

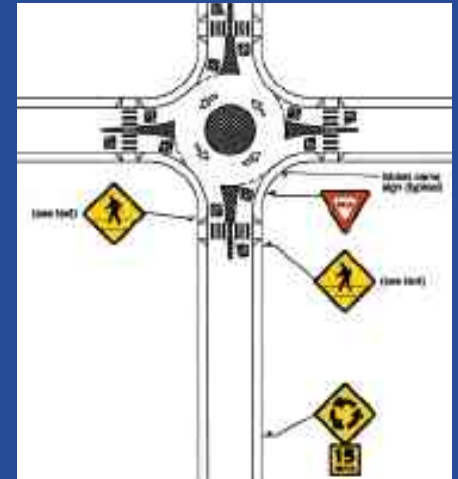
Roundabouts in North Carolina



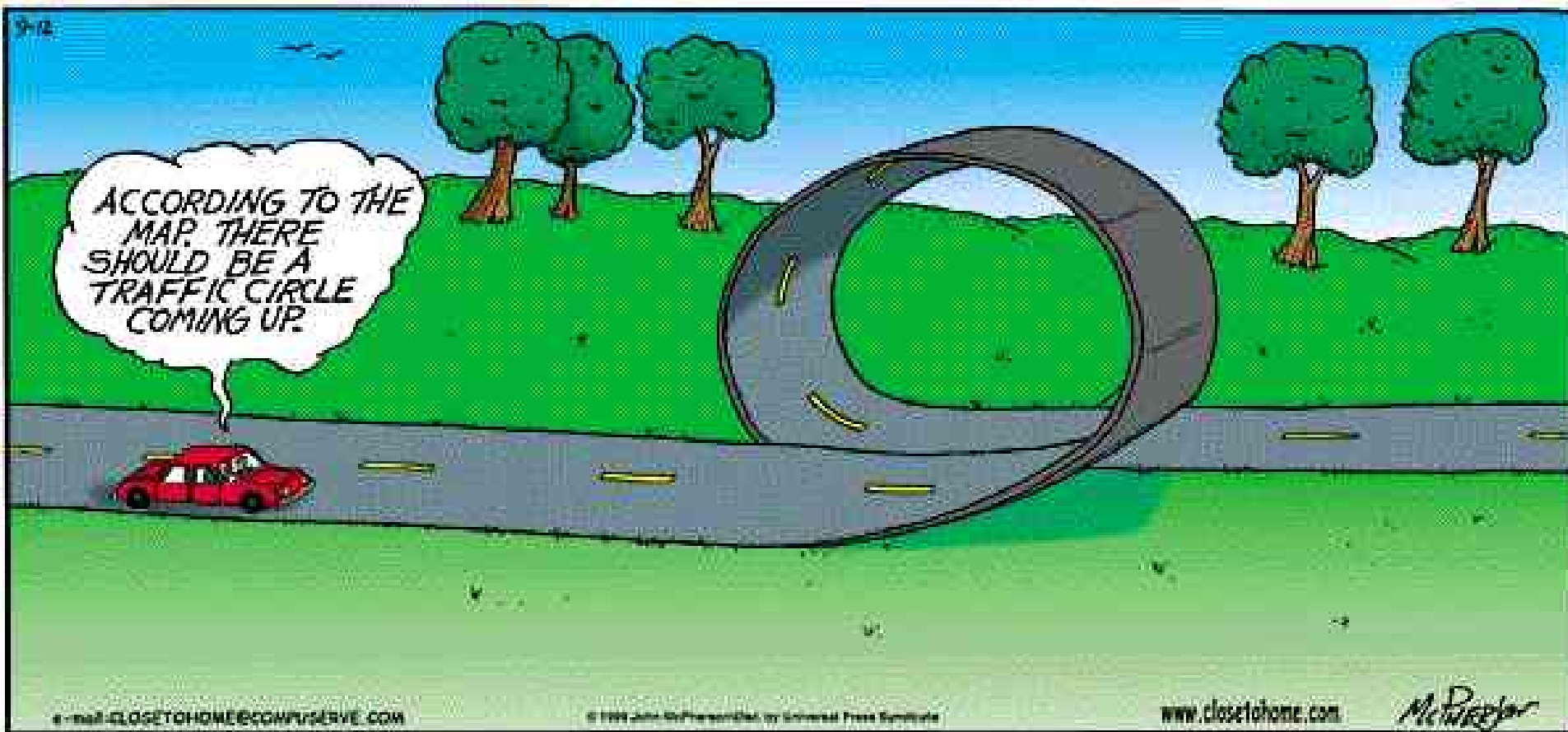
Traffic Engineering Conference
for Operations and Safety
Wilmington, NC
August 24, 2006

