- Low to moderate speeds
- Moderate volumes
- High access



North Carolina Department of Transportation
Complete Streets
Planning and Design Guidelines



July 2012

Download the Guidelines at
www.completestreetsnc.org

July 2009

- ✓ Complete Streets Policy Adopted

July 2012

- ✓ Design Guidelines Released

2013

- ✓ 24, 2-day training sessions

2014

- ✓ 3 additional 2-day training sessions
- ✓ One day summer conference

Integrate Land Use with Street Types

Street Design Type

Main Street Avenue Boulevard Parkway Freeway

Local/Subdivision St.

Rural Road



Pedestrian
/Bicycle
Oriented

Auto/
Truck
Oriented



Functional Classification

Local

Collector

Arterial

URBAN/SUBURBAN MAIN STREET

PLAN VIEW



KEY ELEMENTS

- May function as an arterial, collector or local street. May function as a collector serving as a primary thoroughfare for traffic circulation in a limited area. May function as a local street for an outlying business district.
- Designed to carry vehicles at low speeds.
- A destination street for a city or town, serving as a center of civic, social and commercial activity.
- Serves substantial pedestrian traffic as well as transit and bicycles.
- Characterized by wide sidewalks, crosswalks and pedestrian amenities, due to emphasis on pedestrian travel.
- Bicycle lanes are allowed but typically not necessary on these streets due to lower speeds and volumes and the desire to keep pedestrian crossing distances to a minimum.

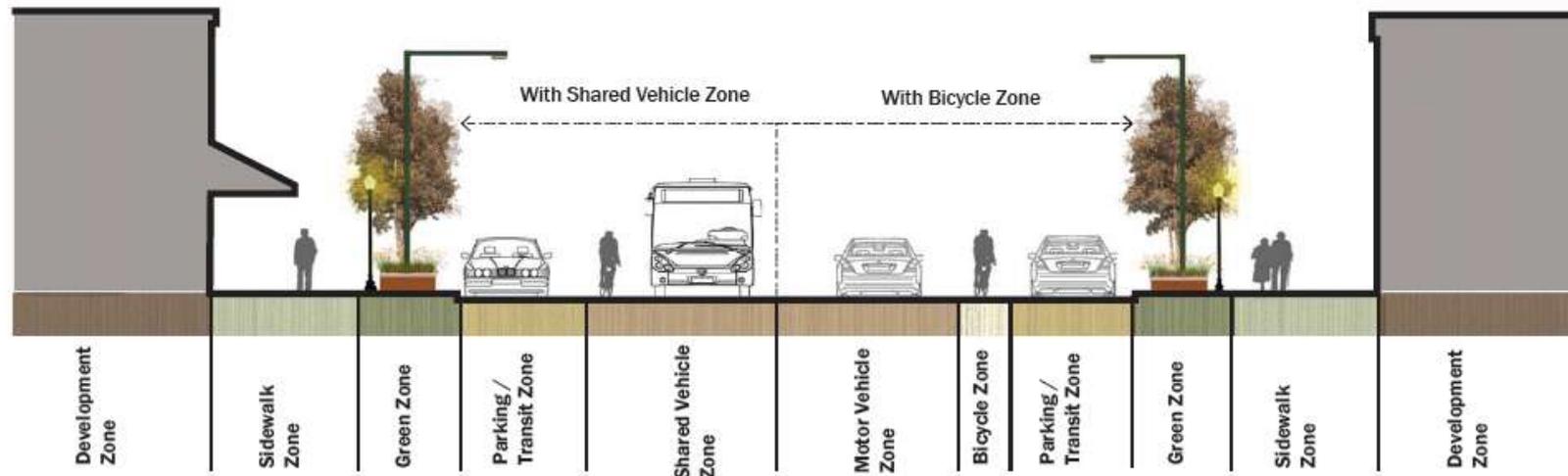


STREET CROSS-SECTION ZONES

- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably. Pedestrians are the priority on a main street.
- **Green Zone:** Consists of the area between the sidewalk zone and curb. Includes street trees and other landscaping, as well as interspersed street furnishings and pedestrian-scale lighting in a hardscaped amenity zone.
- **Parking/Transit Zone:** Accommodates on-street parking and transit stops. Width and layout may vary.
- **Bicycle Zone:** A zone for bicyclists separate from vehicular traffic.
- **Motor Vehicle / Shared Vehicle Zone:** The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- **Development Zone:** Development should be pedestrian-oriented with narrow setbacks and an active street environment.

