



# Congestion Management Process (CMP)

## — Mitigation Strategies & Bicycle Level of Traffic Stress (LTS)

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April 23<sup>rd</sup>, 2024

# CMP/MRC Status & Schedule

- 3<sup>rd</sup> CMP/MRC Workshop  
Time & Date: 1-3pm, April 30<sup>th</sup>, 2004  
Location: Jordan Lake Room, CPRC
- Preliminary Estimation of Bicycle Level of Traffic Stress (LTS)
- Preliminary Recommendations of Mitigation Strategies  
(Details in Chapters 4 and 5 of the draft report)
- Final Report will be submitted to TC and Board for the adoption in May 2024

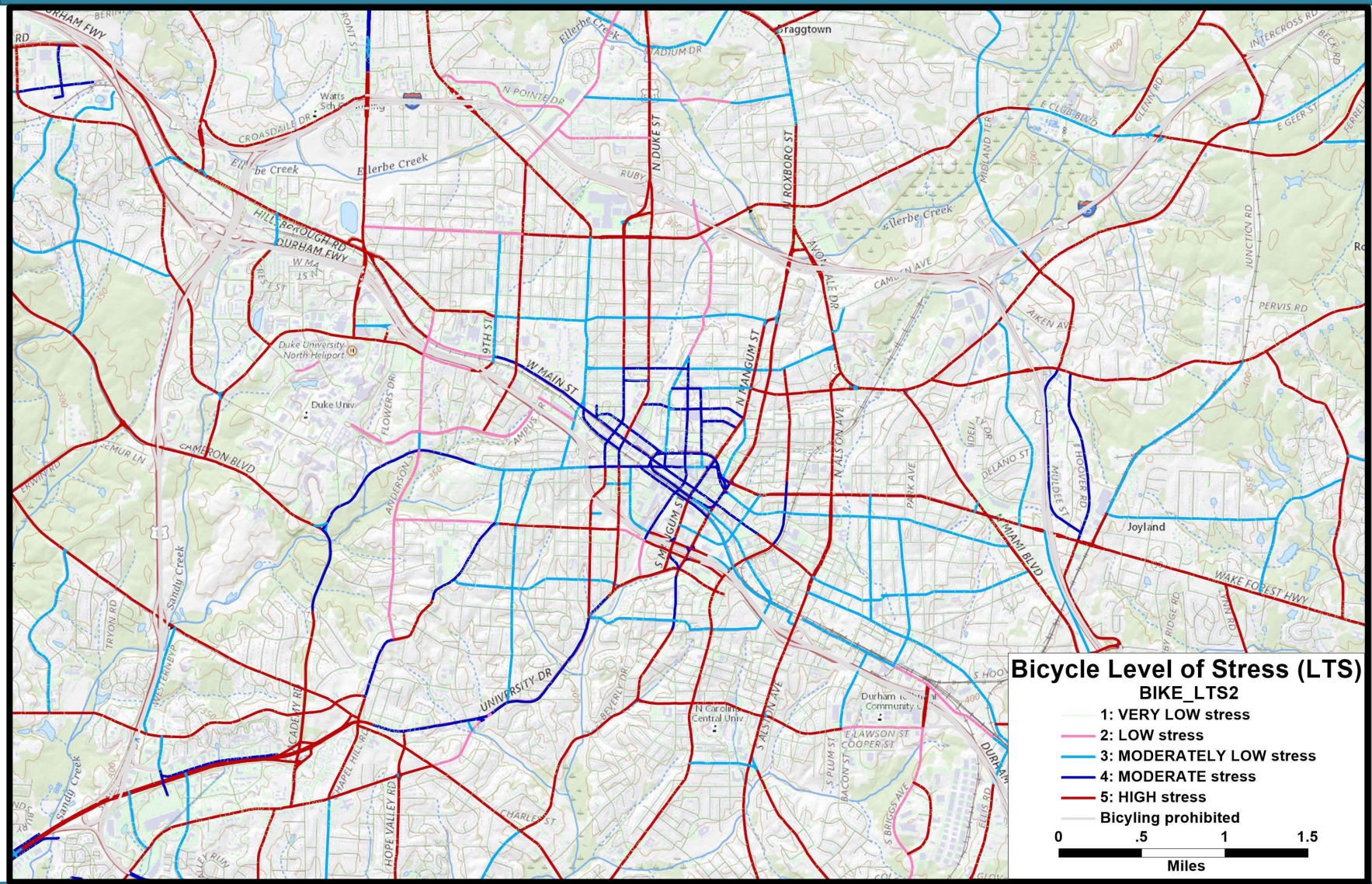
# Bicycle Level of Traffic Stress (LTS)

