

# CONNECT 2050

The Research Triangle Region's  
Metropolitan Transportation Plan



## Table of Contents

1. Executive Summary .....	1
2. What is the Plan? .....	6
2.1 Why Do We Need A Plan? .....	6
2.2 What Is In The Plan .....	7
2.3 How Will The Plan Be Used?.....	10
3. About Our Home .....	11
3.1 Our Region .....	11
3.2 Our People .....	12
3.3 Our Economy .....	13
3.4 Our Environment .....	14
3.5 Our Future .....	16
3.6 Our Challenge .....	16
4. Our Vision And How We Will Achieve It .....	19
4.1 The Values Underlying Our Vision: Equitable Engagement and Investment .....	19
4.2 Our Vision .....	19
4.3 Goals and Objectives .....	19
4.4 Performance Measures and Target Values .....	21
5. How We Developed Our Plan .....	23
5.1 Who is Responsible for the Plan? .....	23
5.2 Stakeholder & Public Involvement Process .....	24
5.3 Supportive Tools: CommunityViz and the Triangle Region Transportation Model.....	30
5.4 Related Plans and Studies.....	31
6. Analyzing Our Choices .....	36
6.1 Land Use Plans and Policies .....	36
6.2 Socio-economic Forecasts .....	37
6.3 Trends, Deficiencies, and Needs.....	40
6.4 Alternatives Analysis.....	42
6.5 Performance Evaluation Measures .....	46
7. Our Metropolitan Transportation Plan: What We Intend To Do .....	47
7.1 Land Use & Development Strategies .....	47
7.2 Shared Regional Investments .....	48
7.3 Complete Corridors .....	49
7.4 Roadways.....	50
7.5 Transit Facilities & Services .....	53
7.6 Active Transportation and Micro-Mobility Investments .....	57
7.7 Strategies to Manage Transportation Demand.....	61
7.8 Transportation Technologies.....	63
7.9 Investments for Safe, Effective Transportation System Management (TSM).....	64
7.10 Specialized Investments: Railroads and Airports.....	65
7.11 Freight Movement and Logistics .....	68
7.12 Policy Priorities, Special Plans, Projects, Studies & Performance Tracking.....	69
8. Our Financial Plan .....	73
8.1 Revenues .....	73
8.2 Costs .....	79
8.3 Balancing Costs and Revenues .....	80
9. Critical Factors and Emphasis Areas in the Planning Process.....	81
9.1 Sustainability and Resiliency: Critical Environmental Resources .....	84
9.2 Transportation, Air Quality and Climate Change.....	86
9.3 Environmental Justice.....	87
9.4 Safety and Security .....	95
9.5 The Fixing America’s Surface Transportation (FAST) Act and <i>Connect 2050</i> .....	98
10. Post-2050 Vision: Comprehensive Transportation Plan Projects .....	101
Appendices .....	102

## Appendices

- Appendix 1: Community Engagement
- Appendix 2: Complete Corridor & Roadway Projects List
- Appendix 3: Transit Projects List
- Appendix 4: Active Transportation Projects
- Appendix 5: Resources on Technologies: Connected & Autonomous Vehicles, Electrification, Telepresence
- Appendix 6: Joint MPO Transportation Policy Priorities
- Appendix 7: Air Quality (MOVES output)
- Appendix 8: Public Comments on the MTP Draft Plan and Report
- Appendix 9: Acronyms
- Appendix 10: Detailed Transportation and Growth Maps and Measures of Effectiveness
- Appendix 11: Financial Plan and Cost & Revenue Details
- Appendix 12: Environmental Justice Maps and Critical Environmental Resource Maps
- Appendix 13: Federal Transportation Performance Measures

**Online Interactive Project Maps:** CAMPO ([all modes](#))      DCHC MPO ([roadway](#)) ([transit](#))

### 2050 Metropolitan Transportation Plan adoption dates:

Capital Area MPO: February 16, 2022

Durham-Chapel Hill-Carrboro MPO: February 9, 2022

Date of this document version: July 13, 2022

### A Note to Readers:

The heart of any transportation plan is the investments that will be made to serve the mobility needs of our rapidly growing region's citizens, businesses and visitors. These investments take the form of road, transit, railroad, airport, cycling and walking facilities and services, together with related technologies and strategies. Maps are created to help visualize the nature of both the facilities in which we plan to invest and the existing and future population and jobs that the facilities are designed to serve. But the maps in this document are for illustrative purposes only and are subject to change and interpretation. The details of the investments are in the project lists that are included with this report.