URBAN/SUBURBAN MAIN STREET

ILLUSTRATIVE STREET CROSS-SECTION



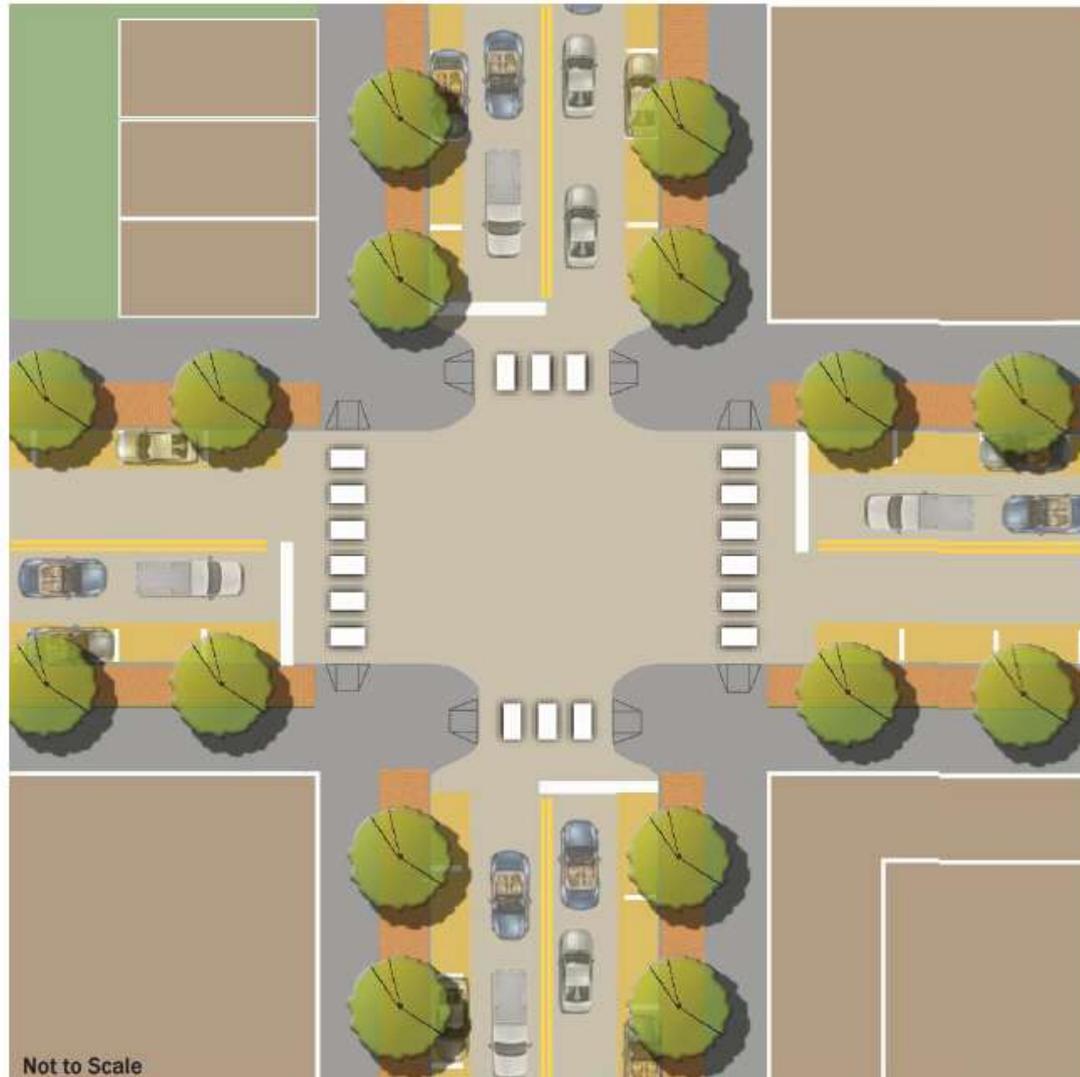
STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Parking /Transit Zone (feet)	Motor Vehicle / Shared Vehicle Zone (lane width- feet)	Bicycle Zone (feet)
Central Business District	10' - 12' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)
Urban Center / Suburban Center	8' - 12' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)
Suburban Corridor / Urban Residential / Suburban Residential	8' - 10' 12' - 20' in high volume pedestrian areas	6' - 8'	8' - 10'	10' - 13' (see note 4)	6' lanes (see note 4)

NOTES

1. Sidewalk zone should typically extend to the front of buildings. Sidewalks are the most important element on a main street, because pedestrians are the priority. Therefore, the sidewalk width should typically be at least 10', unobstructed.
2. Green zone may include hardscaping, landscaping, street trees, lighting, and related pedestrian/bicycle/transit amenities. Hardscaping (with street trees in appropriately-designed planters) is typical for access to on-street parking and transit.
3. Parking is expected on main streets. Parking zone dimension may vary depending upon type of parking provided. Angle parking is allowed, preferably reverse angle parking. Angle parking will require a wider dimension than shown.
4. Shared lanes are the preferred treatment, due to the low speeds. In this case, travel lanes should be 13' to allow for maneuvering and opening car doors. Shared lane markings can be used on streets < 35 mph. If bicycle lane is provided, it should be 6' wide, and motor vehicle lane should be narrowed to 10'.