- Originally developed by the Meneta Transportation Institute in 2012
- FDOT's Bike LTS method suited for planning applications
- Bike LTS framework is based on a hierarchy of roadway characteristics:
  - 1) Traffic speed and volume,
  - 2) Presence and type of bicycle facility,
  - 3) Roadway cross- section, and
  - 4) Land use context
  - 5) Professional judgment where data were not available

Preliminary results under the review by planners from local jurisdictions

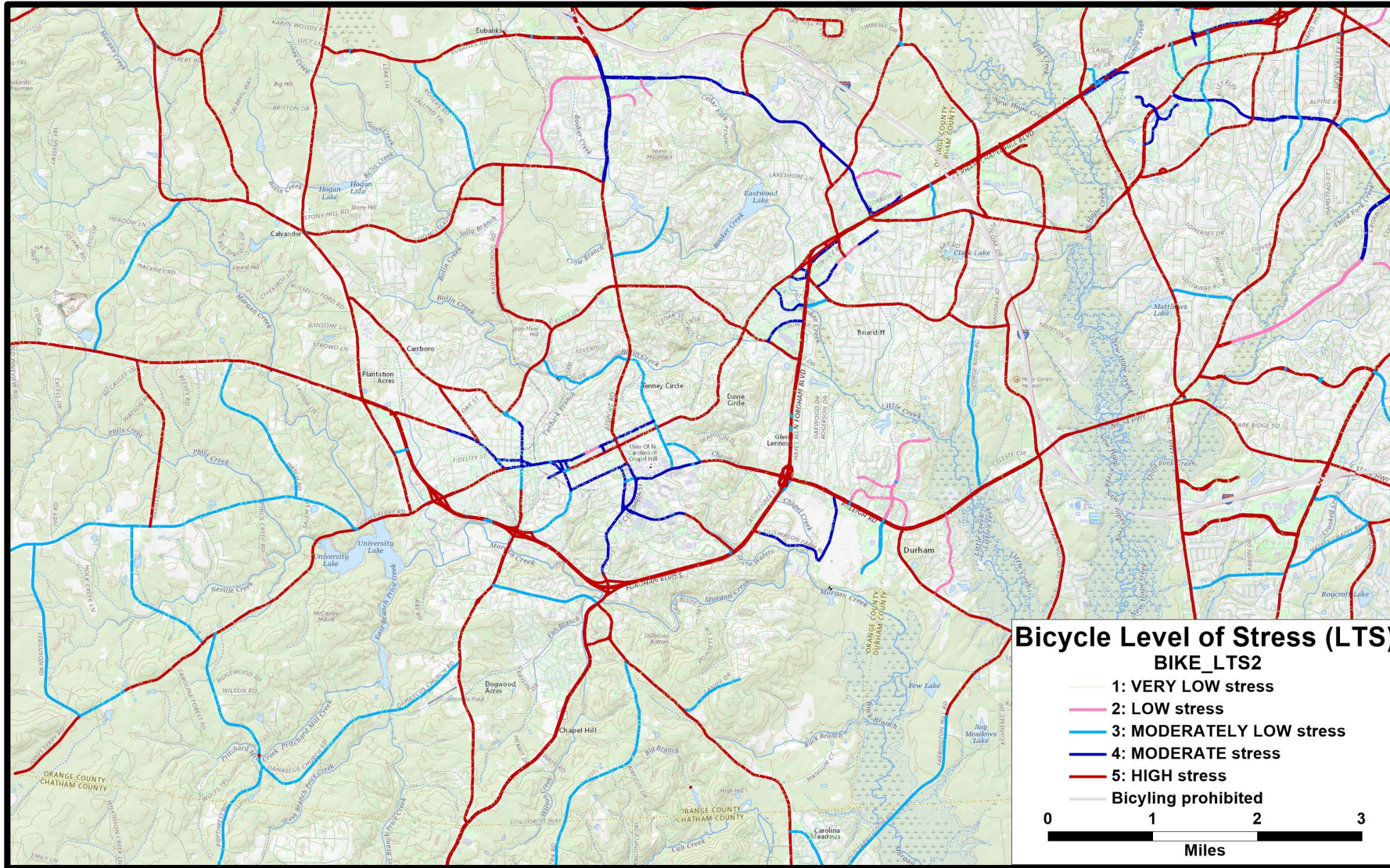
[Link to the Online Map \(https://arcg.is/0CyjS0\)](https://arcg.is/0CyjS0)