Comments may be submitted to either of the MPOs through their websites:

NC Capital Area MPO: [www.campo-nc.us/](http://www.campo-nc.us/)

attention: Chris Lukasina

Durham-Chapel Hill-Carrboro MPO: [www.dchcmpo.org/](http://www.dchcmpo.org/)

attention: Andy Henry

Because this document addresses the official plans of both MPOs, the document is color-coded. Text and tables with a white background apply to both MPOs.

Text and tables highlighted in this green color apply only to the Durham-Chapel Hill-Carrboro MPO.

Text and tables highlighted in this yellow color apply only to the Capital Area MPO

# 1. Executive Summary

Transportation investments link people to the places where they work, learn, shop and play, and provide critical connections between businesses and their labor markets, suppliers and customers.

This document contains the 2050 Metropolitan Transportation Plans (MTPs) for the two organizations charged with transportation decision-making in the Research Triangle Region: the Capital Area Metropolitan Planning Organization (CAMPO) and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO). These organizations, and the areas for which they are responsible, are commonly called “MPOs.”

The Metropolitan Transportation Plans are the guiding documents for future investments in roads, transit services, bicycle and pedestrian facilities and related transportation activities and services to match the growth expected in the Research Triangle Region.

The areas covered by this plan are part of a larger economic region. Transportation investments should consider the mobility needs of this larger region and links to the other large metro regions of North Carolina and throughout the Southeast. The Triangle Region is expected to accommodate substantial future growth; we need to plan for the region we will become, not just the region we are today.

2020 and Forecast 2050 Population and Jobs	2020		2050		2020 to 2050 Growth	
	Population	Jobs	Population	Jobs	Population	Jobs
Capital Area MPO	1,360,000	660,000	2,200,000	1,270,000	840,000	610,000
Durham-Chapel Hill-Carrboro MPO	480,000	310,000	680,000	520,000	190,000	210,000
Areas outside Triangle MPO boundaries	180,000	70,000	310,000	100,000	130,000	30,000
Total for area covered by the region’s transportation model	2,020,000	1,040,000	3,180,000	1,880,000	1,170,000	840,000

The Triangle has historically been one of the nation’s most sprawling regions and current forecasts project both continued outward growth and infill development in selected locations, most notably in the central parts of Raleigh and Durham and the area between them, including a mixed use center currently being developed within the Research Triangle Park. A key challenge for our transportation plans is to match our vision for how our communities should grow with the transportation investments to support this growth.

No region has been able to “build its way” out of congestion; an important challenge for our transportation plans is to provide travel choices that allow people to avoid congestion where it cannot be prevented.

Our population is changing. The population is aging, more households will be composed of single-person and two-person households without children, the number of households without cars is increasing, and more people are interested in living in more compact neighborhoods with a mix of activities. Our plans are designed to provide mobility choices for our changing needs.

Our MPOs are tied together by very strong travel patterns between them; our largest commute pattern and heaviest travel volumes occur at the intersection of the MPO boundaries. Our MPO plans need to recognize the mobility needs of residents and businesses that transcend our MPO and county borders.

