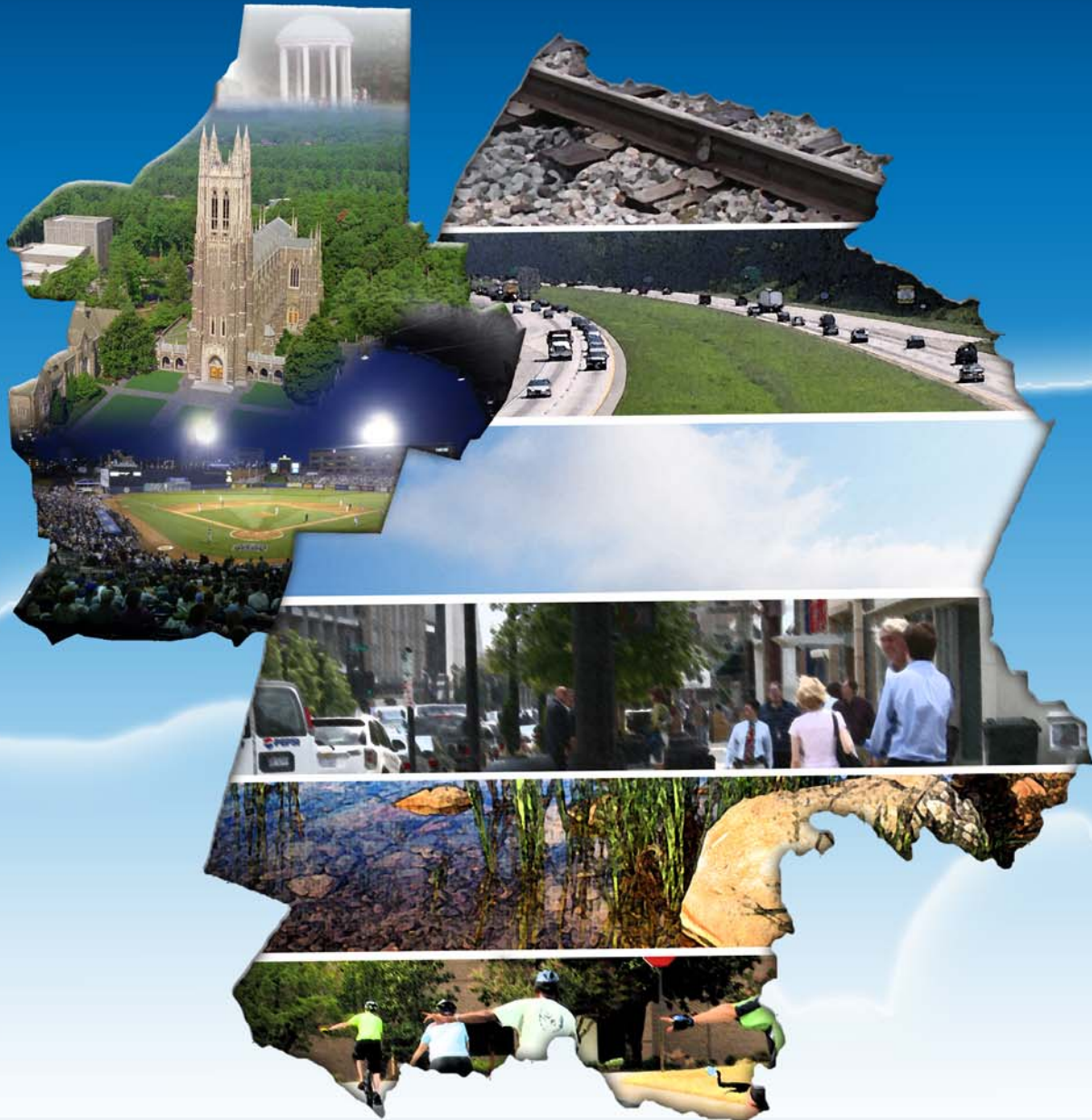


2035 Long Range Transportation Plans

May 20, 2009



Capital Area Metropolitan Planning Organization
And
Durham-Chapel Hill-Carrboro Metropolitan Planning Organization

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Appendices

The appendices listed below are part of the 2035 Long Range Transportation Plans, but are contained in separate documents:

Appendix 1: Road Projects List

Appendix 2: Rail Technology and Service Briefs

Appendix 3: Bus Transit Service List

Appendix 4: Bicycle and Pedestrian Facilities Lists

Appendix 5: Road Cross-Sections

Appendix 6: Air Quality Conformity Report

Appendix 7: Public Comments (to be added in final version of document)

Appendix 8: Environmental Justice Project Tables

Appendix 9: Acronyms

Appendix 10: Greenhouse Gas Emissions (Durham-Chapel Hill-Carrboro MPO)

Appendix 11: Financial Plan – Year of Expenditure (YOE tables)

More Maps and Information Available:

Many of the maps and much of the information presented in this report is intended to help the reader understand general trends occurring in the larger Triangle Region. Therefore, multiple maps are often placed on a single page to facilitate comparisons, and generally the project maps for the entire Triangle Region are displayed on a single-page map. Larger maps for the highway, bus transit, rail transit, and bicycle projects, for the socioeconomic data trends, for the Environmental Justice analysis, for the congestion analysis and for other report topics are available at:

See approved 2035 LRTP section of ➔ www.dhcmpo.org

Resolutions

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

RESOLUTION ADOPTING THE CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION 2035 LONG RANGE TRANSPORTATION PLAN

A motion was made by _____ and seconded by _____ for the adoption of the following resolution; and upon being put to a vote was duly adopted.

WHEREAS, the Intermodal Surface Transportation Efficiency Act of 1991, the Transportation Equity Act for the 21st Century, and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users require all Metropolitan Planning Organizations to develop and maintain a Long Range Transportation Plan; and

WHEREAS, the Long Range Transportation Plan must address all modes of transportation in an urban area, have a horizon year of at least 20 years, and be fiscally constrained; and

WHEREAS, the Capital Area Metropolitan Planning Organization recognizes that the 2035 Long Range Transportation Plan must be in conformance with the North Carolina State Implementation Plan for maintenance of the National Ambient Air Quality Standards adopted for ozone in accordance with 40 CFR, part 51 and part 93 as of July 1, 2004; and carbon monoxide on September 18, 1995 as mandated by the Clean Air Act Amendments of 1990; and

WHEREAS, the Transportation Advisory Committee has solicited public and private transportation provider comments throughout the planning process, providing for a 42-day public comment period for the proposed Long Range Transportation Plan in accordance with the Public Involvement Procedures adopted by the Capital Area Metropolitan Planning Organization on May 21, 2008; and

WHEREAS, the Transportation Advisory Committee has found the transportation planning process to be in full compliance with Title VI of the Civil Rights Act of 1964 and the Title VI Assurance executed by each State under 23 U.S.C. 324 and 29 U.S.C. 794; and

WHEREAS, the Transportation Advisory Committee has considered how the Long-Range Transportation Plan will affect the involvement of Disadvantaged Business Enterprises in the FHWA and the FTA funded planning projects (Sec. 105(f), Pub. L. 97-424, 96 Stat 2100, 49 CFR part 23); and

WHEREAS, the Transportation Advisory Committee has considered how the Transportation Planning Process will affect the elderly and the disabled per the provision of the Americans With Disabilities Act of 1990 (Pub.L. 101-336, 104 Stat. 327, as amended) and the U.S. DOT implementing regulations.

NOW, THEREFORE BE IT RESOLVED, by the Capital Area Transportation Advisory Committee that the 2035 Long Range Transportation Plan, dated May 20, 2009 be adopted for the Capital Area Metropolitan Planning Organization on this the 20th day of May, 2009, subject to a finding of conformity with the State Implementation Plan.

Joe Bryan, Chair
Transportation Advisory Committee

Ed Johnson, Capital Area MPO Director
Transportation Advisory Committee Clerk

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

**RESOLUTION ADOPTING THE
CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION
2035 LONG RANGE TRANSPORTATION PLAN**

County of Wake
State of North Carolina

I, Diane Wilson, a Notary Public for said County and State, do hereby certify that
_____ personally appeared before me this day and acknowledged the due
execution of the foregoing instrument.

Witness my hand and official seal, this the _____ day of _____, 20 _____.

(Official Seal)

Notary Public

My commission expires January 26, 2011.

RESOLUTION
FINDING THE CAPITAL AREA MPO 2035 LONG-RANGE TRANSPORTATION PLAN AND
METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM FOR
FY 2009-2015 IN CONFORMITY WITH THE
NORTH CAROLINA STATE IMPLEMENTATION PLAN

A motion was made by _____ and seconded by _____ for adoption of the following resolution, and upon being put to a vote was duly adopted.

WHEREAS, the Transportation Advisory Committee is the duly recognized transportation decision making body for the 3-C transportation planning process of the Capital Area Metropolitan Planning Organization as required by 23 CFR Part 134;

WHEREAS, the Capital Area MPO 2035 Long-Range Transportation Plan and the FY 2009-2015 Metropolitan Transportation Improvement Program meet the planning requirements of 23 CFR Part 134;

WHEREAS, the United States Environmental Protection Agency designated Wake County as non-attainment under the new 8-hour ozone standard on June 15, 2004, redesignated Wake County as a maintenance area under the previous 1-hour ozone standard on June 17, 1994 and redesignated Wake County as a maintenance area for carbon monoxide on September 18, 1995;

WHEREAS, the conformity analysis report dated March 20, 2009 used the latest planning assumptions approved by the Capital Area Metropolitan Planning Organization for population, employment, travel and congestion as required in 40 CFR Part 93.110;

WHEREAS, the conformity determination used the latest emissions model approved by the United States Environmental Protection Agency;

WHEREAS, interagency consultation has been made in accordance with the established interagency consultation procedures for North Carolina and the Capital Area Metropolitan Planning Organization;

WHEREAS, there are no transportation control measures listed in North Carolina's State Implementation Plan;

WHEREAS, the programs and projects included in the 2035 Long-Range Transportation Plan are consistent with the North Carolina State Implementation Plan emissions budgets for Durham County, Orange County, and Wake County based on an emissions analysis dated March 20, 2009;

WHEREAS, the programs and projects included in the Capital Area Metropolitan Transportation Improvement Program for FY 2009-2015 are financially constrained in accordance with State and Federal law; and

WHEREAS, the programs and projects included in the Capital Area Metropolitan Transportation Improvement Program for FY 2009-2015 are a subset of the 2035 Long-Range Transportation Plan.

NOW, THEREFORE BE IT RESOLVED that the Capital Area Metropolitan Planning Organization's 2035 Long-Range Transportation Plan Update and 2009-2015 Metropolitan Transportation Improvement Program conforms to the intent of the North Carolina State Implementation Plan in accordance with the Clean Air Act as Amended on this, the ___th day of May, 2009; and

BE IT FURTHER RESOLVED that this conformity finding is made contingent pending all comments on the draft conformity determination report are addressed.

Joe Bryan, Chair
Transportation Advisory Committee

Ed Johnson, Capital Area MPO Director
Transportation Advisory Committee Clerk

NORTH CAROLINA CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

**RESOLUTION FINDING THE CAPITAL AREA MPO AND DURHAM-CHAPEL HILL-CARRBORO
MPO 2035 LONG-RANGE TRANSPORTATION PLAN AND METROPOLITAN TRANSPORTATION
IMPROVEMENT PROGRAM FOR FY 2009-2015 IN CONFORMITY WITH THE NORTH CAROLINA
STATE IMPLEMENTATION PLAN**

County of Wake

State of North Carolina

I, _____, a Notary Public for said County and State, do hereby certify that
_____ personally appeared before me this day and acknowledged the due execution of the
foregoing instrument.

Witness my hand and official seal, this the _____ day of _____, 20 ____.

(Official Seal)

Notary Public

My commission expires January 26, 2011.

DURHAM-CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION
(DCHC MPO)

**RESOLUTION ADOPTING THE DCHC MPO
2035 LONG RANGE TRANSPORTATION PLAN**

A motion was made by _____ and seconded by _____ for the adoption of the following resolution; and upon being put to a vote was duly adopted.

WHEREAS, the Intermodal Surface Transportation Efficiency Act of 1991, the Transportation Equity Act for the 21st Century, and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users require all Metropolitan Planning Organizations to develop and maintain a Long Range Transportation Plan; and

WHEREAS, the Long Range Transportation Plan must address all modes of transportation in an urban area, have a horizon year of at least 20 years, and be fiscally constrained; and

WHEREAS, the DCHC MPO recognizes that the 2035 Long Range Transportation Plan must be in conformance with the North Carolina State Implementation Plan for maintenance of the National Ambient Air Quality Standards adopted for ozone in accordance with 40 CFR, part 51 and part 93 as of July 1, 2004; and carbon monoxide on September 18, 1995 as mandated by the Clean Air Act Amendments of 1990; and

WHEREAS, the Transportation Advisory Committee has solicited public and private transportation provider comments throughout the planning process, providing for a 42-day public comment period for the proposed Long Range Transportation Plan in accordance with the Public Involvement Policy adopted by the DCHC MPO adopted on October 11, 2006; and

WHEREAS, the Transportation Advisory Committee has found the transportation planning process to be in full compliance with Title VI of the Civil Rights Act of 1964 and the Title VI Assurance executed by each State under 23 U.S.C. 324 and 29 U.S.C. 794; and

WHEREAS, the Transportation Advisory Committee has considered how the Long-Range Transportation Plan will affect the involvement of Disadvantaged Business Enterprises in the FHWA and the FTA funded planning projects (Sec. 105(f), Pub. L. 97-424, 96 Stat 2100, 49 CFR part 23); and

WHEREAS, the Transportation Advisory Committee has considered how the Transportation Planning Process will affect the elderly and the disabled per the provision of the Americans With Disabilities Act of 1990 (Pub.L. 101-336, 104 Stat. 327, as amended) and the U.S. DOT implementing regulations.

NOW, THEREFORE BE IT RESOLVED, by the Transportation Advisory Committee (TAC) of the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) that the 2035 Long Range Transportation Plan, dated May 13, 2009 be adopted for the DCHC MPO on this the 13th day of May, 2009, subject to a finding of conformity with the State Implementation Plan.

TAC Chair

STATE of: North Carolina
COUNTY of: _____

I, _____, a Notary Public of _____ County, North Carolina do hereby
certify that _____ personally appeared before me on the 13th day of May, 2009
to affix his signature to the foregoing document.

Notary Public for the State of NC

Residing at: _____

My commission expires _____

(Seal)

RESOLUTION FINDING THE DURHAM-CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION (DCHC MPO) 2035 LONG-RANGE TRANSPORTATION PLAN (2035 LRTP) AND METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM (MTIP) FOR FY 2009-2015 IN CONFORMITY WITH THE NORTH CAROLINA STATE IMPLEMENTATION PLAN

A motion was made by _____ and seconded by _____ for adoption of the following resolution, and upon being put to a vote was duly adopted.

WHEREAS, the Transportation Advisory Committee is the duly recognized transportation decision making body for the 3-C transportation planning process of the DCHC MPO as required by 23 CFR Part 134;

WHEREAS, the DCHC MPO 2035 Long-Range Transportation Plan and the FY 2009-2015 Metropolitan Transportation Improvement Program meet the planning requirements of 23 CFR Part 134;

WHEREAS, the United States Environmental Protection Agency designated Durham County, Orange County and parts of Chatham County (Baldwin, Center, New hope and Williams Townships) as non-attainment under the new 8-hour ozone standard on June 15, 2004, redesignated the same areas as attainment with a maintenance plan on December 26, 2007; and redesignated Durham County as a maintenance area under the previous 1-hour ozone standard on June 17, 1994;

WHEREAS, the United States Environmental Protection Agency redesignated Durham County as a maintenance area for carbon monoxide on September 18, 1995;

WHEREAS, the conformity analysis report dated May 13, 2009 used the latest planning assumptions approved by the DCHC MPO for population, employment, travel and congestion as required in 40 CFR Part 93.110;

WHEREAS, the conformity determination used the latest emissions model approved by the United States Environmental Protection Agency;

WHEREAS, interagency consultation has been made in accordance with the established interagency consultation procedures for North Carolina and the DCHC MPO;

WHEREAS, there are no transportation control measures listed in North Carolina's State Implementation Plan;

WHEREAS, the programs and projects included in the 2035 Long-Range Transportation Plan are consistent with the North Carolina State Implementation Plan emissions budgets for Durham County, Orange County, and Chatham County based on an emissions analysis dated May 13, 2009;

WHEREAS, the programs and projects included in the DCHC MPO Transportation Improvement Program for FY 2009-2015 are financially constrained in accordance with State and Federal law; and

WHEREAS, the programs and projects included in the Capital Area Metropolitan Transportation Improvement Program for FY 2009-2015 are a subset of the 2035 Long-Range Transportation Plan.

NOW, THEREFORE BE IT RESOLVED that the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization's 2035 Long-Range Transportation Plan and 2009-2015 Metropolitan Transportation Improvement Program conforms to the intent of the North Carolina State Implementation Plan in accordance with the Clean Air Act as Amended on this, the ____th day of May, 2009; and

BE IT FURTHER RESOLVED that this conformity finding is made contingent pending all comments on the draft conformity determination report are addressed.

(Continued)

(Continued – Resolution stating Air Quality Conformity)

TAC Chair

STATE of: North Carolina

COUNTY of: _____

I, _____, a Notary Public of _____ County, North Carolina do hereby
certify that _____ personally appeared before me on the 13th day of May, 2009
to affix his signature to the foregoing document.

Notary Public for the State of NC

Residing at: _____

My commission expires _____

(Seal)

1. Executive Summary

The Executive Summary will be added to the final version of the plan.

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2. What is the Plan?

This document contains the 2035 Long-Range Transportation Plans for the Capital Area Metropolitan Planning Organization and the Durham-Chapel Hill-Carrboro Planning Organization.

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.



Raleigh, N.C.

(Darryl Morrow)



Durham, N.C.

No matter which step one might consider the most important in this long process, the 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 long-range transportation plan in order for it to receive federal funding and obtain federal approvals.

Federal regulations not only require a long-range 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 appropriate air quality analysis to show that forecasted emissions will not exceed air quality emissions limits.
- A public involvement process that meets federal guidelines, and is sensitive especially to those groups traditionally left out of the planning process.

Regions like the Research Triangle must develop these plans at least every four years, and must formally amend these plans if they wish to undertake regionally significant transportation investments that are not reflected in them.

2.2 What Is In The Plan

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

1. **Comprehensive Transportation Plans** (CTPs) that show all the existing and new and expanded major roads, transit services, bicycle and pedestrian facilities and related transportation activities that we would like to have to meet the growth and mobility aspirations of our citizens as far out into the future as we can envision. 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. **Long-Range Transportation Plans** (LRTPs) that show the new and expanded roads, transit services, bicycle and pedestrian facilities and related transportation activities that we believe we can pay for and build by the year 2035, and that will meet federal air quality standards.

This document addresses only the second of these two types of plans: the Long Range Transportation Plan that shows what we can achieve by 2035 with anticipated funding and that will preserve air quality. The two MPOs are expected to begin the process to develop and complete a Comprehensive Transportation Plan soon after the 2035 LRTP has been adopted.

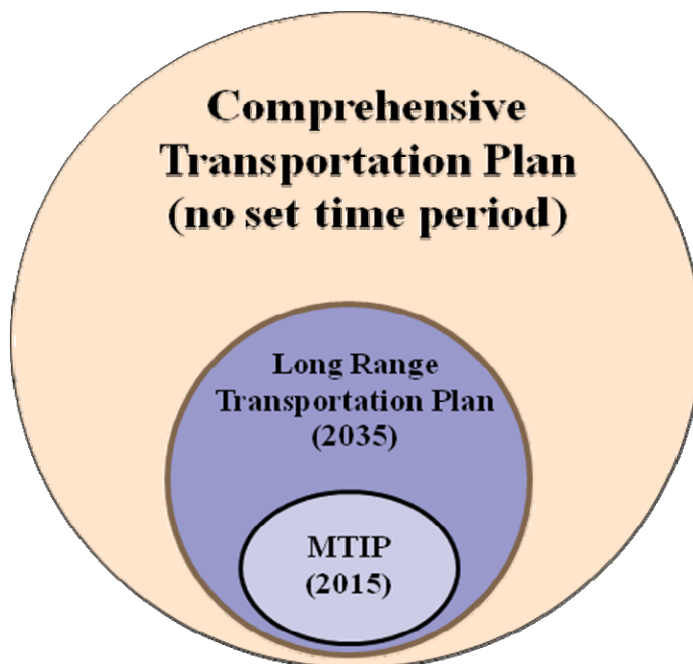


Figure 2.1
transportation planning in the Research Triangle Region:

The facilities and services in a long range transportation plan are a subset of the facilities and services in a Comprehensive Transportation Plan. Figure 2.2.1 shows this relationship between the LRTP and CTP, and also the plans' relationship to the Metropolitan Transportation Improvement Program (MTIP), the seven-year program of projects that is also developed for metropolitan areas and that serves as the main implementing document of the LRTPs for those projects and services that use state and federal funding. The current MTIP covers fiscal years 2009-2015.

This document compiles the LRTPs for the two areas under the jurisdiction of the organizations with the main responsibility for

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 conformity 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 2035 Long-Range Transportation Plan	CAMPO Comprehensive Transportation Plan	DCHC MPO 2035 Long-Range Transportation Plan	DCHC MPO Comprehensive Transportation Plan
Area Covered	Wake County and parts of Franklin, Granville, Harnett and Johnston Counties	Same as CAMPO Long Range Transportation Plan	All of Durham and parts of Orange and Chatham Counties	Same as DCHC MPO Long Range Transportation Plan
Who requires this plan?	Federal Government	State Government	Federal Government	State Government
Plan's Horizon Year	2035	No Set Year	2035	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 LRTP 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 LRTP 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	Yes	No

Figure 2.2.3 shows a map of the two MPO areas, 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 northeastern Chatham County; and
2. The Triangle Regional Model (TRM) “modeled area,” outlined in purple, which indicates the area covered by the region’s travel demand forecasting model: the tool that estimates future travel on existing and planned roads and transit services (see Section 5.3). Most of the data highlighted in this document represents travel within this modeled area.

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

- New and expanded roads;
- Transit facilities and services, including bus and rail;
- 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 driving alone;
- Intelligent Transportation Services: the use of advanced technology to make transit and road investments more effective; and
- Transportation Systems Management: road projects that improve safety and traffic flow without adding new capacity.

2.3 How Will The Plans Be Used?

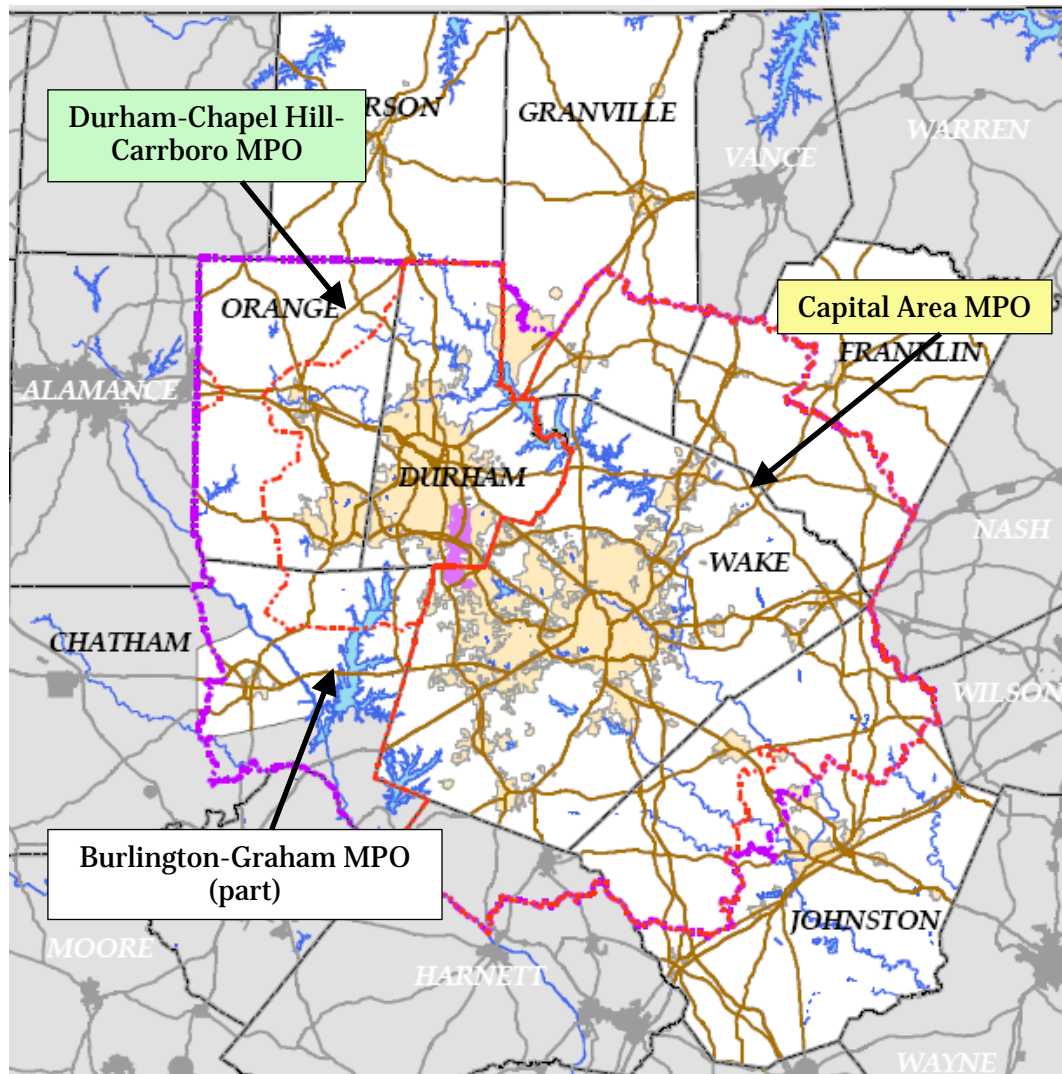
Long Range Transportation Plans are used for several important decisions, including:

Programming projects. Only projects that appear in a Long Range Transportation Plan may be included in the TIP for funding.

Preserving future rights-of-way for roads and transit facilities. The state and local governments use Long-Range 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.

Figure 2.2.3

Figure 2.2.3



Designing local road networks. Metropolitan Long-Range 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.

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.

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

Key points from this section:

- The Comprehensive Transportation Plan (CTP) shows everything we would eventually like to do. The Long-Range Transportation Plan (LRTP) shows everything we think we can afford to do by the Year 2035 that will pass air quality muster. And the Transportation Improvement Program (TIP) shows everything in the LRTP that we plan to do over the next seven years that involves state or federal funding. The first four of those years are financially constrained.
- This single document includes the 2035 Long-Range 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.
- A subsequent version of this document will add the maps for the two MPO CTPs.

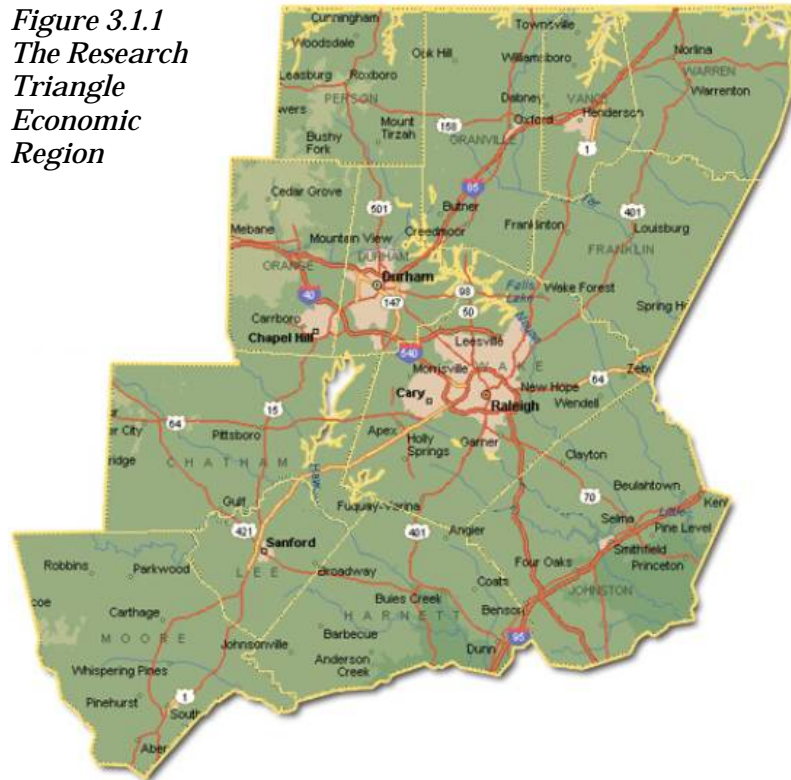
3. About Our Home

Transportation investments link people to the places where they work, learn, shop and recreate, and provide critical connections between businesses and their labor markets, suppliers and customers. So an important starting point for planning future investments is understanding the current state of our communities, and how they might change over the next generation.

3.1 Our Region

The Research Triangle is a burgeoning sunbelt metropolitan region. As defined by the census bureau, the region's metropolitan areas cover seven counties; six that are members of one or the other MPO plus Person County. More broadly, the economic region covers 13 counties, stretching from the Virginia border on the North to Harnett, Lee and Moore counties in the south. Today, the seven metropolitan counties are home to about 1.6 million people and the 13-county economic region is home to two million people.

*Figure 3.1.1
The Research
Triangle
Economic
Region*



The Triangle Economic Region

Metropolitan Counties

Chatham	DCHC
Durham	DCHC
Franklin	CAMPO
Johnston	CAMPO
Orange	DCHC
Person	

Nonmetropolitan Counties

Wake	CAMPO
Granville	CAMPO
Harnett	CAMPO
Lee	
Moore	
Vance	
Warren	

As the MPOs plan their transportation networks, it is important to consider not only mobility within their boundaries, but also the connections to the wider economic region and other regions in North Carolina. The Triangle is one of three large, complex metro areas along North Carolina's Piedmont Crescent, along with the Triad and Charlotte. Each of these regions has more than 1.5 million people and together, these three regions account for 46% of the state's population, 52% of its jobs and 64% of the value of all goods and services produced in North Carolina.

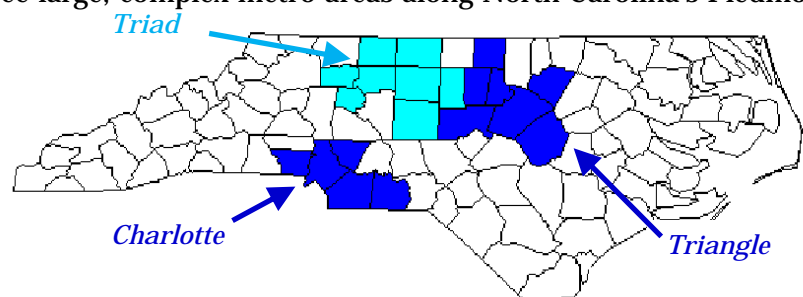
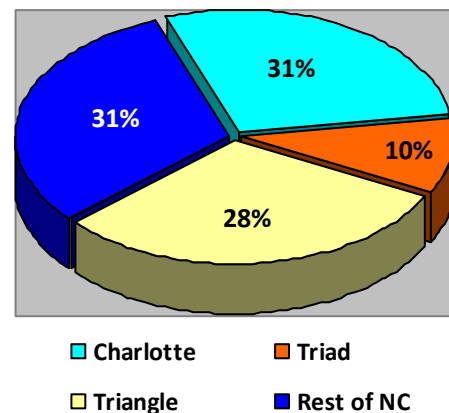


Figure 3.1.2 The "Big 3" Metro Regions

More importantly, as we consider future transportation investments, these three regions are expected to account for almost 70% of North Carolina's population growth over the next generation, with the Triangle accommodating more growth than any other region.

This rapid population growth is part of a larger national trend, where two-thirds of all population growth is expected to occur in a series of "megaregions," the fastest-growing of which are located in sunbelt areas like the Triangle. The Triangle, along with the Triad and Charlotte, are part of the Piedmont Atlantic Megaregion (PAM), stretching from Raleigh to Atlanta, and which is forecast to grow from 12.6 million people in 2000 to 19.1 million people by 2030.

Figure 3.1.3 Where Future Population Will Locate in North Carolina (2000-2030)

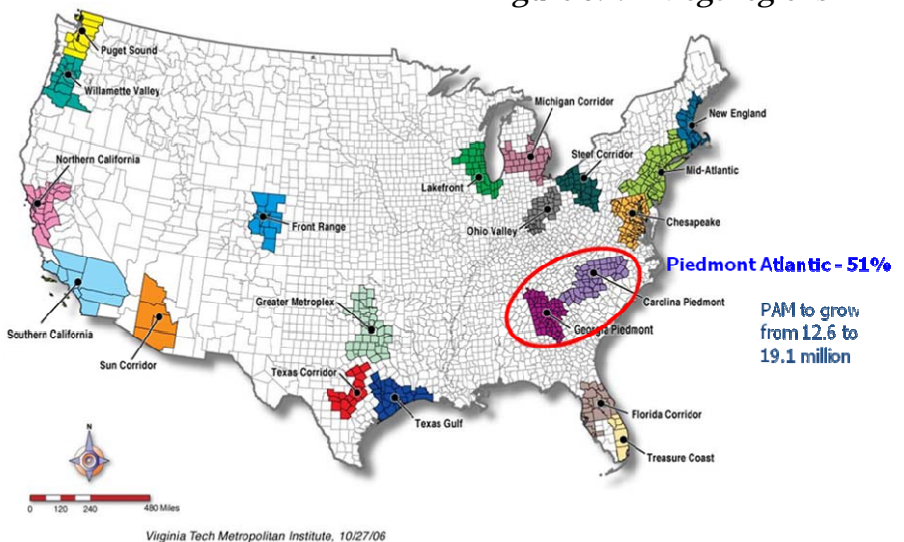


3.2 Our People

As our region has grown and as we add 1.6 million new people over the next generation, the composition of our population is changing in ways that can influence the types of transportation investments we may choose to make:

- By 2030, 15% of Triangle residents will be 65 or older, up from 9.5% in 2000.
- 32,000 households in the Triangle have no vehicle available, up from 29,000 in 2000 and 27,000 in 1990.
- We are highly mobile: 10% of households lived in a different county a year ago and another 10% changed houses within their home county.
- 370,000 households – 62% of the total – are households with only one or two people, and another 51,000 people live in group quarters such as university dormitories.
- Surveys report that 20% to 30% of households today would prefer to live in a compact, walkable neighborhood with a mix of activities, the kinds of neighborhoods that can be effectively served by transit. This would suggest that by the Year 2035, between 500,000 and 800,000 Triangle residents would select a compact, walkable, mixed-use neighborhood if that option is available for them.