# Preliminary LTS Results – Downtown Durham



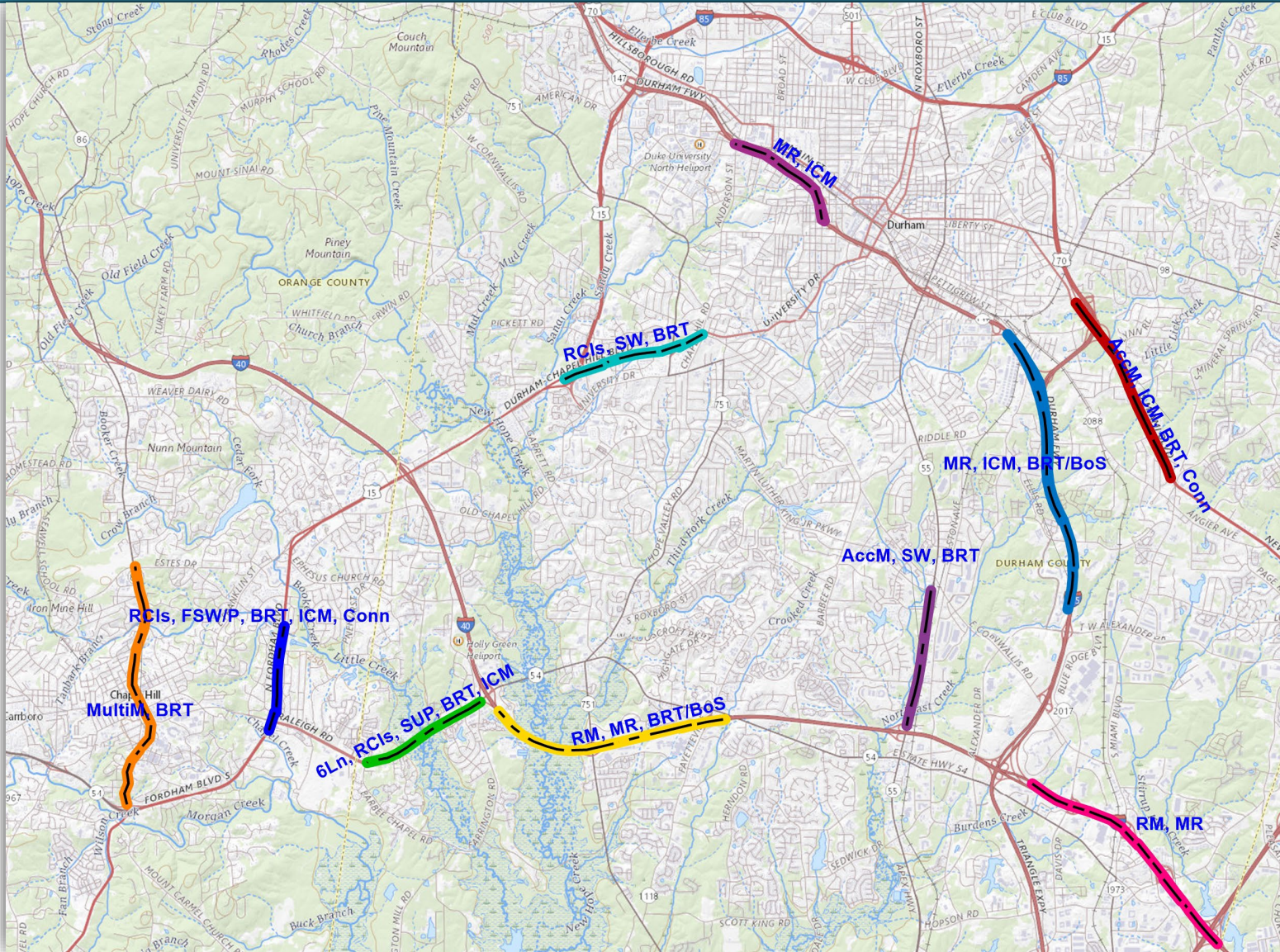
- ❖ 1 - Very Low Stress; reflecting that the facility is more inviting to more types of bicyclists including most children
- ❖ 2 - Low Stress; reflecting that the facility is suited for most adults as it has marked bicycle lane
- ❖ 3 - Moderately Low Stress; reflecting that the facility is suited for many adults
- ❖ 4 - Moderate Stress; reflecting that the facility is suited for some adults
- ❖ 5 - High Stress; reflecting that the facility is suited only for experienced bicyclists
- ❖ 99 - Bicycle Access Prohibited