Agenda

- Roundabout Trends
 - Single Lane
 - Multilane
 - Interchanges
 - Other Uses
- Landscaping
- Research
 - Pedestrian and Bicycle Safety
 - Visually Impaired
 - Cost Benefits
- Statewide Inventory
- Questions



“Traffic circles are lunacy”



Dennis Rogers, News and Observer Columnist - Oct. 30, 1999

Roundabout Trends

3 Types of Circular Intersections

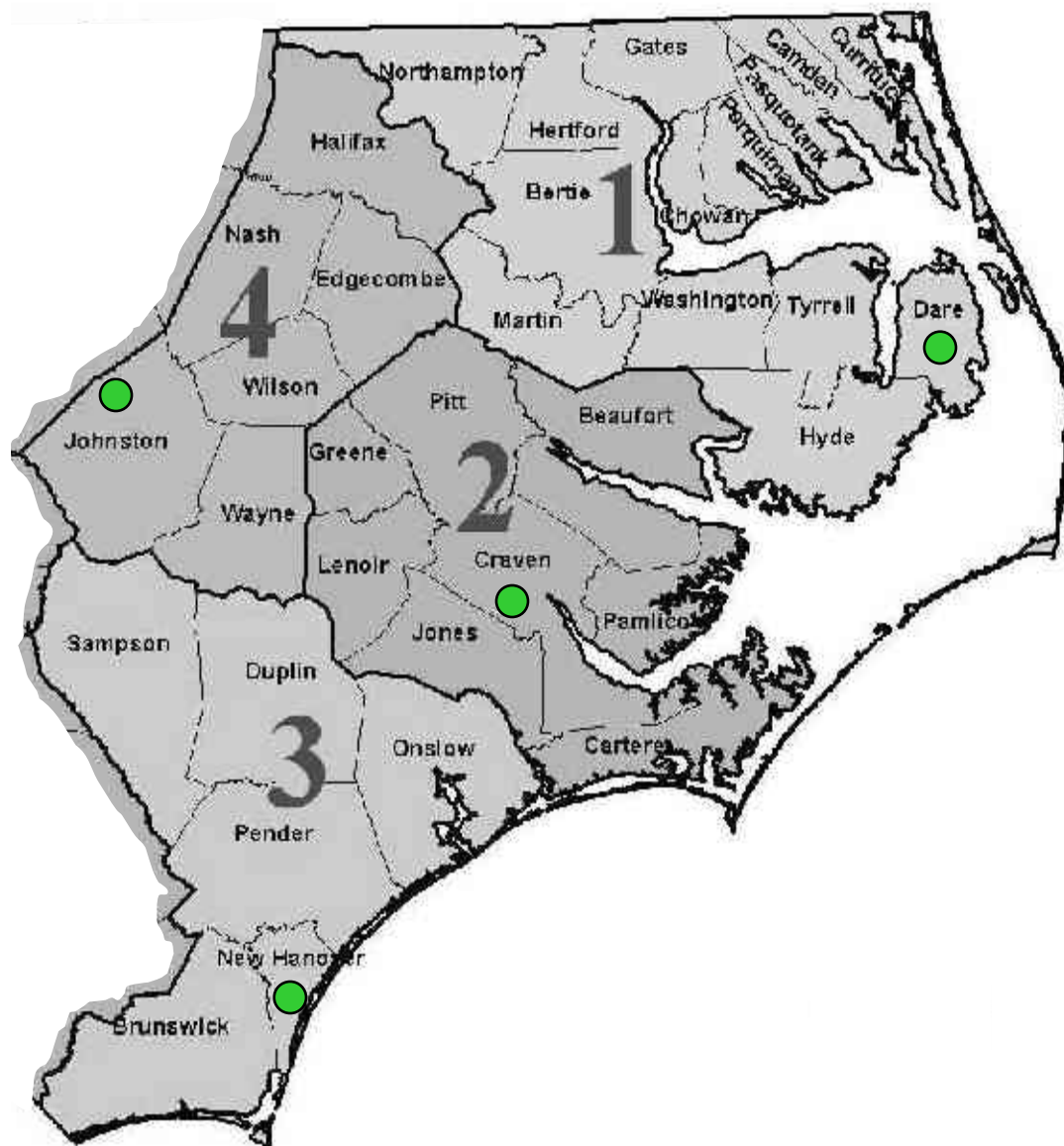
- Traffic Circle



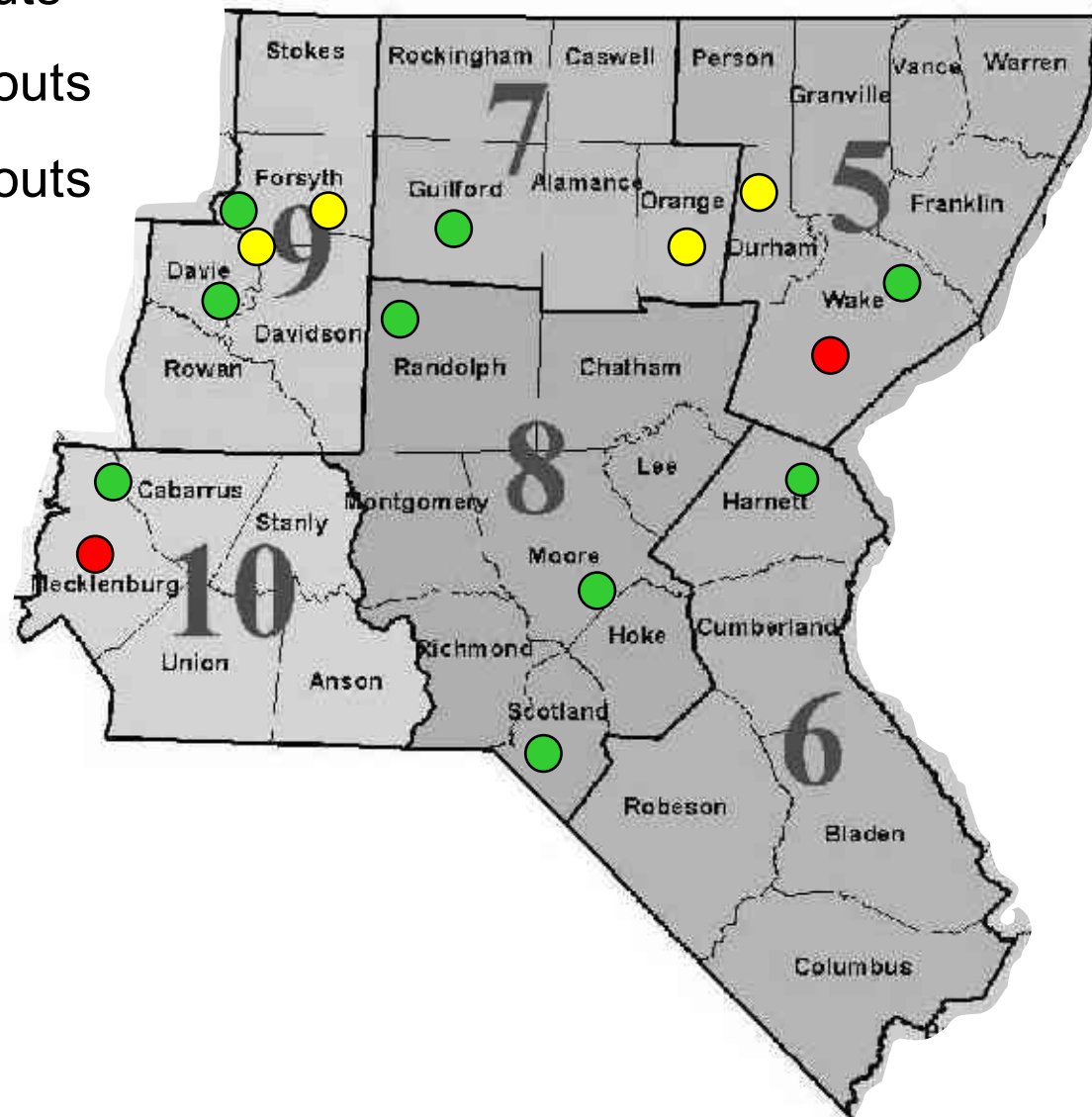
Roundabout Trends

- North Carolina currently ranks among the top 5 states in the U.S. in the construction of roundabouts
