

# CONNECT 2050

The Research Triangle Region's  
Metropolitan Transportation Plan



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- Appendix 13: FAST Act Target Values

### Online Interactive Project Maps:

CAMPO: [\[to be added in final version\]](#)

DCHC MPO: [\[to be added in final version\]](#)

### 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: January 5, 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.dchcmo.org/](http://www.dchcmo.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. *Connect2050* 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







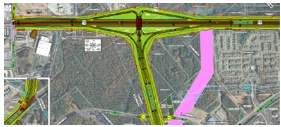

In addition to these investments, the plan includes a focus on three issues where the ties between development and transportation investments are most critical:

- (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 four 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; 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:

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

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 *Connect2050* 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*



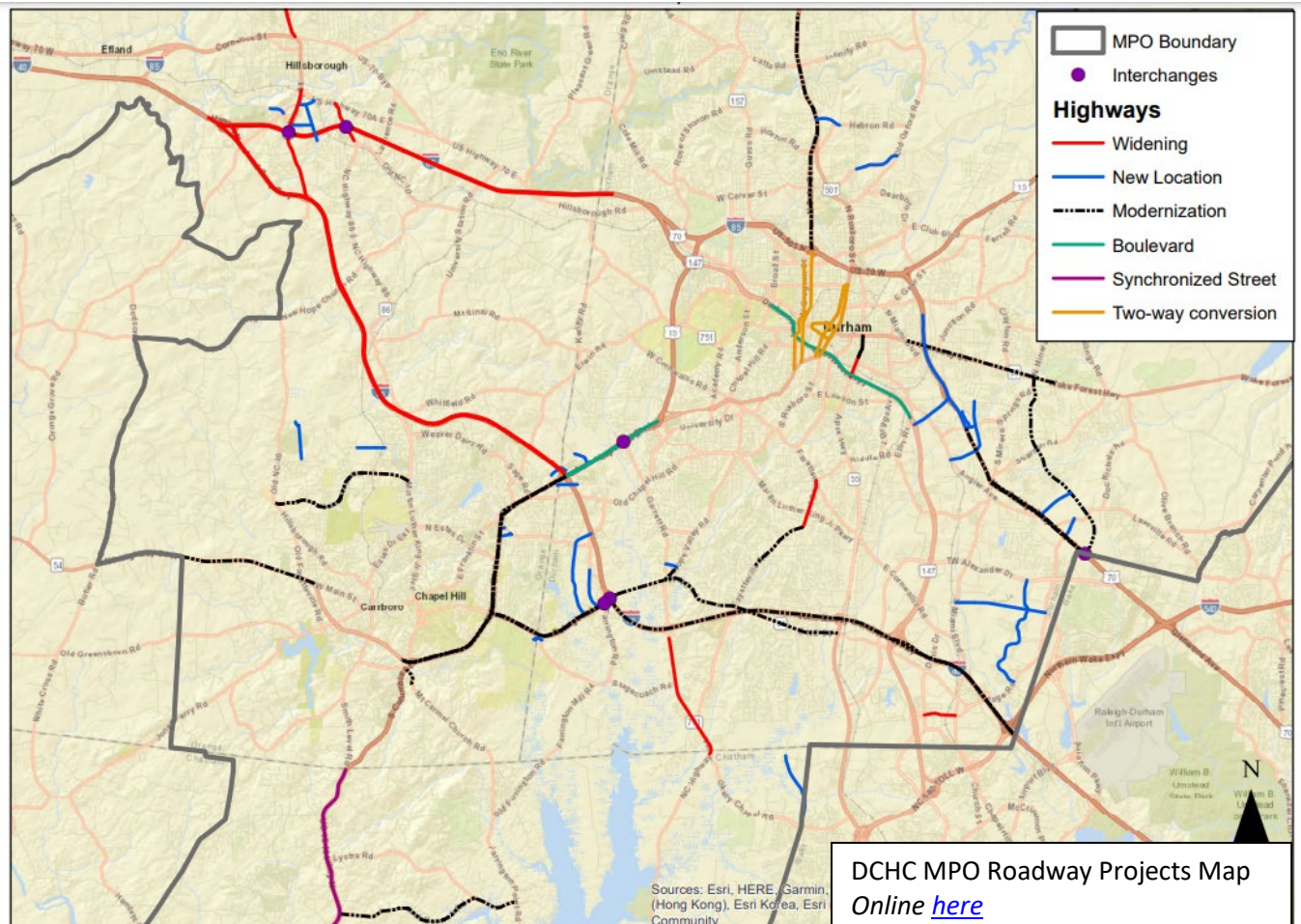
*Superstreet Design*

Major roadway projects in each MPO are highlighted on the following pages; all projects are listed in Appendix 1 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 &gt; \$100 million) and All Projects Map

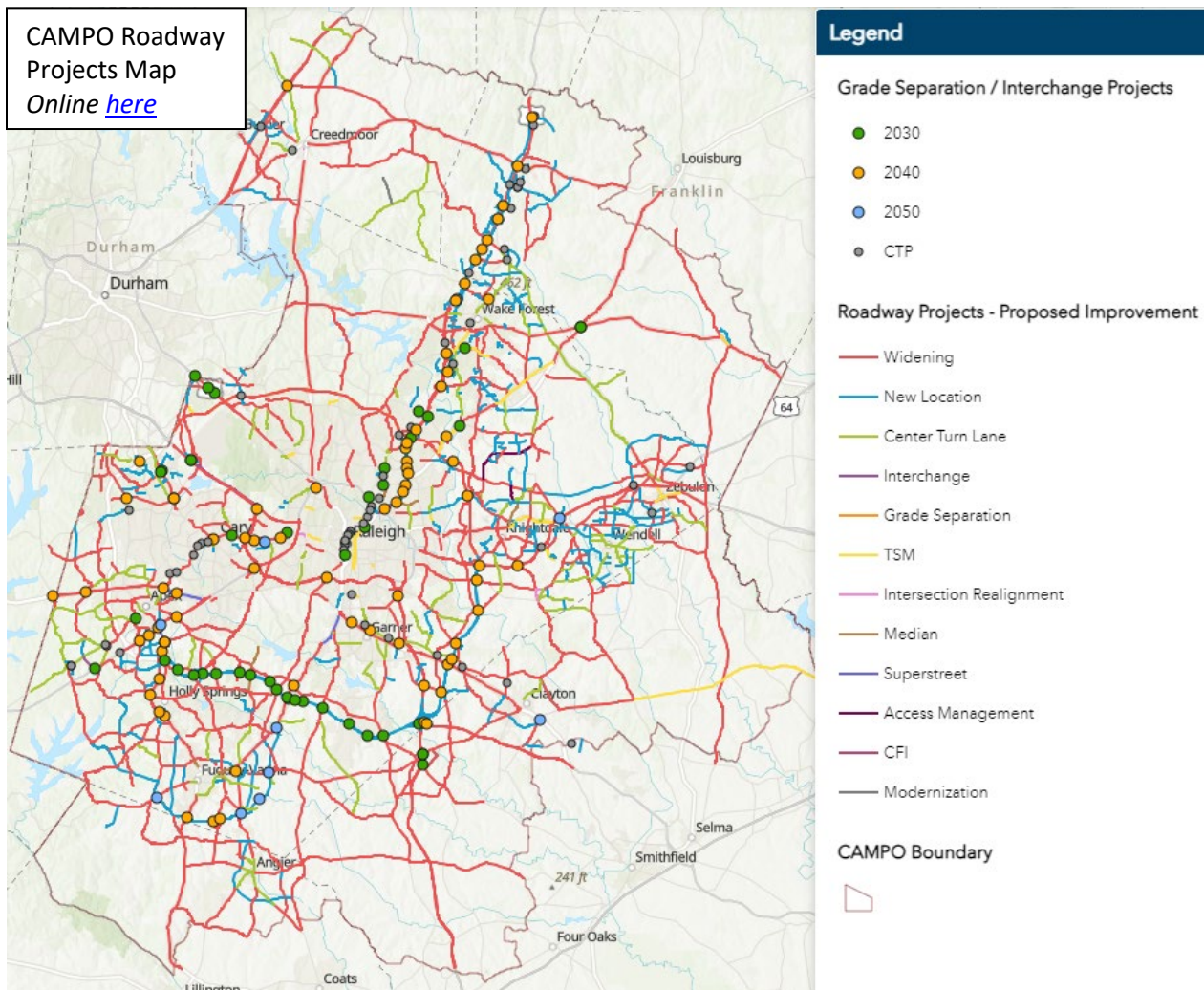
Durham Chapel Hill-Carrboro MPO		
2021-30	2031-40	2041-50
East End Connector linking US 70 to NC 147 (Durham Freeway) to form I-885*	US 15-501 modernization (South Columbia in Chapel Hill to Cameron Blvd. in Durham)	
I-40 widening in Orange County (US 15-501 to I-85)	I-40/NC 54 Interchange and NC 54 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



