

Executive Summary

Durham-Chapel Hill is the 5th largest Metropolitan Statistical Area (MSA) in North Carolina with a 2023 population figure of 608,879 people and a 2023 employment number of 336,100 jobs. The population in the Durham-Chapel Hill MSA has grown by 4% since 2020 and is continuing to attract 6,052 people per year. The region's employment profile illustrates heavy concentration of healthcare, educational, computer, and science occupations.

The Congestion Management Process (CMP) is a federal requirement for all metropolitan areas in the country with population exceeding 200,000 to systematically manage traffic congestion for a region's transportation system. The goal of the current CMP study is to fulfill this federal requirement for the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO). This congestion management process, or CMP, entails tracking transportation system performance with data-driven multimodal measures, identifying effective mitigation strategies that meet the region's policy goals and objectives, and integrating the mitigation strategies as part of the region's Metropolitan Transportation Plan (MTP). The DCHC MPO had adopted CMP goals in 2022 to improve travel time reliability and efficiency, mitigate traffic safety issues, reduce vehicle miles of travel (VMT), expand mobility choices with transit, bicycle and pedestrian facilities, and expand connectivity between communities, employment and retail centers, and universities. These CMP goals guided the current CMP study in preparing a needs and ranking assessment for a network of 22 roadway corridors using traditional and innovative performance measures, and developing recommendations for congestion and safety mitigation and for improving the experience of transit riders, bicyclists, and pedestrians.

The results of the 22 CMP corridors needs assessment and their ranking are summarized below on a 4-point priority scale where a score of 1 means *High* priority, 2 means *High-Medium* priority, 3 means *Low-Medium* priority, and 4 means *Low* priority:

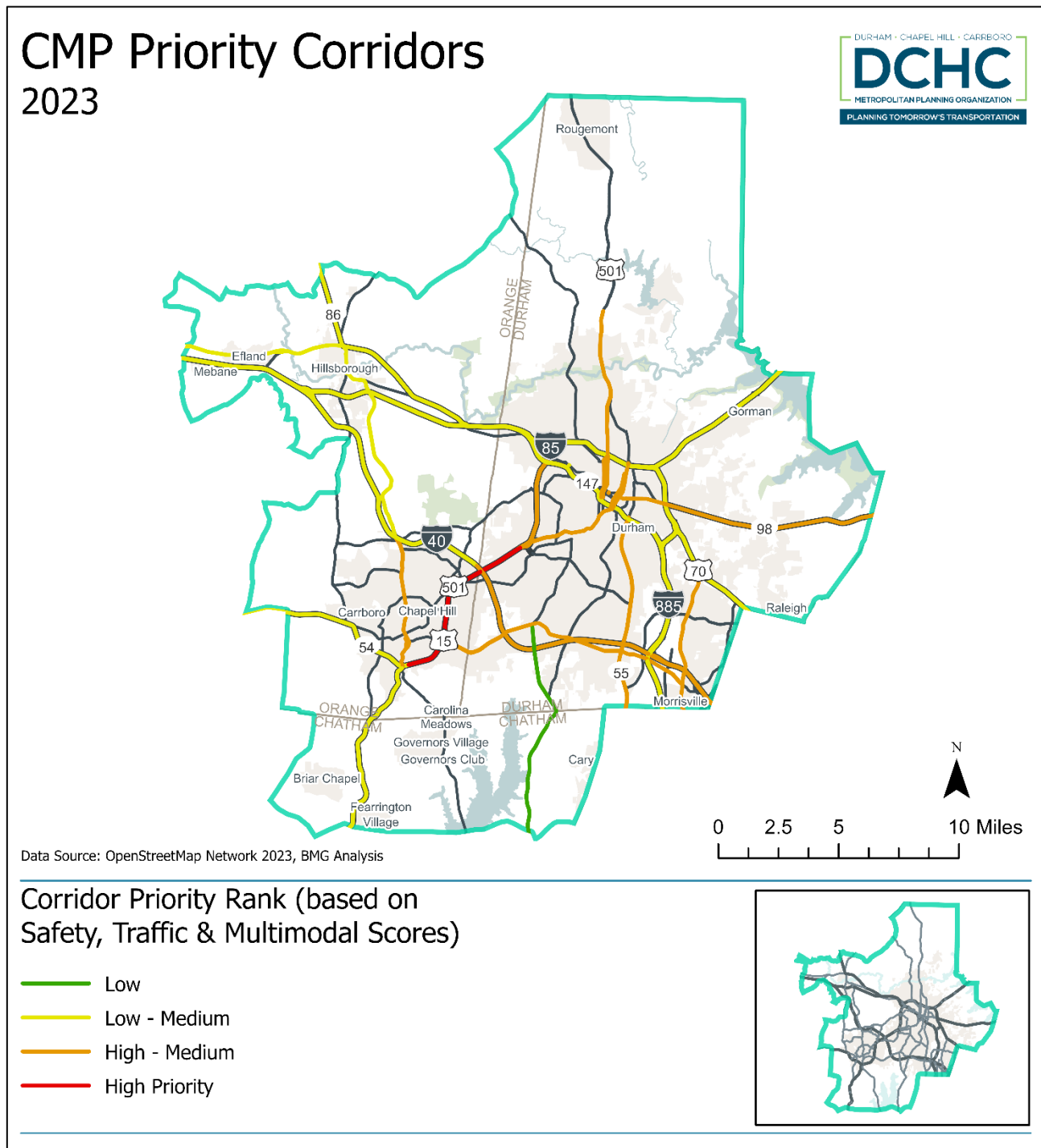
CMP Corridors Needs Assessment and Ranking