- Each of the State's 14 Divisions has at least one roundabout in operation or plans to begin construction of one in the near future

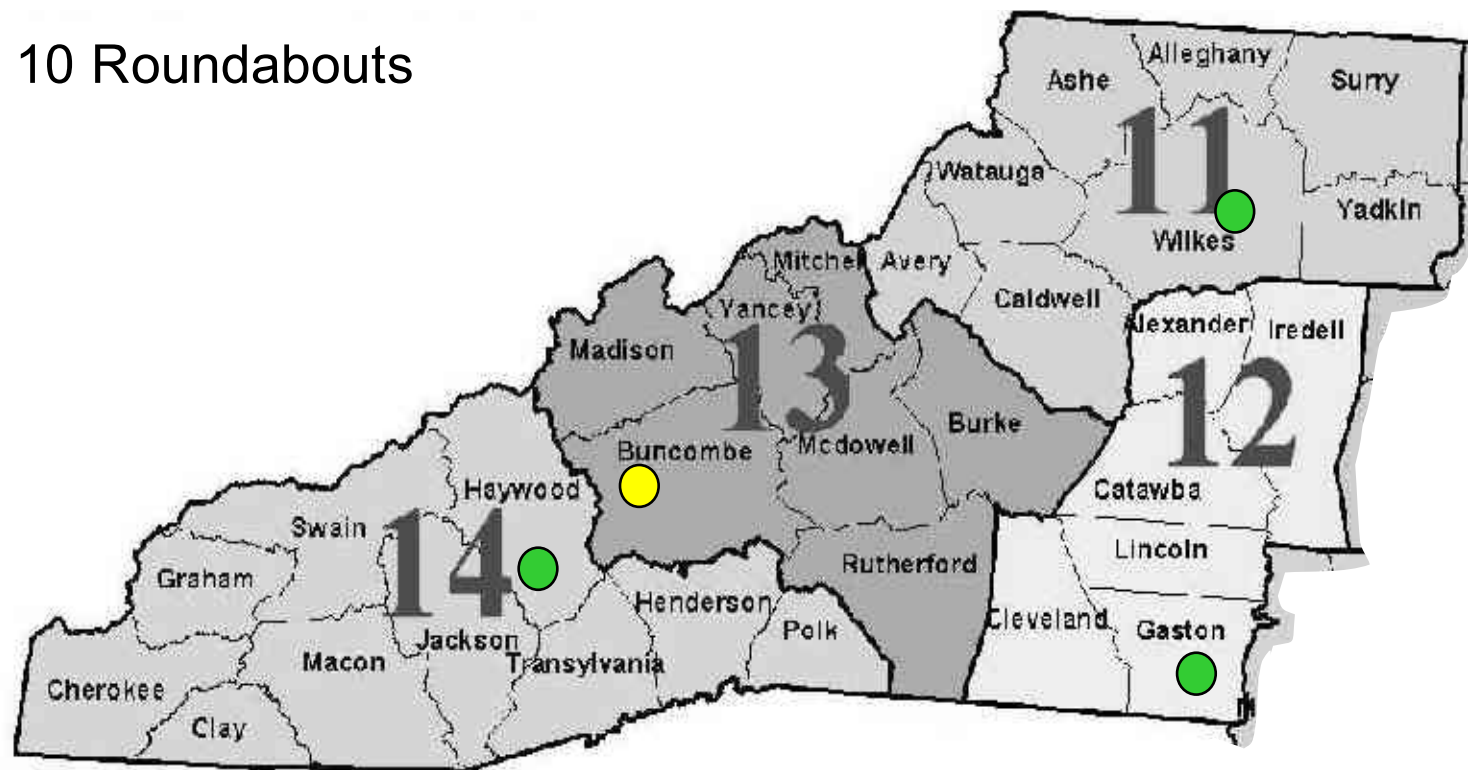
- 1-3 Roundabouts
- 4-10 Roundabouts
- > 10 Roundabouts