MAIN STREET INTERSECTION



STREET ZONES

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Not to Scale

Front Street - Wilmington, NC (Main Street Design)



Front Street - Wilmington, NC (Main Street Design)



West Jefferson Streetscape

- ✓ NCDOT resurfacing provided opportunity for downtown improvements recommended in pedestrian plan
- ✓ Funding from local health department and Town
- ✓ Created more inviting area downtown

<http://www.youtube.com/watch?v=7t1luy2QVGk>



Before



West Jefferson Streetscape

After

After



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Health Impacts

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Policy

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Walk Bike NC: Health Impact Assessments

- Different scales
- Different geographies



Active Transportation: Pathway to Health



Winterville: MPO Bike/Ped Plan

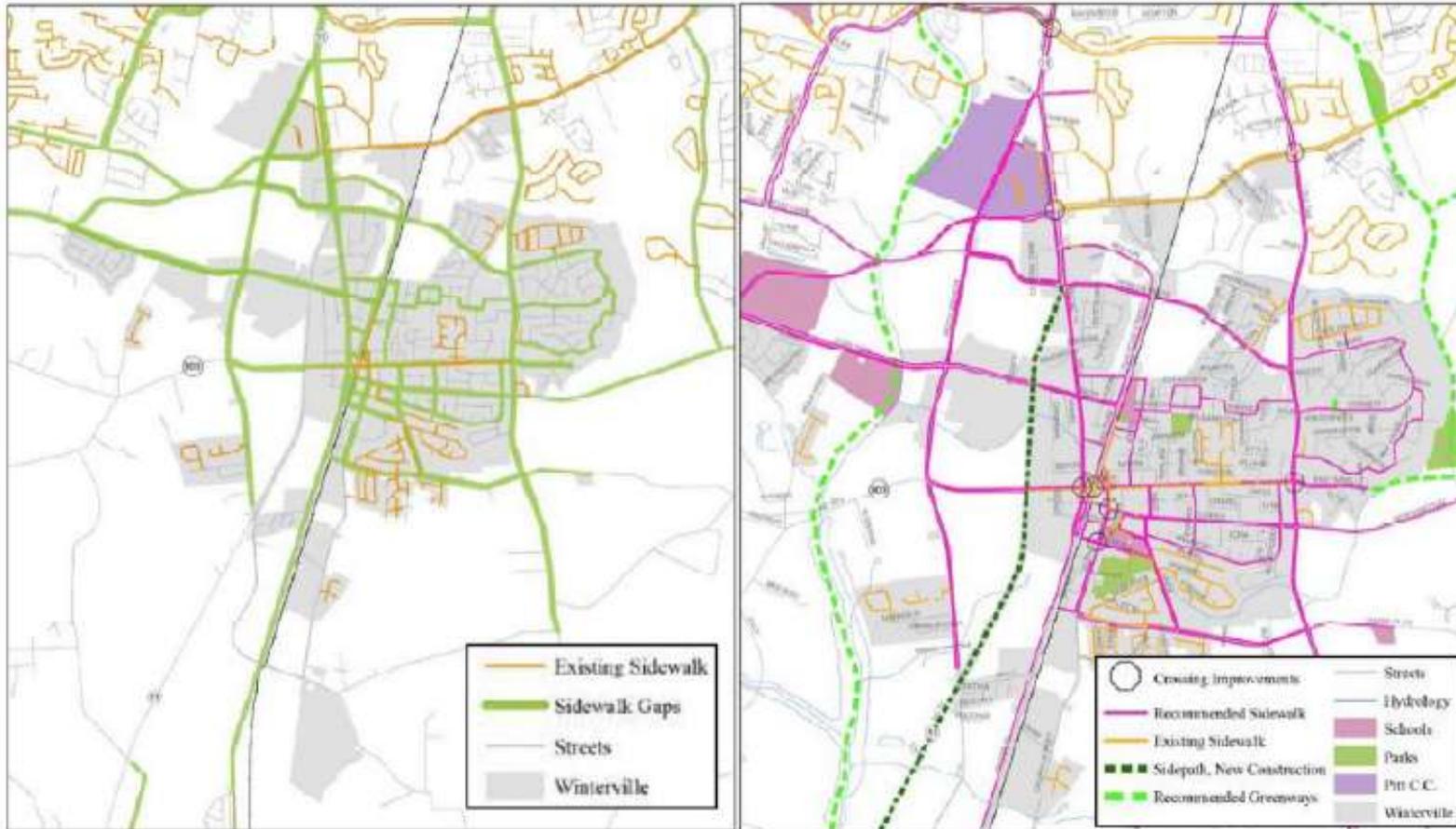
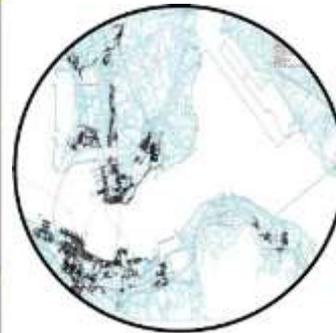