Figure 3.1.4 Megaregions



3.3 Our Economy

The cornerstones of the region's economy are the major universities and their associated medical centers, the technology firms exemplified by the companies in the Research Triangle Park and state government. Employment is concentrated in the three core Triangle Counties: Wake, Durham and Orange Counties have 700,000 jobs; the 8-county Census Combined Statistical Area has 800,000 jobs and the 13-county economic region has 900,000 jobs. Figure 3.3.1 lists the region's largest employers, while Figure 3.3.2 indicates the distribution of employment by industry type within the region. Figure 3.3.3 shows the geographical distribution of employment within the 13-county economic region.

Figure 3.3.1 Largest Employers in the Triangle Region (>5,000 employees)

State of North Carolina
Duke University & Medical Center
Wake County Public Schools
IBM
United States Government
UNC-Chapel Hill
North Carolina State University
GlaxoSmithKline
UNC Hospitals
Wake Medical Center
SAS Institute

Figure 3.3.2 Employment by Industry

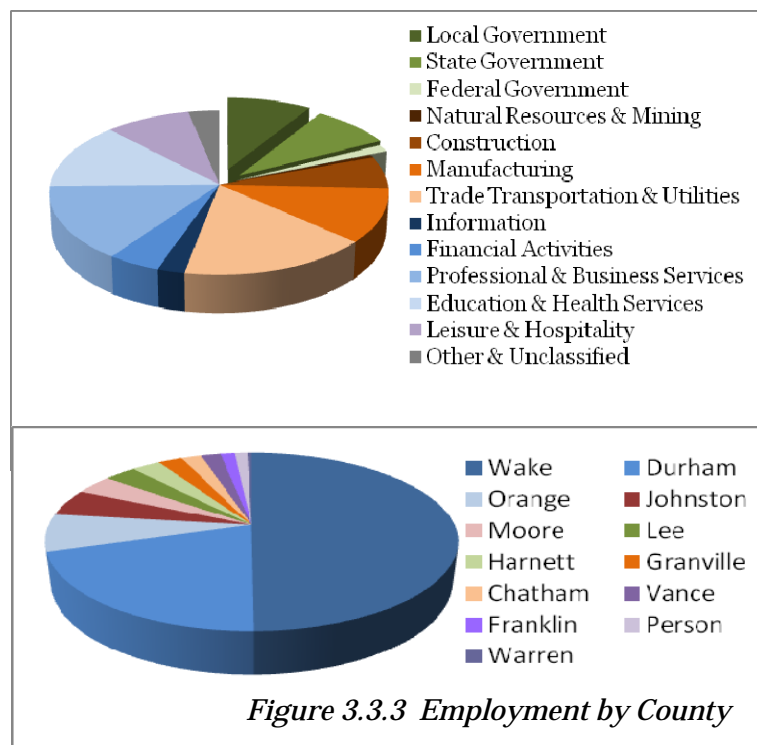
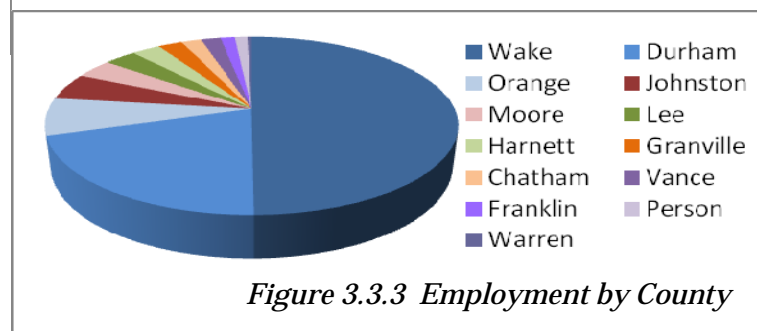


Figure 3.3.3 Employment by County



The Triangle's economy, mirroring the national situation, currently faces significant challenges. But the foundations of the region's economy have proven resilient in the past, and the size of the region's economy is substantial: the metropolitan region accounted for 17% of the value of goods and services produced in North Carolina in 2004, and at \$57 billion, surpassed the economic value produced by 13 states (Figure 3.3.4).

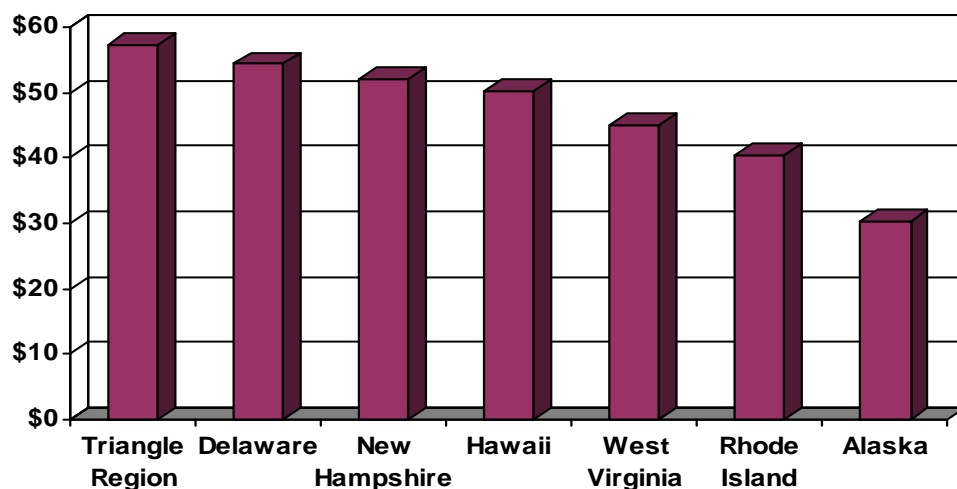
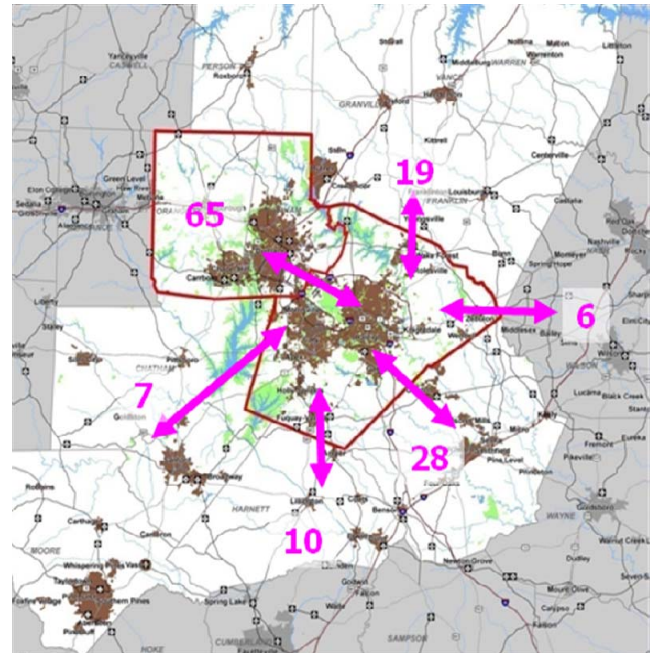
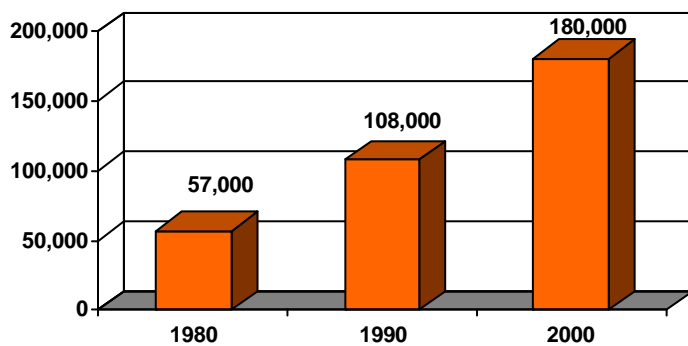


Figure 3.3.4 Gross Product: Value of Goods & Services Produced

The concentration of employment in several specific areas, most notably the downtowns of Raleigh and Durham, the Research Triangle Park area and the university/medical center areas associated with Duke University, UNC-Chapel Hill, NC State University and North Carolina Central University results in significant commuting across the MPO boundary. Figure 3.3.5 shows the growth in cross-county commuting in the region while Figure 3.3.6 shows commuting flows, with the largest flow consisting of 65,000 people who commute each day between Wake County on the one hand and Durham and Orange Counties on the other.

Figure 3.3.5 Cross-County Commuting



*Figure 3.3.6 Daily Commuting Flows
(in thousands of commuters)*

3.4 Our Environment

Among the many environmental concerns in our region, land use, air quality and water resources are three that have critical connections to transportation investments. Land use is a particularly critical issue in a fast-growing region like the Triangle, since the pattern of future land use can have significant influence on the efficiency and effectiveness of different transportation investments, especially transit services. Much of the Triangle Region is characterized by low-density development with different types of land uses, such as homes, offices and stores, separated from one another, a pattern commonly referred to as “sprawl.”

According to a national study that carefully examined measures of density, land use mix, road connectivity and “centeredness,” the Triangle area ranked as the 3rd most sprawling among the 83 regions studied. The same study examined the environmental and social impacts of sprawl,



Flowers blooming in Downtown Durham

concluding that persons in the most sprawling areas add many more miles of travel each day to their schedule, suffer more traffic deaths, and tend to endure worse air quality.

Air quality is an increasingly important concern and is directly linked with the transportation system. Ozone is a strong oxidizer and irritant that has been shown to decrease lung function and trigger asthma attacks among the young, elderly, and adults who work or exercise outdoors.

Emissions from cars and trucks account for over one-half the emissions of nitrogen oxides (NO_x) – the controlling pollutant in the formation of ground level ozone – in the Triangle Area. Given the serious health effects of ozone, the reduction of ozone emissions is an important goal of the MPO's long-range transportation system.

Figure 3.4.1 Regional Measures of Sprawl



The Environmental Protection Agency (EPA) has established standards for common air pollutants. A geographic area that meets or exceeds the standard for a particular air pollutant is called an “attainment area.” Likewise, an area that does not meet the standard is called a “non-attainment area.” Standards are set for a number of pollutants, including ozone, nitrous dioxide and carbon monoxide.

The non-attainment status can directly affect the community's economic development efforts, and federal funding for transportation improvements can be delayed if a plan is not adopted that is deemed to bring the Triangle back into conformity. New or expanded industrial developments proposing to emit air pollutants face stricter and more costly technology standards in non-attainment areas.

Water quality is a regional concern as well. The Triangle Region is divided into two major drainage basins, both of which supply water for the Region's drinking water reservoirs. The southern/western part of the Region drains into Jordan Reservoir and the Cape Fear River basin. The northern/eastern part of the Region drains into the Falls of the Neuse Reservoir and the Neuse River basin. All of the major watercourses in the Region drain to water supply reservoirs and affect the quality of their waters. The NC Division Water Quality (DWQ) classifies streams according to their best-intended uses. Surface waters, including streams and lakes, are rated as fully supporting, partially supporting or not supporting their intended uses. Intended uses could include water supply, aquatic life protection and swimming or other recreation. The DWQ has determined that several streams throughout the region do not support their intended uses. These streams include the New Hope, Third Fork and Northeast Creeks in the Cape Fear basin; and Ellerbe, Little Lick and Lick Creeks in the Neuse basin. All have impaired water quality.

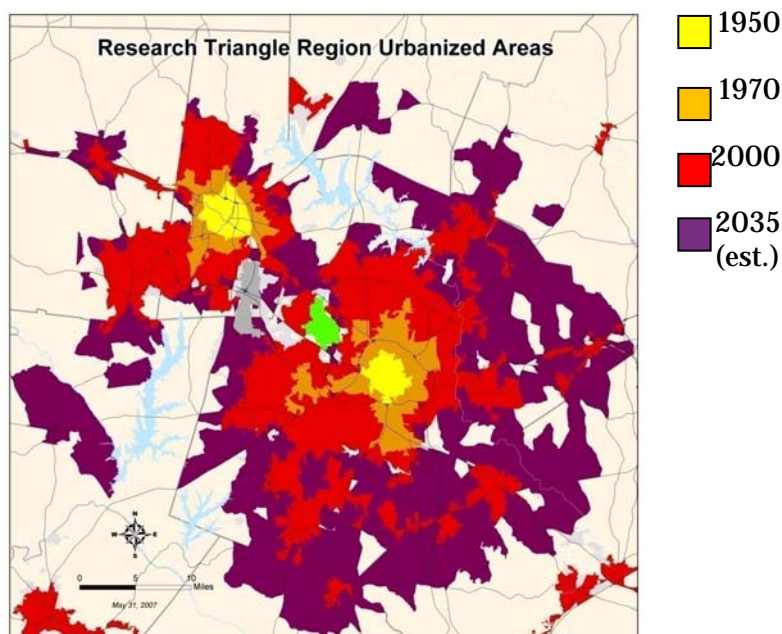
The municipalities and counties in the region often apply special zoning regulations for the purposes of water supply watershed protection. These regulations often prohibit certain types of development in sensitive watershed areas, limit the intensity of development to minimize pollution from stormwater runoff, limit the amount of impervious surfaces allowed in new developments, and limit the disturbance of naturally vegetated areas on each side of most streams. Transportation plans must take into account the impact that new or widened roadways might directly have on water quality, and the indirect effects that transportation investments might have in spurring future development that could adversely impact water quality.

3.5 Our Future

The metropolitan counties of the Research Triangle Region are forecast to add another million people over the next generation, more than the current *combined* population of our four largest cities and towns: Raleigh, Durham, Cary and Chapel Hill.

Current forecasts suggest that much of this future growth will continue to extend outwards from the urbanized area as it was most recently defined following the 2000 Census. Figure 3.5.1 shows how the urbanized areas around Durham and Raleigh have grown over the years and how they would be defined based on population forecasts made as part of this 2035 Long Range Transportation Plan. The Census defines urbanized areas as areas with more than 500 residents per square mile and strong commuting ties to a central city with more than 50,000 people.

Figure 3.5.1 Historic and Forecast Urban Growth



3.6 Our Challenge

These characteristics of our home -- a rapidly growing population and economy, continuing risks to our environment and a propensity to disperse growth outwards, create many transportation



Congested traffic on I-40

challenges. More commuters are traveling longer distances, and the single-occupant automobile continues to dominate how we travel. And although we tend to focus on commuter travel, travel for such purposes as school, business, shopping, and social engagements constitute increasing shares of travel. These characteristics have produced increasing demands on our transportation network, which in terms of "vehicle miles traveled" and other demand measures is experiencing a growth rate that is much greater than that of our population. The consequences have been traffic congestion, increasing transportation

infrastructure costs, and further pressure on our air, water, open space, and other environmental qualities. The quality of life, which attracts the professional and skilled workers and business investment to our region, may ultimately become threatened by the consequences of our growth and inadequate transportation infrastructure.

These consequences create many

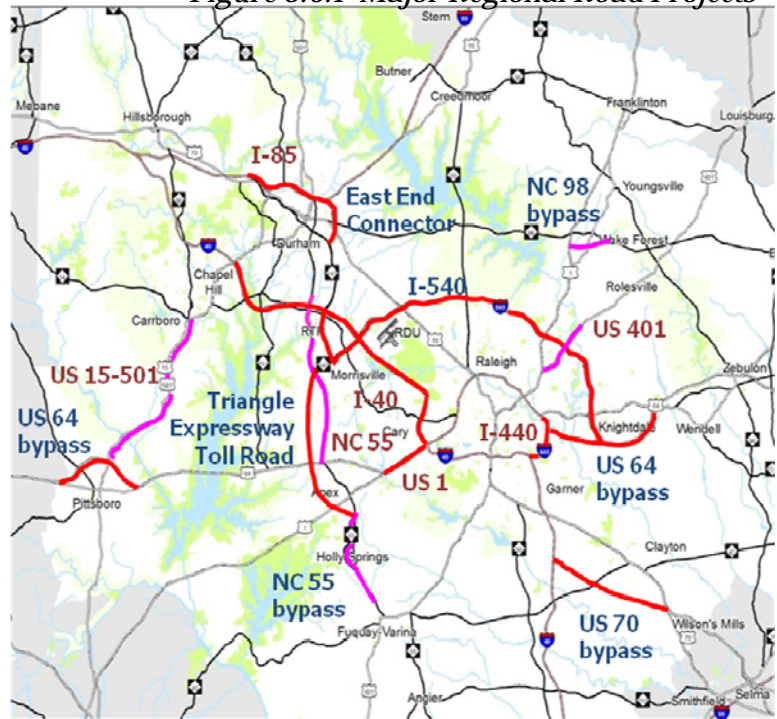
- How do we find the resources to invest in our transportation infrastructure, and to what extent does this demand for resources compete with other needs such as schools, water and waste treatment facilities, affordable housing, protection of green space and social services?

- As we expand our roadway network to meet growing travel demand, how can we minimize the negative impacts on our travel times, air and water quality, and open spaces?

- How do we design a transportation network that serves the needs of different types of places, from downtowns to small towns to suburban areas to rural communities, serves a range of socioeconomic groups and serves our economic and environmental goals?

challenges for us, for example:

Figure 3.6.1 Major Regional Road Projects



One of the most significant challenges facing our region is that despite large investments in major road projects, congestion levels are increasing due to extensive population growth, increased travel within the region and large amounts of “pass-through” traffic on our region’s interstate highways.

Figure 3.6.1 shows \$2.8 billion in major road projects that have been completed over the past dozen years or that are well-underway. Red lines are highways with interchanges, while purple lines are surface streets.

Figure 3.6.2 shows how levels of congested peak hour travel have increased in the Triangle and in many of the regions with which we compete. The figure indicates that economically successful, fast-growing regions are not able to “build their way out of congestion.”

We are undertaking the update of our long-range transportation plan to help ensure that we are able to meet the significant challenges we face. We must plan now for the roadways, transit services, and bicycle and pedestrian facilities that will be needed in 2035, if we expect to meet the travel demands of the place we will become. Our communities have opportunities to create and maintain a strong, growing economy, high quality of life, affordable housing market, culturally diverse populace, and sustainable environment. Our ability to anticipate and meet the challenges in planning, designing, and building an efficient and effective transportation network is a key element for ensuring that we can make the most of these opportunities.

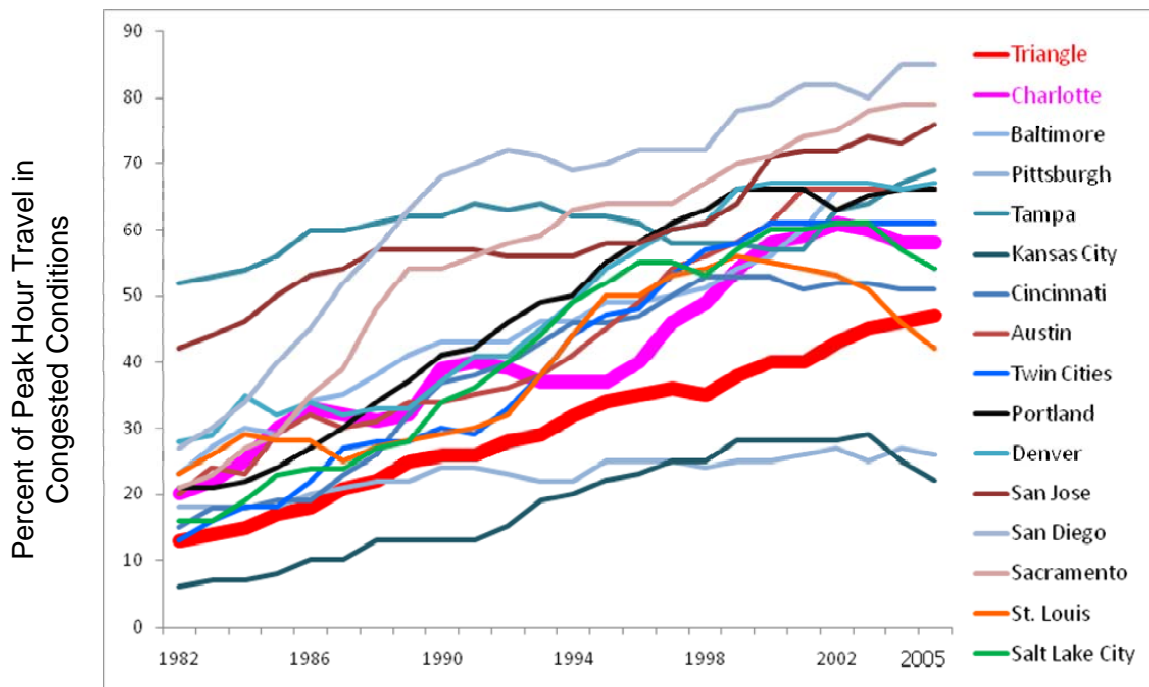


Figure 3.6.2 Congestion Trends (1982-2005)
-- Texas Transportation Institute

Key points from this section:

- The MPO 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 a phenomenal amount of future growth, part of a larger national trend of growth in sunbelt “megaregions;” we need to plan for the region we will become, not just the region we are today.
- The Triangle is one of the most sprawling regions in the nation and current forecasts project both continued outward growth and infill development in selected locations, most notably in the central parts of Raleigh, Durham and Chapel Hill. 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.
- Our population is changing. The population is aging, more households will be composed of single-person households 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 must 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 should recognize the mobility needs of residents and businesses that transcend our MPO borders.

4. Our Vision And How We Will Achieve It

4.1 Our Vision.

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 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 *2035 Transportation Plan* commits our region to transportation services and patterns of development that contribute to a more sustainable place where people can successfully pursue their daily activities.

4.2 Goals and Objectives.

Each MPO has adopted goals and objectives that are designed to achieve the region's overall vision, given the particular characteristics and aspirations of the communities that make up each MPO.

The Capital Area MPO's goal is to develop a regional transportation network that is...

Sustainable

- ❖ Encourage state and local governments to manage growth by linking land use patterns, plans and policies with transportation networks, plans and policies through regional coordination.
- ❖ Encourage equitable funding from state and Federal sources by examining the distribution formulae and recommending changes to ensure transportation revenues collected locally are used to fund local projects.
- ❖ Identify new and alternative funding sources for constructing and maintaining transportation infrastructure to decrease reliance on state and Federal funds.

Efficient, Safe & Reliable

- ❖ Ensure maximum regional mobility through improvements to and maintenance of the road and highway network.
- ❖ Provide an interconnected transportation network by improving communication and cooperation between the metropolitan area governments, transportation agencies, freight carriers, law enforcement, emergency services and transportation users.
- ❖ Improve the process for identifying, evaluating and prioritizing critical transportation projects with more emphasis on public involvement and multi-modal equity.
- ❖ Maximize transportation system efficiency and safety by promoting alternative, new and innovative means other than adding general-purpose traffic lanes.

Affordable & Accessible

- ❖ Promote land use policies and infrastructure projects that support transit, walking and bicycling in local and regional plans.
- ❖ Promote the health and economic benefits of walking and bicycling as practical modes of transportation.
- ❖ Enhance and expand services for alternative modes of transportation including but not limited to transit, walking and bicycling through increased funding and cooperative regional planning.

The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization's goals and objectives are:

1. Overall Transportation System

Goal: A safe, sustainable, efficient, attractive, multi-modal transportation system that: supports local land use; accommodates trip-making choices; maintains mobility; protects the environment and neighborhoods; and improves the quality of life for urban area residents.

Objectives:

- a) Establish performance standards that will measure the effectiveness of the urban area's overall transportation system in supporting access to goods, services, activities, and destinations.
- b) Select and program transportation projects, which are consistent with community goals and are a cost-effective use of funds.
- c) Develop and maintain a multi-modal regional transportation model that reflects travel patterns and incorporates innovative techniques for evaluating the impacts of proposed transportation investments on travel and land use patterns.
- d) Promote non-automobile transportation alternatives and create efficient connections between all transportation modes.
- e) Conserve natural resources and reduce the rate of energy consumption.
- f) Develop cooperative strategies with employers to reduce congestion and increase the efficiency of the transportation system.
- g) Use transportation funds based on the priority needs of the urban area, in keeping with community values.
- h) Seek additional funding and funding sources to ensure implementation of the long range plan.
- i) Monitor the implementation of the Plan and the targets through the biannual TIP process.
- j) Ensure that the transportation needs are met for all populations, especially for the youth and elderly, the mobility impaired, and the economically disadvantaged.
- k) Work cooperatively with the North Carolina Department of Transportation, neighboring Metropolitan Planning Organizations and Rural Planning Organizations and other transportation-related organizations to address the transportation issues of the broader region.

2. Multi-Modal Street and Highway System

Goal: An attractive multi-modal street and highway system that allows people and goods to be moved safely, conveniently, and efficiently.

Objectives:

- a) Establish performance standards and report on the condition and effectiveness of the multi-modal street and highway system.
- b) Create multi-modal street patterns that: encourage safe pedestrian, bicycle, and vehicular travel; provide access to public transportation; and ensure connectivity.
- c) Develop and implement level of service (LOS) standards for the urban area that are based on a cooperative agreement between state and local agencies.
- d) Preserve and enhance the traffic carrying capacity of arterial street systems, while minimizing traffic intrusion in residential neighborhoods.
- e) Identify and recommend design standards that: establish safe speeds; increase pedestrian and bicycle usage of streets; and enhance the attractiveness and appeal of the street and highway system.

3. Public Transportation System

Goal: A convenient, accessible, and affordable public transportation system, provided by public and private operators, that enhances mobility and economic development.

Objectives:

- a) Establish performance standards and report on the condition and effectiveness of the public transportation system.
- b) Increase public transit ridership by enlarging the service area and increasing the frequency of service within the urban area.
- c) Coordinate transit service within the urban area by promoting high quality, seamless, integrated, and customer-friendly service.
- d) Expand ridesharing, carpool, and vanpool services and opportunities.
- e) Develop and implement alternatives to the use of single occupant vehicles, including high occupancy vehicle (HOV) facilities and regional rail services.
- f) Develop and implement the Regional Transit Plan.
- g) Develop a regional park and ride system for cars and bicycles to support transit services and encourage ridesharing.

4. Pedestrian and Bicycle System

Goal: A pedestrian and bicycle system that: provides a safe alternative means of transportation; allows greater access to public transit; supports recreational opportunities; and includes off-road trails

Objectives:

- a) Establish performance standards and report on the condition and effectiveness of the pedestrian and bicycle system.
- b) Maintain and implement a Regional Pedestrian Plan and a Regional Bicycle Plan.
- c) Identify and recommend ways that local governments may provide adequate staff and resources to meet the goals of their pedestrian and bicycle programs.
- d) Develop a regional bicycle and pedestrian policy that establishes linkages between activity centers and provides for access to public transit.
- e) Ensure that bicycle and pedestrian facilities are included in the planning, design, and construction of every roadway and development project, including the connection to external transportation facilities, in accordance with bicycle and pedestrian plans and local ordinances.
- f) Increase education about the benefits of pedestrian and bicycle alternatives.
- g) Support the enforcement of pedestrian and bicycle regulations.
- h) Pursue strong funding commitment for building both pedestrian and bicycle facilities.
- i) Provide greater safety for pedestrians and bicyclists of all levels of ability, and safer interaction with users of other modes of transportation.
- j) Encourage the efforts and activities of citizen advocacy groups for pedestrian and bicycling by providing information and support for their programs.

5. Integration of Land Use and Transportation

Goal: A Transportation Plan that is integrated with local land use plans and development policies.

Objectives:

- a) Establish performance standards and report on the integration and consistency of the Transportation Plan with local land use plans and development policies.
- b) Create transportation systems that enhance the livability of all communities.
- c) Identify the impacts of different land use patterns and site designs on travel behavior.
- d) Evaluate the changes in land use brought about by the expansion of existing transportation facilities and the construction of new facilities.
- e) Identify and recommend land use patterns, parking requirements and development policies that increase overall mobility and that improve and support transportation efficiency, and compact, mixed-use, transit-friendly, and walkable development

6. Protection of Natural Environment and Social Systems

Goal: A multi-modal transportation system which provides access and mobility to all residents, while protecting the public health, natural environment, cultural resources, and social systems.

Objectives:

- a) Establish performance standards and report on transportation impacts on the public health, natural environment, cultural resources, and social systems.
- b) Protect and preserve archaeological, historic, and culturally valuable areas.
- c) Identify and protect environmentally sensitive areas early in the planning process.
- d) Develop and implement modifications to the transportation system that reduce the rate of growth in vehicle miles traveled (VMT).
- e) Modify the transportation system to reduce the pollutants in highway runoff and the vehicle emissions, in accordance with federal, state and local Clean Air and Water legislation.
- f) Minimize the noise and dust generated by transportation facilities in neighborhoods and the urban area.
- g) Ensure that transportation facilities do not negatively affect disadvantaged populations disproportionately.
- h) Develop and implement a transportation system that supports the reduction of greenhouse gases and carbon production and is coordinated with local greenhouse gas and carbon reduction plans.

7. Public Involvement

Goal: An ongoing program to inform and involve citizens throughout all stages of the development, update, and implementation of the Transportation Plan.

Objective:

- a) Establish performance standards and report on the effectiveness of the public involvement element of the Transportation Plan.
- b) Encourage a broad cross section of citizens to take a proactive role in the transportation policy and planning process.
- c) Educate the public and elected officials, in order to increase public understanding of both the options and the constraints of transportation alternatives.
- d) Determine the public's knowledge of the metropolitan transportation system, and public values, attitudes and concerns regarding transportation.
- e) Determine which elements of the Transportation Plan would support or diminish the public's desired lifestyle.

8. Safety and Security

Goal: Continue to improve transportation safety and ensure the security of the transportation system.

Objective:

- a) Reduce fatality, injury, and crash/incident rates on all modes.
- b) Reduce vulnerability of transportation facilities/users to terrorists, natural disasters and risks by implementing and monitoring an evacuation plan, and working with the regional emergency management team.
- c) Reduce economic losses due to transportation crashes and incidents.
- d) Improve the ability to identify high accident locations, and evaluate their impacts in TIP project prioritization.
- e) Provide a safe environment for transportation users through the “3 Es” (Engineering, Enforcement and Education).
- f) Increase transit safety and security for riders and employees.

9. Freight Transportation and Urban Goods Movement

Goal: Improve mobility and accessibility of freight and urban goods movement.

Objective:

- a) Relieve congestion on heavily-traveled truck routes.
- b) Improve mobility and access to intermodal operations and facilities.
- c) Establish and designate truck routes consistent with federal, state and local regulations.

4.3 Performance Targets and Measures of Effectiveness.

As part of the same process for creating the Goals and Objectives, the DCHC MPO developed a set of Performance Targets to provide a set of broadly based quantitative measures that evaluated the transportation plan from several different perspectives. The Targets mostly use measurements from the Triangle Regional Model (the region’s travel demand model), such as the miles traveled, trips taken, congestion levels, and mode split (between automobiles, transit, bicycling and walking).

These measures, and the targets the MPO seeks to achieve with its investments, are shown in Figure 4.3.1, which compares the adopted 2035 LRTP and Targets using the following format:

Comparison Data – this information provides contextual values for comparing the 2035 LRTP and Target values:

- 2005 – This is the current condition. It is the 2005 population and employment using the 2005 transportation network (e.g., highways and transit service).
- 2035 E+C – This is the no-build condition, or “Existing plus Committed” (E+C). It is the 2035 population and employment using the existing transportation network.
- 2035 Data – these are the values for the plan as adopted by the DCHC MPO.

Targets – There are three Target values, Good, Better and Best. The use of more than one Target value helps to set a range of values that can be used for comparison.

The comparison of the 2035 LRTP with the Performance Targets produces mixed results. In terms of congestion, the DCHC MPO fares well because the 2035 LRTP results match the Best Target levels for *Percent of Peak Period at Congestion* (#2) and the *Cost of Congestion* (#8). The *Percent of EJ* (Environmental Justice – minority and low income populations) *Population within a ¼ mile of*

Transit (#9) is also at the Best Target Level. The mode mixes are substandard – the Percent of SOV (Single Occupied Vehicle) Trip Share (#5) and the Percent Non-motorized Trip Share fall well short of the Targets. The VMT per Capita does not meet any Target, either.

Figure 4.3.1

No.	Mobility Targets	Comparison Data		2035 LRTP	Targets		
		2005	2035 E+C		Good	Better	Best
1	VMT Per Capita (daily miles)	28.5	31.6	32.0	29.1	27.5	24.5
2	Percent of Peak Period VMT at Congestion (V/C > 1)	3.0%	10.4%	3.7%	12%	8%	4%
3	Average Travel Time: all peak trips (daily minutes)	16.6	20.5	18.3	19	17	15
4	Transit Mode Share: all trips	2.4%	2.3%	3.3%	3.0%	5.0%	8.0%
5	Percent SOV Trip Share: work trips	81.8%	82.3%	81.2%	78.4%	74.3%	66.0%
6	Percent Non-motorized Trip Share: all trips	7.1%	6.8%	6.8%	9%	11%	15%
7	Greenhouse Gas Change (community target)			+49%	-10%	-20%	-30%
8	Cost of Congestion (in million \$)	\$351	\$1,211	\$496	1,030	848	666
9	Percent of EJ Population within 1/4 mile of transit	58%	59%	85%	65%	75%	85%

It should be noted that this report presents a detailed analysis of EJ issues in section 9.2 – Critical Factors in Planning – Environmental Justice, and provides a comparison of the location of 2035 LRTP projects and EJ populations in Appendix 8 – Environmental Justice Project Tables.

Key points from this section:

- Our MPOs have a single vision for what our region's transportation system should achieve.
- Each MPO has adopted goals and objectives to accomplish this vision that reflect the unique characteristics and aspirations of the communities within the MPOs.

5. How We Developed Our Plan

This section describes the organizations and technical tools used to develop the plan, how the public was involved in the plan's development and review, and other recent and on-going studies and plans that relate to the Long-Range Transportation Plan.

5.1 Who is Responsible for the Plan?

Metropolitan Planning Organizations (MPOs) are the regional organizations responsible for transportation planning for urban areas, and therefore are charged with developing and implementing long-range transportation plans. The Research Triangle Region has two MPOs: The Durham-Chapel Hill-Carrboro (DCHC) MPO and the Capital Area MPO (CAMPO).

The CAMPO urbanized area covers all of Wake County and portions of Franklin, Granville, Harnett and Johnson Counties, along with 18 municipalities in these five counties. The DCHC urbanized area covers all of Durham County, a portion of Orange County including the Towns of Chapel Hill, Carrboro and Hillsborough, and northeast Chatham County. *Figure 2.2.3* in Chapter 2 shows a map of the MPO boundaries. DCHC MPO and CAMPO are also two of the seven urban areas in North Carolina designated as Transportation Management Areas (TMAs) by the principal federal transportation legislation called the *Safe, Accountable, Flexible, Efficient Transportation Equity Act -- a Legacy for Users (SAFETEA-LU)*. TMAs are urban areas with a population of over 200,000 people, and have additional planning responsibilities such as the development of a congestion management plan and direct allocation of certain federal revenues. Much of the MPO organizational structure and processes are designed to address state and federal legislation related to transportation.