# Preliminary LTS Results – Chapel Hill & Carrboro



- ❖ 1 - Very Low Stress; reflecting that the facility is more inviting to more types of bicyclists including most children
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# Preliminary Recommendations of Mitigation Strategies



Acronyms	Meaning
RM	Ramp Metering
MR	Modernize Ramp
BRT	Bus Rapid Transit
BoS/BOSS	Bus on Shoulder
RCIs	Add Restricted Crossing Intersections
ICM	Intelligence Transportation System / Integrated Corridor Management
AccM	Access Management/ Restricted Left Turning
Conn	Improve connectivity, such as parallel road/grid street connection improvement
SW	Add Sidewalk
6Ln	Widen to 6 Lanes or Redesign as a superstreet
SUP	Shared-used Path
FSW/P	Fill in Sidewalks/ Paths
MultM	Multi-Model Safety Improvement

# Preliminary Recommendations of Mitigation Strategies

**Table 5.3 Roadway Corridor Improvements**

Roadway	Segment	Distance (in miles)	Current Cross-section	Highest Speed Limit	Highest 2019/2021 AADT	Potential Mitigation Strategies
I-40	I-885 to Wake County Line	3.71	8 to 10 Lanes	65 mph	195,000	<ul style="list-style-type: none"> <li>Ramp metering</li> <li>Modernize ramps and extend acceleration/deceleration lanes at interchanges</li> </ul> <p>(Note: <i>Bus on Shoulder</i> is currently provided on I-40 from US 15/501 in Durham to Wade Ave in Raleigh)</p>
I-40	NC 751 to NC 54	3.33	6 to 7 Lanes	65 mph	128,000	<ul style="list-style-type: none"> <li>Ramp metering</li> </ul>
						<ul style="list-style-type: none"> <li>Modernize ramps and extend acceleration/deceleration lanes at interchanges</li> <li>Bus rapid transit (Note: <i>Bus on Shoulder</i> is currently provided on I-40 from US 15/501 in Durham to Wade Ave in Raleigh)</li> </ul>
I-885/NC 147	T.W. Alexander Dr to Briggs Ave	4.46	4 to 5 Lanes	65 mph	76,000	<ul style="list-style-type: none"> <li>Modernize ramps and extend acceleration/deceleration lanes at interchanges (see the <b>Note</b> below)</li> <li>Additional ITS/integrated corridor management (where applicable)</li> <li>Bus rapid transit (Bus on shoulder for GoTriangle Routes)</li> </ul>
NC 147	Duke St to Swift Ave	1.10	4 to 5 Lanes	55 mph	66,000	<ul style="list-style-type: none"> <li>Modernize ramps and extend acceleration/deceleration lanes at interchanges (see the <b>Note 1</b> below)</li> <li>Additional ITS/integrated corridor management (where applicable)</li> </ul>