Figure 1. Winterville existing pedestrian facilities (*left*) and proposed improvements (*right*)

Criteria

- **Plausibility:** diseases of interest should have a demonstrated relationship with physical activity
- **Validity:** disease prevalence and/or incidence should be monitored using appropriate methods

Selected Diseases

- Coronary Heart Disease
- Diabetes
- Hypertension
- Stroke

Not included: COPD (*plausibility*), cancer (*validity*)

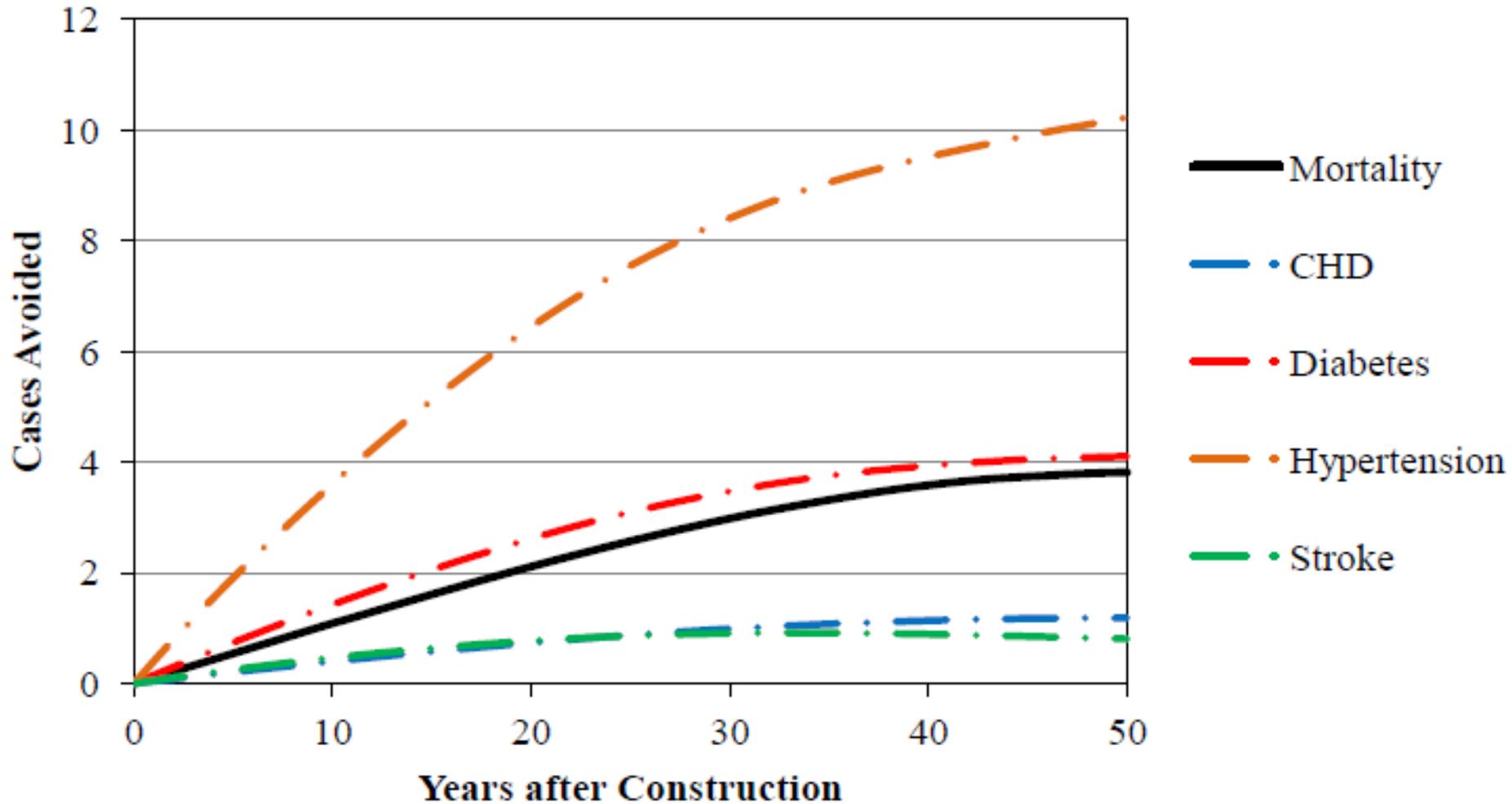


Figure 11. Winterville Predicted Health Outcomes