Each MPO is comprised of the following two committees:



A Transportation Advisory Committee meeting

Transportation Advisory Committee (TAC) – The TAC is a policy body, which coordinates and makes decisions on transportation planning issues. The TAC is comprised of elected and appointed officials from each county and municipality within the MPO, and from the NCDOT.

For the Capital Area MPO, these officials are from the counties of Franklin, Granville, Harnett, Johnson and Wake, the municipalities of Angier, Apex, Bunn, Cary, Clayton, Creedmoor, Franklinton, Fuquay-Varina, Garner, Holly Springs, Knightdale, Morrisville, Raleigh, Roseville, Wake Forest, Wendell, Youngsville and Zebulon, and the North Carolina Department of

Transportation. The TAC also has advisory (non-voting) members from Triangle Transit, The NC Turnpike Authority, the Federal Highway Administration and the Research Triangle Foundation of North Carolina.

For the DCHC MPO, these officials are from the City of Durham, the Town of Chapel Hill, the Town of Carrboro, the Town of Hillsborough, Durham County, Orange County, Chatham County and the North Carolina Department of Transportation. The TAC also has advisory (non-voting) members from Triangle Transit, the Federal Highway Administration and the Research Triangle Foundation of North Carolina.

Technical Coordinating Committee (TCC) – The TCC is composed of staff members from our local governments, Triangle Transit, Research Triangle Park, Triangle J Council of Governments, Raleigh-Durham Airport Authority, Carolina Trailways, the NC Turnpike Authority and the largest universities in the applicable MPO: North Carolina Central University, University of North Carolina and Duke University in the DCHC MPO, and North Carolina State University in CAMPO. The TCC staff, who provide technical recommendations to the TAC, are commonly transportation, land use, community, and facility planners and engineers. The final key organizational element of the MPO is the Lead Planning Agency (LPA). The LPA is responsible for the administration and oversight of the planning, project implementation, grant funding, and other MPO related activities. In the DCHC MPO, the LPA staff work for the Transportation Division of the City of Durham. In CAMPO, the staff are technically employees of the City of Raleigh, but only work on MPO tasks.

5.2 Stakeholder & Public Involvement Process

Extensive input and coordination activities were used to develop the 2035 LRTP. These activities included both regional coordination efforts between the two MPOs and involvement of the public and local elected officials by each MPO.

Regional Coordination

Several regional coordination activities were undertaken to ensure that the two MPO plans would be integrated and mutually supportive. The key coordination activities are described throughout the various sections of this report in detail. The following list provides a summary of key coordinated activities used to develop the Plan:

- **The Special Transit Advisory Commission (STAC)** – The STAC was composed of leaders from throughout the Triangle Region and produced a recommended, coordinated, region-wide transit vision plan. The 2035 LRTP for each MPO has incorporated the STAC recommendations for expanded bus service, high-quality transit circulators in major activity centers and rail transit linking the activity centers to one another and to communities throughout the region.
- **Alternatives Development and Evaluation** – The MPOs jointly: defined and evaluated the various highway, bus transit and light rail transit alternatives; selected the same alternative for development into the final Plan; and used the same socioeconomic data assumptions.
- **Joint TAC Meeting** – A joint meeting of the MPOs' TACs on October 29, 2008, produced a consensus for which alternative was to be developed into the draft 2035 LRTP.
- **Financial Plan** – The MPOs used the same cost and revenue framework and information sources for highways, bus transit, light rail transit, transportation demand management and new revenue sources.
- **Triangle Regional Model (TRM)** – The MPOs used the same principal planning tool for the 2035 LRTP, the TRM travel demand model.

- Air Quality Conformity Report – The two MPOs are developing a single conformity analysis and determination report covering not only the 2035 LRTP areas, but also the rural areas in the Triangle air quality region outside of the MPO boundaries.

Public Involvement

Decisions cannot be based solely on numbers and the interpretation of Goals and Objectives by staff and the TAC. The 2035 LRTP employed a comprehensive public involvement process to use citizen and stakeholder input for providing a critical evaluation of the products for each stage of developing the plan.

Not only have citizens and public officials been involved with each development stage, but they were offered and took advantage of a variety of planning and public input activities.

Figure 5.2.1, Summary of Public Involvement Activities, demonstrates the breadth and depth of this public involvement effort by summarizing the many activities that occurred in each stage of the LRTP's development for both CAMPO and DCHC MPO.

There are some notable details to the Figure 5.2.1 table. For example, the media effort was especially intensive and usually included:

- Draft documents and detailed supporting data available at public libraries, government offices and on the MPOs' Web sites;
- Notices in newspapers for workshops, hearings and other public involvement activities;
- Mailing lists to notify citizens who have participated or indicated an interest in related planning activities. Mailings provided information about public workshops and hearings; the DCHC MPO also developed newsletters featuring elements of the 2035 LRTP.
- Various formats for receiving public comments included email, paper feedback forms, public workshops and hearings, and in the case of the development of the DCHC MPO Goals and Objectives there was a Web-based survey.

In addition, each public workshop cycle (except that for Goals and Objectives) included several workshops in the various member jurisdictions or multi-jurisdictional areas, and numerous presentations to local elected officials, boards and commissions. As a result of this extensive outreach effort, the elected bodies and locally-appointed boards and commissions provided considerable input through formal resolutions to the Transportation Advisory Committee (TAC).

This public involvement process met and exceeded the MPOs' public involvement policies for developing a transportation plan. Copies of those policies are available on the MPO's Web sites:

CAMPO -- www.campo-nc.us

DCHC MPO -- www.dchcmpo.org

It should be noted that the extent of the public involvement process to identify and choose projects for the 2035 LRTP go beyond the LRTP development process. Many 2035 LRTP projects have been incorporated from local and MPO plans identified in section "5.4 -- Related Plans and Studies" of this report and these plans and studies have commonly employed an extensive public involvement process.

Visioning Tools

The SAFETEU-LU (Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users) requires public agencies to use visioning tools in their interaction with the public. The 2035 LRTP process has met, and exceeded, this requirement in the many workshops and presentations completed over the last two years to get public review and feedback for the various milestones,

including Goals and Objectives, Socioeconomic Data, Deficiency Analysis, Alternatives Analysis and Draft 2035 LRTP. In fact, many of the maps and tables presented throughout this report are the same ones that the MPO used, and these visioning tools continue to be available on the MPOs' Web sites for each of the milestones. Examples of the visioning tools that were used include:

- Poster-sized maps showing proposed roadway, bus transit, fixed-guideway transit, bicycle, and pedestrian facilities.
- Poster-sized maps showing alternatives for bus and fixed-guideway transit.
- Poster-sized maps with development constraints such as wetlands and U.S. Army Corps of Engineers property.
- Poster-sized maps and bar charts showing population and employment growth through the year 2035.
- Maps and tables showing the travel time between major destinations, travel time isochrones and roadway congestion for the current year, for the year 2035 with a no-build scenario, and for the year 2035 with the 2035 LRTP transportation network.
- Tables showing performance, mode share, mobility, transit ridership and demographic measures for a variety of alternatives, including the final 2035 LRTP.
- Visual presentations that summarized the data through graphics and maps – these presentations were made available to the public.
- Visual presentations showing graphs and bar charts of cost and revenue forecasts through each horizon year of the 2035 LRTP.

Visual presentations showing proposed roadway and transit projects with associated costs and year of completion dates.

Figure 5.2.1 – Summary of Public Involvement Activities

Decision	Activity				
	TAC Approval	Public Hearing	Public Work-shops	Draft Available for Public	Media Notification
Goals and Objectives					
CAMPO	05/21/08	04/16/08	02/07/08	03/19/08	✓
DCHC	10/10/07	09/12/07	Aug/Sep	08/01/07	✓
Socio-economic Forecasts					
CAMPO	08/15/07	08/15/07	--	06/22/07	✓
DCHC	09/12/07	03/14/07	Feb/Mar	01/31/07	✓
Model Adoption	(version TCV4-2008)				
CAMPO	--	--	--	--	--
DCHC	08/13/08	--	--	--	--
Deficiency Analysis					
CAMPO	--	--	--	--	--
DCHC	03/12/08	--	--	--	--
Performance Measures					
CAMPO	--	--	--	--	--
DCHC	02/13/08	--	--	--	--
Alternatives Evaluation					
CAMPO	--	--	--	08/20/08	--
DCHC	--	09/10/08	Aug/Sep	08/20/08	✓
Draft 2035 LRTP					
CAMPO	02/18/09	01/28/09	Dec/Jan	10/15/08	✓
DCHC	02/11/09	11/12/08	Oct/Dec	10/22/08	✓
2035 LRTP and AQ Conformity Report					
CAMPO	05/20/09?	04/15/09?	--	03/18/09?	✓
DCHC	05/13/09?	04/08/09?	--	03/25/09?	✓

Dashed lines, "--", indicate that the activity was not carried out because it is not part of the long range transportation plan or the MPO's public involvement policy.

5.3 Triangle Region Transportation Model

The Triangle Regional Model (TRM) is a tool that was developed for understanding how future growth in the region impacts transportation facilities and services. The TRM can help identify the location and scale of future transportation problems, and proposed solutions to those problems can be tested using the TRM. The TRM is developed and maintained by the TRM Service Bureau housed at the Institute for Transportation Research and Education on behalf of the Durham-Chapel Hill-Carrboro MPO, Capital Area MPO, North Carolina Department of Transportation, and Triangle Transit, the four organizations that fund the modeling effort and guide its development and use.

The modeled area covers approximately 2,600 square miles, and includes all of Wake, Orange and Durham counties and part of Chatham, Franklin, Granville, Harnett, and Johnston counties. This area is divided into approximately 2,300 geographic areas (traffic analysis zones) for which detailed population and employment information is maintained. The highway system is represented by about 15,000 roadway links in 2005 and about 16,000 roadway links in 2035. The roadway links are described by detailed characteristics including: length, number of lanes by direction, speed, and traffic carrying capacity. Transit services are represented in 2005 by about 180 transit lines (430 in 2035) operated by Capital Area Transit, Durham Area Transit Authority, Chapel Hill Transit, Triangle Transit, C-Tran, Wofline, and Duke University Transit. Transit services are described by detailed characteristics including: length, stop locations, speed, frequency of service, and cost or fare paid.

The model produces summary statistics including: vehicle miles of travel, vehicle hours traveled, degree of traffic congestion, number of trips taken by travel mode, and transit riders. The model also computes trip statistics for each of the approximately 2,300 traffic analysis zones, categorized by mode, general trip purposes, and origin or destination zone. These statistics are shown elsewhere in the report in tables and maps. Statistics on speed and vehicle miles of travel by type of roadway are used to make air quality conformity determinations for the plan.

The model is an advanced four step travel demand forecasting model. Models like the TRM forecast travel using the following sub-models, or steps:

- Trip Generation – based on population and employment data for each traffic analysis zone, calculate the number of trips people will make for various trip purposes, and the number of trips likely to go to destinations throughout the region.
- Trip Distribution – based on the number of trips generated for each trip purpose, the cost to travel from zone to zone, and the characteristics of the zones, calculate the trips from each zone to all other zones.
- Mode Choice – based on the trips calculated in trip distribution, characteristics of the traveler, transit service characteristics, highway congestion, and other service characteristics, calculate for trip purpose the number of trips made by automobile, carpooling, and transit.
- Trip Assignment – based on highway speeds and transit speed, find a route that takes the shortest time to get from one zone to another zone and sum the trips on that roadway or transit route. The model includes feedback to allow the travel times to include the effects of traffic congestion on the calculation of the shortest time on roadway links or transit services.

Model relationships were developed using 1995 household survey data, 2000 census data, transit survey data, traffic counts taken throughout the Triangle, and a survey of travelers entering from outside or leaving the modeled area. The model was validated to 2005 traffic count and transit rider data. The model version used for this analysis was adopted for use in April, 2008 by the Durham-Chapel Hill-Carrboro MPO, Capital Area MPO, North Carolina Department of Transportation and Triangle Transit and is referred to as TransCAD v4-2008.

5.4 Related Plans and Studies

Although the Long-Range Transportation Plans serve as the main guiding documents for regional transportation investments, many related transportation plans and studies are undertaken both to feed into the development of Long-Range Transportation Plan and to provide a more detailed look at issues raised in or related to LRTPs.

This section highlights past and current plans and studies that have been used to inform the development of the 2035 LRTPs. Section 7.10 later in this document indicates plans and studies moving forward that can be undertaken to help detail and/or implement recommended activities.

These plans include *corridor* plans addressing specific major corridors, *small area* plans that look at transportation and related development issues in a particular part of the region, plans that guide investments in individual transportation *functions*, such as bicycle & pedestrian travel, Transportation Demand Management or Intelligent Transportation Systems, and *transit plans* that range from broad regional vision plans to short-range investment plans for specific transit providers. Between the adoption of the 2030 Long-Range Transportation Plans in 2005 and the adoption of these plans in 2009, the following major studies and plans will have been completed; those that apply specifically to one MPO or the other are color coded; projects with no background color apply to both MPOs, CAMPO projects have this yellow background and DCHC MPO projects have this green background:

	Plan or Study	Type
1	<i>Special Transit Advisory Commission.</i> A broad regional vision plan for transit services that recommends expanded local and regional bus services, high-quality transit circulators serving 5 regional activity centers and rail transit linking the activity centers to each other and to communities throughout the region. www.transitblueprint.org	Transit Plan
2	<i>North Carolina Railroad Commuter Rail Capacity Study.</i> Identifies the capital costs needed for track improvements, stations and vehicles to provide peak-period, peak-direction commuter rail services between Goldsboro and Greensboro. www.ncrr.com/capacity-study.html	Transit Plan
3	<i>CORE Bicycle-Pedestrian-Greenspace Plan.</i> A linked network of pedestrian, bicycle and greenspace facilities within the jurisdiction of 7 local governments and several regional agencies in the Center Of the Region. www.tjcoq.dst.nc.us/regplan/core.shtml	Functional Plan Small Area Plan
4	<i>Triangle Region Long Range Transportation Demand Management Plan.</i> Recommended 7-year investment strategy to provide regional TDM services, local TDM services in specified “hot spots” and an administrative structure to fund, manage, monitor and evaluate TDM services across both MPOs. www.triangletdmplan.com	Functional Plan
5	<i>Triangle Transit Short Range Transit Plan.</i> Five-year operating plan and capital program for transit and ridesharing. Provides an overview of the regional services in Wake, Durham, and Orange Counties and a guide for improvements in current services and expansions to new corridors. www.triangletransit.org/srtp	Transit Plan
6	<i>US 1 Corridor Study.</i> Recommended facility improvements for roadways and transit services in Wake and Franklin Counties. www.ncdot.org/doh/PRECONSTRUCT/tpb/shc/studies/US1/	Corridor Study
	Plan or Study	Type

7	<i>Southwest Durham/Southeast Chapel Hill Collector Street Plan.</i> Small area plan recommending location of future collector streets and street designs to ensure future connectivity and multimodal street functioning. www.dchcmpo.org	Small Area Plan Functional Plan
8	<i>Durham Walks Pedestrian Plan.</i> Based on complete and detailed inventory of current sidewalk and hard-surfaced public trails. Recommends, prioritizes and provides costs for corridor, maintenance, and intersection pedestrian projects, and proposes design standards and policies. http://www.durhamnc.gov/durhamwalks/final_plan.cfm	Functional Plan
9	<i>Durham Comprehensive Bicycle Transportation Plan.</i> Identifies an integrated bicycle network that is composed of several types of bicycle facilities, and prioritizes the projects by short-, medium-, and long- term and opportunity-based implementation. http://www.durhamnc.gov/departments/works/bike_plan.cfm	Functional Plan
10	<i>Carrboro Comprehensive Bicycle Transportation Plan.</i> Identifies existing and future bicycle needs and deficiencies, a route network to address those deficiencies, a method to examine optimal design and policy improvements, and implementation strategies for the development of bicycle facilities and programs. http://www.ci.carrboro.nc.us/pzi/planning.htm	Functional Plan

In addition, several major studies and plans are either underway or are programmed to begin shortly:

	<i>Plan or Study</i>	<i>Type</i>
1	<i>Durham Area Transit Authority (DATA) Short Range Transit Development Plan.</i> Identifies current, new and enhanced routes, services and amenities to be implemented by DATA from 2010 through 2015, and the funding and resources needed. http://DATA.durhamnc.gov	Transit Plan
2	<i>Chapel Hill Long Range Transit Master Plan.</i> Evaluates a range of transit strategies to improve mobility in Chapel Hill, Carrboro, and UNC main campus and future Carolina North campus. Includes service implementation schedule, financial plan, and land use, community and air quality impacts. http://www.ci.chapel-hill.nc.us/index.asp?NID=345	Transit Plan
3	<i>Farrington Road Corridor Study.</i> Uses transportation and land use trends and modeling to develop future scenarios, especially for roadway congestion. Recommends specific short- and long-term roadway and intersection improvements, and more compact land development. www.dchcmpo.org	Small Area Study
4	<i>Congestion Management Plan (CMP).</i> Collects travel time, and vehicle, pedestrian, bicycle and transit passenger counts to identify current and short-term trend congestion levels. Defines congestion, identifies specific mitigation measures for congestion and provides a state of the system report to meet federal requirements. At this time, the DCHC MPO has finished all components of the CMP except the State of the System report. The Capital Area MPO currently has a CMS document incorporated within the 2030 LRTP. However, the federal level has elevated the importance of congestion management planning and therefore a more thorough CMP is required. The MPOs will complete a more thorough CMP in the Fall of 2009 that will comply with the federal requirements and reflect concerns received from recent federal certification reviews. www.dchcmpo.org www.campo-nc.us	Functional Plan

5	<i>ITS Strategic Deployment Plan Update.</i> Update to Triangle Regional Intelligent Transportation Systems Strategic Deployment Plan (developed in 2000) using current versions of the National ITS Architecture. Includes procedures for updating and maintaining regional ITS architecture and template for integrating data with related agencies such as MPOs. www.dchcmpo.org	Functional Plan
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In addition, many plans that informed the development of earlier Long-Range Transportation Plans continue to be used in the development of the 2035 LRTP, including:

- NC 54/I-40 Transit Corridor Feasibility Study (February 2003)
- US 15-501 Major Investment Study, Phase II Report (December 2001)
- I-40 High Occupancy Vehicle/Congestion Management Study – Final Report (March 2003)
- Town of Carrboro Connector Roads Policy (August 2005)
- Town of Carrboro Bicycle and Sidewalk Policy (March 1989)
- Chapel Hill and Carrboro 2005 Mobility Report Card (March 2007)
- A Bicycle Transportation Plan – Orange County, NC (April 1999)
- Center Of the Region Enterprise (CORE) Workshop Report (April 2002)

Key points from this section:

- Metropolitan Planning Organizations, or MPOs, are the organizations charged with creating and adopting Long-Range Transportation Plans. MPOs are made up of all the local governments in the area, the NC Department of Transportation, plus other organizations with transportation responsibilities. This document includes the plans for the two MPOs in the Research Triangle Region: the Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO.
- MPOs have 3 main organizational components: (i) the Transportation Advisory Committee, or TAC, which is the policy body made up of local elected officials and an NC Department of Transportation board member; (ii) the Transportation Technical Committee, or TCC, made up of technical staff from local, state and regional organizations that provide technical input; and (iii) the Lead Planning Agency, or LPA, which provides the staff support to carry out the MPO's responsibilities.
- Each MPO has an explicit, written Public Involvement Policy, which was used to garner public input into the plan and provide opportunities for public review and comment.
- One of the key tools used to understand the region's transportation challenges and the impacts of investments to address these challenges is the Triangle Regional Travel Demand Model, which covers both MPOs. A new and improved version of the model was used for the first time in the development of the 2035 Long Range Transportation Plans.
- Many related transportation plans and studies are undertaken both to feed into the development of Long-Range Transportation Plans and to provide a more detailed look at issues raised in or related to LRTPs.

6. Analyzing Our Choices

This section explains what we did to better understand the choices facing our region, develop growth forecasts that reflect market trends and community plans, create and test alternative transportation scenarios, and compare these alternatives to one another and to performance measures that reflect the MPO's adopted goals and objectives.

6.1 Land Use Plans and Policies

Every community in the Triangle develops a comprehensive plan to outline its vision for the future and set policies for how it will guide future development to support that vision. So an important starting point for transportation plans is to understand these plans and reflect them in the future growth forecasts used to analyze transportation choices.

Local planners from communities throughout the region were brought together to translate their community plans into the parameters used by the region's transportation model to generate travel forecasts: households and jobs by industry. (See Section 5.3 for a more detailed explanation of the transportation model).

The land use plans revealed that five regional activity centers, depicted in Figure 6.1.1 are expected to contain large concentrations of employment and/or intense mixes of homes, workplaces, shops, medical centers, higher education institutions, visitor destinations and entertainment venues:

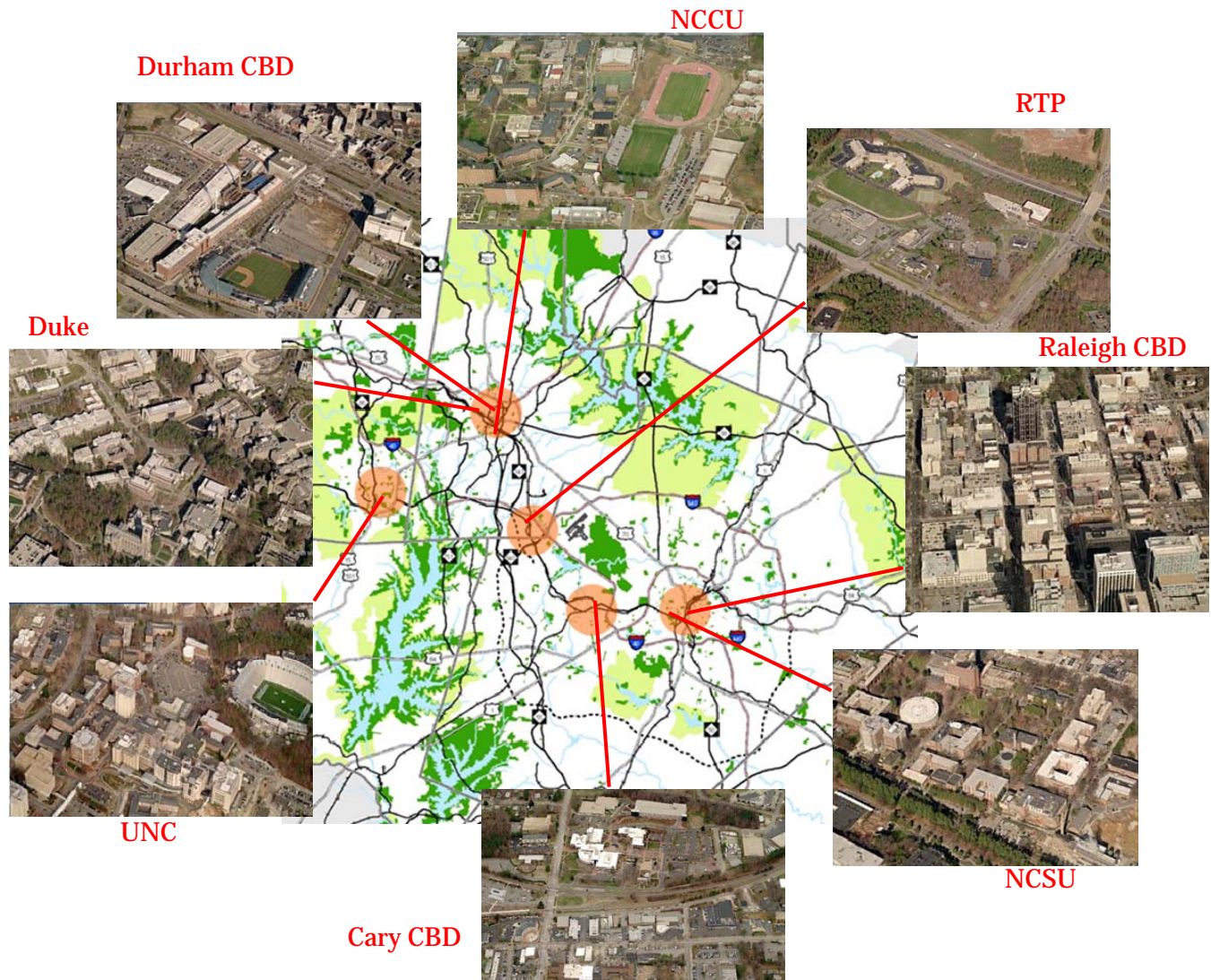
- Central Raleigh, including NC State University;
- Central Durham, including Duke University, North Carolina Central University and the Duke and Veterans Administration medical complexes;
- Central Chapel Hill & Carrboro, including UNC-Chapel Hill and UNC Hospitals;
- The Research Triangle Park and RDU Airport; and
- Central Cary.

Linking these activity centers to one another, and connecting them with communities throughout the region by a variety of travel modes can afford expanded opportunities for people to have choices about where they live, work, learn and play.

In some cases, such as in central Cary, Durham and Chapel Hill & Carrboro, existing plans and the ordinances that implement the plans promote increased development of the activity centers. In Raleigh, a new comprehensive plan is close to completion that will target development in the downtown and in other in-town areas that can serve as mixed use nodes. And the Research Triangle Park is engaged in planning efforts that may lead to more compact, mixed use development in selected locations.

In addition to these activity centers, the review of community plans identified areas of the region that are most environmentally sensitive, including water supply watersheds, and places where existing neighborhoods warrant protection. Understanding the unique roles that different areas and different communities will play in the region as it grows established the framework for forecasting growth and designing transportation choices to serve this growth.

Figure 6.1.1 Regional Activity Centers



6.2 Socio-economic Forecasts

One of the initial critical steps in developing a Long Range Transportation Plan is to forecast the amount, type and location of population and jobs for the time frame of the plan. Based on an understanding of community plans and data from local planning departments, the Office of State Planning, the US Census Bureau and independent forecasters, estimates of “base year” (2005) and “plan year” (2035) population and jobs were developed by local planners for each of the 2,300 small zones (called Traffic Analysis Zones or TAZs) that make up the area covered by the region’s transportation model.

Figure 6.2.1 summarizes the major elements of the socioeconomic forecasts for different portions of the area covered by the region’s transportation model, both the areas within the MPO boundaries and areas beyond the MPO boundaries (refer to Figure 2.2.3 for a map of the MPOs and the modeled area). More detailed information on a range of socioeconomic data for each TAZ is available from the Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO.

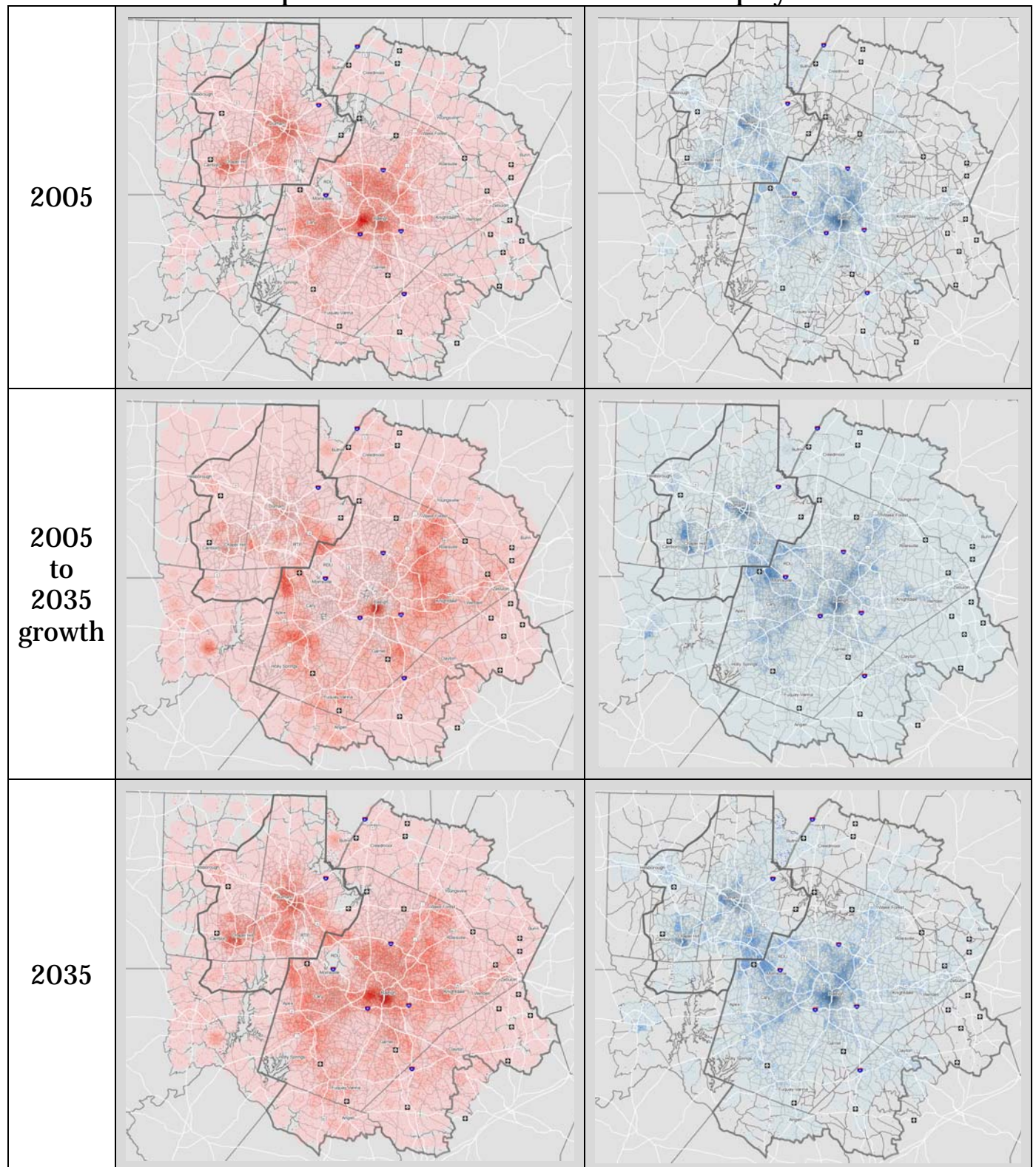
<i>Figure 6.2.1 Estimated 2005 and Forecast 2035 Jobs, Population and Households</i>	2005			2035		
	Population	Households	Jobs	Population	Households	Jobs
Capital Area MPO	880,490	337,377	439,715	1,951,817	762,025	906,523
Franklin County (part)	36,259	13,737	7,242	88,422	33,346	14,740
Granville County (part)	15,704	6,090	3,640	49,143	18,920	7,504
Harnett County (part)	13,869	5,209	2,784	62,089	22,857	7,522
Johnston County (part)	67,877	25,305	14,930	174,595	65,697	27,258
Wake County	746,781	287,036	411,119	1,577,568	621,205	849,499
Durham-Chapel Hill-Carrboro MPO	375,052	163,150	227,208	549,753	236,734	388,647
Chatham County (part)	15,083	6,608	2,271	33,362	14,412	5,389
Durham County	248,398	106,663	175,999	360,651	151,712	286,790
Orange County (part)	111,571	49,879	48,938	155,740	70,610	96,468
Areas outside MPO boundaries	56,023	21,758	16,216	145,552	58,015	36,739
Chatham County (part)	18,984	8,168	5,928	83,768	35,752	18,474
Granville County (part)	7,830	2,237	7,741	13,005	3,704	10,656
Johnston County (part)	8,617	3,060	936	22,216	7,858	2,646
Orange County (part)	20,592	8,293	1,611	26,563	10,701	4,963
Total for modeled area	1,311,565	522,285	683,139	2,647,122	1,056,774	1,331,909

The maps on the following page depict the distribution of population and jobs within the boundaries of the two MPOs for the 2005 “base year,” the 2035 “horizon year” of this plan and where the net new population and jobs are forecast to locate between 2005 and 2035. Larger versions of these maps are available from the staffs of the Capital Area and Durham-Chapel Hill-Carrboro MPOs, and from the approved 2035 LRTP section of the MPO’s web sites.

In addition, the detailed socioeconomic analysis, maps and tables that are the basis for the presentation in this report are available on the MPO’s web sites.

Population

Employment



Each population dot represents 100 people and each employment dot represents 50 jobs.

6.3 Trends, Deficiencies, and Needs

With the number of people and jobs in the region expected to roughly double over the 30-year period between 2005 and 2035, the amount of travel -- often measured in Vehicle Miles Traveled (VMT) -- in the Triangle is expected to similarly grow by well over 100%. Future stress on the regional transportation network is exemplified by the high levels of congestion predicted in 2035.