- 1-3 Roundabouts
- 4-10 Roundabouts
- > 10 Roundabouts



- 1-3 Roundabouts
- 4-10 Roundabouts
- > 10 Roundabouts



Roundabout Trends

- The majority of the roundabouts in the State are single lane with four approaches
- Multilane roundabouts are become more acceptable
- Municipal Thoroughfare plans
- Downtown areas
- Interchange ramps

Roundabout Trends

Single



Roundabout Trends

Old Salem, Winston-Salem



Roundabout Trends

Municipal Thoroughfare Plans

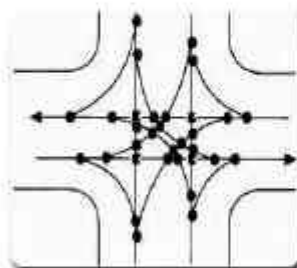
TRANSPORTATION IMPROVEMENTS

32

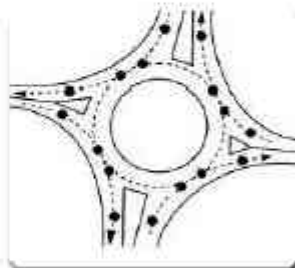
Roundabouts

Average Annual Crash Frequencies at Eleven (11) Signalized Intersections Converted to Roundabouts				
Percent Change				
Type of Roundabout	Roundabout Sites	Crash Reduction	Injury Reduction	Property Damage Only Crash Reduction
Single-Lane Roundabout	8	-51%	-73%	-32%
Multi-Lane Roundabout	3	-29%	-31%	-10%
Total	11	-37%	-51%	-29%

Source: Synthesis of Highway Practice 264: Modern Roundabout Practice in the United States. National Cooperative Highway Research Program, Washington DC, 1998.



In a traditional four-legged intersection, over 30 potential conflict points are created when through, right, and left turning movements are considered



In a roundabout, there are half as many potential conflict points as compared to a traditional four-legged intersection.



The roundabouts proposed for Churton Street would be similar in size to this roundabout in a residential subdivision in Raleigh, NC, approximately 100 feet in diameter.

Secondary Access Routes

Limiting the need for local shopping traffic to access Churton Street will also aid traffic flow. Workshop participants discussed improving Rebecca Drive, which currently provides secondary access between the Food Lion grocery store lot and the Shoppes at Daniel Boone. This is a private road. However, improving it through the Shoppes at Daniel Boone so that it feels more like a city street and including signage will encourage shoppers to use this route for local trips. Also, as property develops or redevelops, the town should encourage developers to locate parking at the rear of buildings and to provide stub-outs or connections

CONCEPTUAL PLAN

THE CHURTON STREET CORRIDOR
Strategic Plan 2006

Roundabout Trends

Downtown Redevelopment



Asheville



Roundabout Trends

Interchange Ramps

I-40/NC 801 Interchange, Davie Co.



Roundabout Trends

Out of the Box Applications



- Roundabouts can be designed as ovals and oblong shapes in order to achieve better movement separation and accommodate unique intersection geometry
- Works well for offset T-type and multiple legged intersections
- Could be an option for median divided facilities where controlling access is an issue



Landscaping Opportunities

- DOT typically not responsible for decorative landscaping due to maintenance costs
- City and Developer constructed roundabouts often include decorative plantings, lighting, and stamped concrete



Landscaping Opportunities

Duke University - Durham



Landscaping Opportunities



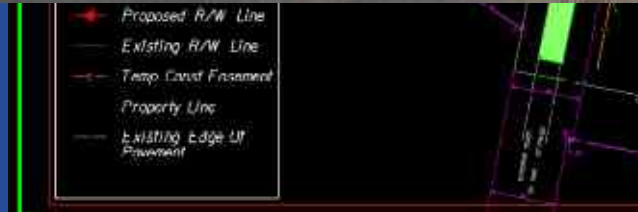
Research Projects

- NC State and ITRE are conducting several local and national research projects on roundabouts
 - ➡ Exploratory Analysis of Pedestrian Signalization Treatments at One- and Two-Lane Roundabouts Using VISSIM Microsimulation
B. Schrodeder; N. Roupail, Ph.D.; R. Hughes
 - ➡ Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians With Visions Disabilities
N. Roupail, Ph.D.
 - ➡ Signals vs. Roundabouts at Diamond Interchanges
S. Suryadevara; N. Roupail, Ph.D.