## 2. What is the Plan?

This document contains the 2050 Metropolitan Transportation Plans for CAMPO and the DCHC MPO. These 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.

### 2.1 Why Do We Need A Plan?

A transportation plan is essential for building an effective and efficient transportation system. The implementation of any transportation project, such as building a new road, adding lanes to a highway, purchasing transit buses, constructing a rail system, or building bicycle lanes with a road widening project, often requires several years to complete from concept to construction.

Once a community determines that a project is needed, there are many detailed steps to be completed: funding must be identified; analysis must be completed to minimize environmental and social impacts; engineering designs must be developed, evaluated, and selected; the public must be involved in project decisions; right-of-way may have to be purchased; and finally, the construction must be contracted and completed.

No matter which step one might consider the most important in this long process, a project always begins with the regional transportation plan. In fact, this basic planning concept is so important, that federal regulations require that a project must be identified in a metropolitan transportation plan in order for it to receive federal funding and obtain federal approvals.

Federal regulations not only require a metropolitan transportation plan, the regulations stipulate the contents of the plan and the process used in its development. The plan must have:

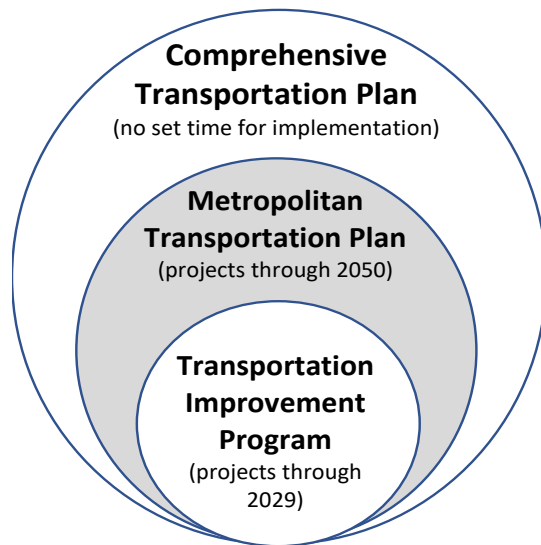
- A vision that meets community goals.
- A multi-modal approach that includes not only highway projects, but provides for other modes such as public transportation, walking, and bicycling.
- A minimum 20-year planning horizon.
- A financial plan that balances revenues and costs to demonstrate that the plan is financially responsible and constrained.
- An air quality analysis to show that the plan will meet federal standards, when a region is subject to air quality conformity requirements.
- A public involvement process that meets federal guidelines, and is sensitive especially to those groups traditionally under-represented in the planning process.