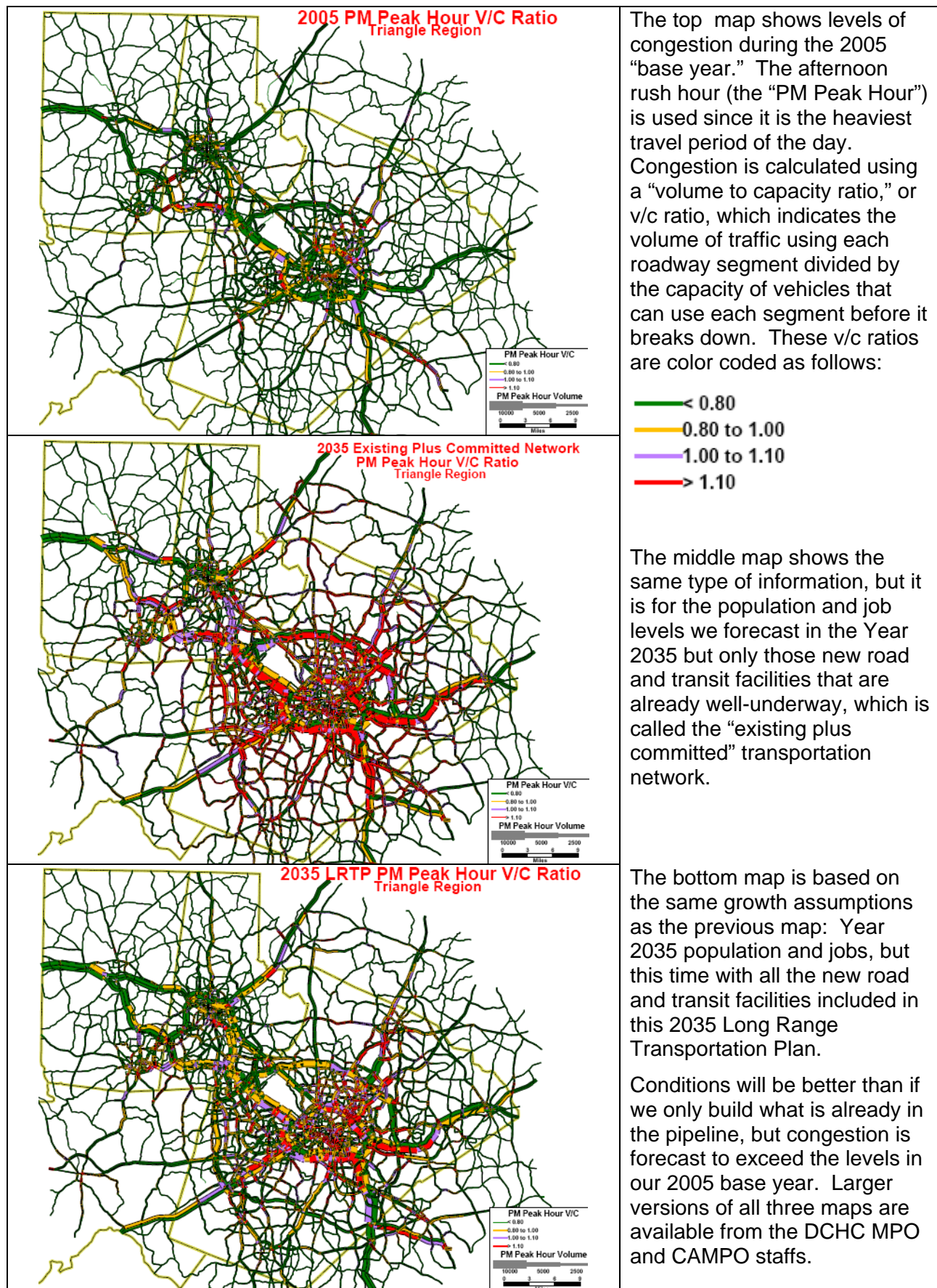
Figure 6.3.1: I-40 near US 1 Interchange



The congestion maps on the next page show the average volumes during the afternoon peak hour as predicted by the Triangle Regional Model. The 2005 map indicates travel conditions in the year 2005, whereas the 2035 “Existing plus Committed” (E+C) map forecasts travel conditions in the year 2035 using the current highway, transit and other transportation facilities and any facilities that are well on their way to being completed. This “Existing plus Committed” network is often called the “no build” scenario, since it typically is the result of past decisions, not ones that still need to be made. The final map is the 2035 LRTP congestion map, showing levels of congestion if we provide all the transportation facilities and services included in the MPO Long Range Transportation Plans.

A larger version of these maps is available on the MPOs’ web sites.

The roadway networks depicted on the next page are simplified and taken directly from the Triangle Regional Model. Thicker lines depict roadways with higher traffic volumes; thinner lines represent segments carrying lesser volumes. The colors of the segments correspond with Volume/Capacity ratios (this is the volume of vehicles divided by the vehicle carrying capacity of the road segment) thus, greater Volume/Capacity ratios correspond with more congestion. A Volume/Capacity ratio below 1.0 is indicative of a relatively free flowing roadway with little or no congestion. Once the Volume/Capacity, or V/C ratio, rises over 1.0, motorists will experience periods of congestion. Volume/Capacity ratios greater than 1.1 represent roadways which are consistently congested throughout and beyond the peak hours of travel. The 2035 E+C map shows that without significant new investments, chronic congestion will occur on major arterials and freeways throughout the region, and particularly within Wake County.



6.4 Alternatives Analysis

In order to address the statement as expressed in the Goals and Objectives, the Capital Area MPO, in conjunction with the Durham-Chapel Hill-Carrboro MPO developed and evaluated several alternatives in the process to create the 2035 Long Range Transportation Plan. Each alternative was a combination of a transportation system, which includes a set of highway, transit and other transportation improvements; and a land use scenario that distributes the forecasted population and employment for the Year 2035. These alternatives were run on the Triangle Regional Model (TRM) to produce a set of transportation performance measures that described how the transportation system will handle the travel demand generated by a particular population and employment distribution in the year 2035. These performance measures, such as the level of roadway congestion, average travel time, and transit ridership, were used to evaluate and compare the various alternatives. No alternative in its entirety was advanced as the “Preferred Option.” The alternatives were designed to emphasize a particular mode in meeting the future travel demands so that the technical staff and public can understand how well that specific mode addresses travel demand and can choose various projects to create the final 2035 LRTP. Figure 6.4.1 is a list of the combinations of transportation systems and land used to create the Alternatives that were analyzed for the developing the final 2035 LRTP. In some cases, the examination extended beyond this set of alternatives – the DCHC MPO analyzed fifteen alternatives during its Alternatives Analysis phase.

Figure 6.4.1: Alternatives Evaluated

No.	Transportation System	Land Use Assumption
1	Adopted 2030 LRTP – Includes abundant highway improvements such as I-40 HOV; rail transit between Chapel Hill, Durham, RTP and Raleigh; and, major bus expansion and improvements.	Baseline – Population and employment growth occurs based on current land use plans and policies of the jurisdictions and counties.
2	Intensive Highway – Includes abundant highway improvements such as I-40 HOV and interstate and freeway widenings; no rail transit; moderate bus transit improvements.	Baseline – Population and employment growth occurs based on current land use plans and policies of the jurisdictions and counties.
3	Intensive Highway – Includes abundant highway improvements such as I-40 HOV and interstate and freeway widenings; no rail transit; moderate bus transit improvements.	Constrained – New requirements in development ordinances constrains current growth pattern, resulting in less population and employment growth than Baseline.
4	Intensive Fixed Guideway – Includes moderate highway improvements; light rail transit between Chapel Hill, Durham, RTP and Raleigh; and, major bus transit improvements, including feeder service to light rail stations.	Transit Node – Changes in development ordinances and policies encourages more population and employment development adjacent to future rail transit stations than Baseline, but overall regional growth is same as Baseline.
5	Intensive Bus Transit – Includes moderate highway improvements; no rail transit; major bus transit expansion and improvements.	Travel Corridor – Changes in development ordinances and policies encourages more population and employment development along major arterial roadways than Baseline, but overall regional growth is same as Baseline.
6	Moderate Multimodal – Includes moderate highway improvements; commuter rail between Burlington, Durham, RTP and Raleigh; moderate bus transit improvements.	Transit Node – Changes in development ordinances and policies encourages more population and employment development adjacent to future rail transit stations than Baseline, but overall regional growth is same as Baseline.

#1 = Benchmark alternative depicting a continuation of current land use and transportation patterns and planning.

#2 through #6 = Change alternatives depicting changes to current design of the transportation system and current growth patterns.

The MPO staffs in conjunction with staff from the Triangle Regional Model Service Bureau worked together to create and run the model scenarios during the fall of 2008. These options were further reduced to a “preferred option” that incorporated a road network, a transit network, and light rail transit. A series of modifications to the road network were made from December, 2008 through February, 2009. The resulting road, transit, and rail networks were endorsed by the TACs of both MPOs, and modeled by the Triangle Regional Model Service Bureau.

6.5 Performance Evaluation Measures

The evaluation measures provide a comparative set of statistical analyses between transportation systems and land use scenarios. Comparisons between transportation systems and land use scenarios can be performed in a number of variations. The comparisons as shown in each evaluation measure table on the next two pages also validate the usefulness of the Triangle Regional Model as a tool to perform travel forecasts and create output necessary for staff, elected officials, and the public to determine the best approach to invest in the regional transportation system. Figure 6.5.1 compares the transportation network performance from a regional, Capital Area MPO, and Durham-Chapel Hill-Carrboro MPO perspective for the Year 2005, Year 2035 using only an “Existing plus Committed” network, and the 2035 network as recently endorsed by both MPOs. The 2035 E+C congestion map (V/C map) presented in the previous section (section 6.4) illustrates a high degree of regional congestion as compared to the 2005 V/C map; but the performance measure values for the 2035 E+C also validates the illustration by comparing daily “Vehicle Hours Traveled” (VHT daily – Row 1.2). Vehicle Hours Traveled is highest for the 2035 E+C highway network as compared to the 2005 base year and 2035 LRTP networks.

Key points from this section:

- The starting point for analyzing our choices is to understand how our communities’ comprehensive plans envision guiding future growth.
- The next step is to make our best estimates of the types, locations and amounts of future population and job growth based on market conditions and trends and community plans.
- Based on these forecasts, we can look at future mobility trends and needs, and where our transportation system may become deficient in accommodating these trends and meeting these needs.
- Working with a variety of partners and based on public input, we then develop different transportation system alternatives and analyze their performance.
- We can compare the performance of system alternative s against one another and to performance targets derived from our goals and objectives.

Figure 6.5.1 Evaluation Measures

TRM LRTP Evaluation Measures										
Comparison of Performance Measures		2005 Baseline			2035 Existing plus Committed			Endorsed 2035 LRTP		
Measures		Region	CAMPO	DCHC	Region	CAMPO	DCHC	Region	CAMPO	DCHC
1	Performance Measures									
1.1	Total VMT (daily)	37,898,756	25,012,126	10,673,559	73,245,842	50,861,790	17,397,077	73,861,276	51,472,776	17,603,017
1.2	Total VHT (daily)	814,486	537,890	234,968	2,218,639	1,644,052	459,072	1,826,903	1,317,244	406,044
1.3	Average Speed by Facility (miles/hour)									
1.3.1	Freeway	62.9	63.8	60.4	54.5	52.1	57.1	59.2	57.8	60.6
1.3.2	Arterial	44.5	45.1	40.1	38.1	37.5	35.5	42.7	42.6	39.2
1.3.3	All Facility	50.7	50.5	49.9	42.3	40.6	44.6	46.9	45.5	49.5
1.4	Peak Average Speed by Facility (miles/hour)									
1.4.1	Freeway	61.6	62.5	59.0	49.2	45.3	54.2	56.8	54.8	59.1
1.4.2	Arterial	43.5	44.0	39.1	35.1	33.9	33.6	41.1	40.7	38.2
1.4.3	All Facility	49.6	49.5	48.8	38.5	36.2	42.2	45.0	43.4	48.1
1.5	Average Travel Time - All Trips	14.04	14.65	14.78	16.72	17.72	17.15	15.42	16.13	15.94
1.6	Average Travel Time - Work Trips	18.45	19.38	19.39	25.76	27.85	25.79	21.93	23.21	22.45
1.7	Peak Average Travel Time - All Trips	15.55	16.30	16.60	19.86	21.28	20.50	17.52	18.43	18.28
1.8	Hours of Delay (daily)	92,958	62,923	28,474	781,421	646,383	112,862	407,045	323,917	66,791
1.8.1	CV Hours of Delay (daily)	3,503	2,247	1,200	23,637	18,494	4,580	13,336	10,016	2,865
1.9	Percent of VMT experiencing congestion - All Day									
1.9.1	Freeway	1.4%	1.0%	2.3%	13.4%	18.2%	5.8%	5.5%	7.7%	2.3%
1.9.2	Arterial	2.3%	2.5%	1.9%	15.1%	17.9%	9.2%	6.4%	7.6%	3.0%
1.9.3	All Facility	1.5%	1.5%	1.8%	13.0%	16.2%	6.4%	5.3%	6.5%	2.5%
1.1	Percent of VMT experiencing congestion - Peak									
1.10.1	Freeway	2.5%	1.7%	4.1%	23.5%	31.7%	10.5%	9.0%	12.4%	3.6%
1.10.2	Arterial	3.5%	3.9%	3.1%	23.5%	28.2%	13.8%	9.8%	11.6%	4.5%
1.10.3	All Facility	2.4%	2.4%	3.0%	21.0%	26.1%	10.4%	8.2%	10.2%	3.7%
1.10.4	Degree of congestion (V/C>1) on designated truck routes	2.6%	2.8%	2.7%	14.4%	17.5%	8.4%	7.1%	8.8%	3.9%
1.10.5	Degree of congestion (V/C>1) on facilities w/ bus routes	2.6%	2.0%	3.2%	15.4%	19.8%	8.7%	6.8%	8.7%	2.8%
2	Mode Share Measures									
2.1	Number Mode Choice - All Trips									
2.1.1	Drive alone (single occupant vehicle - SOV)	2,973,888	2,086,422	1,012,202	6,048,183	4,597,094	1,660,787	6,040,374	4,604,838	1,666,243
2.1.2	Carpool (share ride)	2,054,835	1,453,868	685,476	4,067,176	3,105,362	1,095,943	4,109,989	3,146,850	1,104,137
2.1.3	Bus	66,563	24,530	44,441	103,988	39,665	69,664	125,208	44,268	87,234
2.1.4	Rail	0	0	0	0	0	0	16,233	11,705	9,076
2.2.5	Non-Motorized (Bike and Walk)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.3	Number Mode Choice - Non-Work Trips									

TRM LRTP Evaluation Measures										
Comparison of Performance Measures		2005 Baseline			2035 Existing plus Committed			Endorsed 2035 LRTP		
Measures		Region	CAMPO	DCHC	Region	CAMPO	DCHC	Region	CAMPO	DCHC
2.2.5	Non-Motorized (Bike and Walk)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.3	Number Mode Choice - Non-Work Trips									
2.3.1	Drive alone (single occupant vehicle - SOV)	2,038,311	1,398,900	671,996	4,211,854	3,154,639	1,098,746	4,199,906	3,146,564	1,099,902
2.3.2	Carpool (share ride)	1,896,367	1,340,851	626,238	3,757,494	2,867,576	998,378	3,804,046	2,908,406	1,009,078
2.3.3	Bus	47,985	17,190	32,176	79,608	30,602	53,261	88,439	30,671	61,834
2.3.4	Rail	0	0	0	0	0	0	21,851	15,837	11,508
2.3.5	Non-Motorized (Bike and Walk)	392,503	249,805	128,939	822,259	586,303	199,646	835,531	598,151	201,231
2.4	Daily Bicycle and Pedestrian Trips	406,779	259,179	133,302	852,248	608,028	206,552	866,118	620,407	208,207
3	Transit Measures									
3.1	Average Weekday Transit Ridership									
3.1.1	TTA (including Rail)	3,449			4,900			37,046		
3.1.2	CAT	12,998			22,874			35,760		
3.1.3	CHT	29,536			44,990			65,864		
3.1.4	DATA	13,801			23,312			47,590		
3.1.5	NCSU	12,599			20,080			14,042		
3.1.6	DUKE	8,924			14,642			11,546		
3.1.7	OPT									
3.1.8	CARY	N/A			1,557			5,824		
3.1.9	Total	81,309			132,358			217,672		
3.2	Ridership by Routes									
3.2.1	Selma-Wake Forest NB (ID: 439)							748		
3.2.2	Selma-Wake Forest SB (ID: 440)	1,311,565						837		
3.2.3	Apex-Cary Light Rail NB (ID: 441)	683,139						1,638		
3.2.4	Apex-Cary Light Rail SB (ID: 442)	5,502,066						1,573		
4	Demographics Measures									
4.1	Population	1,311,565	880,490	375,052	2,646,987	1,949,831	551,362	2,647,122	1,951,817	549,763
4.2	Employment	683,139	439,715	227,208	1,332,378	905,568	389,249	1,331,909	906,523	388,647
4.3	Total Daily Trips	5,502,066	3,824,000	1,875,413	11,069,597	8,350,150	3,032,947	11,169,946	8,436,503	3,081,072
4.4	Total Daily Work Trips	1,126,898	817,252	416,063	2,198,381	1,711,029	682,913	2,220,171	1,736,872	697,516
4.5	Total Daily Non-Work Trips	4,375,167	3,006,747	1,459,350	8,871,215	6,639,120	2,350,033	8,949,775	6,699,631	2,383,556

7. Our Long Range Transportation Plan

Section 7 is the heart of our Long Range Transportation Plans, describing the investments we plan to make, when we intend to make them, and the associated land use development activities that promote an effective and efficient transportation system.

The transportation investments are summarized in the following categories:

- Roadways (with accompanying project list in Appendix 1)
- Fixed Guideway and premium transit services (project list in Appendix 2)
- Bus transit projects and services (project list in Appendix 3)
- Bicycle and pedestrian projects (project list in Appendix 4)
- Freight movement
- Programs to manage transportation demand
- Intelligent transportation systems: technology investments
- Transportation systems management: lower-cost roadway projects that do not add more travel lanes, but improve safety and/or operational efficiency.

7.1 Land Use & Development

Land use in the Triangle is the responsibility of each local government, not the MPOs. But few things influence the functionality and effectiveness of our transportation system as much as the locations, types, intensities and designs of new developments in our region. If we are to successfully provide for the mobility needs of the 1.6 million people here today and the additional million that will be added over the timeframe of this plan, we will need to do a top-notch job of matching our land use decisions with our transportation investments.

The ties between regional transportation interests and local land use decisions are most pronounced in three cases:

1. Transit Station Area Development.
2. Major Roadway Access Management.
3. Complete Streets & Context-Sensitive Design.

Transit Station Area Development. The MPO Long Range Transportation Plans include over \$2 billion in capital investments in rail service connecting our region's five largest activity centers and linking these centers to neighborhoods across the region (see transit investment details in sections 7.3 and 7.4). Ensuring that well-designed, compact, mixed use development occurs within the first half mile around transit stations is a key element in determining how cost-effective major transit investments will be. Working with a range of local and regional partners, Triangle Transit published a set of Station Area Development Guidelines. The following table shows the intensity of development needed around transit stops; note that Activity Level 1 is not intense enough to support fixed guideway investments such as rail.

	Residential Gross Density (units/acre)			Non-Residential Intensity (Floor Area Ratio)		
Activity Level	First ¼ mile	Next ¼ mile	Average for ½ mile	First ¼ mile	Next ¼ mile	Average jobs/acre for ½ mile
1*	10	4	7	0.3	0.15	24
2	15	7	11	0.5	0.20	35
3	22	10	16	0.7	0.25	52
4	45	15	30	1.0	0.30	113

* Activity level 1 residential and non-residential intensities are too low for regional transit station areas

Major Roadway Access Management. Roads serve two main purposes. One is mobility and the other is access. Mobility is the efficient movement of people and goods. Access is getting those people and goods to specific properties. A roadway designed to maximize mobility typically does so in part by managing access to adjacent properties. A good example is an Interstate Highway. While a motorist could expect to travel quite efficiently over a long distance using an Interstate Highway, the number of access points is restricted to only freeway interchanges every few miles. This type of roadway serves primarily a mobility function. At the other extreme, a local residential street would provide easy and plentiful access to all adjacent properties, but long distance travel on such a roadway would be time consuming and inconvenient. This type of roadway serves primarily an access function. Many costly road investments involve widening roads to provide additional travel capacity. Where these investments are made, the MPOs will work with the NCDOT and local communities to ensure that the new capacity is not inappropriately degraded by a pattern of “strip development” requiring numerous driveways and median cuts.

Complete Streets & Context-Sensitive Solutions. Roadways are the largest component of our communities’ public realm: the spaces all of us share with our neighbors and which provide access to the front doors of homes and businesses. Especially where roadways traverse town centers, walkable neighborhoods and important activity centers such as college campuses, the MPOs will work with the NCDOT and local communities to ensure that roads are appropriately designed to accommodate the full range of travel choices and that adjoining development is sited and designed to promote alternatives to auto travel. In fact, the DCHC MPO has recently conducted a series of meetings with the NCDOT to discuss design issues that will help ensure roadway projects are appropriately designed for the area in which they traverse.

So in the three instances summarized above: transit station area development, major roadway access management and complete streets whose designs are sensitive to the neighborhoods of which they are a part, the DCHC MPO and CAMPO will work with their member communities and regional organizations such as Triangle Transit and the Triangle J Council of Governments to match land use decisions with transportation investments.

7.2 Roadways

This section contains maps and a list of major road investments in the 2035 Capital Area MPO and Durham-Chapel Hill-Carrboro MPO Long Range Transportation Plans. A full listing of all roadway projects, by time period is in Appendix 1; these projects were compiled in coordination with the help of local planning departments within Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO.

Projects are separated into three categories based on anticipated date of completion. 2015 projects are projects already underway with full funding and an expected completion date by 2015. The 2025 and 2035 projects are composed of projects supported by municipalities through TIP requests or sections of roads forecasted by the Triangle Regional Model to be beyond capacity by 2035 and that can be funded with existing revenue streams or reasonably foreseeable new revenue streams.

Due to anticipated funding constraints, a fourth category includes projects that had merit but could not be completed in the coming twenty-seven years with forecasted revenue. These projects that are not part of our fiscally constrained plans are compiled separately. Each project in the fiscally-constrained plan has a segment identifier that is shown on the 2035 LRTP Road Project Map. The project listing in Appendix 1 includes information on each project’s extent, length, present and future lanes, funded completion year, cost estimation and whether it meets federal definitions for a regionally significant or exempt project.

Figure 7.2.1 is a map of highway projects by LRTP time period (2015, 2025, 2035) and Figure 7.2.2 is a listing of the major highway projects by time period in each MPO.

Figure 7.2.1– Highway Projects by LRTP Time Period

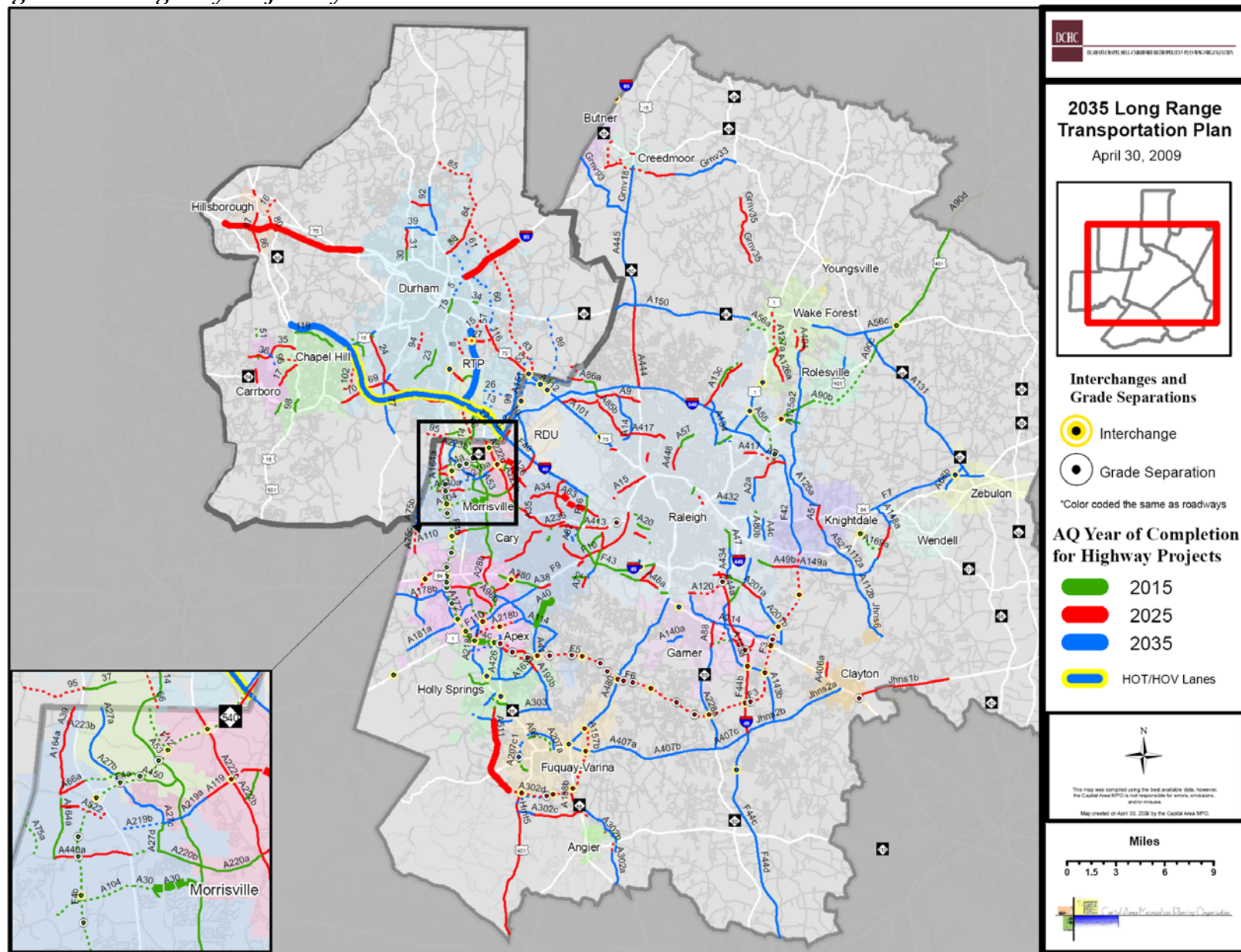


Figure 7.2.2 – Major Roadway Projects by Time Period (full listing in Appendix 1)

Durham Chapel Hill-Carrboro MPO		
2009-15	2016-25	2026-35
NC 147 extended and NC 540 completed as a toll road from Durham to Holly Spring	East End Connector completed linking US 70 to NC 147 (Durham Freeway)	HOV/HOT lanes added to I-40 from Wade Avenue (Wake County) to US 15-501 (Durham County)
	I-85 widening (I-40 to Durham County line)	I-40 widening (US 15-501 to I-85)
	I-85 widening (US 70 to Red Mill Road)	NC 147 widening (I-40 to East End Connector)
	US 70 freeway conversion (Lynn Road to Wake Co.)	Roxboro Road widening (Duke St. to Goodwin Rd.)
	Northern Durham Parkway	
Capital Area MPO		
2009-15	2016-25	2026-35
I-40 widened from Wade Ave. to Lake Wheeler Road	I-40 widened from I-440 to NC 42 in Johnston County	NC 50 widened from I-540 to NC 98
US 401 widened from I-540 to Louisburg with a Rolesville bypass	US 401 widened south of Fuquay-Varina including eastern and western bypasses	I-540 (Northern Wake Expressway) widened from I-40 to US 64 bypass and converted to toll road
NC 147 extended and NC 540 completed as a toll road from Durham to Holly Springs	NC 540 completed as a toll Holly Springs to US 64 bypass	NC 42 (Johnston & Wake Co.)
	I-440 widened from Wade Avenue to Crossroads	US 401 widened from Garner to Fuquay-Varina
	NC 54 widened through Cary and Morrisville	HOV/HOT lanes added to I-40 from Wade Avenue (Wake County) to US 15-501 (Durham County)
	US 64/264 widened from the US 64 bypass to Zebulon (?)	

7.3 Fixed Guideway and Premium Transit Services

The transit plans for the Triangle region are heavily informed by the recommendations of the Special Transit Advisory Commission, (STAC) a group of 29 citizens convened by the two MPOs to develop a Regional Transit Vision Plan. The STAC completed its work in May 2008 with a report that recommended a complete transit system with three critical elements, Bus, Rail, and Circulators:

- **BUS:** A significant expansion of bus service throughout the Triangle, adding new routes to communities presently without service, and improvements to headways at existing transit agencies
- **RAIL:** 56 miles of light rail transit connecting Chapel Hill, Durham, Research Triangle Park, Morrisville, Cary, Raleigh and North Raleigh
- **CIRCULATORS:** High-frequency (every 10 minutes) short-distance services linking major activity centers to regional and intercity rail services

The STAC emphasized a rapidly expanded bus network in the first years of any transit plan in order to demonstrate quick results to citizens and to link all the municipalities in the Triangle with transit within the first years of expansion.

STAC members also noted that rail service will provide the opportunity to shape the growth that the Triangle will receive in the future. Charlotte has experienced over \$1.9 billion in private sector development along the South Light Rail corridor while carrying several thousand riders more than projected, providing significant mobility benefits in one of the region's most congested corridors. Light rail can provide the similar opportunities in the Triangle.

The STAC developed the circulator concept to form the vital links binding together local and regional transit, major activity centers such as universities, downtowns, hospitals, and the Research Triangle Park and RDU airport. Circulator services will arrive so frequently that schedules will not be needed.

This section and the following section describe the bus and rail components of the LRTPs. There are many similarities to the STAC recommendations, and some differences based on recent information. Additional information on the STAC process and the final report and recommendations are available at the following Web site -- www.transitblueprint.org.

The major components of the fixed-guideway investment are presented in Figure 7.3.1, and Figure 7.3.2 is a map of all the fixed-guideway and bus transit services.

Fixed-Guideway and Premium Transit Services

New light rail transit and commuter rail transit investments are included in the 2035 Capital Area MPO and Durham-Chapel Hill-Carrboro MPO Long Range Transportation Plans. Details on rail technology and services are contained in Appendix 2.

Light rail transit is a departure from past long range plans that focused on passenger rail that had service using Diesel Mobile Units (DMU) technology, which could not be operated outside existing rail corridors because of safety issues.

Light rail transit provides the opportunity for the passenger rail service to depart from rail corridors and operate closer to transit oriented development along roadways. With electric propulsion, light rail can save energy costs and operate without dependence on foreign oil.

Commuter rail service tends to operate at relatively higher speeds in mainline rail corridors, serves stations that are further apart than light rail transit, and only provides service during the peak and noon hours. Thus, commuter rail service allows service to be targeted to transit markets that don't warrant service during the off-peak hours.

The major components of the fixed-guideway investment are presented in Figure 7.3.1. The exact alignment (route) and timing of fixed guideway investments will be decided with more detailed studies. But for transportation modeling and financial planning purposes, the 2035 LRTP assumes light rail service and commuter rail service will be implemented in the phases summarized in Figure 7.3.1, and that the light rail service between Durham , Raleigh and North Raleigh will operate within the existing railroad rights-of-way. Actual implementation phasing and routing might be modified based on the more detailed studies that will be required to secure financing and design the system. Routing light rail transit service outside of the railroad rights-of-way that have been studied previously could result in a longer time needed to design and build the system.

Figure 7.3.1 – Fixed-Guideway Projects by LRTP Period (technical information in Appendix 2)

Rail Segment	Type of Service	LRTP Period
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Northwest Cary Station to Spring Forest	Light Rail	by 2025
UNC Hospital to Durham Multimodal Center	Light Rail	by 2025
Triangle Metro Center to Northwest Cary	Light Rail	by 2025
Spring Forest to Triangle Town Center	Light Rail	by 2025
Durham Multimodal Center to Triangle Metro Center	Light Rail	by 2025
Apex to Cary	Light Rail	by 2035
Wake Forest to Downtown Raleigh	Commuter Rail	by 2035
Clayton to Raleigh	Commuter Rail	by 2035

Rail Corridor Protection and Support

There are additional passenger rail services and assets in the Triangle Region. Currently, Amtrak operates rail service in the Triangle Region to destinations such as Raleigh, Cary, Durham and Hillsborough, and a high speed rail corridor (from Atlanta to Washington, D.C.) is being developed in part of the Triangle Region. The 2035 LRTP assumes support for any passenger rail initiatives that the MPO might designate in the future. As an example, the Town of Hillsborough will likely propose that a train station (platform and station building) be constructed on the current Amtrak line in that Town. In addition, there are several dormant rail corridors that the MPOs have designated for preservation and purchase, should the opportunity present itself. The rail corridors, which represent an invaluable assemblage of right-of-way, can be used for future bicycle paths, commuter rail service, or other transportation facilities. These rail corridors include, but are not limited to, the following:

Rail Corridor Protection		
No.	Service Type	Route Name (Description)
1	Rail protection	NC 55/Apex
2	Rail protection	Durham - Treyburn
3	Rail protection	Durham - Hillsborough/Mebane
4	Rail protection	Chapel Hill (Eubanks) - Hillsborough
5	Rail protection	Durham Beltline

7.4 Bus Transit Services

This section summarizes investments in bus transit services in the 2035 Capital Area MPO and Durham-Chapel Hill-Carrboro MPO Long Range Transportation Plans. A full listing of all transit projects including the implementation year and type of service is in Appendix 3. The bus transit investment includes extending current service areas but emphasizes service improvements to the current service areas, which are the core transit markets.



Bus service in Downtown Durham



Circulator bus service in Downtown Raleigh

Locations receiving improvements include:

- Service expansion to several presently unserved towns, including Zebulon, Knightdale, Wendell, Rolesville, Fuquay-Varina, and Holly Springs, as well as bus stops in unincorporated portions of Wake, Durham, and Orange counties
- Enhanced service in Raleigh, Cary, Morrisville, Wake Forest, Garner, Apex, Durham, Chapel Hill, Carrboro and Hillsborough

Types of improvements include:

More frequent service -- Current headways for buses in the Triangle are often one bus every 30 minutes during rush hour or every 60 minutes off-peak. This plan reduces many headways to once every 15 minutes or 20 minutes during rush hour.

Expanded service -- Additional service hours to expand evening and weekend service on selected routes.

Rail Coordination -- Bus routes will be re-aligned to connect with passenger rail services wherever possible.

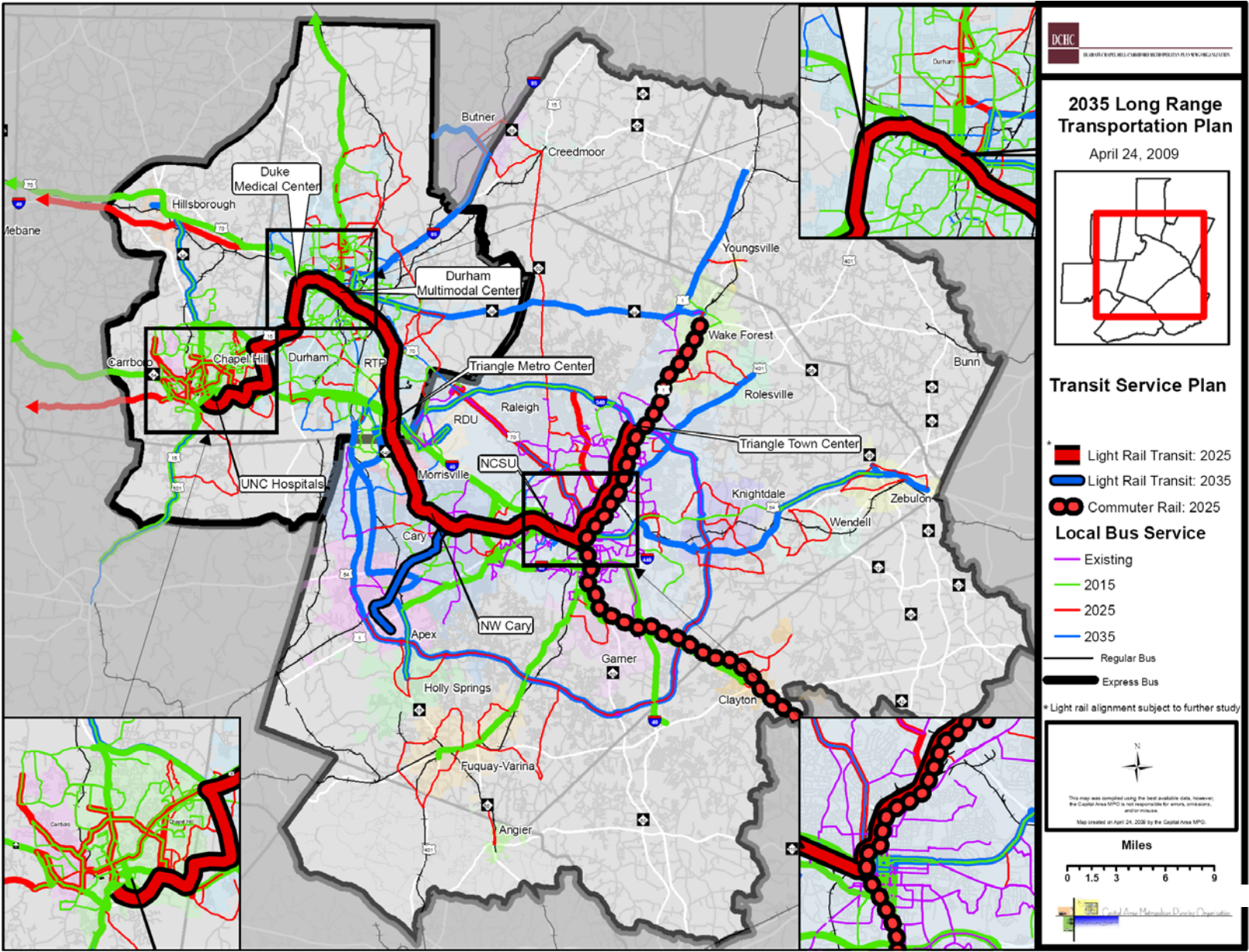
Enhanced MLK corridor in Chapel Hill -- The MLK corridor project will provide very frequent service and will provide buses a dedicated travel lane for part of the journey from the Eubanks Rd park and ride to downtown Chapel Hill.