Statewide Inventory

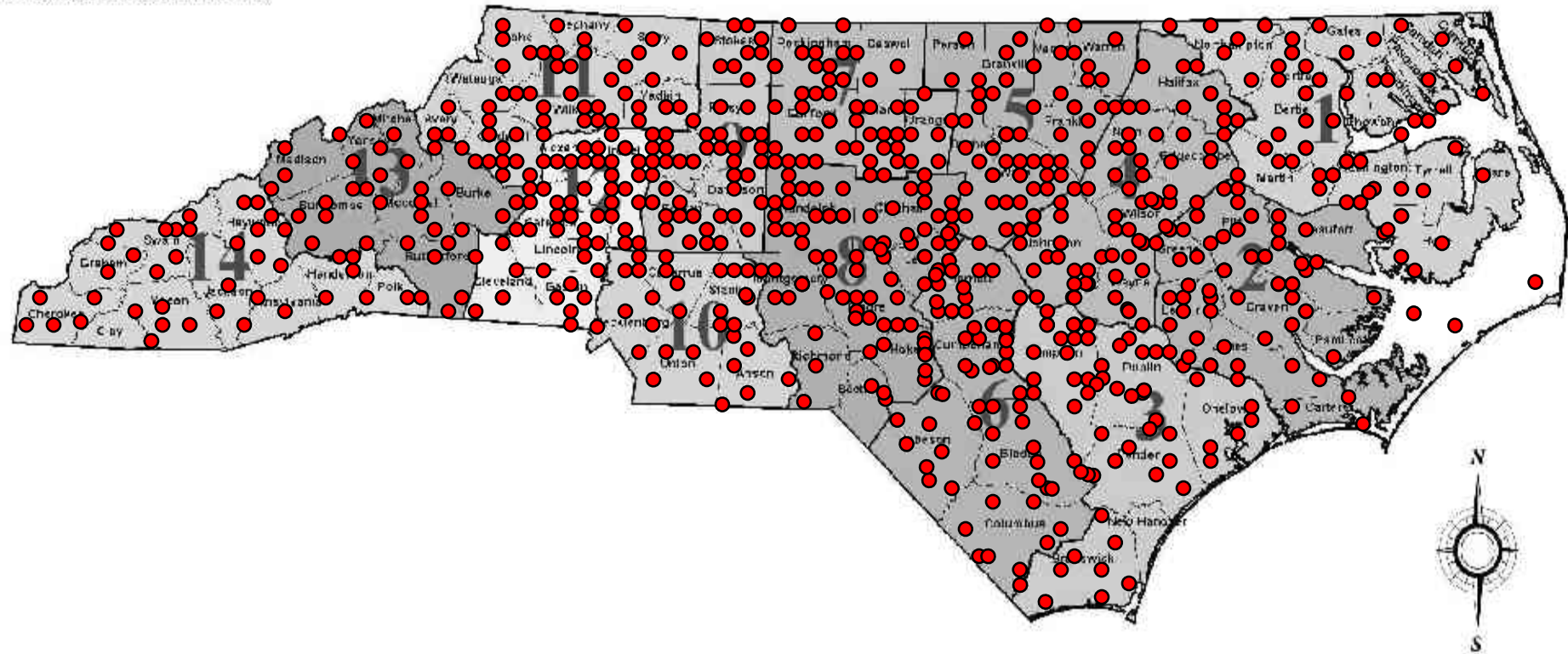
- Congestion Management will be contacting Division and Municipal offices to gather information

- Location Maps
- Design Plans
- Signs
- Aerials
- Construction Photos



Statewide Inventory

NCDOT Divisions



Questions?

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