Corridor ID	Corridor Name	From	To	Length (miles)	Safety Score	Traffic Score	Multimodal/ Complete Streets Score	Overall Score (weighted) (see Note)	Overall Ranking
1	I-40 West	US 15-501 (Exit 270)	MPO Boundary in Mebane (Exit 157)	17.3	4	3	3	3	LOW-MEDIUM
2	I-40 East	US 15-501 (Exit 270)	MPO Boundary near RDU Airport (Exit 283)	12.8	4	1	1	2	HIGH-MEDIUM
3	I-85 South	NC 147 near Durham-Orange County Line (Exit 172)	I-40 (Exit 163)	9.2	3	3	4	3	LOW-MEDIUM
4	I-85 North	NC 147 near Durham-Orange County Line (Exit 172)	MPO Boundary at Durham-Granville County Line	12.7	3	4	4	3	LOW-MEDIUM

Corridor ID	Corridor Name	From	To	Length (miles)	Safety Score	Traffic Score	Multimodal/ Complete Streets Score	Overall Score (weighted) (see Note)	Overall Ranking
5	US 15	US 15-501 Business (Exit 105)	I-85 (Exit 108)	4.8	3	3	1	2	HIGH-MEDIUM
6	US 15-501 Bus	US 15-501	I-85 (Exit 177)	6.9	1	3	2	2	HIGH-MEDIUM
7	US 15-501 North	US 15-501 Business (Exit 105)	S Columbia Street in Chapel Hill	7.7	1	2	2	1	HIGH
8	US 15-501 South	NC 54 in Chapel Hill	MPO Boundary in Chatham County	7.6	4	3	3	3	LOW-MEDIUM
9	US 70 West	I-85 (Exit 170)	MPO Boundary in Mebane	13.1	2	4	4	3	LOW-MEDIUM
10	US 70 East	I-885 (Exit 288)	MPO Boundary at Durham-Wake County Line	4.3	2	2	4	3	LOW-MEDIUM
11	I-885	I-85 (Exit 178)	MPO Boundary at Durham-Wake County Line	11.3	4	3	2	3	LOW-MEDIUM
12	US 501 North	I-85 (Exit 176)	Bywood Dr in North Durham	6.2	1	3	3	2	HIGH-MEDIUM
13	NC 54 East	US 15-501 in Chapel Hill	MPO Boundary at Durham-Wake County Line	14.5	2	2	1	2	HIGH-MEDIUM
14	NC 54 West	S Columbia Street in Chapel Hill	MPO Boundary West of Carrboro	7.5	4	4	2	3	LOW-MEDIUM
15	NC 55	NC 147 (Exit 2)	MPO Boundary at Durham-Wake County Line	8.2	1	3	3	2	HIGH-MEDIUM
16	(New) NC 86 North	I-40 (Exit 266)	MPO Boundary North of Hillsborough	12.7	3	3	4	3	LOW-MEDIUM
17	(New) NC 86 South	I-40 (Exit 266)	US 15-501 / NC 54 in Chapel Hill	6.2	2	3	1	2	HIGH-MEDIUM
18	NC 98	North Roxboro St in Downtown Durham	MPO Boundary at Durham-Wake County Line	10.9	1	4	2	2	HIGH-MEDIUM
19	NC 147	I-885	I-85	7.8	3	2	3	3	LOW-MEDIUM
20	Duke St-Gregson St	NC 147 in Downtown Durham	I-85 (Exit 176)	1.9	1	4	2	2	HIGH-MEDIUM
21	NC 751	NC 54 in Durham	MPO Boundary in Chatham County	9.4	4	3	4	4	LOW
22	S Miami Blvd	NC 54 in Durham	US 70	4.8	2	3	3	2	HIGH-MEDIUM