New technology -- There will be technology applications such as satellite tracking of buses that allow for real-time bus schedule information to be relayed to users through the internet and cell phones.

Circulator service -- Intensive bus service every 10 minutes, or even more often, connection destinations inside employment centers such as central Raleigh, central Durham and Chapel Hill, as well as more frequent service to Cary, Research Triangle Park and RDU airport.

Figure 7.3.2 is a map depicting the bus transit and rail transit routes and improvements in the 2035 LRTP. The MPOs' web sites have a larger version of this map for display and download.

Figure 7.3.2 – Map of Fixed-Guideway and Bus Transit Service in 2035 L RTP



7.5 Bicycle and Pedestrian Facilities

Bicycle and pedestrian transportation are becoming integral forms of travel in the Triangle Region. The land use characteristics of local universities, business districts, and major activity centers encourage short trips that can be easily served by biking and walking. Urban centers retain attractive, grid street patterns with retail and residential developments that lend well to biking and walking, and the scenery of the region's rural landscape provides opportunities for bicycle and pedestrian tourism and recreational cycling. Additionally, the area's geography and mild year-round climate make these modes viable travel options.

In response to the increased popularity of bike and pedestrian travel, the DCHC and CAMPO MPOs encourage the creation of a pedestrian and bicycle system that provides an alternative means of transportation, allows greater access to public transit, and supports recreational opportunities. Member governments coordinate planning efforts and strive toward the development of a safe, accessible and convenient network of regional bicycle and pedestrian routes. Many local governments in the region have prepared their own citywide bicycle and pedestrian plans and/or facility inventories. The composite material from these plans and studies has contributed to bicycle/pedestrian corridor identification and facility proposals on a regional level, and guided the LRTP 2035 Bicycle and Pedestrian Plan project components.



A bicyclist commuter

Pedestrian Facilities

Pedestrian facilities in the Triangle region vary in type, condition and level of service. Urban areas within the MPO boundary are often outfitted with suitable sidewalk facilities, however many thoroughfares lack any pedestrian accommodations or relegate pedestrians to one side of the roadway. Historically, suburban development has been inattentive to pedestrian needs, leading to incomplete pedestrian networks within highly-populated commercial-residential areas. Also, many areas once classified as “rural” are seeing increases in development, and citizens are demanding pedestrian access from their neighborhoods to adjacent commercial or institutional uses. Local governments recognize all of these pedestrian needs, and are working toward filling the missing links in our local sidewalk networks.

On a regional level, the MPOs encourage pedestrian projects. Most town and city governments have instituted sidewalk requirements for new development, and sidewalk upgrades are generally included in roadway construction projects. Most roadway projects in the ‘Roadway Element’ of the LRTP are expected to provide appropriate accommodations for pedestrians, concurrent with roadway improvements. Missing links and gaps in the pedestrian networks will be constructed retroactively. Priority is generally given to areas with heavy pedestrian traffic generators, such as schools, parks and business districts.

The MPOs rely on the “NCDOT Planning and Designing Local Pedestrian Facilities” guide and local standards to identify appropriate facility type, and depend on local plans for project identification. The MPOs rely on the “NCDOT Bridge Policy” to ensure that new bridges in the urban area include sidewalks or have sufficient bridge deck width to accommodate future sidewalks. Projects are prioritized on a regional level for funding allocation. The following table presents recent local plans and inventories used for facility recommendations include:

Figure 7.5.1 – Local Plans and Inventories Used for Pedestrian Facility Recommendations

• Carrboro Sidewalk Policy (1989)	• Chapel Hill Bicycle & Pedestrian Action Plan (2004)
• Hillsborough Vision 2020 Plan (1991, revised 1998)	• Durham DurhamWalks! Pedestrian Plan (2006)
• Apex Bicycle & Pedestrian Plan (2002)	• Cary Comprehensive Transportation Plan (2008)
• Wake Forest Pedestrian Plan (2008)	• Garner Transportation Plan (1999)
• Zebulon Multimodal Transportation Plan (2001)	

Bicycle Facilities

The 2035 LRTP recommends extensive integration of bicycle needs into the design and construction specification of new highways and other future or ongoing transportation projects. The bicycle projects include off-road shared-use bicycle paths, on-road bicycle lanes and wide shared roadways in urban areas, as well as paved 4-foot shoulders on rural roads. Highway and transit project designs assume the provision of bicycle racks and other bicycle and pedestrian amenities at key locations such as park-and-ride lots, transit hubs, and major activity centers.

The 2035 LRTP identifies regional bicycle routes in the Triangle region. Regional bicycle routes provide links between major destinations and between urban centers; facilitate primarily utilitarian bicycle trips, though the routes can also serve recreational cycling; and serve as a backbone to a finer grained system of local bicycle routes in each jurisdiction. The NCDOT “Bicycle Facilities, Planning and Design Guidelines” and AASHTO “Guide for Development of New Bicycle Facilities” act as construction standards for projects, and local agencies play a lead role in the implementation of new projects. The MPOs rely on the “NCDOT Bridge Policy” to ensure that new bridges have sufficient bridge deck width to accommodate planned bicycle facilities. Local plans supplement the LRTP regional bicycle routes by identifying additional projects and development requirements to complete the regional bicycle transportation network. These local plans include:



A bicyclist on the American Tobacco Trail in Durham County

Figure 7.5.2 – Local Plans Used for Bicycle Facility Recommendations

• Carrboro Comprehensive Bicycle Transportation Plan (pending)	• Orange County Bicycle Transportation Plan (1998)
• Chapel Hill Bicycle & Pedestrian Action Plan (2004)	• Durham City and County Comprehensive Bicycle Transportation Plan (2006)
• Apex Bicycle & Pedestrian Plan (2002)	• Cary Comprehensive Transportation Plan (2008)
• Raleigh Bicycle Transportation Plan (pending)	• Capital Area MPO Bicycle & Pedestrian Plan (2003)
• Garner Transportation Plan (1999)	• Zebulon Multimodal Transportation Plan (2001)

Education, Enforcement & Encouragement

In addition to facility improvement projects included in the LRTP, the DCHC and Capital Area MPOs have devised a series of local education, enforcement and encouragement programs. Outreach programs are essential elements of any bicycle and pedestrian friendly community, and complement the engineered components of a bicycle and/or pedestrian route network. The following recommendations are intended to increase bicycle and pedestrian safety and provide the incentive to get more people biking and walking in the region.

Education

- Institutionalize bicycle safety education within the public school system.
- Provide bicycle instruction to adult cyclists.
- Educate motorists to share the road with cyclists.
- Establish a local fund for bicycle and motorist education.

Enforcement

- Update bicycle traffic laws.
- Develop an active enforcement program.
- Develop a bicycle registration program.
- Appoint a “Bicycle Liaison Officer”.
- Develop a “Cops on Bikes” program.



Police officers on bicycles in Durham, N.C.

Encouragement

- Offer incentives to employers to encourage employee bicycle commuting.
- Conduct a well-publicized annual “Bike-to-Work” week.
- Develop links between bicycle facilities and mass transit.
- Develop a publicity campaign to raise awareness of cycling issues.
- Conduct an annual Regional Bicycle Festival.
- Publicize the region as “bicycle-friendly.”
- Encourage community-based support for cycling.
- Develop cooperative relationships.
- Promote Safe Routes to Schools and walk/bike to school events.
- Participate in the annual Triangle SmartCommute Challenge.

In addition, the MPOs are developing supplementary resources, such as bicycle maps, safety-education materials, and community action plans that provide a development strategy for the implementation of the four “E’s” – engineering, education, encouragement and enforcement. Many member jurisdictions are proceeding toward great accomplishments in the outreach sector, including the national recognition of Carrboro and Cary as “Bicycle Friendly Communities” by the League of American Bicyclists. The MPOs continually seek projects to fund using the Safe Routes to School (SRTS) program, and several school activities have been completed using this funding source. New Freedom program funding will be used for senior citizen travel training that includes the pedestrian journey between the bus stop and their origin and destination. With such progress already being made, it is certain that the DCHC and Capital Area MPOs will continue to advance toward a sophisticated, well-integrated bicycle and pedestrian transportation system over the next three decades.

Maps

The maps on the following pages illustrate both MPOs' plans for a network of on-road and off-road bicycle and pedestrian facilities, but depict different approaches for communicating the networks to decision-makers and the public. The MPOs' web sites provide larger versions of these maps.

There are two maps for the Durham-Chapel Hill-Carrboro MPO. The first map displays roads where on-road bicycle facilities are planned, and also illustrates regional bicycle routes. The second map shows planned off-road, shared-use bicycle and pedestrian trails. Note that some on-road facilities will be provided as an incidental part of roadway construction projects (safety or capacity expansion). Other on-road projects will specifically add bicycle and pedestrian accommodations.

The Capital Area MPO map shows an extensive regional network of off-road bicycle and pedestrian facilities in conjunction with on-road facilities that will receive bicycle-pedestrian accommodations only. This on-road/off-road network is congruent in scope, and communicates opportunities for multiple forms of access throughout the region. Projects included on the "Roadway Element" will incorporate bicycle and pedestrian accommodations in conjunction with capacity improvements; which is consistent with the principle of "universal access" as addressed in the Capital Area MPO Bicycle and Pedestrian Plan adopted in 2003. Roads that will receive bicycle and pedestrian accommodations only are those roads that did not meet strict criteria for capacity improvements, but in practicing good transportation system management would qualify as candidates for bicycle and pedestrian accommodations.

Figure 7.5.1 Bicycle & Pedestrian Investment

2009-2035 Bicycle and Pedestrian Investment (\$2008)		
Total	CAMPO	DCHC MPO
\$519,000,000	\$151,000,000	\$368,000,000

Figure 7.5.2 **Capitol Area MPO Regionally Significant Off-Road Facilities**

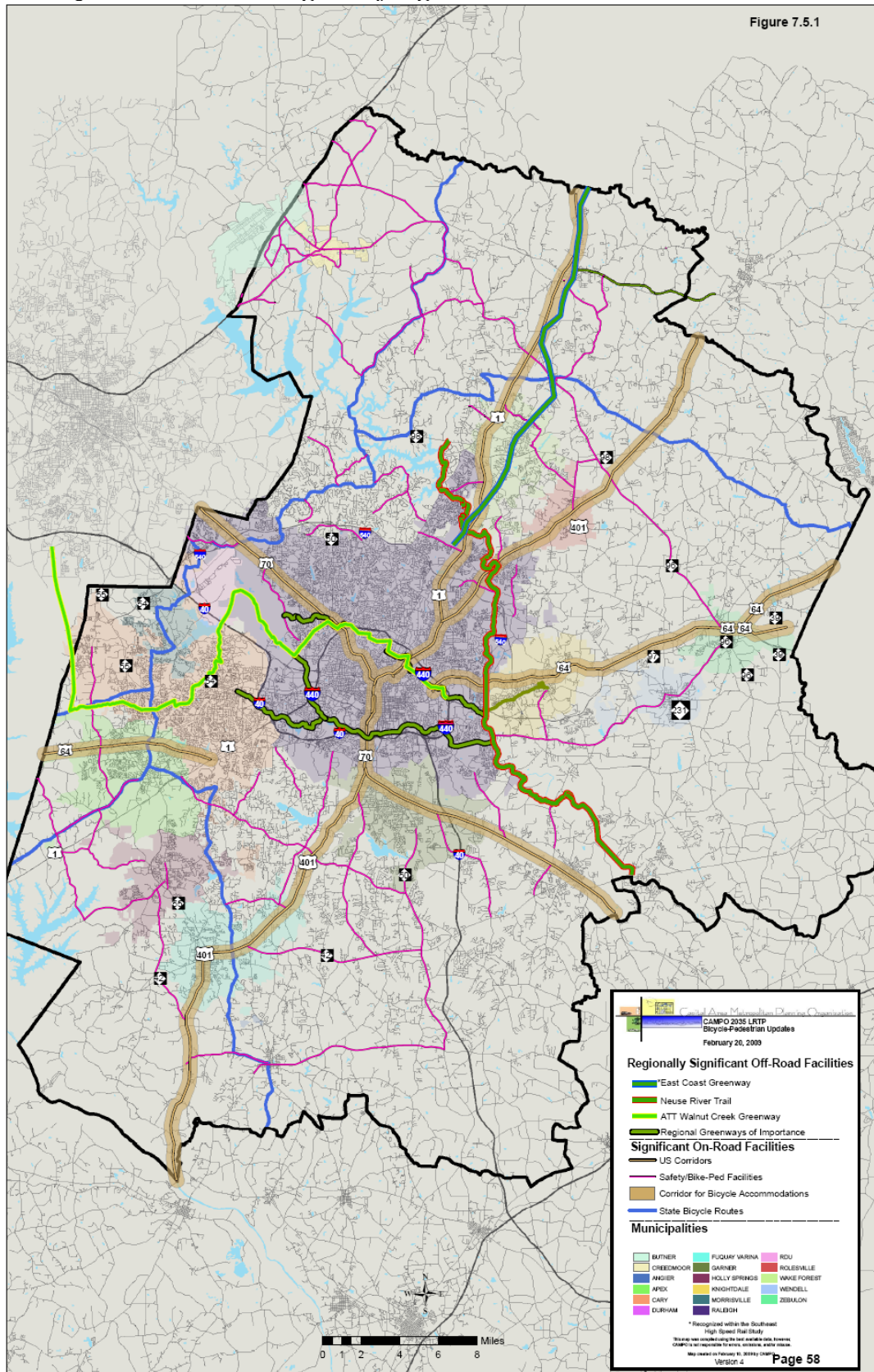


Figure 7.5.3 DCHC MPO On-Road Bicycle Facilities

Figure 7.5.2

DURHAM CHAPEL HILL CARRBORO METROPOLITAN PLANNING ORGANIZATION On-Road Bicycle Facilities in Draft 2035 LRTP

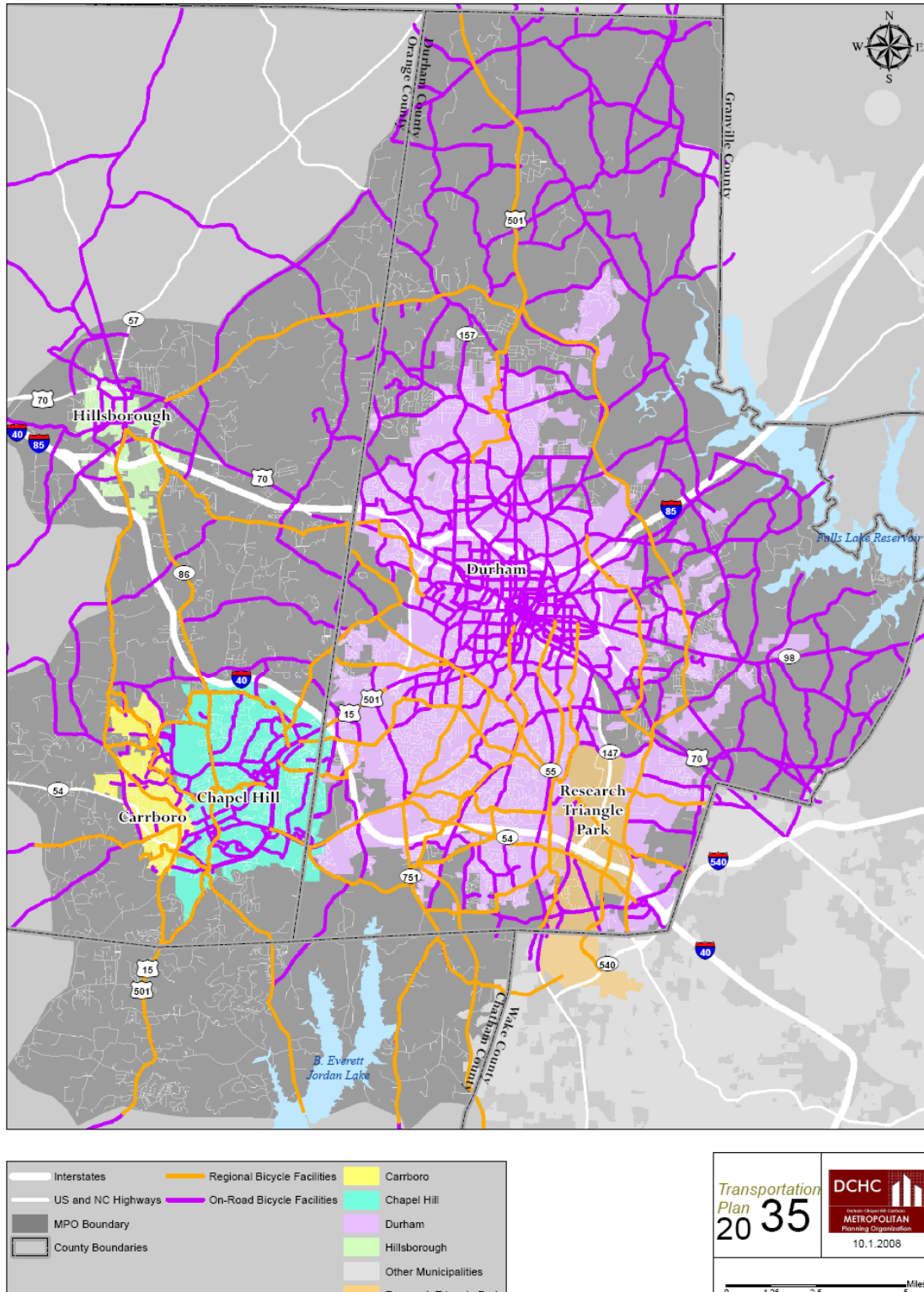
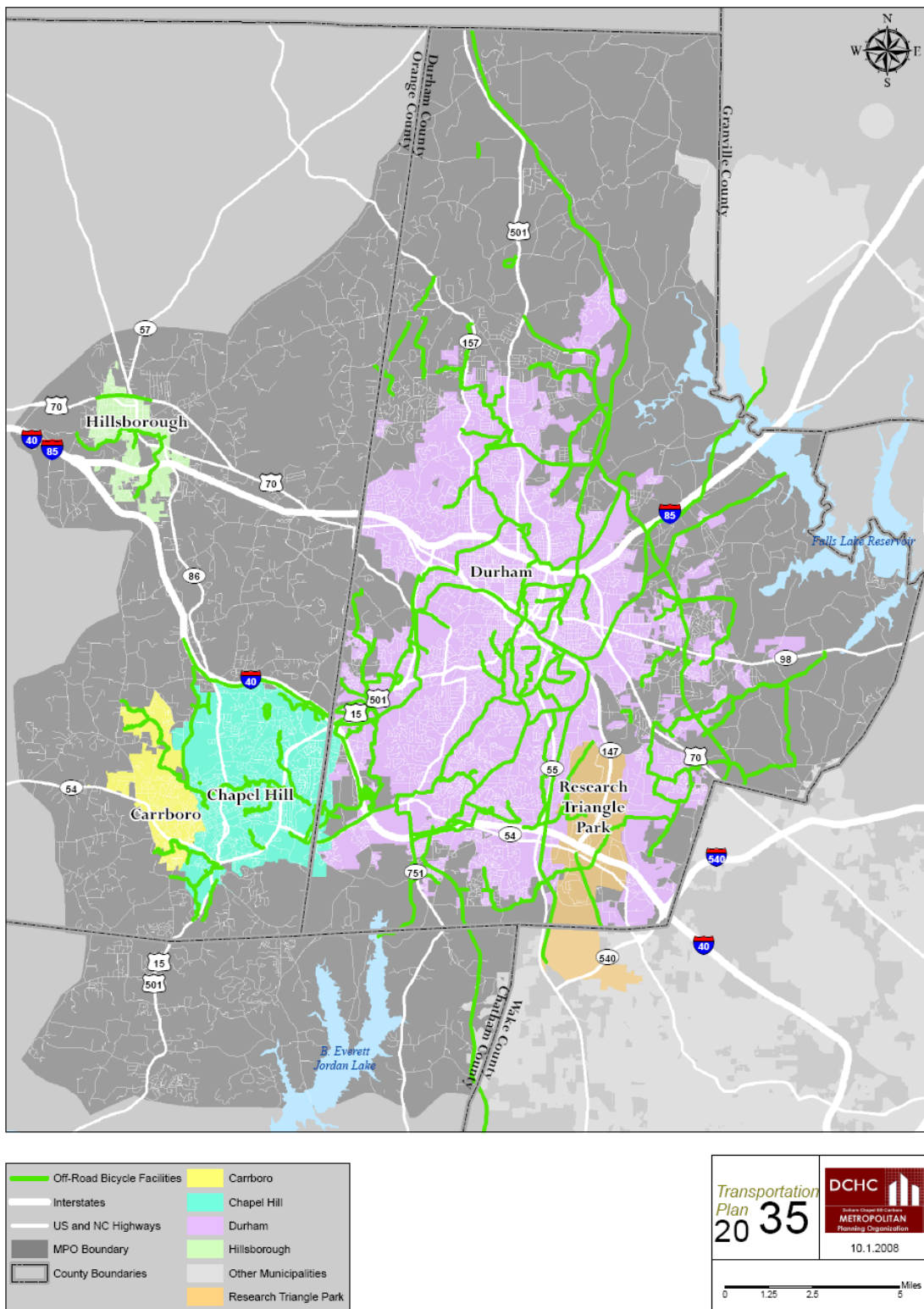


Figure 7.5.4 DCHC MPO Off-Road Bicycle Facilities

**DURHAM CHAPEL HILL CARRBORO
METROPOLITAN PLANNING ORGANIZATION
Off-Road Bicycle Facilities in Draft 2035 LRTP**



7.6 Freight Movement

Metropolitan Planning Organizations are being encouraged to effectively address freight transportation issues in accordance with policies outlined with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

The Freight Industry has established five planning goals that are concurrent with most of the goals of MPOs as well. They are:

1. Economic Efficiency;
2. Congestion Mitigation;
3. Safety Improvement;
4. Air Quality Improvement; and
5. System Security.

Freight handlers have often believed that Metropolitan Planning Organizations may not understand that “time is money” for participants in the freight industry; while shippers and carriers may not understand the planning process, along with its value and jargon.

Communication between Metropolitan Planning Organizations and stakeholders in the freight industry can be difficult. This is due to the fact that desired planning data of interest to an MPO raises suspicions among freight industry stakeholders that the release of proprietary information may result in the loss of competitive position. Shippers/carriers are willing to participate in the MPO process to be “good corporate citizens”; yet members of the freight industry believe that it is good for planners to visit shipper/carrier facilities to learn and gain respect for the freight industry.

The Capital Area MPO has within the past two years sought for and received participation by the North Carolina Trucking Association in the US 1 Corridor Study. The Capital Area MPO has also been in contact with one of North Carolina’s trucking industry liaisons; who also serves as a professor at North Carolina State University. The goal of the outreach process is to ensure that the North Carolina’s Freight Industry and associated organizations are aware of ongoing developments concerning the transportation network, and to pursue their input and participation in future transportation development processes.

Furthermore, the Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO will partner with NCDOT and Triangle Transit to have the Triangle Regional Model Service Bureau conduct a Commercial Vehicle data collection to support improvements to the Regional Travel Model. This project, which is funded in the 2009-2010 Unified Planning Work Program, will require that distribution centers throughout the region be identified and that commercial truck volumes are collected at the center locations. The two MPOs have also included a freight plan in the 2010-2011 Unified Planning Work Program.

7.7 Programs to Manage Transportation Demand (TDM)

Each year, hundreds of millions of dollars are spent in the region on the supply side of mobility: building and maintaining roads, buying and operating buses, building sidewalks and bicycle facilities. Some of the most cost-effective mobility investments we can make are on the demand side: encouraging commuters to use our transportation facilities as efficiently as possible by carpooling, vanpooling, taking transit, telecommuting or walking or bicycling.

These marketing and outreach efforts targeted to commuters and the employers they work for are called Transportation Demand Management, or TDM. For the last few years, service providers in the region have undertaken a range of TDM projects, such as Triangle Transit’s *SmartCommute Challenge*, Triangle J Council of Government’s *Best Workplaces for Commuters* program and local programs at

UNC-Chapel Hill, NC State University and the Research Triangle Park. These TDM efforts can be very effective: the 2008 *SmartCommute Challenge* encouraged 12,800 people to try an alternative commute mode. And about 100,000 workers – 1 of every 7 workers in the region – are employed at a *Best Workplace for Commuters*, where their employer offers commute benefits such as subsidized transit passes, vanpooling or telework.

During 2007, all of the TDM service providers and funding sponsors came together and crafted a 7-Year Triangle Region Transportation Demand Management Plan for the Triangle. Implementing the plan is designed to achieve a goal of reducing the *growth* in the amount of *commuter* travel by 25%. The plan provides both a more systematic framework for TDM coordination and significantly more state and federal funding for TDM. TDM Plan details are available at www.triangletdmplan.com.

The 7-Year TDM Plan recognizes that the most effective TDM strategies are targeted to employment “hot spots:” places where employment is concentrated, including sites where transit service is available and/or parking is costly or inconvenient, such as in downtowns and at university campuses.

Implementing and extending this TDM Plan is included in the Long Range Transportation Plans. This implementation includes:

- aggregating funding from the sponsors: state funds from NCDOT and federal funds allocated by the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO,
- issuing a competitive “call for projects” from providers of TDM services, and
- working with an Oversight Committee of federal, state and MPO staff that works with applicants to refine their proposals and makes recommendations for funding.

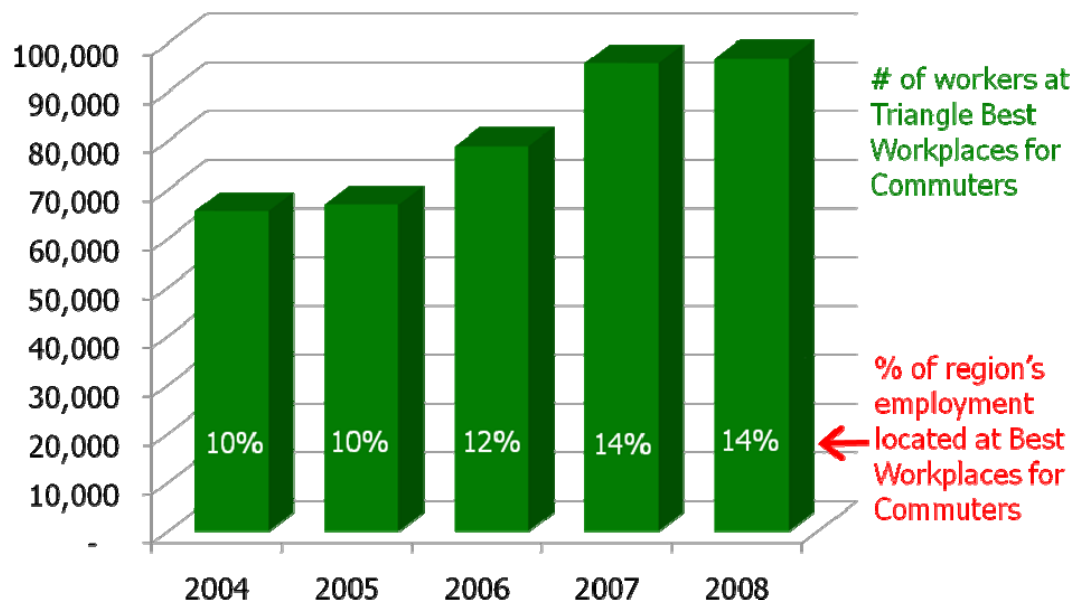
Based on this plan and the current level of the region’s comprehensive, coordinated TDM program, the 2035 Long-Range Transportation Plans include funding for TDM services as shown in Figure 7.7.1, expressed in Year 2008 dollars; note that service providers supply a significant cost share to match federal and state funds:

Figure 7.7.1 – Transportation Demand Management Investment (Year 2008\$)

Durham Chapel Hill-Carrboro MPO	2009-15	2016-25	2026-35	Total 2009-35
DCHC MPO Federal \$	\$ 2,380,000	\$ 4,580,000	\$ 4,580,000	\$ 11,540,000
NCDOT funding	\$ 2,668,500	\$ 3,604,500	\$ 3,604,500	\$ 9,877,500
Service Provider funding	\$ 2,439,000	\$ 4,468,500	\$ 4,468,500	\$ 11,376,000
Total DCHC MPO	\$ 7,487,500	\$ 12,653,000	\$ 12,653,000	\$32,793,500
Capital Area MPO	2009-15	2016-25	2026-35	Total 2009-35
CAMPO federal \$	\$ 2,970,000	\$ 5,720,000	\$ 5,720,000	\$14,410,000
NCDOT funding	\$ 3,261,500	\$ 4,405,500	\$ 4,405,500	\$12,072,500
Service Provider funding	\$ 2,981,000	\$ 5,461,500	\$ 5,461,500	\$13,904,000
Total CAMPO	\$ 9,212,500	\$ 15,587,000	\$15,587,000	\$40,386,500
Regional Total	\$16,700,000	\$28,240,000	\$28,240,000	\$73,180,000

The region's transportation demand management program can be a crucial component of the overall transportation system, prompting employers to encourage the use of alternatives to driving alone and assisting commuters in understanding and using these alternatives, as evidenced by Figure 7.7.2 which tracks the growth in employees who work for organizations that offer specific alternative commuting benefits and have committed to an alternative commuting target.

Figure 7.7.2 – Participation in the Best Workplaces for Commuters Program in Durham, Orange and Wake Counties



7.8 Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) is a set of diverse technologies that make the existing transportation infrastructure more efficient and safer. Indeed, efficiency and safety are among the principal goals of the 2035 LRTP. These technology systems tend to be region wide because of the interconnection among our road systems and our travel patterns, and subsequently require a high level of coordination that often demands new institutional arrangements.

The CAMPO, DCHC MPO, NCDOT and private consultants are working together to plan and implement a coordinated framework of ITS solutions for the region. A considerable ITS investment has already been made, as evidenced by the many closed circuit television, freeway management, incident management, traffic signal control and other ITS projects in operation throughout the region. Figure 7.8.1 – Intelligent Transportation Systems Investments shows the new systems proposed in the 2035 LRTP. This table breaks the ITS systems into ten different types, lists systems under each type, and forecasts the costs of each type for the two MPOs. This list is not expected to be exhaustive because the solutions and technologies will continue to evolve with the specific challenges of our transportation system and the advance of transportation technology.

Figure 7.8.1 – Intelligent Transportation Systems Investment

Intelligent Transportation System (ITS)	2035 LRTP Costs		
	Total	CAMPO	DCHC
Freeway Management (Interstates, US highways and other freeways)	\$17,550,000	\$ 11,583,000	\$ 5,967,000
Electronic surveillance and traffic monitoring	Highway advisory radios		
Ramp metering	Closed circuit television (with public access)		
Dynamic message sign	Incident management assistance patrols (IMAP)		
Incident Management System	\$7,450,000	\$ 4,917,000	\$ 2,533,000
Surveillance cameras	On-call service patrol/towing services		
Incident management algorithms	Road access and disruption management system		
Cell phone communication	Work zone safety monitoring		
Arterial Management (advanced signal/traffic control systems)	\$79,740,000	\$ 52,628,400	\$ 27,111,600
Closed circuit television (with public access)	Traffic adaptive signals		
Dynamic message sign	Signal systems upgrade and enhancements		
Fibers/communications			
Public Transportation ITS (regional rail, fixed route, demand-responsive buses, BRT, circulators, and regional express.)	\$21,000,000	\$ 13,860,000	\$ 7,140,000
Automated vehicle tracking-AVL/AVI	Web-based scheduling system and trip planner		
Electronic fare payment including smart card fare system	Transit corridor priority systems and multi-modal coordination		
Public transportation (transit center)	Transit security		
Real time bus information (bus stops and transfer centers)	Transit center		
Rail Operation Information Network	\$2,300,000	\$ 1,518,000	\$ 782,000
Operation network	Rail crossing		
Advanced Traveler Information System	\$4,000,000	\$ 2,640,000	\$ 1,360,000
Electronic Toll (toll roads and HOT)	\$4,000,000	\$ 2,640,000	\$ 1,360,000
Electronic toll	Smart cards		
Transponders			
Emergency Management	\$4,900,000	\$ 3,234,000	\$ 1,666,000
HAZMAT management	Weather Information Processing and Distribution		
Emergency routing			
ITS Data Warehouse and Archive	\$2,800,000	\$ 1,848,000	\$ 952,000
Commercial Vehicle ITS	\$2,700,000	\$ 1,782,000	\$ 918,000
Total ITS Investment	\$146,440,000	\$96,650,400	\$49,789,600

7.9 Transportation System Management (TSM)

Transportation System Management (TSM) solutions increase efficiency and safety by allowing the current transportation network to operate with fewer travel delays and increased capacity. These projects are often relatively inexpensive compared to building and widening roadways and operating public transportation, and often provide cost effective solutions that can be implemented relatively quick and with relatively fewer environmental impacts. Many of the projects can be implemented in small phases – they can be built as public funding becomes available, or as development occurs and partnerships with private developers are created.

The following list provides examples of the types of TSM projects that are expected to be implemented through the 2035 LRTP period. This list is not expected to be exhaustive because the solutions will continue to evolve with the specific challenges of our transportation system.