The region has a common vision of what it wants its transportation system to be:

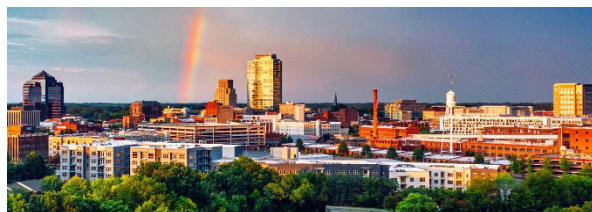
*a seamless integration of transportation services that offer a range of travel choices to support economic development and are compatible with the character and development of our communities, sensitive to the environment, improve quality of life and are safe and accessible for all.*



The MPOs have jointly adopted goals and objectives to accomplish this vision and selected performance measures to track progress over time. Each MPO has targets that reflect the unique characteristics and aspirations of the communities within the MPO. *Connect 2050* commits our region to transportation services and development patterns that contribute to a more equitable and sustainable place where people can successfully pursue their daily activities.

To analyze our transportation investment choices, the MPOs followed a systematic process involving significant public engagement, with a greatly increased focus on traditionally under-represented voices. It began with understanding our communities' core values and priorities.

Special emphasis was placed on identifying key activity centers in the region and investments and strategies that would connect these centers to neighborhoods with the most significant number of lower-income, BIPOC and zero-car households, providing these neighborhoods with a range of travel choices, especially transit.



Next, we used carefully documented analysis tools to forecast the types, locations and amounts of future homes and jobs based on market conditions and trends, factors that influence growth, and local plans.

Based on the forecasts, we looked at mobility trends and needs, and where our transportation system may become deficient in meeting these needs.

Working with a variety of partners and based on public input, we created land use and transportation system scenarios and analyzed their impacts, comparing the performance of system alternatives against one another and to performance targets derived from our goals and objectives.

The result of this analysis and extensive public engagement was a set of planned investments, together with a pattern of land development aligned with these investments. Additional studies were identified to ensure that the investments are carefully designed and effectively implemented. The core of the plan is the set of transportation investments described in Section 7:

- New and expanded roads where needed, and re-designed roads for safer, better multimodal travel;
- Local and regional transit facilities and services, including rapid bus and rail lines;
- Aviation and long-distance passenger and freight rail services;
- Bicycle and pedestrian facilities, both independent projects and in concert with road projects;
- Transportation Demand Management: marketing and outreach efforts that increase the use of alternatives to peak period solo driving;
- Technology-Based Transportation Services: the use of advanced technology to make transit and road investments more effective—including the advent of autonomous and connected vehicles; and



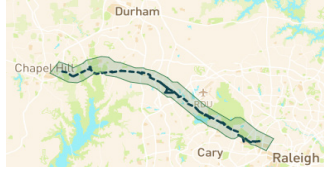



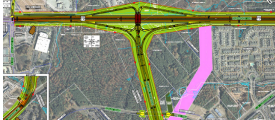

In addition to these investments, the plan includes a focus on three issues where the ties between development and transportation investments are most critical:

- (i) transit corridor development – with an emphasis on equitable transit-oriented development and affordable housing strategies,
- (ii) the development of “complete corridors” centered on major roadways but where multi-modal elements are especially beneficial, and
- (iii) “safe & healthy streets” with designs that are sensitive to the neighborhoods of which they are a part and support the needs of a full range of users, including drivers, transit users, cyclists and pedestrians – these are often referred to as “context-sensitive complete streets” by transportation professionals.

The plan anticipates that the region will match its historic focus on roads with a sustained commitment to high-quality transit service as well, emphasizing five critical components:

- Connecting the region's main centers with fast, frequent, reliable rail or bus services;
- Offering transit service to all communities that have implemented local transit revenue sources;
- Providing frequent transit service in urban travel markets;
- Launching on-demand “microtransit” services where they can provide superior service, and
- Supplying better transit access, from "first mile/last mile" circulator services within key centers to safe and convenient cycling and walk access to transit routes.