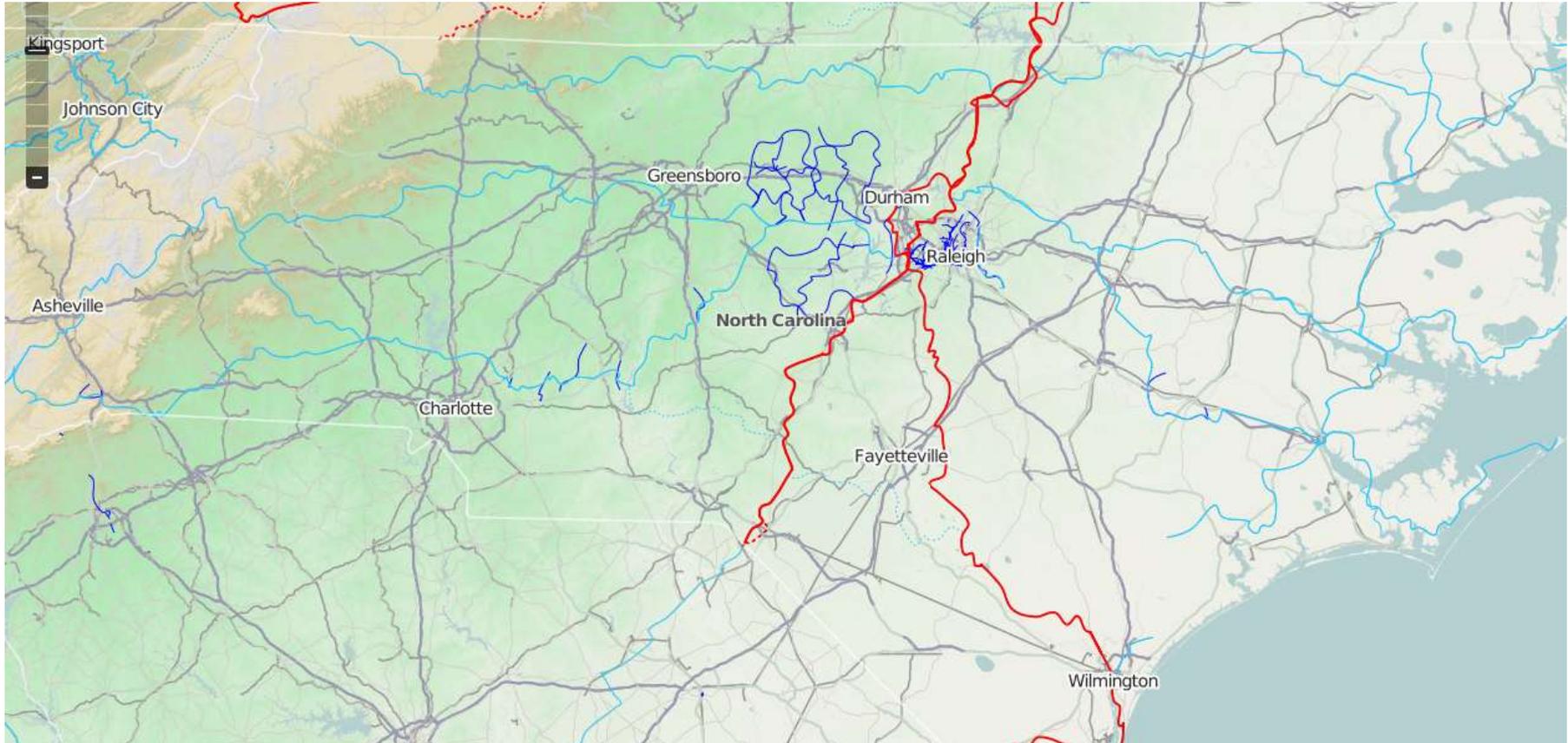
Return on Transportation Investment => Health

Active transportation improvements can be justified in two of three communities by **healthcare cost savings** alone.

Transportation behavior researchers and epidemiologists need to use **comparable units** (mode choice vs physical activity).

Quantitative HIA is possible and very useful – but tools and methods need to be simplified to be useful for practitioners in real-world decision-making settings.