- Widening of approach widths for key intersections;
- Installation and/or adjustment of traffic signals, including dynamic signal timing coordination;
- Provision of left and/or right turn lanes;
- Limitation or prohibition of driveways, turning movements, trucks, and on-street parking;
- Installation of traffic calming devices for residential neighborhoods; and,
- Planning for traffic circles and roundabouts at appropriate intersections.

TSM projects in the Capital Area MPO. The Capital Area MPO includes funding for TSM in the overall roadway category. Appendix 1 of this report includes the list of highway projects included in this plan. In the CAMPO part of the list, several projects are listed which do not increase the number of travel lanes on a road, but instead make safety, intersection, or other TSM improvements.

TSM priorities in the DCHC MPO. The estimated costs for TSM projects from 2009 through 2035 are \$111 million in the DCHC MPO. Many roadways and intersections in northeast Chatham County and southwest Durham County need capacity and safety improvements to address the expected traffic volume increases. Roadway widenings for this area were not specifically included in the Highway project list of the 2035 LRTP because of highway funding constraints and concerns about the environmental impacts that widenings might have on the surrounding wetlands. As a result, Figure 7.9.1 – TSM Projects in NE Chatham/SE Durham, specifically identifies possible TSM projects for the roadways and intersections in northeast Chatham County and southwest Durham County. These TSM projects have been drawn from the draft “Farrington Road Corridor Study.”

Figure 7.9.1 – TSM Projects in NE Chatham/SE Durham

Road/Intersection	Short Term TSM	Long Term TSM
US 15/501 and Jack Bennett Road	Lengthen the existing westbound left-turn lane on Jack Bennett Road to provide 250 feet of full-width storage.	None
Old Farrington Point Road and Lystra Road	Construct an additional eastbound left-turn lane on Lystra Road with 425 feet of full-width storage.	Construct an exclusive southbound right-turn lane on Old Farrington Point Road with 300 feet of full-width storage, <u>or</u> Convert traffic signal to a roundabout

Road/Intersection	Short Term TSM	Long Term TSM
Farrington Point Road/Old Farrington Point Road and Mt. Carmel Church Road	None	<p>Construct an exclusive westbound right-turn turn lane on Farrington Point Road with 100 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive northbound right-turn lane on Old Farrington Point Road with 225 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive southbound left-turn turn lane on Mt. Carmel Church Road with 125 feet of full-width storage, <u>or</u>,</p> <p>Install a roundabout or traffic signal when warranted.</p>
Farrington Mill Road and Barbee-Chapel Road	None	<p>Construct an exclusive eastbound right-turn turn lane on Barbee-Chapel Road with 125 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive westbound left-turn lane on Farrington Point Road with 700 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive northbound left-turn lane on Farrington Point Road to provide 225 feet of full-width storage, <u>or</u>,</p> <p>Install a roundabout or traffic signal when warranted.</p>
Farrington Road and Stagecoach Road	Construct an exclusive northbound right-turn turn lane on Farrington Road with 200 feet of full-width storage.	<p>Construct an exclusive southbound left-turn lane on Farrington Road with 100 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive westbound left-turn lane on Stagecoach Road with 100 feet of full-width storage, <u>or</u>,</p> <p>Install a roundabout or traffic signal when warranted.</p>
NC 751 Hope Valley Road and Stagecoach Road	Construct an additional eastbound left-turn lane on Stagecoach Road with 250 feet of full-width storage.	<p>Construct an additional northbound and southbound through lane on Hope Valley Road, <u>and</u>,</p> <p>Construct an exclusive northbound left-turn lane on Hope Valley Road with 400 feet of full-width storage, <u>and</u>,</p> <p>Construct an exclusive southbound right-turn lane on Hope Valley Road with 200 feet of full-width storage.</p>
NC 751 (US 64 to O'Kelly Chapel Rd.)	None	Install curb and gutter and other safety improvements

7.10 Recommended Special Plans, Projects and Studies

MPOs may choose to identify plans, projects or studies that may be undertaken to provide additional analysis or detail, or to clarify issues raised in the development of the Long Range Transportation Plans. These may include corridor studies, small area plans, financial analyses, functional plans or other efforts like those that have been conducted in the past and which have been summarized in Section 5.4. Although this section is not designed to list every plan or study that may be undertaken, it indicates some of the major efforts that the two MPOs and their partners are anticipated to pursue through their annual Urban Planning Work Programs (UPWPs), the planning budget documents that guide MPO activities. This section outlines possible plans, projects or studies using the same format as the recent and existing plans and studies described in Section 5.4. Also included are major efforts designed to improve the input data, accuracy and functionality of the region's principal analysis tool: the Triangle Region Travel Demand Model.

	<i>Recommended Plan or Study</i>	<i>Type</i>
1	<i>Regional Transit Financial Plan.</i> A detailed plan showing how proposed new regional revenue sources would be used to provide the first transit investments implementing the transit services contained in this Long Range Transportation Plan; this financial plan is expected to be a requirement for obtaining a new regional revenue source for transit based on legislation introduced in the 2009 General Assembly.	Transit Plan
2	<i>NC 50 Corridor Study.</i> Examine potential impacts of improvements to NC-50 on NC-56, a re-evaluation of alternative alignments for the Creedmoor Loop; and may include evaluation of impacts on other roads – i.e., SR 1700 Brassfield Road, etc. NC-50 is the primary commuting arterial between Granville County and Wake County. There is decreasing mobility along the roadway due to an increased population growth rate, rising average daily traffic (ADT), and freight traffic. NC-50 was Granville County's Number 1 priority project during the last prioritization process. The municipalities in Granville County, i.e., Creedmoor, Oxford, Stem, and the Town of Butner all have concerns about congestion, access management and mobility along NC-50	Corridor Study
3	<i>Capital Area Transit's Mid Range Transit Plan.</i> Capital Area Transit plans to develop a mid-range transit plan for counties and municipalities within the Capital Area MPO's Metropolitan Area Boundary. This plan will use existing plans and new projections to create a clear vision of transit services that would be implemented within the Capital Area MPO over a five to fifteen year period.	Transit Plan
4	<i>Triangle Regional Model Services Bureau Commercial Vehicle Survey.</i> The Triangle Regional Model Services Bureau will prepare for Major Model Update as well as shorter term model improvements. Proposed activities include: (1) gather MPO collected speed data; (2) obtain MPO collected parking inventory data and prepare for analysis, and (3) conduct Commercial Vehicle data collection to support Major Model Update	Transportation Model Improvement

	<i>Recommended Plan or Study</i>	<i>Type</i>
5	<i>UrbanSim Land Use Model.</i> A two-phased approach for the development and implementation of UrbanSim. Phase One involves the development and implementation of UrbanSim at the “neighborhood” level. This will include effective benchmarks, back-casting and visualization tools. Such a model would allow planners to explore land use-transport interactions on either an MPO or neighborhood/transit station-area basis. Phase Two will involve the development and implementation of a full blown model at the parcel level or in grid cells. A more comprehensive and complex modeling system can be developed over the longer term.	Transportation Model Improvement
6	<i>NC54/I-40 Corridor/Sub-Area Study.</i> Corridor/Sub-Area study designed to analyze and articulate the problems within the NC 54 corridor, evaluate mitigating measures and identify transportation and land-use strategies for alleviating and mitigating current and future transportation problems and land development demands.	Small Area Plan
7	<i>CORE Transit Connections Plan.</i> A detailed plan developed in cooperation with the Research Triangle Foundation and Raleigh-Durham Airport Authority showing how the Research Triangle Park, the Raleigh-Durham International Airport and nearby development will be linked to regional transit lines serving the center of the region.	Transit Plan Small Area Plan
NOTE: this list of plans and studies may be modified in the final report		

S.E. High Speed Rail Corridor

The Federal Rail Administration (FRA) is currently funding environmental work along the Southeast High Speed Rail Corridor. Completion of the Draft Tier II EIS (Environmental Impact Statement) from Richmond to Raleigh is expected in early 2010. The final Tier II EIS is expected to be completed by the end of 2010.

7.11 Alternative Plan in Case of Plan Lapse

Two requirements of Long Range Transportation Plans are that they be updated at least every four years and that they demonstrate that they meet air quality standards. If either of these conditions is not met: if either the plan is older than four years or the motor vehicle emissions generated by the travel forecast with the plan’s implementation would exceed allowable standards, then the plan is said to “lapse.”

A plan lapse means that new projects in the plan cannot advance: federal funding and project approvals will be withheld until the plan is brought back into compliance. During a lapse, only projects deemed “exempt” under federal law are permitted to move forward. Generally, exempt projects are those that address safety concerns or provide specified operational and mobility improvements that do not add new capacity to the transportation system.

Therefore, the alternative plan in case of a plan lapse includes the set of exempt projects that are identified in the project lists in the appendices. The alternative plan in case of a plan lapse also includes the plan elements in this chapter related to land use and development, bicycle and pedestrian facilities, programs to manage transportation demand and bus transit services, since these are not regionally significant projects that add capacity. Only those roadway projects

specifically identified as exempt in Appendix 1 would be part of the alternative plan in the case of a plan lapse. Figure 7.11.1 on the next page shows the types of projects that are exempt.

Figure 7.11.1—Types of Exempt Projects

Safety

- Railroad/highway crossing.
- Projects that correct, improve, or eliminate a hazardous location or feature.
- Safer non-Federal-aid system roads.
- Shoulder improvements.
- Increasing sight distance.
- Highway Safety Improvement Program implementation.
- Traffic control devices and operating assistance other than signalization projects.
- Railroad/highway crossing warning devices.
- Guardrails, median barriers, crash cushions.
- Pavement resurfacing and/or rehabilitation.
- Pavement marking.
- Emergency relief (23 U.S.C. 125).
- Fencing.
- Skid treatments.
- Safety roadside rest areas.
- Adding medians.
- Truck climbing lanes outside the urbanized area.
- Lighting improvements.
- Widening narrow pavements or reconstructing bridges (no additional travel lanes).
- Emergency truck pullovers.

Mass Transit

- Operating assistance to transit agencies.
- Purchase of support vehicles.
- Rehabilitation of transit vehicles.
- Purchase of office, shop, and operating equipment for existing facilities.
- Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).
- Construction or renovation of power, signal, and communications systems.
- Construction of small passenger shelters and information kiosks.
- Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).
- Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.
- Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet.
- Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.

Air Quality

- Continuation of ride-sharing and van-pooling promotion activities at current levels.
- Bicycle and pedestrian facilities.

Other

- Specific activities which do not involve or lead directly to construction, such as:
 - Planning and technical studies.
 - Grants for training and research programs.
 - Planning activities conducted pursuant to titles 23 and 49 U.S.C.
 - Federal-aid systems revisions.
- Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.
- Noise attenuation.
- Emergency or hardship advance land acquisitions (23 CFR 710.503).
- Acquisition of scenic easements.
- Plantings, landscaping, etc.
- Sign removal.
- Directional and informational signs.

- Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).
- Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.

8. Financial Plan

Federal regulations require the 2035 LRTP to be fiscally-constrained. This requirements means that the cost of the various highway, transit and other transportation facilities must be covered by state, federal, local, private and other transportation revenues that can be reasonably expected to be available. The Financial Plan provides a comparison of projected revenues and costs from 2009 through 2035 – this is a 27-year period – to demonstrate the balance between costs and revenues.

This financial plan section presents a variety of cost and revenue tables that have been summarized to permit a unified presentation of financial data from both MPOs. Alternative presentations of this financial data are available on the MPOs' web sites.

8.1 Costs

The two MPOs used the same costs assumptions for the major parts of the plan, including:

- Highway: Used the 2009 highway estimates spreadsheet from the North Carolina Department of Transportation, and data from the I-40 HOV Study and North Carolina Turnpike Authority for projects related to those entities.
- Bus Transit: Used a spreadsheet model with standard hourly operating, maintenance and vehicle costs (by type of vehicle).
- Light Rail Transit: Used rail transit cost/revenue model maintained by the Triangle Transit.
- Travel Demand Management (TDM): Used costs estimates from the regional plan administered by the Triangle J Council of Governments.
- Intelligent Transportation Systems (ITS): Used cost estimates from a Triangle regional plan.

The costs are for the period 2009 through 2035, and are shown in dollar values for the year 2009. On the next page, Figure 8.1 presents the DCHC MPO and CAMPO costs. The CAMPO total is \$13.5 billion and the DCHC MPO total is \$8 billion, depicting a fairly even transportation investment between the two MPOs given the fact that the CAMPO planning area has a little more than a 50% greater population than the DCHC MPO.

Visit the approved 2035 LRTP sections of the DCHC MPO and CAMPO Web sites for alternative breakdowns of the 2035 LRTP costs.

8.2 Revenues

Traditional Revenues

The 2035 LRTP must identify revenue sources to pay for the proposed projects and there must be a reasonable expectation that these revenue sources will be realized. The MPOs used historical revenue data to project future revenues and also made informed assumptions as to how current revenue programs and trends might change in the future given state and federal proposals to change transportation financing. The revenues are calculated for the years 2009 through 2035. Cost inflation for highway, transit and other transportation projects and services is growing at a pace that is faster than the revenue stream, i.e., government budgets. Therefore, a 4% annual discount rate is applied to the revenues, as indicated, to account for the loss of purchasing power. The three tables, Figures 8.2.1 through 8.2.3 present the revenue assumptions for highways, bus transit and light rail transit.

Figure 8.2.4 presents the revenue for DCHC MPO and CAMPO.

Figure 8.1: DCHC MPO and CAMPO Costs

DCHC MPO		Time Period			
-- Cost Category		2009-15	2016-25	2026-35	Total
Roadways - Total		\$ 588	\$ 1,534	\$ 1,566	\$ 3,687
	<i>Roadways</i>	\$ 16	\$ 699	\$ 1,305	\$ 2,020
	<i>Tolled roads (excluding I-40 HOT)</i>	\$ 157	\$ -	\$ -	\$ 157
	<i>Non-tolled trust fund urban loops</i>	\$ 155	\$ 487	\$ 41	\$ 684
	<i>Maintenance</i>	\$ 260	\$ 347	\$ 220	\$ 827
Light Rail and Commuter Rail - Total		\$ 156	\$ 1,280	\$ 477	\$ 1,913
Bus - Total		\$ 330	\$ 688	\$ 917	\$ 1,935
Other - Total		\$ 68	\$ 232	\$ 261	\$ 561
	<i>Pedestrian/Bicycle</i>	\$ 42	\$ 153	\$ 173	\$ 368
	<i>Transportation Demand Management</i>	\$ 7	\$ 13	\$ 13	\$ 33
	<i>Intelligent Transportation Systems</i>	\$ 6	\$ 21	\$ 23	\$ 50
	<i>Transportation System Management</i>	\$ 13	\$ 46	\$ 52	\$ 111
Total		\$ 1,142	\$ 3,733	\$ 3,221	\$ 8,096

CAMPO		Time Period			
-- Cost Category		2009-15	2016-25	2026-35	Total
Roadways - Total		\$ 2,042	\$ 3,308	\$ 3,821	\$ 9,171
	<i>Roadways</i>	\$ 668	\$ 1,939	\$ 2,615	\$ 5,222
	<i>Tolled roads (excluding I-40 HOT)</i>	\$ 925	\$ 645	\$ 366	\$ 1,936
	<i>Non-tolled trust fund urban loops</i>	\$ -	\$ -	\$ -	\$ -
	<i>Maintenance</i>	\$ 449	\$ 724	\$ 840	\$ 2,013
Light Rail and Commuter Rail - Total		\$ 458	\$ 1,560	\$ 610	\$ 2,628
Bus - Total		\$ 356	\$ 568	\$ 535	\$ 1,459
Other - Total		\$ 80	\$ 114	\$ 132	\$ 326
	<i>Pedestrian/Bicycle</i>	\$ 30	\$ 49	\$ 49	\$ 128
	<i>Transportation Demand Management</i>	\$ 17	\$ 28	\$ 28	\$ 73
	<i>Intelligent Transportation Systems</i>	\$ 22	\$ 37	\$ 37	\$ 96
	<i>Transportation System Management</i>	\$ 11	\$ -	\$ 18	\$ 29
Total		\$ 2,936	\$ 5,550	\$ 5,098	\$ 13,584

Note: Totals in both tables might differ slightly from sum of subtotal because subtotals are rounded to nearest million

Figure 8.2.1: Highway Revenue Assumptions

Item	CAMPO Assumptions	DCHC Assumptions
Capital - Federal / State	NCDOT revenue model for gas taxes and fees (2008 to 2035). Uses 4% inflation factor	NCDOT revenue model for gas taxes and fees (2008 to 2035). Uses 4% inflation factor
Maintenance -- Federal/State/Other	Approximately 39% of all highway revenues	Approximately 39% of all highway revenues
Highway Trust Fund ("Loop" projects)	NCDOT revenue model for gas taxes and fees (2008 to 2035). Uses 4% inflation factor	Projects identified in legislation, thus revenues equal to costs.
Toll roadway	Tolls, bonds and state gap funding) are to finance; thus revenue equal to costs.	Tolls, bonds and state gap funding) are to finance; thus revenue equal to costs.
Local (Capital Improvement Program)	Staff forecast	Consultant revenue model
Private	Staff forecast	Revenue equals full cost of private roads and 20% of new roadway in which right-of-way is currently being reserved and dedicated.

Figure 8.2.2: Bus Transit Revenue Assumptions

Item	CAMPO Assumptions	DCHC Assumptions
Capital -- Federal & State	Computed trend for each transit system; Uses 4% inflation factor.	Computed trend for each transit system; Uses 4% inflation factor.
Operations, Maintenance, Planning -- Federal & State	Computed trend for each transit system; Uses 4% inflation factor.	Computed trend for each transit system; Uses 4% inflation factor.
Local	Computed trend for each transit system; Uses 4% inflation factor.	Computed trend for each transit system; Uses 4% inflation factor.
Fares	Computed trend for each transit system; Uses 4% inflation factor.	Current fares plus growth factor based on travel demand model
Private Capital – (university systems)	Computed trend for each transit system; Uses 4% inflation factor.	Private systems will cover own costs, thus revenues equal costs.
Private Operations – (university systems)	Computed trend for each transit system; Uses 4% inflation factor.	Private systems will cover own costs, thus revenues equal costs.

Bus Transit Revenue Notes:

1. Prior year data in the National Transit Database (NTD) was used to compute transit revenue trends.
2. Triangle Transit costs and revenues were apportioned at 60% for CAMPO and 40% for DCHC MPO.

Figure 8.2.3: Light Rail Transit Revenue Assumptions

Item	CAMPO Assumptions	DCHC Assumptions
Capital -- Federal & State	Federal is 33% and State is 25% of total capital costs	Federal is 33% and State is 25% of total capital costs
Operations, Maintenance, Planning -- Federal & State	Federal is 7.6% and State is 10% of total operations costs	Federal is 7.6% and State is 10% of total operations costs
Local & Private	Annual amount, starting in 2016, for special tax districts around rail transit stations and contributions from developers and universities	\$5 million per year, starting in 2016, for special tax districts around rail transit stations and contributions from developers and universities
Fares	Farebox recovery equals 20% of operations costs	Farebox recovery equals 20% of operations costs
Bond Proceeds	Issue bonds for revenue to support system construction and capitalization. Transit system will net surplus (bond proceeds minus debt payment) before year 2035	Issue bonds for revenue to support system construction and capitalization. Transit system will net \$21 million surplus (bond proceeds minus debt payment) before year 2035

Figure 8.2.4: DCHC MPO and CAMPO Revenues

DCHC MPO		Time Period			
-- Revenue Category		2009-15	2016-25	2026-35	Total
Roadways - Total		\$ 962	\$ 1,479	\$ 893	\$ 3,334
	<i>Traditional Funding</i>	\$ 424	\$ 644	\$ 632	\$ 1,700
	<i>Tolled roads (excluding I-40 HOT)</i>	\$ 157	\$ -	\$ -	\$ 157
	<i>Non-tolled trust fund urban loops</i>	\$ 122	\$ 487	\$ 41	\$ 650
	<i>Maintenance</i>	\$ 260	\$ 347	\$ 220	\$ 827
Light Rail - Total (1)		\$ 138	\$ 907	\$ 422	\$ 1,467
Bus - Total		\$ 359	\$ 554	\$ 571	\$ 1,484
Total		\$ 1,459	\$ 2,939	\$ 1,886	\$ 6,284

CAMPO		Time Period			
-- Revenue Category		2009-15	2016-25	2026-35	Total
Roadways - Total		\$ 1,747	\$ 2,616	\$ 1,980	\$ 6,343
	<i>Traditional Funding</i>	\$ 353	\$ 1,225	\$ 1,045	\$ 2,623
	<i>Tolled roads (excluding I-40 HOT)</i>	\$ 925	\$ 645	\$ 366	\$ 1,936
	<i>Non-tolled trust fund urban loops</i>	\$ -	\$ -	\$ -	\$ -
	<i>Maintenance</i>	\$ 469	\$ 746	\$ 569	\$ 1,784
Transit - Total (1)		\$ 410	\$ 958	\$ 457	\$ 1,825
Total		\$ 2,157	\$ 3,574	\$ 2,437	\$ 8,168

Note: Totals in both tables might differ slightly from sum of subtotal because subtotals are rounded to nearest million

(1) These revenue sources can include special tax districts around rail transit stations and contributions from developers and universities.

New Revenue Sources

The current transportation funding programs will not produce enough revenue to finance the highway, bus transit, light rail transit and other transportation needs in the Triangle. Therefore, the MPOs have assumed New Revenue Sources to close this funding gap and presented this information in a separate table. The MPOs have a reasonable expectation to realize these new revenue sources based on the many local and statewide commissions that have studied transportation financing and recommended new funding sources. In fact, many solid steps have already been taken:

- In April 2009, the North Carolina House passed the Congestion Relief and Intermodal 21st Century Transportation Fund (House Bill 148). The legislation permits a local voter referendum to increase the sales tax to raise revenues for transit systems. The half-cent sales tax increase permitted in Wake, Durham and Orange counties by this legislation is used to calculate new revenue sources in the 2035 LRTP.
- The Triangle Region has a rental car tax that produces approximately \$7 million annually to fund Triangle Transit services and studies;
- Several municipalities, such as the City of Durham and Town of Chapel Hill, have pushed for and received increases in the vehicle registration fee;
- The North Carolina Turnpike Authority (NCTA) was created in 2004 and is currently working to build the Triangle Expressway; and,
- The Charlotte area has a sales tax that produces approximately \$50 million annually, and the North Carolina Board of Transportation and General Assembly have ensured that the required state match has kept pace with this large revenue source.

It is important to note the following background information on the New Revenue Sources proposed in the 2035 LRTP:

- Many of these new revenue options would require legislation from the North Carolina General Assembly and/or the U.S. Congress. The MPOs are not empowered to invoke these tax and revenue program changes.
- The 2035 LRTP envisions a level of effort to increase revenue for highways and transit that is similar to that depicted in the Plan. The exact type and mechanism for increasing these revenues, e.g., sales tax, is not a certainty.

On the next page, Figure 8.2.5 presents the assumptions for New Revenue Sources.

Figure 8.2.5: New Revenue Sources

Item	CAMPO Assumptions	CAMPO Amount	DCHC Assumptions	DCHC Amount
Sales Tax #1 (or equivalent)	Level of effort equivalent to a 1/2 cent sales tax increase in 2011 for transit. Revenue increases commensurate with population. Requires legislation from N.C. General Assembly.	\$ 1,576	1/2 cent sales tax increase in Durham and Orange counties, and 1/4 cent increase in Chatham County; from 2011 through 2035; and, revenue increases commensurate with population. Requires legislation from N.C. General Assembly.	\$ 755
Sales Tax #2 (or equivalent)	Level of effort equivalent to a 1/2 cent sales tax increase in 2016 for roads. Revenue increases commensurate with population. Requires legislation from N.C. General Assembly.	\$ 1,140	Not applicable for DCHC MPO	\$ -
Regional, Local, and Private support	In addition to the 1/2 cent level of effort, some municipalities have agreed to contribute to certain road projects considered vital to their area.	\$ 1,258	(Included in local highway revenue for DCHC MPO)	\$ -
New State and/or Federal Infrastructure Programs	New state/federal funding for NC Strategic Highway Corridors (may include toll revenue or a change in funding levels/distribution methodology). Average of \$53M/year from 2016 to 2035.	\$ 1,060	Average of \$19 million per year, from 2016 through 2035. Requires new state/federal funding program, or change in funding levels or distribution methodology.	\$ 380
Financing Package for I-40 High Occupancy Vehicle/Toll Lanes	(Included in program above -- New State and/or Federal Infrastructure Programs)	\$ -	Includes toll revenue, bonding based on future toll revenue, and State gap funding	\$ 579
Car Registration Fee	\$10 car registration fee increase in 2011. Revenue increases commensurate with population. Requires legislation from N.C. General Assembly.	\$ 185	\$10 car registration fee increase in Chatham, Durham and Orange counties; from 2011 through 2035; and, revenue increases commensurate with population. Requires legislation from N.C. General Assembly.	\$ 107
Rail Bonds	Debt Financing to pay for initial rail construction.	\$ 585	(Included in light rail transit revenues)	\$ -
Total		\$ 5,804		\$ 1,820

Note: Total may differ slightly from sum of subtotals because subtotals are rounded to nearest million

8.3 Reconciling Costs and Revenues

Finally, Figure 8.3.1 shows the funding deficit when comparing the current revenue sources with the expected costs for projects and services in the 2035 LRTP, and shows how the New Revenue Sources will eliminate the projected deficit to make the Plan fiscally-constrained.

Figure 8.3.1: Reconciling Costs and Revenues

Costs	CAMPO	DCHC
Total Highways and Other	\$ 9,497	\$ 4,248
Total Bus Transit	\$ 1,459	\$ 1,935
Total Rail Transit	\$ 2,628	\$ 1,913
Total Costs	\$ 13,584	\$ 8,096
Revenues		
Total Highways and Other	\$ 6,343	\$ 3,334
Total Bus Transit (DCHC MPO)		\$ 1,484
Total Rail Transit (DCHC MPO)		\$ 1,467
Total Combined Transit (CAMPO)	\$ 1,825	
Total Revenues	\$ 8,168	\$ 6,284
Difference (Revenues minus Costs)	\$ (5,416)	\$ (1,812)
New Revenue Sources		
Highways	\$ 3,458	
Transit	\$ 2,346	
Total New Revenue	\$ 5,804	\$ 1,820
Difference	\$ 388	\$ 8
(Revenues + New Revenue Sources) minus (Costs)		

Note: Totals may differ slightly from sum of subtotals because subtotals are rounded to nearest million

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9. Critical Factors in the Planning Process

Our transportation investments influence more than just our ability to get from one place to another. How and where we develop roads, transit lines and other transportation services impact other things we value, including the natural environment and the health and well-being of our neighborhoods, and those who live in them. Federal law recognizes these important considerations by requiring that Long Range Transportation Plans specifically address eight planning factors:

1. Support economic vitality of the metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation; and
8. Emphasize the preservation of the existing transportation system.

Each of these factors is addressed throughout this report. This section highlights the following critical factors:

- Air quality: demonstrating that transportation plans will further clean air goals and meet air pollutant standards;
- Environmental Justice: showing how transportation plans relate to communities that have been historically underserved or disproportionately impacted by transportation investments; and
- Safety and Security: addressing how the transportation plans and the organizations that implement them promote safer and more secure travel choices.

9.1 Transportation - Air Quality Conformity

Transportation-air quality conformity ("conformity") is a way to ensure that Federal funding and approval goes to transportation activities that are consistent with air quality goals. Conformity applies to long range transportation plans—such as this one, to transportation improvement programs (TIPs), and to projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as "non-attainment areas" or "maintenance areas," respectively.



A biodiesel school bus

A conformity determination demonstrates that the total emissions projected for a plan or program are within the emissions limits ("budgets") established by the State Implementation Plan (SIP) for air quality, and that transportation control measures (TCMs) – specific projects or programs enumerated in the SIP that are designed to improve air quality – are implemented in a timely fashion. All of the area within the Triangle covered by the two MPOs, except for Harnett County, is currently designated as a "maintenance area" for the 8-hour ozone standard; the effective date of this designation was December 26, 2007. In addition, Durham and Wake Counties are maintenance areas for carbon monoxide.

Determining Conformity

Regional emissions are estimated based on highway and transit usage according to transportation plans and TIPs. The projected emissions for the plan and TIP must not exceed the emissions limits (or "budgets") established by the SIP. Where TCMs are included, responsible MPOs and the North Carolina Department of Transportation (NCDOT) are required to demonstrate that TCMs are implemented in a timely fashion. In North Carolina there are currently no TCMs included in SIPs.

The Decision Process

A formal interagency consultation process involving the Environmental Protection Agency (EPA), FHWA, FTA and state and local transportation and air quality agencies is required in developing SIPs, TIPs, and transportation plans, and in making conformity determinations. Metropolitan Planning Organization (MPO) policy boards make initial conformity determinations in metropolitan areas, while the NCDOT does so in areas outside of MPOs, in consultation with affected Rural Planning Organizations (RPOs).

Four organizations are responsible for making the conformity determinations in four distinct parts of the Triangle Ozone Maintenance Area:

- a. the Capital Area MPO within the CAMPO metropolitan area boundary – all of Wake County, and parts of Franklin, Granville, and Johnston counties.
- b. the DCHC MPO within its metropolitan area boundary – all of Durham County and parts of Orange and Chatham counties.
- c. the Burlington-Graham MPO within its portion of the metropolitan area boundary in western Orange County.
- d. the NCDOT in a rural area that is comprised of those portions of Chatham, Orange, Person, Franklin, Granville and Johnston Counties that remain outside of any MPO metropolitan area boundary.

Each of these responsible organizations must make a conformity determination for its respective area in order for all of the areas to be designated in conformity.

The final conformity determination is made at the Federal level by FHWA/FTA. These determinations must be made at least every four years, or when transportation plans or TIPs are amended or updated, or within one year of the effective date of a non-attainment designation. Conformity determinations must also be made within two years after the approval of a State Implementation Plan (SIP) containing motor vehicle emission budgets or determination of adequacy of those budgets.

Appendix 6 includes the *Conformity Analysis and Determination Report* for the CAMPO and DCHC MPO 2035 Long Range Transportation Plans, along with the 2009-15 TIP.

9.2 Environmental Justice

The intent of Environmental Justice is to avoid, minimize, or mitigate disproportionately high and adverse effects on minority and low-income populations; and ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

Environmental justice addresses fairness toward the disadvantaged and often addresses the possible exclusion of racial and ethnic minorities, low-income people, the elderly, and persons with disabilities from decision-making. The federal government has identified environmental justice as an important goal in transportation, and local and regional governments must incorporate environmental justice into transportation planning. Capital Area MPO and DCHC MPO goals that relate to the public transportation system, the protection of the natural environment and social systems, and the public involvement process each have objectives that support environmental justice. This support must be evident throughout the transportation planning process, including those processes for the long-range transportation plan, transportation improvement program, and specific project planning.

Even though the term “environmental justice” is not in federal legislation, the concept and its application have been developed through a succession of court cases, transportation regulations, agency memoranda, and Executive Orders. Much of the legal application is based on Title VI of the Civil Rights Act of 1964 that provides protection from discriminatory actions or results from federal, or federally assisted or approved, actions. In terms of transportation planning, environmental justice seeks to ensure that the disadvantaged:

1. Have access to the decision-making process;
2. Realize benefits from investments that are commensurate with the population as a whole;
3. Do not shoulder a disproportionate share of the negative effects and burden resulting from the implementation of transportation projects; and,
4. Do not incur a disproportionate share of the financial cost.

The Capital Area MPO and DCHC MPO have carried out a comprehensive and thorough set of activities to ensure that disadvantaged persons, as characterized in federal regulations, do not suffer discrimination in the transportation planning and implementation process. These activities have been in the area of both public participation and plan analysis. The following sections describe the environmental justice activities that occurred as part of the 2035 LRTP.

Access to the Decision-making Process

The Capital Area MPO and DCHC MPO ensured that all individuals, regardless of race, ethnicity, income, age, or disability, had access to the planning process. Throughout the plan’s development, documents were available for public review several times.

In the DCHC MPO, documents were available online and at all local public libraries and planning departments. Notice of the public review periods was published in local newspapers and sent by email and post office mail. Environmental justice community organizations and neighborhoods are included on the DCHC MPO’s email and mail lists.

In addition, the DCHC MPO held public workshops for review of the alternatives analysis and preferred option. The DCHC MPO held six public workshops for each review period. These workshops were held throughout the MPO: one in Hillsborough, one in Chapel Hill, one in Pittsboro, one in north Durham, one in central Durham, and one in south Durham. The Hillsborough, Chapel Hill and Durham workshops were held at locations along public transportation routes. The Pittsboro workshop was not because Pittsboro does not have bus service. Accommodations were made at public meeting and hearings for the disabled.

Plan Benefits

The investments in transportation infrastructure included in the 2035 LRTP will benefit the MPO's population in many ways including increased mobility, safety, time savings, economic development, and recreational opportunities. The investment in transit in particular will benefit low income populations that do not have access to personal vehicles and the disabled who may not be able to operate personal vehicles. Currently, 32,000 households in the Triangle do not have personal vehicles. The travel forecasts for the 2035 LRTP estimate that more than 60 percent of transit trips will be made by people from households that do not have cars or low-income households with cars.

For the plan analysis, the DCHC MPO included performance targets that measured some of the plan's benefits to environmental justice communities including the percentage of the environmental justice population that lives within a ¼ mile of transit. The 2035 LRTP results in the percentage of the environmental justice population within the DCHC MPO living within a ¼ mile of transit rising from just under 60% today to over 80% with implementation of the 2035 Plan.

The bicycle and pedestrian network in the 2035 LRTP is a composite of local government bicycle and pedestrian plans. Most of these local planning efforts included environmental justice criteria for project selection. Furthermore, the map of the bicycle network shows that the bicycle facilities are well distributed across the MPO – nearly all non-subdivision streets include on-road bicycle facilities in the plan. Therefore, the connectivity, safety, and recreational benefits that bicycle facilities provide are fairly distributed among the MPO's population.

In addition, the DCHC MPO held public workshops for review of the alternatives analysis and preferred option. The DCHC MPO held six public workshops for each review period. These workshops were held throughout the MPO: one in Hillsborough, one in Chapel Hill, one in Pittsboro, one in north Durham, one in central Durham, and one in south Durham. Where possible, workshops were held at locations along public transportation routes; thus the Hillsborough, Chapel Hill and Durham workshops had public transportation available. Special travel and communication accommodations were offered to citizens for public hearings and workshops. Additional details on the comprehensive public involvement efforts for the 2035 LRTP are presented in section 5.2, "Stakeholder and Public Involvement Process."