Three transit capital investments are part of a set of shared regional investments by both MPOs:

<p>North Carolina Railroad Corridor Passenger Rail (1st phase from Durham to Garner or Clayton)</p>		<p>Regional Transit Center Relocation (serving regional buses, future BRT and future passenger rail)</p>	
<p>Triangle Bikeway along I-40 (NC 54 in Chapel Hill to I-440 in Raleigh)</p>		<p>Wake-Durham Bus Rapid Transit (extension of Wake Western Corridor BRT from Cary to RTP HUB)</p>	
<p>US 70 Durham: modernization Wake: freeway conversion</p>		<p>I-40 Durham: modernization Wake: managed freeway</p>	
<p>Aviation Parkway Durham: modernization Wake: new alignment</p>		<p>Triangle Transportation Demand Management Program</p>	

Although the plan includes a new emphasis on transit investment, it envisions significant additional roadway investment as well, focusing on “complete corridors” that incorporate provisions for transit and active transportation travel as part of roadway improvements.

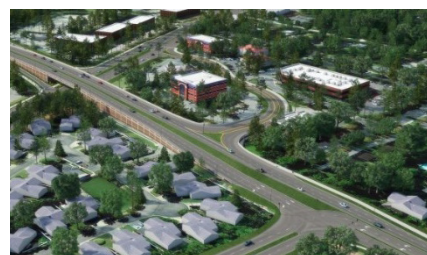
One clear message from both elected official discussion and public engagement during the development of *Connect 2050* is that roadways need to be designed and engineered with much greater care than has been typical in the past, using more flexible and context-sensitive standards that have now been successfully implemented in many places. Especially in urban and urbanizing locations, designs should prioritize steady, safe, reliable, moderate-speed travel, rather than emphasize high-speed travel.