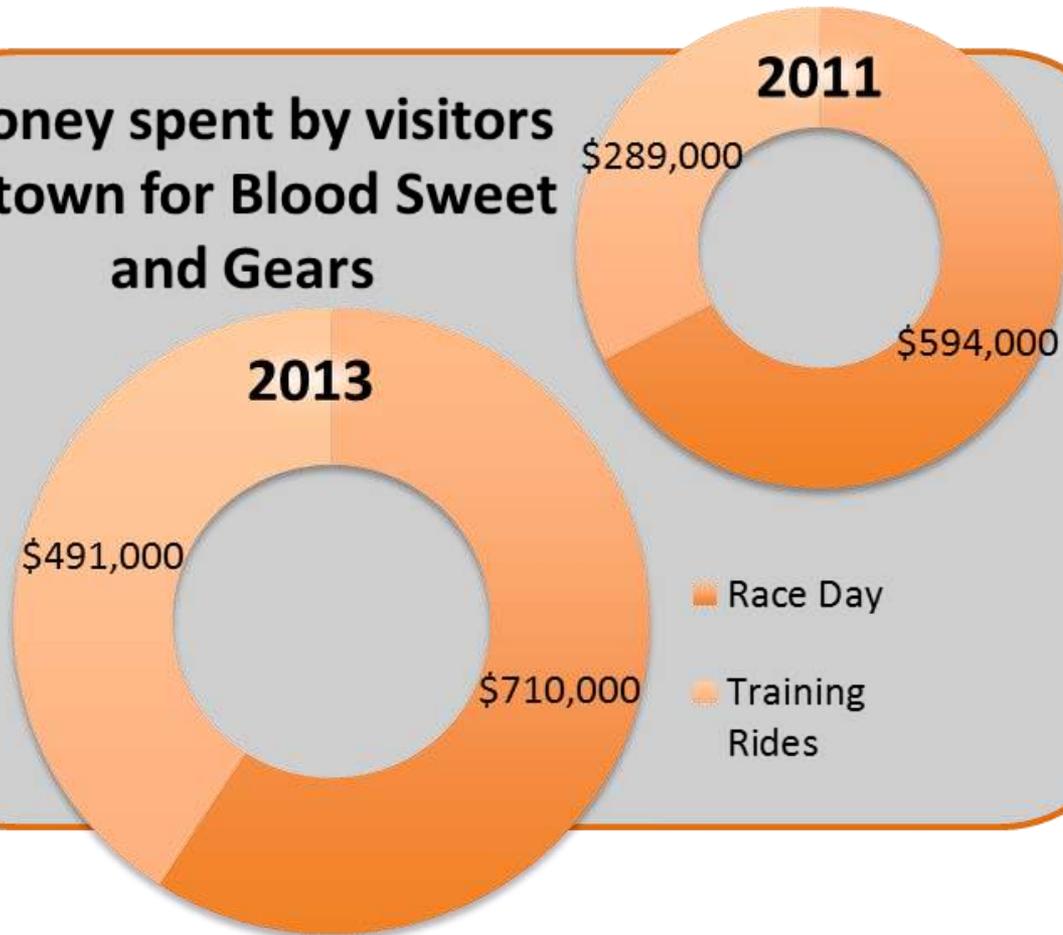
Online Map for Bicycle Routes



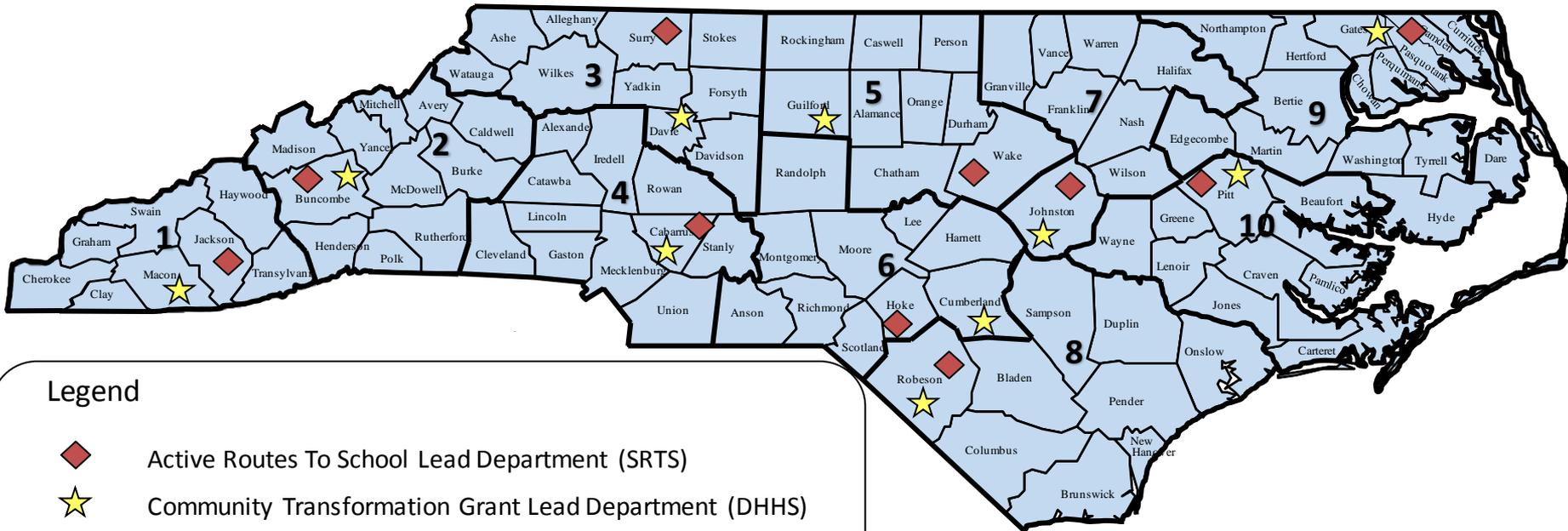
- Add new data and establish graphic conventions within ArcGIS online viewer
- Link to WalkBikeNC.com website

Economic Impacts

Money spent by visitors in town for Blood Sweet and Gears



Active Routes to School & Community Transformation Grant Project



Legend

- ◆ Active Routes To School Lead Department (SRTS)
- ★ Community Transformation Grant Lead Department (DHHS)
- Counties
- Regions

- Staff and train regional ARTS staff
- Evaluate success of ARTS program

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**WATCH
FOR ME - NC**



About the Campaign

Crash Facts

Safety Resources

Media

>> Home

Yield to people in crosswalks.
It's the law.