Negative Project Impacts

The investments in transportation infrastructure included in the 2035 LRTP will also have some negative impacts to some of the MPOs' population. While road widening projects may increase overall mobility, the residents near the project may be impacted negatively. Some of the negative impacts to nearby residents include increased traffic through their neighborhoods, increased vehicle speeds, land acquisition for necessary right-of-way, relocations of homes and businesses, a change in neighborhood character and land uses, etc. A project's net impact is not always clear and may be perceived differently by different residents. A project that increases property values, mobility, and economic development may also increase traffic, relocate homes and businesses, and change neighborhood character. Although it is difficult at this stage of project development to conclusively assess the overall impact of the highway projects included in the 2035 LRTP, the two MPOs did complete several analyses of the potential negative impacts the projects may have on environmental justice communities.

During the development of the 2035 LRTP, MPO staff often qualitatively evaluated individual projects for potential negative impacts and often eliminated projects that had significant potential negative impacts. Staff eliminated some projects based on factors such as limited right-of-way, neighborhood and community characteristics, and the historical impact of urban renewal.

The two MPOs analyzed the potential impact of the 2035 LRTP highway projects to ensure that the potential negative project impacts were not disproportionately impacting environmental justice communities. This analysis was completed for the plan as a whole. Individual projects in the 2035 LRTP may have significant negative impacts that will be studied more in depth during project development and design. These negative impacts are often able to be mitigated by context sensitive design.

For this analysis, the two MPOs used United States Census Bureau data to classify the MPOs' block groups by percent of minority population and the percent of households below poverty. The percent of minority population was determined by calculating the percent of the population that was not 'white and non-Hispanic'. It included both racial and ethnic minorities. Since the assessment of disproportionate impact must be relative to a baseline, the block groups were classified into five categories depending upon the population characteristics as compared to the county average of percent minority population and the county average of the percent of households below poverty. The county averages were selected as the baselines because the two MPOs are in eight counties with varying population demographics.

The county averages are displayed in the table below.

	Percent of Minority Population	Percent of Households Below Poverty
Chatham County	28%	10%
Durham County	52%	13%
Franklin County	36%	13%
Granville County	41%	12%
Harnett County	31%	16%
Johnston County	25%	13%
Orange County	24%	15%
Wake County	30%	7%

In the two MPOs, each roadway project was analyzed based on the population characteristics of the block group (or block groups) that the project was primarily located in. Figure 9.2.1 displays the location of roadway projects and minority population Census block groups, and Figure 9.2.2 displays the roadways with the low-income block groups. The detailed results of this analysis are shown in Appendix 8. The methodology used to generate Figure 9.2.1 sums all minority populations together. The reader can view and download additional maps that compare roadway projects and single minority populations, including African-American, Hispanic and Asian, in the approved 2035 LRTP section of the DCHC MPO's Web site – www.dchcmpo.org. The web site also has larger versions of the maps presented here.

Figure 9.2.1 Minority Population and 2035 LRTP Roadway Projects – DCHC MPO and Capital Area MPO

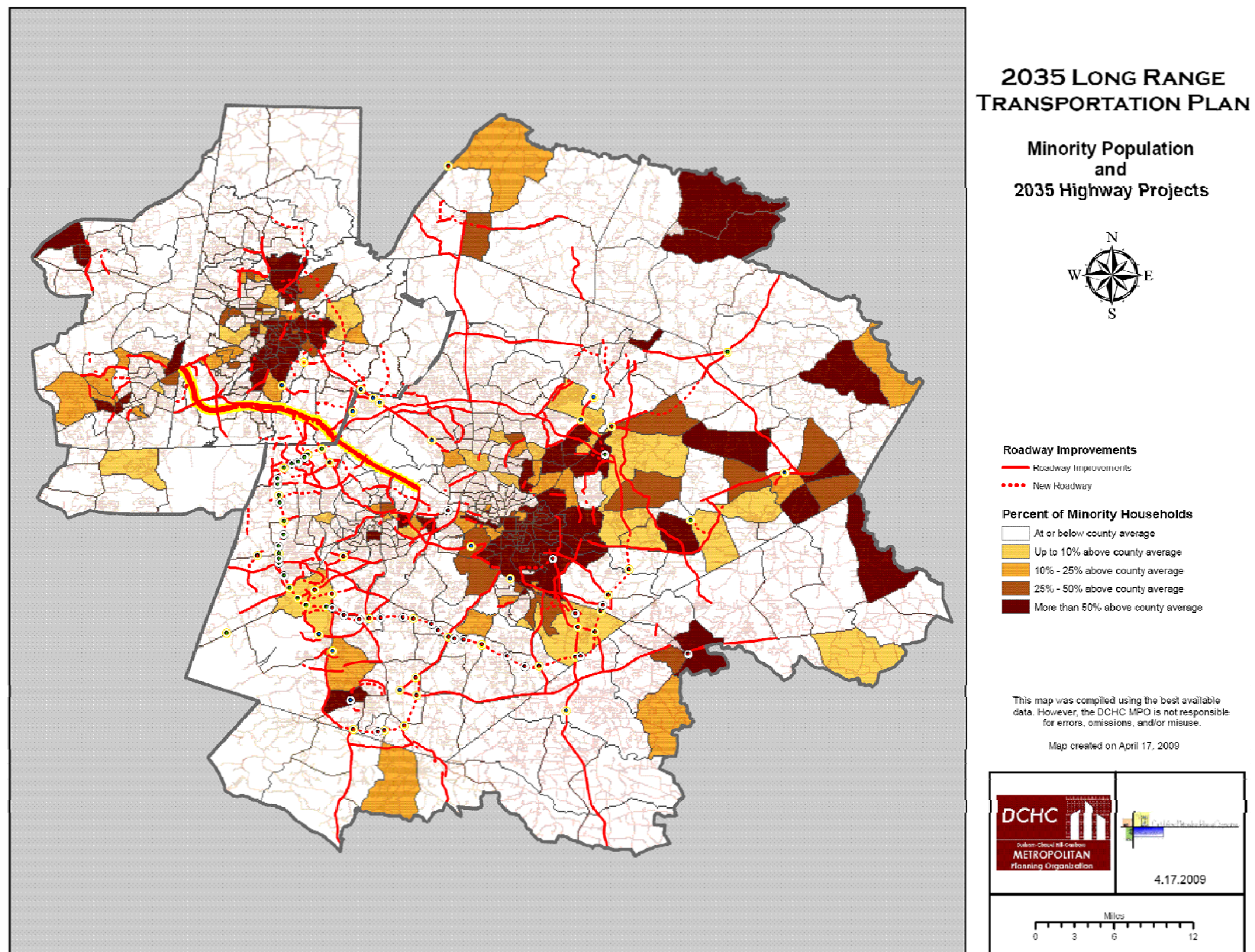
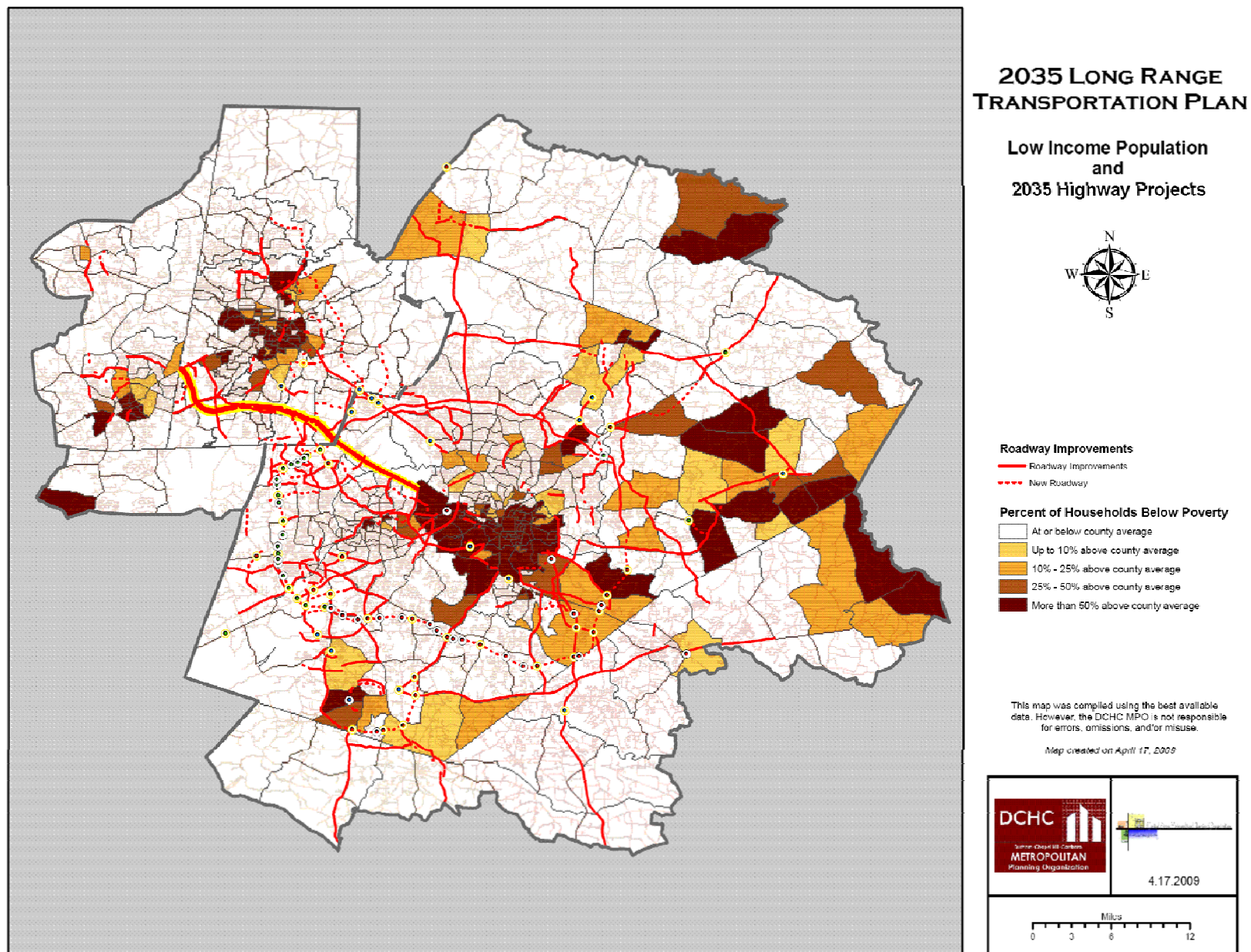


Figure 9.2.2 Low Income Population and 2035 LRTP Roadway Projects – DCHC MPO and Capital Area MPO



The two MPOs summarized the data in this table to determine the percent of total 2035 LRTP highway project length and the percent of total 2035 LRTP cost that were in each environmental justice category. The results of this analysis are shown in the Figures 9.2.4, 9.2.5, 9.2.6, and 9.2.7 below. The percent of 2000 population that live in the block groups in each environmental justice category is also shown for comparison.

Figure 9.2.4 – DCHC MPO Roadway Investments in Minority Block Groups

Percent of Minority Population	Percent of Project Length in Block Groups	Percent of Project Cost in Block Groups	Percent of 2000 Population in Block Groups
At or below county average	53%	63%	58%
Up to 10% above county average	2%	1%	5%
10% - 25% above county average	24%	18%	11%
25% - 50% above county average	3%	7%	5%
More than 50% above county average	17%	12%	21%

Figure 9.2.5– Capital Area MPO Roadway Investments in Minority Block Groups

Percent of Minority Population	Percent of Project Length in Block Groups	Percent of Project Cost in Block Groups	Percent of 2000 Population in Block Groups
At or below county average	47%	40%	64%
Up to 10% above county average	16%	28%	8%
10% - 25% above county average	4%	3%	8%
25% - 50% above county average	9%	8%	4%
More than 50% above county average	24%	21%	16%

Figure 9.2.6– DCHC Roadway Investments in Low-Income Block Groups

Percent of Households Below Poverty	Percent of Project Length in Block Groups	Percent of Project Cost in Block Groups	Percent of 2000 Population in Block Groups
At or below county average	78%	79%	66%
Up to 10% above county average	0%	0%	3%
10% - 25% above county average	8%	9%	5%
25% - 50% above county average	5%	5%	4%
More than 50% above county average	10%	7%	22%

Figure 9.2.7 – Capital Area MPO Roadway Investments in Low-Income Block Groups

Percent of Households Below Poverty	Percent of Project Length in Block Groups	Percent of Project Cost in Block Groups	Percent of 2000 Population in Block Groups
At or below county average	48%	51%	67%
Up to 10% above county average	10%	9%	5%
10% - 25% above county average	10%	9%	7%
25% - 50% above county average	9%	9%	5%
More than 50% above county average	23%	23%	16%

The majority of DCHC MPO roadway projects, both in terms of total project length and project costs, are in block groups that are at or below the county average for percent of minority population and percent of households below poverty. This mirrors the distribution of the population - the majority of the MPOs' population lives in block groups at or below the county average in terms of minority population and households below poverty. A comparison of both the percent of project length and percent of project cost to the percent of 2005 population in each block group shows that the population that lives in block groups that are more than fifty percent above the county average for minority population and households below poverty are less likely to be impacted by a 2035 LRTP roadway project than the rest of the population.

The DCHC MPO concludes that the roadway projects in the 2035 LRTP do not disproportionately impact minority and low income populations. Again, this analysis does not substitute for the individual project level analyses that will be completed for each project during design and development.

The majority of the Capital Area MPO roadway projects, both in term of total project length and project costs, are in those block groups that are at or below the average for percent of minority population and percent of households below poverty in Franklin, Granville, Harnett, Johnston, and Wake counties. This mirrors the distribution of the population – the majority of the MPO's population lives in block groups at or below the county average in terms of minority populations and households below poverty. Statistical comparisons and area map comparisons verify that both the percent of project length and percent of project cost to the percent of 2005 population in each block groups show that the population living in block groups that are more than fifty percent above the county's average for minority population and household below poverty are less likely to be impacted by a 2035 LRTP roadway project than the rest of the population.

The Capital Area MPO concludes that the roadway projects in the 2035 LRTP do not have a disproportionately negative impact on minority and low income populations. It is important to note that this analysis does not substitute for the individual project level analyses that will be required for each project during their planning, development and design phases.

Financial Cost

Lastly, environmental justice also requires that the disadvantaged population does not bear a disproportionate share of the financial cost of the plan. The 2035 LRTP is financed by traditional revenue sources and new revenue sources. The 2035 LRTP does not propose a change to the traditional funding sources so this was not analyzed for environmental justice impacts. The new revenue source is uncertain.

The MPOs have focused on four most likely new sources of revenue:

1. Sales tax increase for public transit
2. Car registration fee increase
3. New state and federal transportation infrastructure program
4. I-40 HOT/HOV financing package

Typically, sales taxes are regressive, meaning that lower income households pay a higher percentage of their income in sales taxes than do higher income households (higher income households pay more in *actual* dollars in sales tax than lower income households, but these payments represent a smaller *proportion* of the total income of higher income households). Proposed legislation in NC seeks to mitigate the “who pays” side of the equation by excluding many necessities from the sales tax, including food, medicine, utilities and shelter. By excluding these items, a typical household in the lowest 20% income group would pay about \$3 per month for the transit tax, based on analysis by the North Carolina Budget & Tax Center. Households in the top 1% income bracket would average \$57 per month and those rounding out the top 5% income bracket would average \$17 per month. Also, one financial analysis showed that the impact of a one dollar increase in the price of a gallon of gasoline is about ten times worse for low-income households than the impact of a ½ cent sales tax.

Moreover, looking at who pays is only half of the equation. Analysis should also consider who benefits. Transit service is disproportionately used by people with lower incomes and households that do not have access to cars. Currently, 32,000 households in the Research Triangle Region report having no vehicle available. Our region’s travel forecasts estimate that more than 60% of transit trips after we invest in rail service and greatly expanded bus service will be made by people from households without cars and low-income households with cars. So looking at the whole equation, a sales tax that is spent entirely on transit would provide a net benefit to households most dependent on transit service to reach jobs and educational opportunities, different from if a sales tax were spent on services that were used equally by lower income and higher income households.

The details of the proposed new state and federal transportation infrastructure program are uncertain. The I-40 HOT/HOV project will require a detailed environmental review during project development. At that point, the project-level environmental justice impacts will be studied. The project would require the payment of tolls to use the new HOT/HOV lanes for single-occupancy vehicles. Low income populations will still have the option to use the facility for free by carpooling or use the parallel lanes non-HOT/HOV lanes free of charge. In addition, public transit vehicles will be able to use the facility free of charge. As a result, at this stage in project planning, the I-40 HOT/HOV financing package does not appear to disproportionately impact low income or minority populations.

9.3 Safety and Security

Metropolitan Planning Organizations are being encouraged to effectively address safety and security issues in accordance with policies outlined with the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

SAFETEA-LU established this new core Highway Safety Improvement Program; which is structured and funded to make significant progress in reducing fatalities on highways; as well as other modes that use highway, railroads, and other conduits within the transportation network. The Highway Safety Improvement Program creates a positive agenda for increased safety by increasing the funds for infrastructure safety and requiring strategic highway safety planning, focusing on results. Other programs target specific areas of concern, such as work zones, older drivers, and pedestrians, including children walking to school, further reflect SAFETEA-LU's focus on safety.

9.3.1 Safety

Both the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO have been proactive in addressing safety as a component of our overall transportation processes by pursuing the following actions:

- Both MPOs have or are in the process of funding “Safe Routes to Schools” projects that will benefit elementary schools throughout the region.
- Both MPOs include an “Accident/Safety” variable when determining the technical scoring and prioritization of highway projects for their Metropolitan Transportation Improvement Programs.
- Both MPOs have adopted bicycle and pedestrian plans that either highlight or stress the “Four-Es” (i.e. education, engineering, enforcement, and encouragement); have stressed the importance of safety in various public service announcements in the local media. Furthermore, both MPOs will be pursuing a project this year to further encourage bicycle and pedestrian safety; and will use a template created by another MPO in the state. One of the goals of the project will be to not only increase public awareness about bicycle and pedestrian safety, but to impact the region’s overall transportation culture by consciously having bicycle and pedestrian traffic and travel as a valuable asset of movement through the region.
- The DCHC MPO will promote the inclusion of the safety countermeasures identified in Appendix 5 of this report (cross-section and safety countermeasure guidelines) in the review and design of roadways in the planning area.

9.3.2 Security

Following the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO have been proactive in addressing security as a component of our overall transportation processes by pursuing the following actions:

- The transit agencies in both MPOs (i.e. Capital Area Transit, Durham Area Transit Authority, Chapel Hill Transit, Cary Transit, Triangle Transit, and area human service providers) have or are in the process of meeting FTA security requirements such as: training employees and drivers how to handle situations that threaten human safety; providing on-board and transit station camera detection as a deterrent to crime, and, providing Mobile Data Computers/Automatic Vehicle Locators on their vehicles.
- Durham Area Transit Authority has also done extensive work in their security component for transit through increased law enforcement presence, requiring drivers to receive safety and security training as a part of their orientation program, and having a Safety and Security Committee that meets monthly. The Safety and Security Committee consists of representatives of the Durham Police Department consists of representatives of the DPD, Wackenhut Special Police, DATA safety personnel, and City of Durham/DATA administrative staff, Wackenhut Special Police, DATA safety personnel, and City of Durham/DATA administrative staff.
- C-Trans, as operated by the Town of Cary have conducted their “Threat-Vulnerability” assessment with the Cary Police Department. C-Trans as of 2011 will require its future transit providers to install video surveillance cameras on its vehicles. Both Navtrak and Drive-Cam video recorders are currently installed on both door-to-door and fixed-route service vehicles.

- Capital Area Transit (CAT) has completed a System Security and Emergency Preparedness Plan. Through the System Security and Emergency Preparedness Plan, CAT has created and staffed a Security Committee made up of senior staff persons.

Key points from this section:

- Those adopting Long Range Transportation Plans consider several factors in deciding what investments to make.
- One critical factor is air quality: Plans must demonstrate that they will meet air quality standards or federal funding and project approvals will be withheld until plans are brought into compliance.
- Environmental justice is another critical factor, ensuring that investments avoid disproportionately adverse impacts on poor and minority neighborhoods and that traditionally-underserved neighborhoods receive appropriate transportation services and facilities.
- Safety and security considerations play a prominent role in planning and funding roadway, transit and pedestrian/bicycle facilities.

Appendix 1 – Roadway Project List

The table on the following page presents the roadway projects in the 2035 LRTP and the key attribute data. Each row in the table is a separate roadway project. The DCHC MPO projects are presented first, followed by those for CAMPO, and the projects are sorted by AQ Analysis Year and then by Project ID. The attribute information for each project is presented by columns, and includes the following:

- **Project ID** – This number facilitates the identification of projects in the long-range plan.
- **Road Name** – The project name is the name of the road.
- **From/To** – This usually identifies the name of the two road intersections between which the project is to be constructed.
- **Existing # of Lanes** – This identifies the number of current lanes. “0” indicates a new road alignment – in other words, there is no existing road.
- **Proposed # of Lanes** – This identifies the number of lanes proposed in the plan.
- **Distance (miles)** – This is the length of the roadway projects in miles.
- **Regionally Significant?** – Regionally Significant projects provide access to and from the region, or to major destinations in the region. They are usually classified by the FHWA as interstate, freeway/expressway, urban principal arterial, rural interstate, or rural principal arterials. Note that the FHWA functional classifications serve a different purpose than the local functional classification used by the MPO, and as a result, the two classification systems are significantly different. Generally, the regionally significant designation includes interstate highways, U.S. highways, freeways, and North Carolina signed roads that are the primary road in a corridor. Rail transit facilities, which are described in a separate section, are considered regionally significant. The Regionally Significant designation is important – if a Regionally Significant project is changed (e.g., completion year, travel capacity) after the Air Quality Conformity Determination for the 2035 LRTP has been approved, then the Conformity Determination process might have to be done again, depending on the estimated impact of the change.
- **Exempt from AQ** – Some transportation projects are exempt from air quality conformity determination according to Title 40, Code of Federal Regulations (CFR), PART 93.126 and PART 93.127. The most important implication of this exemption is that the projects may proceed toward implementation in the absence of an approved and conforming long range transportation plan. These exempt projects tend to be transit services, and highway project that do not add overall roadway capacity but reduce travel delays, thereby reducing vehicle emissions.
- **Project Capital Cost** – The total costs includes those estimated costs to be incurred between January 1, 2009 and December 31, 2035. Cost information from the current Transportation Improvement Program (TIP) and any related studies (e.g., I-40 HOV) was used to calculate costs for projects, when available, and a modified version of the current highway cost template from the NCDOT (North Carolina Department of Transportation) was used for the majority of projects.
- **AQ Analysis Year** – There are three Air Quality analyses thresholds – these thresholds are 2009 to 2015, 2016 to 2025, and 2026 to 2035. The AQ Year indicates in which analysis period the particular project will be operational. Thus a project that is estimated to be operational in the year 2017 will have a 2025 AQ Year.

2035 Long Range Transportation Plan Roadway Project List

		Project Limits								
Project ID	Road Name	From	To	Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
DCHC MPO Roadway Projects										
1	Alexander Dr	Cornwallis Rd	NC 147	2	4	1.00	No	No	\$8,900,000	2015
14	Davis Dr	NC 54	County Line	2	4	1.93	No	No	\$0	2015
30	Hillandale Rd	I-85	Carver St	2	4	0.70	No	No	\$10,943,000	2015
34	Holloway St	US 70	east of Junction Rd	2	5	0.30	Yes	No	\$0	2015
37	Hopson Rd realignment (RTP)	Louis Stephens Dr	NC 55	2	2	1.00	No	No	\$0	2015
46	NC 540	Ramp improvement: I-540 W	I-40 W	1	2	0.69	Yes	No	\$4,930,000	2015
56	Louis Stephens Dr (RTP)	Hopson Rd	Wake County Line	0	4	0.90	No	No	\$0	2015
59	Miami Blvd	Methodist Dr	Angier Ave	2	5	0.72	No	No	\$0	2015
66	NC 147 South Ext (Triangle Pkwy -toll)	I-40	County Line	0	6	2.40	Yes	No	\$156,700,000	2015
72	NC 54/Page Rd	Davis Dr	Miami Blvd	2	4	1.10	Yes	No	\$0	2015
75	NC 55 (Alston Ave)	NC 147	NC 98	2	4	1.00	No	No	\$23,320,000	2015
97	Smith Level Rd	Rock Haven Rd	NC 54 bypass	2	4	0.60	No	No	\$5,400,000	2015
98	South Columbia St	NC 54	Manning Dr	2	2	0.70	No	Yes	\$3,650,000	2015
110	US 15-501	Mt. Moriah Rd	Garrett Rd	4	6	0.90	Yes	No	\$0	2015
115	US 15-501 Service Rd (SR 1126)	Relocation of existing service Rd		0	2	0.30	No	No	\$2,657,716	2015
119	Weaver Dairy Rd	NC 86	Erwin Rd	2	3	2.80	No	No	\$11,070,000	2015
9	Carver St Ext	Armfield St	Old Oxford Rd	0	4	0.73	No	No	\$7,660,000	2025
10.11	Chin Page Ext	Page Rd	Wake County Line	0	2	0.66	No	No	\$7,023,462	2025
12	Cornwallis Rd	MLK	Alexander Dr	2	4	1.18	No	No	\$12,296,424	2025
15	East End Connector (EEC)	NC 147	US 70 E; US 70:EEC to NC 98	0	4	2.50	Yes	No	\$155,401,000	2025
16	Elizabeth Brady Rd Ext	US 70 Business	St Mary's Rd	0	4	1.40	No	No	\$33,594,000	2025
16.1	Eno Mountain Rd/Mayo Rd	Orange Grove Rd intersection realignment		2	2		No	Yes	\$0	2025
17	Estes Dr	Greensboro Rd	NC 86	2	3	1.70	No	No	\$6,600,000	2025
22.1	Fayetteville Rd	Renaissance Pkwy	NC 751	2	4	1.90	No	No	\$15,588,005	2025
23	Fayetteville Rd	Woodcroft Pkwy	Cornwallis Rd	2	4	2.31	No	No	\$23,134,000	2025
24.11	Garrett Rd	NC 751	US 15-501	2	3	3.12	No	No	\$13,464,268	2025
27	Glover Rd	Glover Rd/NC 147 interchange; 147	Angier	2	4	1.94	No	No	\$46,793,220	2025
28.11	Glover Rd Ext	Angier	US 70	0	2	1.37	No	No	\$14,579,005	2025
31	Hillandale Rd	Carver	Horton Rd	2	4	1.53	No	No	\$11,673,506	2025

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
33	Hillsborough Rd/Old Fayetteville	Lorraine St	Old Fayetteville/NC 54	2	2	0.50	No	Yes	\$1,800,000	2025
35	Homestead Rd	High School Rd	NC 86	2	3	1.70	No	No	\$10,300,000	2025
36	Homestead Rd	Old NC 86	High School Rd	2	3	1.47	No	No	\$5,834,896	2025
40	(Horace Williams Network) Carolina North	Carolina North Campus		0	2	2.16	No	No	\$23,032,799	2025
48	I-85	I-40	the Durham Co line	4	8	7.35	Yes	No	\$210,782,000	2025
49	I-85	US 70	Red Mill Rd	4	6	5.68	Yes	No	\$76,107,334	2025
51	Lake Hogan Farms Rd Ext	Eubanks Rd	Homestead Rd	0	2	0.68	No	No	\$5,556,950	2025
69	NC 54	I-40 Interchange	NC 55	2	4	3.91	No	No	\$27,580,113	2025
70	NC 54	I-40	Barbee Chapel Rd	4	6	1.68	Yes	No	\$18,298,864	2025
77.1	NC 751	S Roxboro St	NC 54	2	4	0.70	No	No	\$10,245,211	2025
77.2	NC 751	NC 54	Renaissance Pkwy	2	4	1.23	No	No	\$9,392,024	2025
77.3	NC 751	Renaissance Pkwy	Fayetteville/Scott King Rd	2	4	1.94	No	No	\$14,813,436	2025
80	NC 86	Old NC 10	US 70 Business	2	4	1.00	No	No	\$9,795,792	2025
81	NC 86	US 70 Bypass	NC 57	2	4	0.42	No	No	\$3,207,033	2025
83	Northern Durham Pkwy	US 70 E	I 85 N	0	4	6.40	Yes	No	\$66,999,951	2025
84	Northern Durham Pkwy	I 85 North	Old Oxford Hwy	0	4	2.40	Yes	No	\$27,284,982	2025
85	Northern Durham Pkwy	Old Oxford Hwy	Roxboro Rd	0	2	2.64	No	No	\$19,358,989	2025
88	Old Oxford Rd	Roxboro Rd	Snow Hill Rd	2	4	2.23	No	No	\$18,107,816	2025
89.3	Orange Grove Connector	Orange Grove Rd	US 70	0	2	0.40	No	No	\$0	2025
91	Riddle Rd Ext	Briggs Ave	NC 147	0	2	0.49	No	No	\$3,593,146	2025
94	Roxboro St	Cornwallis Rd	MLK Pkwy	2	4	1.10	No	No	\$11,515,617	2025
102	SW Durham Dr	Meadowmont Dr	I-40	0	2	1.55	No	No	\$13,505,241	2025
104	SW Durham Dr	Watkins Rd (Old Chapel Hill Rd)	US 15-501	2	4	0.70	No	No	\$10,245,211	2025
106	SW Durham Dr	15-501	Mt Moriah Rd	0	4	0.35	No	No	\$9,054,232	2025
116	US 70	Lynn Rd (Durham Co.)	Aviation Pkwy Ext (Wake Co line)	4	6	4.11	Yes	No	\$128,731,026	2025
123.11	Woodcroft Pkwy Ext	Garrett Rd	Hope Valley Rd	0	2	0.27	No	No	\$1,979,897	2025
5	Alston Ave Ext	Holloway St	Old Oxford/Roxboro	0	2	4.26	No	No	\$40,379,218	2035
8.11	Briggs Ave Ext	So-Hi Dr	Riddle Rd	0	2	1.60	No	No	\$11,732,721	2035
13.11	Cornwallis Rd Ext	Miami Blvd	Chin Page Rd	0	2	0.78	No	No	\$8,300,455	2035
26.11	Globe Rd Ext (Brier Creek Pkwy)	Miami Blvd	Wake County Line	0	2	1.98	No	No	\$21,070,387	2035

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
32	Hillandale Rd Ext	Horton Rd	Guess Rd	0	4	0.88	No	No	\$9,212,493	2035
39	Horton Rd	Duke St	Hillandale Rd	2	4	1.90	No	No	\$16,668,005	2035
43	I-40	US 15-501	NC 86	4	6	4.10	Yes	No	\$43,996,747	2035
44	I-40	NC 86	I-85	4	6	7.32	Yes	No	\$77,277,997	2035
45	I-40 HOV	Wake County Line	US 15-501	0	2	10.63	Yes	No	\$578,756,215	2035
52	Latta Rd	Guess Rd	Roxboro Rd	2	4	1.20	No	No	\$9,485,481	2035
53.11	Leesville Rd Ext	Northern Parkway	US 70/Page Rd	0	2	1.14	No	No	\$8,356,794	2035
57	Lynn Rd Ext	NC 98/Glover Rd Ext	Existing Lynn Rd	0	2	0.86	No	No	\$6,368,405	2035
60	Midland Terrace Ext	NC 98	Geer St	0	2	1.80	No	No	\$11,281,082	2035
61	Midland Terrace Ext	Dearborn	Old Oxford Rd/Hamlin Junction	0	2	0.95	No	No	\$8,474,714	2035
63	MLK Pkwy (NC 55 interchange)	NC 55	Cornwallis Rd connector	0	4	0.49	Yes	No	\$25,800,000	2035
64.13	NC 147 General purpose widening	East End Conn	I-40	4	6	4.78	Yes	No	\$52,645,086	2035
81.1	NC 98 (Holloway St)	Wake County Line	Mineral Springs	2	4	6.40	Yes	No	\$49,949,069	2035
86	Old NC 86	I-40	Lafayette Dr	2	4	0.80	No	No	\$6,176,000	2035
87	Old NC 86	Lafayette Dr	US 70 Business	2	4	1.70	No	No	\$13,124,000	2035
89	Olive Branch Rd Ext	NC 98	US 70	0	2	1.48	No	No	\$11,959,987	2035
90	Page Rd	I-40	Page Rd Ext	2	4	3.10	No	No	\$32,218,325	2035
92	Roxboro Rd (501N)	Duke St	Goodwin Rd	4	6	2.65	Yes	No	\$40,962,074	2035
95.11	Scott King Rd Ext	Grandale Dr	Hopson Rd	0	2	0.95	No	No	\$8,046,303	2035
96	Seawell School Connector	Lake Hogan Farms Rd	Seawell School Rd	0	2	1.70	No	No	\$12,466,016	2035
96.1	Sherron Rd	US 70	NC 98	2	4	3.30	No	No	\$25,198,114	2035
113	US 15-501	Bypass	I-40 (freeway conversion)	6	6	2.39	Yes	No	\$106,381,000	2035
114	US 15-501 Bypass	Pickett Rd	Morreene Rd	4	6	2.69	Yes	No	\$35,903,280	2035
CAMPO Roadway Projects										
A10	Old Wake Forest Rd	Litchford Rd	Capital Blvd	2	4	1.20	No	No	\$17,563,219	2015
A104	Morrisville Parkway	Green Level To Durham	NC 55	0	4	1.83	Yes	No	\$19,157,799	2015
A125c	Heritage Lake Rd	End of Existing Heritage Lake Rd	NC 98 (Wake Forest Bypass)	0	4	0.86	No	No	\$0	2015
A12a	Falls of Neuse Rd	Raven Ridge Rd	Fonville Rd	2	4	1.30	No	No	\$18,000,000	2015
A130a	Mitchell Mill Rd (West)	US 401	Louisbury Rd	2	4	1.13	No	No	\$8,628,445	2015
A13b	New Falls of Neuse Blvd	Falls of Neuse Rd	Waterlow Park Lane	0	4	0.83	No	No	\$8,689,056	2015
A142b	Timber Dr East	White Oak Rd	New Rand Rd	0	4	1.27	No	No	\$19,333,000	2015