US 70	Miami Blvd to Pleasant Dr	1.30	4 to 5 Lanes	45 mph	44,000	<ul style="list-style-type: none"> <li>Access management/redirect left-turning movements at driveways and intersections (see the <b>Note 2</b> below)</li> <li>ITS/integrated corridor management (where applicable)</li> <li>Bus rapid transit (Note: there are no current transit routes along US 70, but this could support reliability for future routes)</li> <li>Improve parallel road/grid street connection</li> </ul>

Roadway	Segment	Distance (in miles)	Current Cross-section	Highest Speed Limit	Highest 2019/2021 AADT	Potential Mitigation Strategies
NC 54	I-40 to Barbee Chapel Rd	1.74	4 to 5 Lanes	45 mph	44,000	<ul style="list-style-type: none"> <li>Expand to 6 lanes or redesign as a Superstreet</li> <li>Add restricted crossing intersections (RCIs) / redirect left-turning movements</li> <li>Extend shared-use path</li> <li>Bus rapid transit (transit signal priority)</li> <li>ITS/integrated corridor management (where applicable)</li> </ul>
NC 55	NC 54 to MLK Jr. Pkwy	2.02	4 to 5 Lanes	50 mph	37,000	<ul style="list-style-type: none"> <li>Access management/redirect left-turning movements at driveways and intersections</li> <li>Add sidewalks/paths and crosswalks where missing</li> <li>Bus rapid transit (transit signal priority)</li> </ul>
NC 86	Downtown Chapel Hill	1.50	2 to 4 Lanes	35 mph	14,000	<ul style="list-style-type: none"> <li>Multimodal safety improvements</li> <li>Bus rapid transit (transit signal priority)</li> </ul>
US 15/501 Business	US 15/501 to NC 751	1.44	4 to 6 Lanes	45 mph	18,000	<ul style="list-style-type: none"> <li>Add restricted crossing intersections (RCIs)</li> <li>Add sidewalks/paths and crosswalks where missing</li> <li>Bus rapid transit (transit signal priority)</li> </ul>
US 15/501	NC 54 to Estes Dr	1.25	4 to 5 Lanes	45 mph	45,000	<ul style="list-style-type: none"> <li>Add restricted crossing intersections (RCIs) / redirect left-turning movements</li> <li>Fill in sidewalks/paths and provide pedestrian/bicycle connectivity</li> <li>Bus rapid transit (transit signal priority)</li> <li>ITS/integrated corridor management (where applicable)</li> <li>Improve parallel road/grid street connection</li> </ul>