Regions like the Research Triangle must develop these plans at least every five years, and must act to amend these plans if regionally significant transportation investments are added, deleted or modified in the plans.

## 2.2 What Is In The Plan

Metropolitan areas in North Carolina prepare two distinct, but related **types of transportation plans**:

Figure 2.2.1



1. **Comprehensive Transportation Plans** (CTPs) are “needs-based.” They show all the existing, new, upgraded and expanded major roads, transit services, bicycle and pedestrian facilities and related transportation activities that are needed to meet the growth and mobility aspirations of our citizens over the long term. The CTP has no defined future date by which the facilities and services would be provided, nor is it constrained by our ability to pay for facilities and services or the impacts of these facilities and services on our region’s air quality.
2. **Metropolitan Transportation Plans** (MTPs) are “revenue-based.” They show the new, upgraded and expanded roads, transit services, bicycle and pedestrian facilities and related transportation activities that we believe we can fund and build by the year 2050, and that will meet federal air quality standards.

This document focuses on the second of these two types of plans: the Metropolitan Transportation Plan that shows what we can achieve by 2050 with anticipated funding and that will preserve air quality. The road project lists in Appendix 1 include a separate list of projects that are beyond the funding ability of the MTP, but are included in the Comprehensive Transportation Plan.

The facilities and services in a MTP are a subset of the facilities and services in a CTP. Figure 2.2.1 shows this relationship between the MTP and CTP, and also the plans’ relationship to the Metropolitan Transportation Improvement Program (MTIP), the ten-year program of projects that is also developed for metropolitan areas and that serves as the main implementing document of the MTPs for those projects and services that use state and federal funding. The current MPO-adopted MTIPs cover fiscal years 2020-2029.

This document compiles the MTPs for the two areas under the jurisdiction of the organizations with the main responsibility for transportation planning in the Research Triangle Region:

1. The **Capital Area Metropolitan Planning Organization** (Capital Area MPO, or CAMPO) which covers all of Wake County and portions of Franklin, Granville, Harnett and Johnston Counties; and
2. The **Durham-Chapel Hill-Carrboro Metropolitan Planning Organization** (Durham-Chapel Hill-Carrboro MPO, or DCHC MPO) which covers all of Durham County and parts of Orange and Chatham Counties.

Therefore, this is one document, so that those interested in transportation planning in the Research Triangle Region have a single, consistent reference to consult, but two plans, since there are state and federal requirements that each MPO be responsible for the plans, projects & services, funding, and air quality requirements within its jurisdiction.

This point merits emphasis: The selection of projects and allocation of funding to them is an *independent* decision by each MPO. This single document is a way to help these organizations make more consistent and complementary decisions within their spheres of authority, and to communicate these decisions to the citizens of the region.

To distinguish these lines of authority, this 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

Figure 2.2.2 summarizes key features of the two types of plans and different areas of authority, and indicates what is included in this version of the single regional document.

Figure 2.2.2

Authority	Capital Area MPO		Durham-Chapel Hill-Carrboro MPO	
Name of the Plan	CAMPO 2050 <b>Metropolitan Transportation Plan</b>	CAMPO <b>Comprehensive Transportation Plan</b>	DCHC MPO 2050 <b>Metropolitan Transportation Plan</b>	DCHC MPO <b>Comprehensive Transportation Plan</b>
Area Covered	Wake County and parts of Franklin, Granville, Harnett and Johnston Counties	Same as CAMPO Metropolitan Transportation Plan	All of Durham and parts of Orange and Chatham Counties	Same as DCHC MPO Metropolitan Transportation Plan
Who requires this plan?	Federal Government	State Government	Federal Government	State Government
Plan's Horizon Year	2050	No Set Year	2050	No set year
Is this plan fiscally constrained?	Yes	No	Yes	No
Must this plan meet air quality standards?	Yes	No	Yes	No
What officially constitutes the plan?	All MTP maps, lists of projects, and the text of this document that applies either generally or specifically applies to the CAMPO area	Just the set of CTP maps that apply to the CAMPO area (no text, list of projects or written report)	All MTP maps, lists of projects, and the text of this document that applies either generally or specifically applies to the DCHC MPO area	Just the set of CTP maps that apply to the DCHC MPO area (no text, list of projects or written report)
What projects are included in the plan?	New and expanded facilities and services	Existing, new and expanded facilities and services	New and expanded facilities and services	Existing, new and expanded facilities and services
Is the plan included in this version of the document	Yes	No, but additional CTP roads are listed in Appendix 1	Yes	No