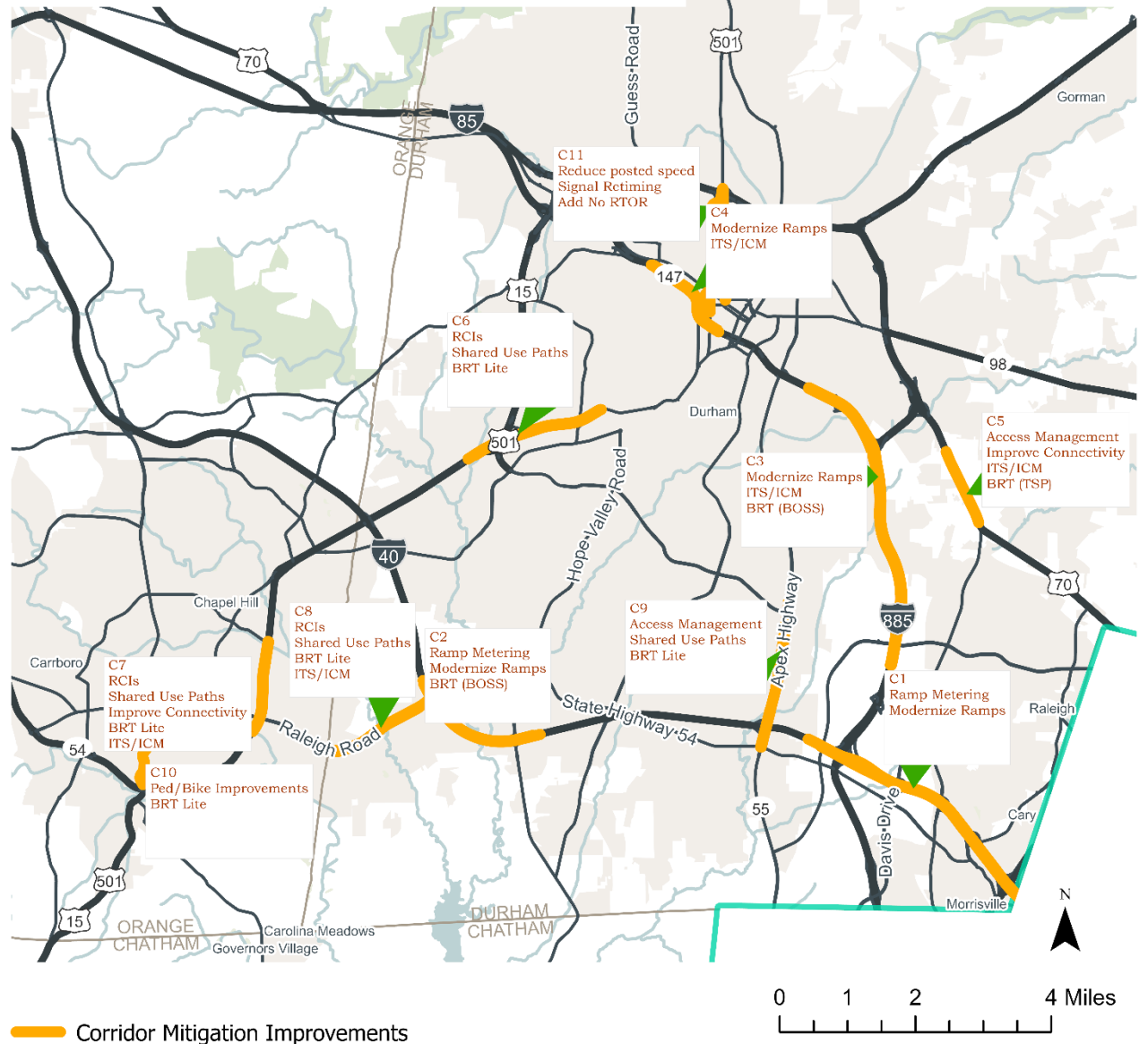
Note: The corridors showing at least High-Medium priority are highlighted in light orange. The weighted overall score applied 50-20-30 weights to the Safety, Traffic, and Multimodal/Complete Streets performance scores respectively.