# Deficient Intersections & Improvement Recommendations

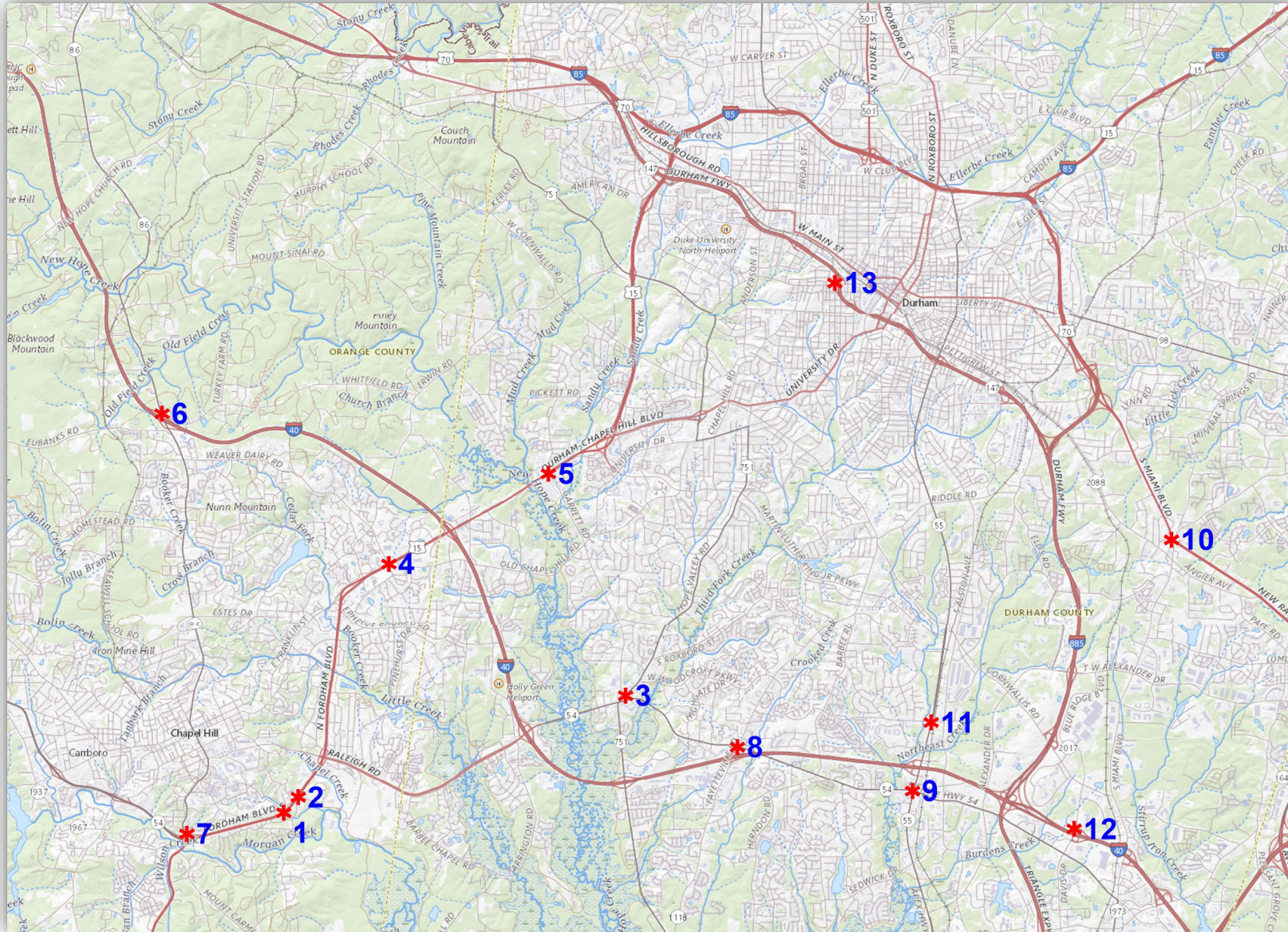


Table 5.4: Full List of Recommended Improvements in the Draft Report

## ❖ Potential Mitigation Strategies

### Examples:

- Change left turn signal phasing
- Increase cycle length
- Convert to Reduced Conflict Intersection (RCI)
- Adjust signal timing

## ❖ Multi-Modal Improvements

### Examples:

- Reduce cycle length
- Pedestrian refuges/two-stage crossings
- Add crosswalks, pedestrian signal heads,
- Add ADA-compliant ramps and detectable warning surfaces



Thank You!

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