Figure 2.2.3 shows a map of the two MPO areas, outlined in **purple**, as well as two other important geographic areas to consider as one consults this plan:

1. The Triangle Air Quality Region, shown in white, which consists of all of Wake, Durham, Orange, Franklin, Granville, Harnett and Johnston Counties, plus four townships in Chatham County; and
2. The Triangle Regional Model (TRM) “modeled area,” outlined in **red**, which is the area covered by the travel forecasting model: the tool that estimates future travel on existing and planned roads and transit lines. Most of the data in this document is for travel in the modeled area, which fully covers both MPOs.

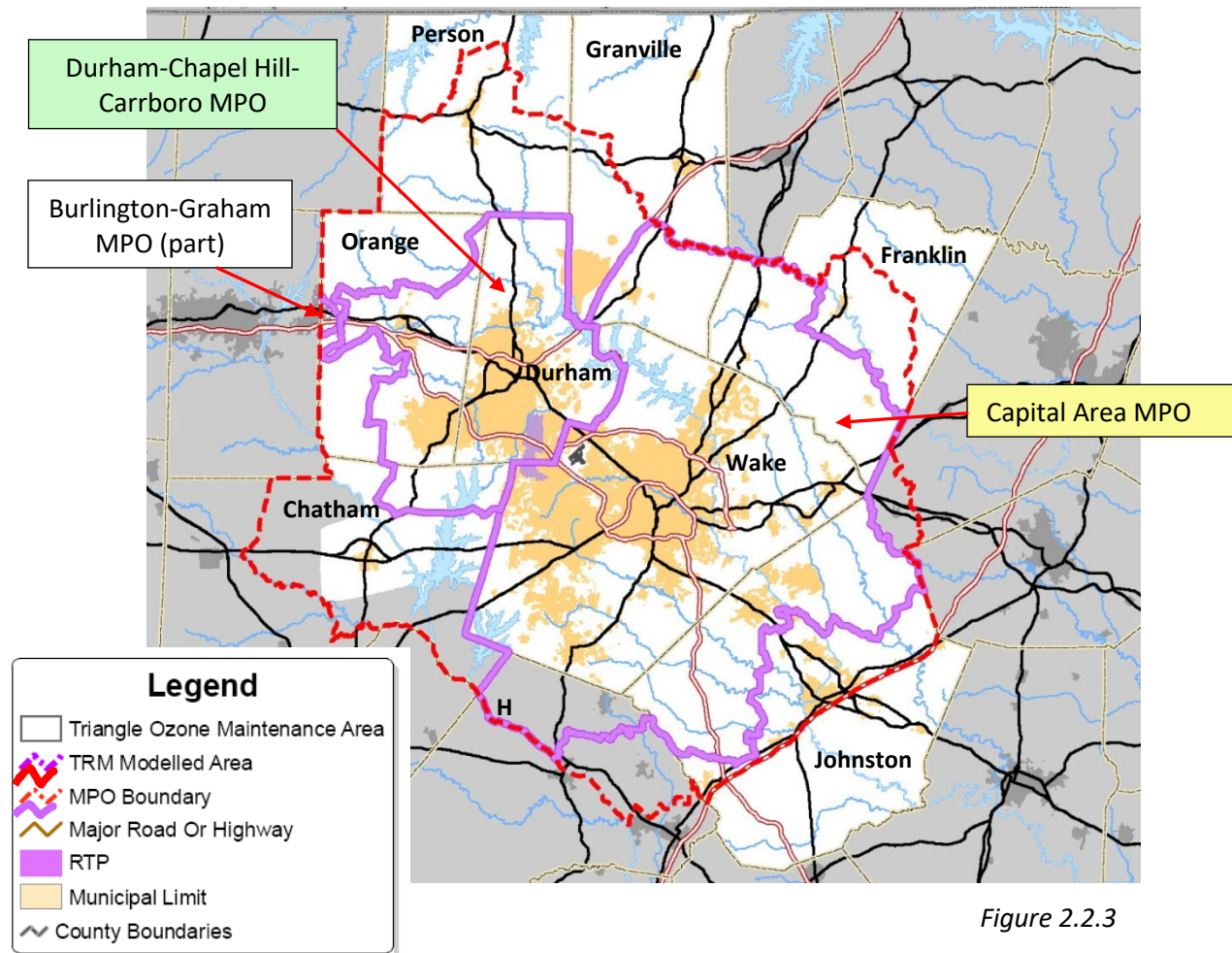


Figure 2.2.3

The core of the plan is the set of transportation investments described in Section 7, including:

- New, upgraded (or “modernized”) and expanded roads;
- Transit facilities and services, including bus and rail;
- Bicycle and pedestrian facilities, both independent projects and in concert with road projects;
- Aviation facilities;
- Rail facilities for inter-city passenger and freight;
- Transportation Demand Management: marketing and outreach efforts that increase the use of alternatives to driving alone;
- Technology-Based Transportation Services: the use of advanced technology to make transit and road investments more effective, including planning for autonomous and connected vehicles; and
- Transportation Systems Management: road projects that improve safety and traffic flow without adding new capacity.

## 2.3 How Will The Plan Be Used?

Metropolitan Transportation Plans are used for several important decisions, including:

Programming projects. Only projects that appear in a Metropolitan Transportation Plan may be included in the Transportation Improvement Program (TIP) for funding.

Preserving future rights-of-way for roads and transit facilities. The state and local governments use Metropolitan Transportation Plans to identify land that may need to be acquired and to ensure that new development does not preclude the eventual construction of planned roads and transit routes.