The needs assessment results for the 22 CMP corridors are shown in the following map:



The current CMP study developed the following corridor-level recommendations as potential mitigation and improvement strategies:

Corridor Mitigation Strategies



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	- Ramp metering - Modernize ramps and extend acceleration/ deceleration lanes at interchanges
I-40	NC 751 to NC 54	3.33	6 to 7 Lanes	65 mph	128,000	- Ramp metering - Modernize ramps and extend acceleration/ deceleration lanes at interchanges - Bus rapid transit
I-885/NC 147	T.W. Alexander Dr to Briggs Ave	4.46	4 to 5 Lanes	65 mph	76,000	- Modernize ramps and extend acceleration/ deceleration lanes at interchanges - Additional ITS/integrated corridor management (where applicable) - Bus rapid transit (Bus on shoulder for GoTriangle Routes)
NC 147	Duke St to Swift Ave	1.10	4 to 5 Lanes	55 mph	66,000	- Modernize ramps and extend acceleration/ deceleration lanes at interchanges - Additional ITS/ integrated corridor management (where applicable)
US 70	Miami Blvd to Pleasant Dr	1.30	4 to 5 Lanes	45 mph	44,000	- Access management/ redirect left-turning movements at driveways and intersections - ITS/ integrated corridor management (where applicable) - Bus rapid transit (Note: there are no current transit routes along US 70, but transit signal priority could support reliability for future routes) - Improve parallel roads and street connections
US 15/501 Business	US 15/501 to NC 751	1.44	4 to 6 Lanes	45 mph	18,000	- Add restricted crossing intersections (RCIs) - Add sidewalks/paths and crosswalks where missing - Transit signal priority and queue jumps along EB/WB US 15/501 Business approaches at Westgate Dr, Tower Blvd, and Shannon Rd ("BRT-lite")
US 15/501	NC 54 to Estes Dr	1.25	4 to 5 Lanes	45 mph	45,000	Add restricted crossing intersections (RCIs) / redirect left-turning movements

Roadway	Segment	Distance (in miles)	Current Cross- section	Highest Speed Limit	Highest 2019/2021 AADT	Potential Mitigation Strategies
						• Fill in sidewalks/paths and provide pedestrian/bicycle connectivity • Transit signal priority and queue jumps on NB/SB US 15/501 approaches at Estes Dr ("BRT-lite") • ITS/ integrated corridor management (where applicable) • Improve parallel road/grid street connection
NC 54	I-40 to Barbee Chapel Rd	1.74	4 to 5 Lanes	45 mph	44,000	• Add restricted crossing intersections (RCIs) / redirect left-turning movements • Extend shared-use path • Transit signal priority and queue jumps on EB/WB NC 54 at Farrington Rd, Huntingridge Rd, and Barbee Chapel Rd ("BRT-lite") • ITS/ integrated corridor management (where applicable)
NC 55	NC 54 to MLK Jr. Pkwy	2.02	4 to 5 Lanes	50 mph	37,000	• Access management/ redirect left-turning movements at driveways and intersections • Add sidewalks/paths and crosswalks where missing • Transit signal priority and queue jumps on NB/SB NC 55 approaches at NC 54, I-40, Meridian Pkwy, Carpenter Fletcher Rd, and MLK Jr. Pkwy ("BRT-lite")
(New) NC 86	Downtown Chapel Hill	1.50	2 to 4 Lanes	35 mph	14,000	• Multimodal safety improvements • Transit signal priority and queue jumps on NB/SB NC 86 approaches at all signalized intersections; extend bus-only lanes on NB Columbia St to MLK Jr. Blvd ("BRT-lite")
Duke St-Gregson St One way Pair	Downtown Durham	1.60	2 Lanes (each direction)	35 mph	11,000 (each direction)	• Reduce posted speed to 25 mph • Time signal progression speed to the posted speed • Add "no right-turn on red" restrictions • Conduct a corridor traffic study (prior to any conversion from

Roadway	Segment	Distance (in miles)	Current Cross- section	Highest Speed Limit	Highest 2019/2021 AADT	Potential Mitigation Strategies
						one-way pair to two-way operations)