Parkway Design



Boulevard Design



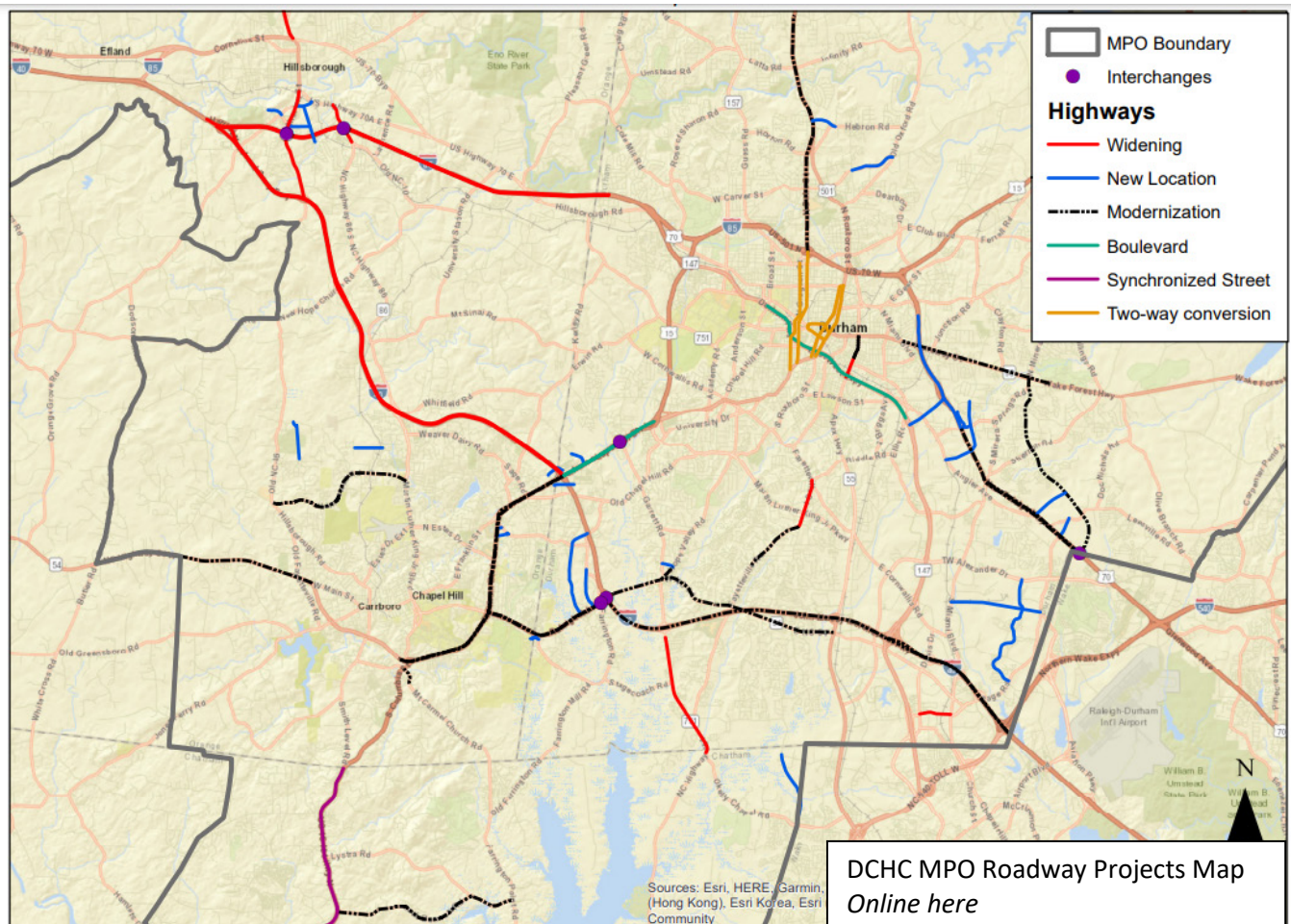
Superstreet Design

Major roadway projects in each MPO are highlighted on the following pages; all projects are listed in Appendix 2 and available on interactive maps on-line. Section 7 of the Plan provides greater detail on planned roadway and transit investments.

DCHC MPO Major Roadway Projects List (estimated cost > \$100 million) and All Projects Map

Durham Chapel Hill-Carrboro MPO		
2021-30	2031-40	2041-50
East End Connector linking US 70 to NC 147 (Durham Freeway) to form I-885*	US 15-501 modernization (South Columbia in Chapel Hill to Cameron Blvd. in Durham)	
I-40 widening in Orange County (US 15-501 to I-85)	I-40/NC 54 Interchange and NC 54 modernization (TIP# U-5774)	
	US 70 modernization in Durham County (Lynn Road to Wake County)	
	I-85 widening in Orange County (Orange Grove Rd. to Sparger Road.)	
	US 15-501 Synchronized Street (Smith Level Road to US 64 in Chatham Co.)	
	I-40 managed roadway modernization (NC 54 to Wake County; links to CAMPO I-40 project)	
	NC147 modernization (I-40 to Swift Ave.)	

\* funded in prior years but open to traffic in indicated time period



CAMPO Major Roadway Projects List and All Projects Map

Capital Area MPO		
2021-30	2031-40	2041-50
I-40 widened from Wade Ave. to Lake Wheeler Road	I-40 widened from I-440 to NC 42 in Johnston County	I-87 widened from US 64 Bus to US 264
I-440 widened from Wade Avenue to Crossroads	I-87 widened from I-440 to US 264	NC 210 widened from Angier to Lassiter Pond Rd.
I-40 widened from I-440 to NC 42 in Johnston County	US 1 widened south from US 64 to NC 540	NC 50 widened from NC 98 to Creedmoor
US 64 W corridor improvements from US 1 to Laura Duncan Rd.	Managed lanes added to I-540 (Northern Wake Expressway) from I-40 to US 1	US 401 widened from Fuquay-Varina to MPO boundary in Harnett County
NC 540 toll road extended from Holly Springs to I-40 south of Garner	NC 540 completed as a toll road from Holly Springs to I-87/US 64 bypass	NC 96 widened from US 1 to NC 98
US 70 widened and access management from I-540 to Durham/Wake Co. Line	I-40 Managed lanes added to I-40 from Durham County line to MPO boundary in Johnston County	NC 56 widened from I-85 to MPO boundary in Franklin County