WatchForMeNC.org



We're all in this together

We all share the responsibility to make sure North Carolina roads are safe.

Here's your chance to learn how to be a safer driver, bicyclist and pedestrian, and ultimately, reduce the number of people hit or killed by vehicles on North Carolina streets.

Search for:

Search

Latest News

September 3, 2013

Watch for Me NC 2013 campaign officially kicks off with a bike ride in Raleigh. [Click here for more details.](#)

August 15, 2013

Look for Watch for Me NC campaign messages on Triangle Area buses.

July 25-August 2, 2013

National Pedestrian/Bicycle Safety Enforcement Expert Peter Flucke provides tactical training workshops for Triangle police.

July 15, 2013

Nine Triangle-area municipalities pass resolutions in support of the Watch for Me NC campaign.

November 14, 2012

National Highway Traffic Safety Administration Administrator David

Campaign Goals

Short
Term

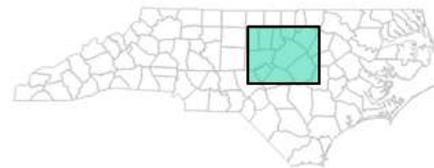
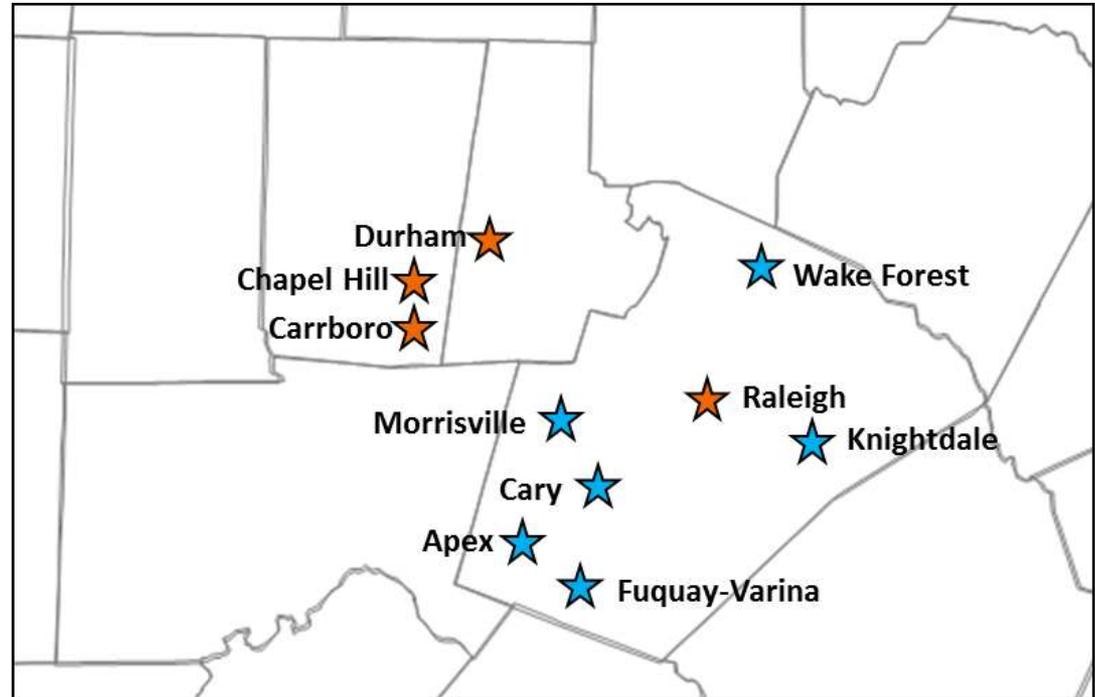
- Raise awareness of pedestrian and bicyclist safety issues
- Educate people on relevant laws
 - Officers
 - General public

Longer
Term

- Encourage safer behaviors
- Prevent injuries and fatalities

Current Campaign Partners

- UNC-HSRC
- NCDOT
- Governor's Highway Safety Program (GHSP)
- Capital Area MPO
- Durham Chapel Hill Carrboro MPO
- 8 Universities
- 10 Municipalities



★ Watch for Me
2012 Partners

★ New Partners
in 2013

Targeted Behaviors

- Yielding
 - Crossings
 - Driveways
 - When turning
- Safe passing
- Attentiveness
 - Parking lots
 - Intersections
 - Around buses
- Visibility at night



2013 Education Materials

- Radio PSAs
- Bus ads
- Posters, banners, brochures and bumper stickers
- Safety materials
 - Light-up bracelets
 - Bike lights