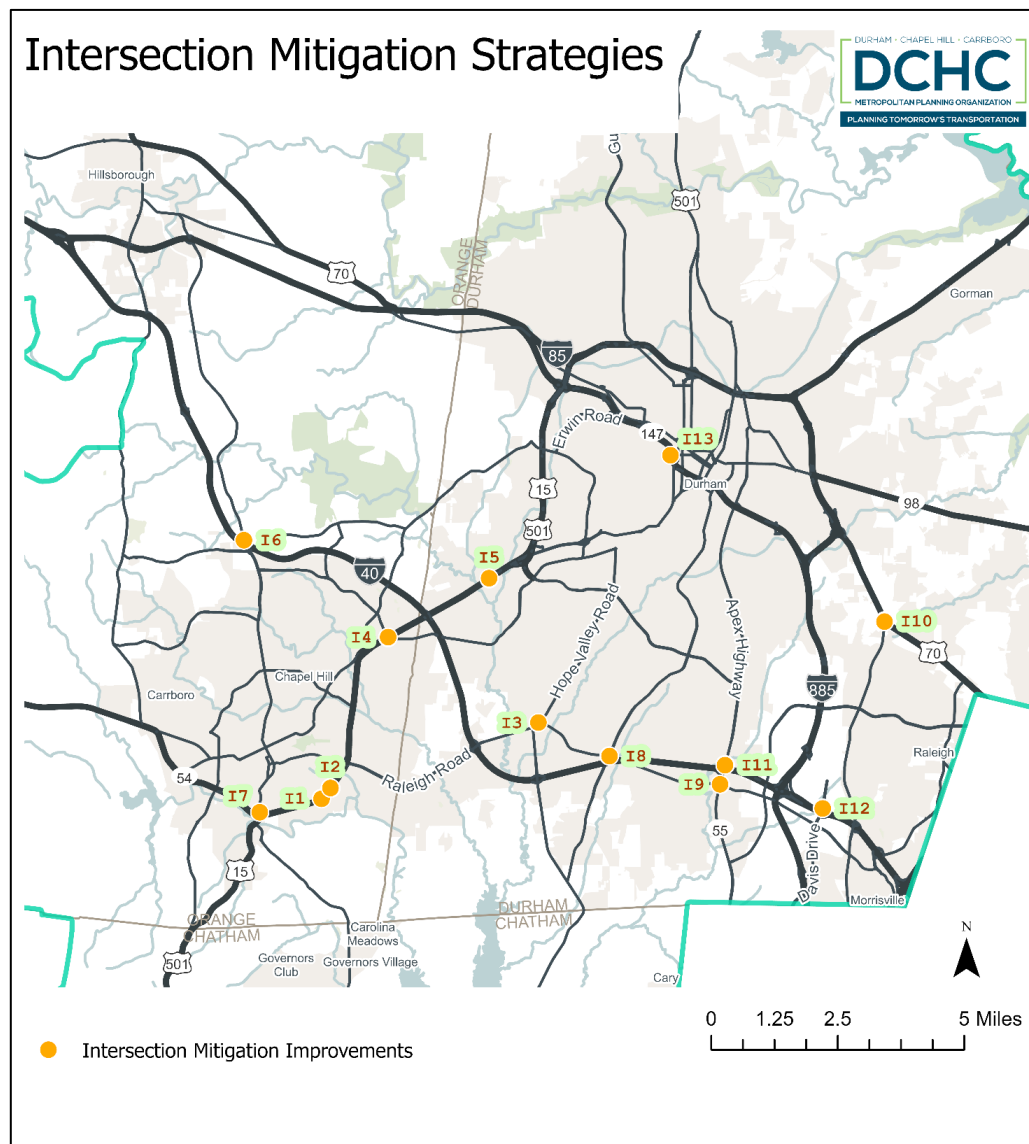
Some of these strategies mentioned in the above table may need to be applied to the extended corridor sections on either side of the identified roadway segments. Examples include bus rapid transit, ITS/integrated corridor management, and so on.

The current CMP study also developed the following intersection mitigation and improvement strategies:

No.	Intersection	Jurisdiction	Potential Mitigation Strategies	Multimodal Improvements
1	US 15/US 501/NC 54 at Manning Dr	Chapel Hill	A. Reallocate time to southbound signal phase B. Change northbound signal phasing to permissive only instead of split phasing C. Reconfigure to modified Reduced Conflict Intersection (RCI) but still allow southbound dual left turn movement on Manning Dr*	D. Provide/confirm minimum pedestrian crossing times E. Reduce cycle length from 180 seconds to 140 seconds (Note: Mitigation C will also reduce cycle lengths and crossing distances for active transportation users)
2	US 15/US 501/NC 54 at Carmichael St/Old Mason Farm Rd	Chapel Hill	A. Change Old Mason Farm Rd eastbound/westbound approaches to single phase (permissive left turns) and change lane configuration to left + shared through/right on eastbound/westbound approaches B. Relocate Fern Ln approach and remove from intersection	C. Extend medians on major street approaches to provide pedestrian refuges/two-stage crossings D. Reduce cycle length from 180 seconds to 150 seconds (in combination with Mitigations A and/or B)
3	NC 751 (Hope Valley Rd) at Garrett Rd	Durham	A. Change left turn phasing on northbound Garrett Rd to protected movement B. Prohibit left turns on northbound Garrett Rd	C. Provide minimum pedestrian crossing times D. Provide curb extensions on northwest and southeast quadrants to reduce turning speeds E. Add pedestrian refuge islands at crosswalks to improve pedestrian crossings (Note Mitigations A and B will both reduce conflicts between turning vehicles and pedestrians)
4	US 15/501 at Old Durham Rd/Sage Rd	Chapel Hill	A. Convert to Reduced Conflict Intersection (RCI) (Note: US 15/501 corridor is currently ongoing evaluation as part of two NCDOT STIP projects)	C. Provide crosswalks on all approaches and connect to sidewalk network on Old Durham Rd D. Extend medians on US 15/501 approaches to provide pedestrian refuges/two-stage crossings E. Provide pedestrian signal heads and incorporate

No.	Intersection	Jurisdiction	Potential Mitigation Strategies	Multimodal Improvements
				minimum crossing times into signal plan
5	US 15/501 at Garrett Rd	Durham	A. Increase cycle length B. Convert to Reduced Conflict Intersection (RCI) (Note: US 15/501 corridor is currently ongoing evaluation as part of two NCDOT STIP projects)	C. Provide crosswalk/pedestrian signal heads on east leg D. Update minimum pedestrian crossing times
6	I-40 Westbound Ramps at NC 86	Chapel Hill	A. Increase cycle length B. Other potential interchange improvements as part of NCDOT project I-3306A	n.a.
7	NC 54 Westbound Ramps at S Columbia Street	Chapel Hill	A. Adjust signal timing	n.a.
8	NC 54 at Fayetteville Rd	Durham	A. Add dual westbound left turn lanes B. Convert to median U-turn (redirect all left turns and provide U-turn crossovers on NC 54 east and west of the main intersection)	C. Confirm minimum pedestrian crossing times D. Extend medians on all legs to provide pedestrian refuges/two-stage crossings
9	NC 54 at NC 55	Durham	A. Add dual eastbound left turn lanes B. Install a quadrant road (utilize Residence Inn Blvd in northwest quadrant and redirect all left turns from the main intersection)	C. Reduce lane widths, extend medians, and provide pedestrian refuges/two-stage crossings on all legs (currently funded through NCDOT project HS 2005-C) (Note Mitigation B will remove left turn lanes on all legs and can therefore provide additional median space and reduce crossing distances on all legs)
10	US 70 at Miami Blvd/Mineral Springs Rd	Durham	A. Install a quadrant roadway intersection (as recommended in the US 70 Corridor study)	B. Add crosswalks, pedestrian signal heads, and push buttons on all legs C. Transit signal priority on EB/WB approaches (explore bus rapid transit along corridor between Raleigh and Durham)
11	I-40 Westbound Ramps at NC 55	Durham	A. Change westbound approach to right-out only B. Add full southbound right turn lane under I-40 underpass (Note: Coordination with the NCDOT STIP U-6117 project is essential to ensure alignment & successfully implementation)	C. Add crosswalks, pedestrian signal heads, and push buttons on all legs D. Extend sidewalk/trail from south side of I-40 interchange to Meridian Pkwy E. Transit signal priority for NB/SB buses (incorporate within "BRT lite" strategies between TW Alexander Dr and Cornwallis Rd)

No.	Intersection	Jurisdiction	Potential Mitigation Strategies	Multimodal Improvements
12	I-40 Westbound Ramps at Davis Dr	Durham	A. Adjust signal timing and increase cycle length to 150 seconds B. Convert west leg to right-in/right-out	C. Adjust pedestrian signal head/push button placement D. Add ADA-compliant ramps and detectable warning surfaces
13	NC 147 Southbound Ramps at Chapel Hill St	Durham	A. Convert southbound off-ramp to left + shared left/through/right and increase cycle length to 100 seconds B. Install roundabout with southbound and eastbound exclusive right turn lanes	C. Restripe crosswalks D. Transit signal priority for EB/WB buses (incorporate within "BRT lite" strategies from Duke University to Downtown Durham)





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