Designing local road networks. Metropolitan Transportation Plans chiefly address larger transportation facilities with regional impact. Communities can then use these “backbone” projects to plan the finer grain of local streets and local transit services that connect to these larger facilities.

Making land use decisions. Communities use regional transportation plans to ensure that land use decisions will match the investments designed to support future growth and development.

Making pricing decisions. Next to land use, pricing policies have the greatest influence on travel decisions. Decision-makers can use the plan as they consider transit fares, toll rates and parking prices.

Making private investments decisions. Businesses, homeowners and developers use these plans to understand how their interests may be affected by future transportation investments.

Identifying key plans and studies. State, regional and local agencies use this plan to outline more detailed plans and studies that will be undertaken leading to future projects and investments.

### KEY POINTS FROM THIS SECTION:

- The Comprehensive Transportation Plan (CTP) shows everything we would eventually like to do. This document, the Metropolitan Transportation Plan (MTP), shows everything we think we can afford to do by the Year 2050. The Transportation Improvement Program (TIP) shows everything in the MTP that we plan to do until 2030 that involves state or federal funding.
- This single document includes the 2050 Metropolitan Transportation Plans for two planning areas: the Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO. Each of these organizations retains independent authority within its area of jurisdiction.
- These plans will be used by local, state and federal agencies to allocate resources for specific road, transit, bicycle and pedestrian investments, to ensure that land is preserved for these investments and to match land use and development decisions with planned infrastructure investments.
- This document also includes lists of projects beyond the time frame of the 2050 MTP which are included in the two MPO CTPs, and links to more information about these projects.