2012 and 2013 Social Norms Elements

- Aim at improving “culture” of driving
- Leverage Facebook, Twitter, and social networks



Enforcement Support and Capacity Building

- Training for Law Enforcement
 - 2012: 45 officers from 11 agencies
 - 2013: 55 officers from 20 agencies
- Brochure on laws and safety tips
- Signage
- Media support



SRTS: “Let’s Go NC” Bicycling and Walking Curriculum

- Design of “In the Class” curriculum materials
- Video and exercises



A Pedestrian and Bicycle Safety Skills Program for Healthy Active Children



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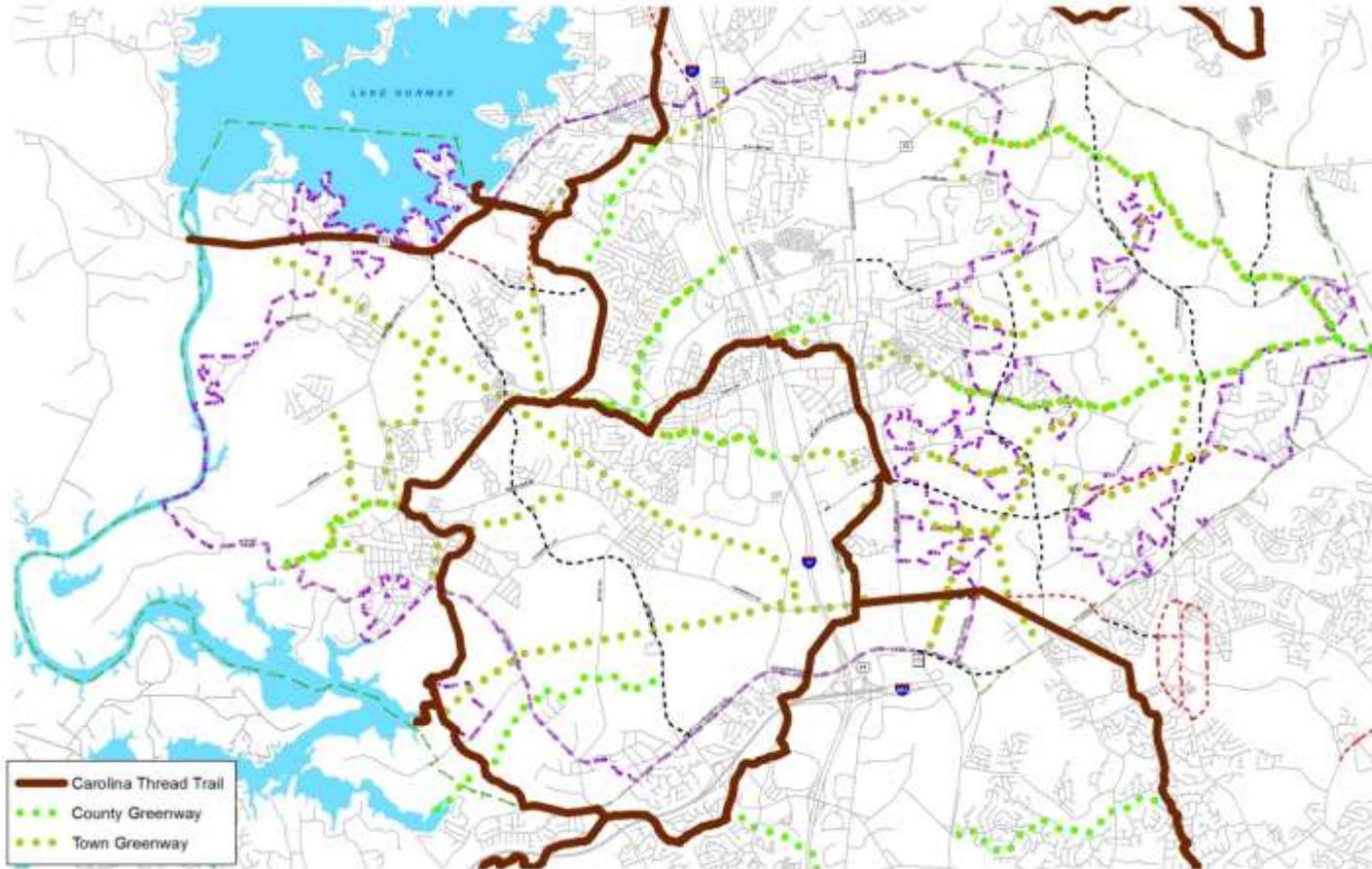
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Local and Regional GIS Data



- Continue to conduct statewide GIS data collection
- Consider mapping and application options

Crash Data Reporting and Geocoding

2010 Pedestrian and Bicycle Crash Density Maps, NC

Source: 2010 NCDOT Crash Data*



- Provide updated data sets to locals
- Use in SPOT process and Watch for Me NC safety campaign

QUESTIONS?

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