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A155a	T.W. Alexander Dr Ext	US 70	Brier Creek Pkwy	0	4	0.66	No	No	\$6,909,370	2015
A160a	Ralph Stephens Rd (Part NL)	Avent Ferry	NC 55	0	2	1.07	No	No	\$7,846,257	2015
A160b	Ralph Stephens Rd (Part NL)	Piney Grove Wilbon	NC 55	0	2	1.00	No	No	\$7,332,950	2015
A164a	Green Level-to-Durham	O'Kelly Chapel Rd	Carpenter Fire Station Rd	2	4	1.28	No	No	\$9,773,814	2015
A169a	Wendell Falls Parkway	US 64 Bypass	Martin Pond Rd	0	4	1.69	No	No	\$45,352,175	2015
A16b	Rock Quarry Rd	Sunnybrook Rd	New Hope Rd	2	4	1.09	No	No	\$8,323,013	2015
A197a	Main Campus Dr Connector	Main Campus Dr	Main Campus Dr	0	4	0.68	No	No	\$0	2015
A199	Pullen Rd	Western Blvd	Centennial Pkwy	0	2	0.40	No	No	\$4,013,180	2015
A1a	Perry Creek Rd Ext	Fox Rd	I-540	2	4	0.97	No	No	\$7,406,718	2015
A1b	Perry Creek Rd Ext	I-540	Buffaloe Rd	0	4	0.70	No	No	\$9,488,120	2015
A20	Hillsborough St Safety & Enhancement	Gorman St	Gardner St	4	4	0.84	Yes	No	\$11,000,000	2015
A207a1	Judd Parkway NE (part NL)	Existing Judd Parkway	NC 55 (BRd St)	0	2	1.70	No	No	\$12,466,016	2015
A207b1	Judd Parkway SW (part NL)	NC 42	Existing Judd Parkway	0	2	0.80	No	No	\$5,912,191	2015
A220a	Morrisville Carpenter Rd	Townhall Dr	Davis Dr	2	4	1.40	No	No	\$3,000,000	2015
A220b	Morrisville Carpenter Rd	Davis Dr	Louis Stephens Dr	2	4	0.70	No	No	\$5,345,054	2015
A222a	NC 54	Cary Parkway	Weston Parkway	2	6	0.90	Yes	No	\$10,375,819	2015
A235b	US 1A	Rogers Rd	Forbes Rd	2	4	1.55	No	No	\$1,700,000	2015
A24	Edwards Mill Rd Ext - part II	Trinity Rd	Chapel Hill Rd	0	4	0.67	Yes	No	\$7,014,057	2015
A240c	North Harrison Avenue	Dry Rd	Kildaire Farm Rd	0	2	0.32	No	No	\$5,034,630	2015
A27d	Louis Stephens Dr Ext (part NL)	McCrimmon Pkwy	Morrisville Carpenter Rd	0	2	0.35	No	No	\$0	2015
A2b	Southall Rd	Southall Rd (Existing)	Heddingham Blvd	0	4	0.28	No	No	\$2,931,248	2015
A30	Morrisville Parkway (part NL)	Davis Dr	NC 55	2	4	1.37	No	No	\$10,461,035	2015
A32	Walker St	Chatham St	Chapel Hill Rd	0	2	0.25	No	No	\$2,913,238	2015
A33	Kildaire Farm Rd	Walnut St	Dowell St	2	4	0.28	No	No	\$4,098,084	2015
A380	US 64	US 1	Laura Duncan Rd	4	4	2.49	Yes	No	\$11,000,000	2015
A40	Kildaire Farm Rd	Swift Creek	Ten Ten Rd	2	4	2.00	No	No	\$0	2015
A428	Green Oaks Parkway	SR 1152 (New Hill Rd)	NC 55 Bypass	0	4	1.40	No	No	\$0	2015
A431	Wake Forest Rd	Six Forks Rd	I 440	5	7	0.50	No	No	\$0	2015
A439	Buck Jones Rd	Farmgate Rd	Western Blvd	2	3	1.13	No	No	\$5,025,328	2015
A440b	Carpenter Fire Station Ext	NC 55	Morrisville Carpenter Rd	0	4	0.30	No	No	\$3,140,623	2015
A450	RTP Access Routes	Internal RTP access points	External access points	2	4	0.84	No	No	\$8,730,127	2015

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A46b	Tryon Rd	Norfolk Southern Rail	Existing Tryon Rd Alignment	0	4	0.50	No	No	\$0	2015
A46c	Tryon Rd	New Tryon Rd Alignment	S. Wilmington St	2	4	0.40	No	No	\$3,054,317	2015
A47	Sunnybrook Rd	Poole Rd	New Bern Avenue	2	4	1.29	No	No	\$9,850,172	2015
A482	Wade Avenue	Ridge Rd	Faircloth St	4	6	0.36	Yes	No	\$1,000,000	2015
A49a	Poole Rd	Maybrook Dr	Barwell Rd	2	4	1.00	No	No	\$7,635,792	2015
A521	O'Kelley Chapel Rd	Louis Stephens Dr	NC 55	0	4	0.62	No	No	\$6,385,933	2015
A53	Davis Dr	Morrisville-Carp	Durham County Line	2	4	1.10	Yes	No	\$0	2015
A55	Perry Creek Rd	US 1	US 401	2	4	1.61	No	No	\$12,293,625	2015
A56a	NC 98 Bypass	US 1	NC 98	0	4	1.44	No	No	\$15,074,989	2015
A57	Sandy Forks Rd	Falls of Neuse	Six Forks Rd	2	3	1.31	No	No	\$5,199,805	2015
A73b	Jones Franklin Rd	Dillard Dr	I-440	2	4	0.34	No	No	\$3,676,169	2015
A74a	Piney Plains Rd	Dillard Dr Ext	Tryon Rd	2	4	0.68	No	No	\$0	2015
A75a	County Line Rd	North of O'Kelly Chapel	Yates Store Rd	0	4	1.09	No	No	\$0	2015
A86a	Leesville Rd	I-540 Interchange	New Leesville Blvd	2	4	1.17	No	No	\$8,933,877	2015
A89a	US 401 Widening	Ligon Mill Rd / Mitchell Mill Rd	Forestville Rd	2	4	1.23	Yes	No	\$12,001,000	2015
A90a	US 401 Widening	Forestville Rd	US 401 Rolesville Bypass	2	4	1.00	Yes	No	\$8,944,000	2015
A90b	US 401 Rolesville Bypass	US 401	US 401	0	4	4.50	Yes	No	\$47,109,341	2015
A90c	US 401 Widening	US 401 Rolesville Bypass	Franklin County	2	4	1.56	Yes	No	\$11,911,836	2015
A90d	US 401 Widening	Franklin County	NC 39 (Louisburg)	2	4	10.50	Yes	No	\$22,485,000	2015
A91	Jones Sausage Rd	Rock Quarry Rd	I-40	2	4	1.50	No	No	\$11,453,688	2015
A97b	Airport Blvd	I-40	NC 54	2	4	0.71	No	No	\$0	2015
F12	NC 540 Tri-Ex Turnpike - A2 (was NC 147 Triangle Pkwy)	Durham Co. Line	NC 540 Tri-Ex - A1	0	6	3.50	Yes	No	\$174,703,000	2015
F16	I-40	US 1-64	Wade Avenue	4	6	3.89	Yes	No	\$38,486,000	2015
F43	I-40	US 1/64	Lake Wheeler Rd	6	8	4.43	Yes	No	\$84,037,559	2015
F4b	NC 540 Tri-Ex Turnpike - B1 (was I-540 W. Wake Frwy)	NC 55 (Morrisville/Cary)	US 1	0	6	10.10	Yes	No	\$600,359,000	2015
F4c	NC 540 Tri-Ex Turnpike - B2 (was I-540 W. Wake Frwy)	US 1	NC 55 Bypass	0	6	2.30	Yes	No	\$150,000,000	2015
A111	Reedy Creek Rd	N.E. Maynard Rd	Harrison Avenue	2	3	1.17	No	No	\$8,933,877	2025
A118b	NC 55	Jicarilla Rd	Rawls Ch Rd	2	4	1.60	Yes	No	\$12,217,267	2025
A119	McCrimmon Parkway	Airport Blvd	NC 54	2	4	0.60	No	No	\$22,000,000	2025

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A120	Tryon Rd Ext	Garner Rd	Rock Quarry Rd	0	4	2.90	No	No	\$21,050,000	2025
A125b	Heritage Lake Rd	Rogers Rd	End of Existing Heritage Lake Rd	2	4	0.93	No	No	\$7,101,287	2025
A126a	Ligon Mill Rd	Burlington Mills Rd	US 1A	2	3	2.32	No	No	\$9,208,815	2025
A127a	Ligon Mill Rd Connector	US 1A	NC 98 Bypass	2	4	0.96	No	No	\$7,330,360	2025
A127b	Ligon Mill Rd Connector	NC 98 Bypass	NC 98	2	4	1.18	No	No	\$9,010,235	2025
A127c	Ligon Mill Rd Connector	NC 98	Stadium Dr	2	4	0.78	No	No	\$5,955,918	2025
A130c	US 401/Mitchell Mill Rd Interchange						No	No	\$25,500,000	2025
A135a	Lead Mine Rd	Town & Country Rd	Millbrook Rd	3	4	0.54	No	No	\$2,143,431	2025
A138a	Timber Dr/Jones Sausage Connector	US 70	Timber Dr Ext	0	4	0.65	No	No	\$6,804,683	2025
A138b	Timber Dr/Jones Sausage Connector	Jones Sausage Rd	US 70	0	4	0.28	No	No	\$2,931,248	2025
A13c	Falls of Neuse Blvd	I-540	New Falls of Neuse Blvd	4	6	3.60	No	No	\$23,220,000	2025
A142a	Timber Dr East	Waterfield Rd	White Oak Rd	0	4	1.17	No	No	\$7,600,000	2025
A15	Blue Ridge Rd	Duraleigh Rd	Glen Eden Dr	2	3	0.95	No	No	\$3,770,851	2025
A151	Aviation Parkway Ext	Brier Creek Parkway	US 70	0	6	1.79	Yes	No	\$83,434,206	2025
A157a	Eastern Parkway	Angier Rd	NC 55	0	4	3.90	No	No	\$97,399,049	2025
A157b	Eastern Parkway	NC 55	US 401	0	4	1.79	Yes	No	\$91,828,095	2025
A16	Rock Quarry Rd	Old Birch Rd	Sunnybrook Rd	3	4	0.83	No	No	\$7,188,634	2025
A162	Buffaloe Rd	Southall Rd	I-540	2	4	2.39	No	No	\$18,325,901	2025
A171	Green Level West Rd	NC 55	I-540	2	4	0.90	No	No	\$19,622,213	2025
A174a	Martin Pond Rd	Poole Rd	Knightdale-Eagle Rock Rd	2	4	2.21	No	No	\$16,875,100	2025
A178a	Olive Chapel Rd	Kelly Rd	NC 55	2	4	1.93	No	No	\$14,737,079	2025
A179a	Richardson Rd	US 64 (West)	Olive Chapel Rd	0	4	1.42	No	No	\$40,365,614	2025
A201a	Rock Quarry Rd	New Hope Rd	Battle Bridge Rd	2	4	1.40	No	No	\$10,690,109	2025
A205	Six Forks Ext	Atlantic Avenue	Capital Blvd	0	4	0.56	Yes	No	\$5,862,496	2025
A21	Lake Boone Trail Ext	Blue Ridge Rd	Edwards Mill Ext	0	4	0.28	No	No	\$2,931,248	2025
A217a	Sunset Lake Rd	Main St	Optimist Farm Rd	2	4	3.40	No	No	\$25,961,693	2025
A218a	Old Holly Springs Apex Rd	Holly Springs Rd	Jessie Dr	2	4	2.52	No	No	\$19,242,196	2025
A218b	Jessie Dr (part NL)	Ten Ten Rd	Old Holly Springs Rd	2	4	3.50	No	No	\$26,725,272	2025
A221	NC 54	N.W. Maynard Rd	Wilson St	2	4	0.93	Yes	No	\$7,101,287	2025
A222b	NC 54	Weston Parkway	Perimeter Park Dr	2	4	2.40	Yes	No	\$24,943,219	2025

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A222c	NC 54	Perimeter Park Dr	Northern Twn Limits	2	6	1.80	Yes	No	\$28,196,122	2025
A223c	Kit Creek Rd	Kit Creek Rd	Kit Creek Rd	2	3	0.30	Yes	No	\$2,000,000	2025
A230	S.E. Maynard Rd	Cary Towne Blvd	Walnut St	4	6	0.26	No	No	\$1,985,306	2025
A231	Trinity Rd	Edwards Mill Rd Ext	Trenton Rd	2	4	1.10	No	No	\$8,399,371	2025
A234	Western Blvd	Gorman St	Avent Ferry Rd	4	6	1.21	No	No	\$17,709,579	2025
A236	NC 54	NE Maynard Rd	NW Maynard Rd	2	4	2.06	Yes	No	\$15,729,732	2025
A237a	Old Apex Rd	West Chatham St	Cary Parkway	2	4	1.55	No	No	\$11,835,478	2025
A237b	Old Apex Rd	Cary Parkway	Laura Duncan Rd	2	4	0.39	No	No	\$2,977,959	2025
A240a	North Harrison Avenue	Reedy Creek Rd	Weston Parkway	4	6	0.81	No	No	\$11,855,173	2025
A240b	North Harrison Avenue	Weston Parkway	I-40	6	8	0.48	No	No	\$19,775,288	2025
A26	McCrimmon Parkway	Airport Blvd	Aviation Parkway	0	4	0.40	No	No	\$4,900,000	2025
A28b	Davis Dr	Farm Pond Rd	US 64	2	4	1.10	No	No	\$8,399,371	2025
A3	Spring Forest Rd Ext	US 401	Buffaloe Rd	0	4	1.16	No	No	\$12,143,741	2025
A302c	Rawls Ch Rd	NC 55 (north of Angier)	US 401	2	4	4.09	No	No	\$31,230,389	2025
A302d	Southern FV Bypass	Angier Rd	Piney Grove Wilbon	0	4	2.40	Yes	No	\$50,624,982	2025
A302e	Northeastern Angier Bypass	Benson Road	NC 55 (north of Angier)	2	2	1.12	No	No	\$1,120,000	2025
A34	Cary Parkway	Evans Rd	Harrison Avenue	2	4	1.74	No	No	\$13,286,278	2025
A36b	Chatham St	Reedy Creek Rd	N.E. Maynard Rd	2	4	0.27	No	No	\$3,951,724	2025
A36c	Chatham St	N.E. Maynard Rd	I-40 bridge	2	4	0.93	No	No	\$13,611,495	2025
A37	Walnut St	Maynard Rd	Macedonia Rd	4	6	1.29	No	No	\$18,880,461	2025
A38	Tryon Rd	US 64	Kildaire Farm Rd	4	6	0.80	No	No	\$11,708,813	2025
A39	Alston Avenue	Kit Creek Rd	NC 55	2	4	2.12	No	No	\$16,187,879	2025
A404	South Franklin St (part NL)	NC 98 (Wake Forest Bypass)	Rogers Rd	2	4	1.10	No	No	\$11,432,309	2025
A406a	Shotwell Rd	East Garner Rd	US 70	2	4	0.86	No	No	\$6,566,781	2025
A410	Lake Pine Dr/Old Raleigh Rd	Cary Parkway	Apex Peakway	2	4	1.70	No	No	\$12,980,846	2025
A413	NC 54 (Chapel Hill Rd)	Corporate Center Dr	Hillsborough St	2	4	1.33	Yes	No	\$13,822,701	2025
A417	Spring Forest Rd	Fox Rd	US 401	3	4	0.67	No	No	\$2,659,442	2025
A43	Lake Wheeler Rd	Tryon Rd	I-40	2	4	1.30	No	No	\$9,926,530	2025
A438	Blue Ridge Rd	Glen Eden	Crabtree Valley Avenue	2	3	1.01	No	No	\$4,009,010	2025
A440a	Carpenter Fire Station Rd	NC 55	County Line Rd	2	4	0.47	No	No	\$3,588,822	2025
A443b	Jenks Rd	Wimberly Rd	US 64	2	4	0.51	No	No	\$3,894,254	2025
A444	NC 50	I 540	NC 98	2	4	5.06	No	No	\$38,637,108	2025
A448	Six Forks Rd	Rowan St	Sandy Forks Rd	4	6	1.46	No	No	\$11,148,256	2025

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A449	Perry Rd Ext	Apex Peakway	Jessie Dr	0	4	1.10	No	No	\$11,515,617	2025
A457	Westgate Rd	Leesville Rd	US 70	2	4	1.40	No	No	\$29,100,422	2025
A46a	Tryon Rd	Lake Wheeler Rd	Norfolk Southern Rail	2	4	1.30	No	No	\$9,926,530	2025
A486	Blue Ridge-Hillsborough Grade Separation	Blue Ridge Rd	TTA Rail Line at Hillsborough	0	4	1.00	No	No	\$25,500,000	2025
A49b	Poole Rd	Barwell Rd	I-540	2	4	1.57	Yes	No	\$11,988,193	2025
A51	Smithfield Rd	Forestville Rd	Bethlehem Rd	2	4	1.57	No	No	\$7,446,000	2025
A511	Piney Grove Wilbon Rd	Brayton Park Rd	Southern FV Bypass	2	4	5.11	No	No	\$43,218,583	2025
A522	New Alston Connector	NC 55	Green Level -to-Durham	0	2	1.09	No	No	\$7,992,916	2025
A530	Evans Rd	Aviation Parkway	Weston Parkway	4	6	0.50	No	No	\$3,817,896	2025
A54	Pleasant Valley Rd	Duraleigh Rd	Glenwood Avenue	2	4	0.34	No	No	\$2,596,169	2025
A63	Cary Parkway Ext	Harrison Avenue	Trinity Rd	0	2	2.05	No	No	\$15,032,548	2025
A640	Aviation Parkway Interchange	National Guard Dr	I-40	4	4	0.42	No	No	\$12,750,000	2025
A641	Airport Blvd Interchange			6	6	0.82	No	No	\$12,750,000	2025
A64a	Aviation Parkway	I-40	Dominion Dr	2	6	0.93	No	No	\$9,137,500	2025
A64b	Aviation Parkway	Evans Rd	NC 54	2	4	0.92	No	No	\$3,400,000	2025
A66a	O'Kelley Chapel Rd	Alston Avenue	NC 55	2	4	1.21	No	No	\$9,239,308	2025
A72	Holly Springs Rd	Tryon Rd	SE Cary Parkway	2	4	0.61	Yes	No	\$4,657,833	2025
A73c	Jones Franklin Rd	I-440	Western Blvd	2	3	1.01	No	No	\$4,009,010	2025
A74c	Piney Plains Rd	Dillard Dr	Walnut St	2	4	0.43	No	No	\$6,293,487	2025
A75c	County Line Rd	Green Level West	Beckwith Farm Rd	0	2	1.96	No	No	\$14,372,583	2025
A85b	Leesville Rd	Westgate Rd	Lynn Rd	2	4	2.31	No	No	\$17,638,680	2025
A86b	Leesville Rd	New Leesville Blvd	TW Alexander Dr Ext	2	4	0.97	No	No	\$7,406,718	2025
A87	New Leesville Blvd Ext	Terminus	Carpenter Pond Rd	0	4	0.47	No	No	\$4,920,309	2025
A88	New Rand Rd	NC 50	Old Garner Rd	2	3	1.63	No	No	\$6,469,986	2025
A9	Strickland Rd	Leesville Rd	Creedmoor Rd	2	4	2.73	Yes	No	\$20,845,712	2025
A96b	NC 55	Apex Peakway (south)	Olive Chapel Rd	2	3	1.67	Yes	No	\$19,472,000	2025
F10	I-440 Widening	US 1/64	Wade Avenue	4	6	3.50	Yes	No	\$77,015,000	2025
F3	NC 540 Tri-Ex Turnpike - C3 (was I-540 SE Wake Frwy)	I-40 (South)	US 64 East Bypass	0	6	10.80	Yes	No	\$255,272,000	2025
F44a	I-40 (East)	I-440	US 70 Business (Garner)	6	8	4.40	Yes	No	\$71,979,235	2025
F44b	I-40 (East)	US 70 Business (Garner)	NC 42	4	8	6.30	Yes	No	\$158,070,734	2025
F5	NC 540 Tri-Ex Turnpike - C1 (was I-540 S. Wake Frwy)	NC 55 Bypass	US 401 (South)	0	6	7.80	Yes	No	\$213,000,000	2025

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
F6	NC 540 Tri-Ex Turnpike - C2 (was I-540 S. Wake Frwy)	US 401 (South)	I-40 (South)	0	6	8.70	Yes	No	\$177,000,000	2025
Grnv108	Intrsectn Rlgnmnt @ US 15, NC 56, NC50			2	4	1.00	No	No	\$1,908,948	2025
Grnv32	Brassfield Rd	Creedmoor Loop	Hayes Rd	2	4	1.80	No	No	\$13,744,426	2025
Grnv35	Woodland Church Rd	Wake Co. line	Bruce Garner Rd	2	3	4.41	No	No	\$17,504,687	2025
Grnv47	Creedmoor Loop A	NC 56	US 15	0	4	1.59	No	No	\$16,645,300	2025
Grnv48	Creedmoor Loop B	US-15	Relocated US 15	2	4	0.66	No	No	\$5,039,623	2025
Grnv49	Creedmoor Loop C	Relocated US 15	Brassfield Rd	0	4	1.89	No	No	\$19,785,923	2025
Grnv94	I-85 / Brogden Interchange			0	0	3.94	No	No	\$25,500,000	2025
Hrnt5	US 401	Fuquay-Varina	Lillington UPD	2	4	7.50	No	No	\$57,268,440	2025
Jhns1a	NC 42 East Widening	US 70	Sr 1902	2	4	1.23	Yes	No	\$9,392,024	2025
Jhns1b	NC 42 East Widening	SR 1902	Buffaloe Rd	2	4	4.44	Yes	No	\$30,725,000	2025
A101	US 70	Lumley/Westgate Rd	Duraleigh/Millbrook Rd	4	8	3.30	Yes	No	\$38,450,000	2035
A112a	Smithfield Rd	US 64 Bypass	Major Slade Rd	2	4	2.60	No	No	\$19,853,059	2035
A112b	Smithfield Rd	Major Slade Rd	Johnston Co. line	2	4	1.40	No	No	\$10,690,109	2035
A114	Ten Ten Rd	Holly Springs Rd	US 1	2	4	3.40	No	No	\$25,961,693	2035
A117	New Hope Rd	Old Poole Rd	Rock Quarry Rd	2	4	1.80	No	No	\$13,744,426	2035
A125a	Forestville Rd	Horton Rd	Buffaloe Rd	2	4	3.40	No	No	\$25,961,693	2035
A125a2	Forestville Rd	Buffaloe Rd	Rogers Rd	2	4	7.50	No	No	\$57,268,440	2035
A131	NC 96	US 64	NC 98	2	3	16.27	Yes	No	\$64,580,784	2035
A134	Litchford Rd	Old Wake Forest Rd	Falls of Neuse Rd	3	4	2.99	No	No	\$11,868,257	2035
A138c	Timber Dr/Jones Sausage Connector	White Oak Rd	I-40 (South)	2	4	5.02	No	No	\$38,331,676	2035
A139	Timber Dr / US 70 Interchange			0	0	1.92	No	No	\$25,500,000	2035
A14	Ray Rd	Leesville Rd	Strickland Rd	2	3	3.21	No	Yes	\$12,741,507	2035
A140a	Vandora Springs Rd & Ext	Timber Dr	Old Stage Rd	2	4	1.02	No	No	\$7,788,508	2035
A143a	White Oak Rd	US 70	I-540	2	4	4.30	No	No	\$32,833,906	2035
A143b	White Oak Rd	I-540	NC 42 (Johnston Co.)	2	4	3.10	No	No	\$23,670,955	2035
A148a	Eagle Rock Rd	US 64 Bypass	Martin Pond Rd	2	3	1.40	No	No	\$6,097,044	2035
A149a	Poole Rd	I-540	Martin Pond Rd	2	4	5.60	No	No	\$42,760,435	2035
A150	NC 98	Durham County Line	NC 98 Bypass	2	4	8.86	No	No	\$67,653,117	2035
A155b	T.W. Alexander Dr	Aviation Parkway	US 70	4	6	1.02	No	No	\$22,698,508	2035

2035 Long Range Transportation Plan Roadway Project List

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		From	To							
A155c	T.W. Alexander Dr Ext	Brier Creek Parkway	Leesville Rd	0	4	1.80	No	No	\$44,343,736	2035
A160c	Ralph Stephens Rd Interchange			0	0	0.00	No	No	\$25,500,000	2035
A163a	Holly Springs Rd	Sunset Lake Rd	Old Holly Springs Apex	2	4	3.58	No	No	\$27,336,135	2035
A166	Center St/1010	US 1	Apex Peakway	2	4	1.04	No	No	\$23,558,728	2035
A172	Kelly Rd	Jenks Rd	Old US 1	2	4	5.23	No	No	\$39,935,192	2035
A174b	Martin Pond Rd	Knightdale-Eagle Rock Rd	Wendell Blvd	0	4	0.84	No	No	\$8,793,744	2035
A178b	Olive Chapel Rd	Richardson Rd	Kelly Rd	2	3	1.81	No	No	\$7,184,463	2035
A178c	Olive Chapel Rd	New Hill Olive Chapel Rd	Richardson Rd	2	3	1.31	No	No	\$5,199,805	2035
A179b	Richardson Rd	Olive Chapel Rd	Humie Olive Rd	2	4	1.86	No	No	\$14,202,573	2035
A181a	Old US 1	NC 751	Humie Olive Rd	2	3	2.38	No	No	\$9,446,974	2035
A181b	Old US 1	Humie Olive Rd	Apex Peakway	2	4	2.53	No	No	\$19,318,554	2035
A193b	Sunset Lake Rd	Hilltop-Needmore Rd	Optimist Farm Rd	2	4	2.55	No	No	\$19,471,270	2035
A197b	Cent Campus Connector & Interchange	Main Campus Dr Connector	I-40	0	4	0.38	Yes	No	\$15,819,061	2035
A201b	Rock Quarry Rd	Battle Bridge Rd	East Garner Rd	2	4	3.30	No	No	\$25,198,114	2035
A207a	Judd Parkway NE	Existing Judd Parkway	NC 55 (BRd St)	2	4	1.70	No	No	\$12,980,846	2035
A207c1	Judd Parkway W (part NL)	Wilbon Rd	NC 42	0	2	1.20	No	No	\$10,913,710	2035
A214	Garner Rd	Tryon Rd	Rock Quarry Rd	2	3	7.16	Yes	No	\$28,420,308	2035
A217b	Sunset Lake Rd Ext	Old Holly Springs Apex	Main St	0	4	1.70	No	No	\$17,796,862	2035
A218c	Old Holly Springs Apex Rd	Tingen Rd	Jessie Dr	2	3	1.06	No	No	\$4,207,476	2035
A219a	McCrimmon Parkway Ext	NC 54	Louis Stevens Rd	2	4	1.74	No	No	\$3,600,000	2035
A219b	McCrimmon Parkway Ext	Louis Stevens Rd	NC 55	0	4	0.94	No	No	\$9,840,618	2035
A228a	NC 50	Timber Dr	I-540	2	4	4.60	Yes	No	\$35,124,643	2035
A228b	NC 50	I-540	NC 42	2	4	2.16	Yes	No	\$16,493,311	2035
A27a	Louis Stephens Dr Ext (part NL)	Wake County Line	Kit Creek Rd	2	4	1.23	No	No	\$9,392,024	2035
A27b	Louis Stephens Dr Ext (part NL)	Kit Creek Rd	O'Kelly Chapel Rd	2	4	1.13	No	No	\$8,628,445	2035
A27c	Louis Stephens Dr Ext (part NL)	O'Kelly Chapel Rd	McCrimmon Pkwy	2	4	1.57	No	No	\$11,988,193	2035
A2a	Southall Rd	Skycrest Dr	Buffaloe Rd	2	4	1.54	No	No	\$15,000,000	2035
A302a	Guy Rd	NC 55 (south of Angier)	NC 210	2	4	2.10	No	No	\$16,035,163	2035

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
A302b	Northeastern Angier Bypass	NC 210	NC 55 (north of Angier)	2	4	3.00	No	No	\$22,907,376	2035
A303	Northern Fuquay-Varina Bypass	Sunset Lake	Avent Ferry Road	2	4	3.07	No	No	\$23,441,881	2035
A407a	NC 42	NC 401	Old Stage Rd	2	4	4.10	Yes	No	\$31,306,747	2035
A407b	NC 42	Old Stage Rd	NC 50	2	4	5.42	Yes	No	\$41,385,993	2035
A407c	NC 42	NC 50	I 40	2	4	2.28	Yes	No	\$31,239,606	2035
A41	Kildaire Farm Rd	Ten Ten Rd	Kildaire Farm Connector	2	4	2.03	No	No	\$15,500,658	2035
A412	US 70 - Upgrade to Freeway	Aviation Pkwy Ext (Durham Co line)	Lumley/Westgate Rd	4	6	2.69	Yes	No	\$53,457,192	2035
A426	NC 55 (Main St)	Holly Springs Rd	Bobbitt Rd	2	4	2.96	Yes	No	\$22,601,944	2035
A427a	Avent Ferry Rd	NC 55 Bypass	Cass Holt	2	4	3.68	No	No	\$28,099,715	2035
A432	Skycrest Dr	Brentwood Rd	Trawick Rd	2	4	0.95	No	No	\$7,254,002	2035
A434	Sunnybrook Rd	Rock Quarry Rd	Poole Rd	3	4	1.81	No	No	\$7,184,463	2035
A445	NC 50	NC 98	Wake Co Line	2	4	6.12	No	No	\$46,731,047	2035
A480	US 401(South)	US 70	NC 55 (FV)	4	6	10.85	Yes	No	\$96,678,343	2035
A4c	Rogers Lane	Daleview Dr	Southall Rd	3	4	1.06	No	No	\$4,747,476	2035
A52	Smithfield Rd	Bethlehem Rd	US 64 Bypass	2	4	1.80	No	No	\$13,744,426	2035
A526	Sloan Rd Ext	Sloan Rd	Trinity Rd	0	2	0.40	No	No	\$2,933,180	2035
A56c	NC 98	NC 98 Bypass	US 401	2	4	5.29	No	No	\$40,393,340	2035
A59b	Sumner Blvd Ext	Old Wake Forest Rd	Capital Blvd	0	4	0.38	No	No	\$9,830,309	2035
A68a	Green Pace Rd	NC 96	Water Plant Rd	2	4	0.82	No	No	\$6,261,349	2035
A68b	Water Plant Rd - Part new location	Green Pace Rd	W Gannon Avenue	2	4	0.93	No	No	\$7,101,287	2035
A71	Holly Springs Rd	Ten Ten Rd	Kildaire Farm Rd Connector	2	6	0.84	No	No	\$9,684,098	2035
A73a	Jones Franklin Rd	Tryon Rd	Dillard Dr	2	4	0.67	No	No	\$5,115,981	2035
A75b	County Line Rd	Yates Store Rd	Green Level Church	0	2	1.09	No	No	\$7,992,916	2035
A80b	New Hope Rd	US 64 Bypass	New Bern Ave	2	4	1.19	No	No	\$13,447,680	2035
A82	Trinity Rd Ext	Chatham St	Cary Towne Blvd	0	4	0.69	No	No	\$7,223,432	2035
F110	US 1	US 64	NC 540	4	6	5.30	Yes	No	\$54,779,698	2035
F11-1a	US 1 North - Upgrade to Freeway	I-540	Thornton Road	4	8	1.62	Yes	No	\$82,247,019	2035
F11-1b	US 1 North - Upgrade to Freeway	Thornton Rd	Burlington Mills Rd	4	8	1.55	Yes	No	\$60,559,466	2035

2035 Long Range Transportation Plan Roadway Project List

Project ID	Road Name	Project Limits		Existing # of Lanes	Proposed # of Lanes	Distance (miles)	Regionally Significant	Exempt from AQ	Project Capital Cost (2008 \$)	AQ Analysis Year
		From	To							
F40	I-40 HOV/HOT Project	Durham County Line	Wade Avenue	0	2	9.20	Yes	No	\$240,000,000	2035
F42	I-540 Tri-Ex (Northern) Turnpike Conversion	I-40	US-64 Bypass	6	8	25.82	Yes	No	\$366,111,882	2035
F44c	I-40 (East)	NC 42	NC 210	4	6	6.78	Yes	No	\$100,436,670	2035
F44d	I-40 (East)	NC 210	CAMPO MAB	4	6	6.78	Yes	No	\$102,056,670	2035
F7	US 64 East	US 64 Bypass (Wendell)	US 64/US 264 (Zebulon)	4	8	7.35	No	No	\$182,865,857	2035
F71	US 64 East	US 64/US 264 Split (Zebulon)	Wake Co. line	4	4	2.41	No	Yes	\$5,100,000	2035
Grnv18	NC 50	Wake Co.	Creedmoor Loop	2	4	3.80	Yes	No	\$29,016,010	2035
Grnv33	Brassfield Rd	Hayes Rd	NC 96	2	4	4.07	No	No	\$31,077,673	2035
Grnv81a	Old Weaver Trail	From NC 50 (Wake Co)	Northside Rd Ext	2	4	1.65	No	No	\$12,599,057	2035
Grnv93	Cash Rd / Gate 2 Rd	Old Weaver Trail	I-85	2	4	3.94	No	No	\$30,085,020	2035
Jhns2a	NC 42 West	US 70 Business	US 70 Bypass	2	4	3.01	Yes	No	\$36,813,734	2035
Jhns2b	NC 42 West Widening	US 70 Bypass	I-40	2	4	3.37	Yes	No	\$56,895,867	2035
Jhns6	Pritchard Rd/Smithfield Rd Widening	Covered Bridge Rd	Wake County line	2	4	2.40	No	No	\$18,325,901	2035

Appendix 2 – Light Rail Transit Technology

The information on the following page presents the attributes of light rail technology as presented to the STAC.



Light Rail Transit (LRT)

A Technology Brief

Description

Light Rail Transit:

- can operate in a separate guideway or in dedicated lanes on streets, mixed with automobile traffic
- may be implemented in railroad rights-of-way with long-distance passenger rail or freight traffic under special circumstances; parallel operation is not always acceptable by railroad operators or regulatory agencies
- Vehicles, which are powered by overhead electricity, can be linked together in units of 2 to 3 light rail cars



Typical Service Characteristics

Corridor lengths: 5 to 20 miles

Station spacing: 1/4 to 2 miles

Service frequency: 5 - 15 minutes peak
10 - 20 minutes off peak

Average operating speed: 15 - 30 mph

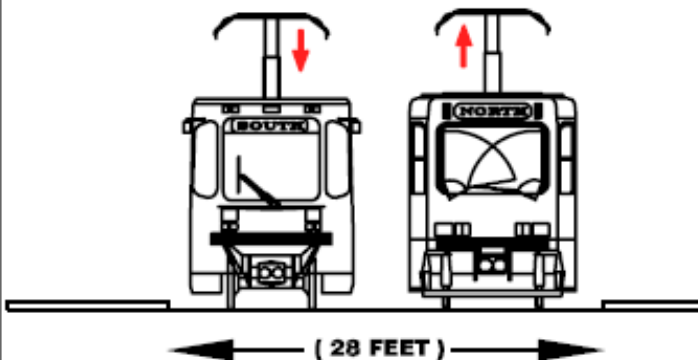
Maximum speed: 65 mph

Typical Costs

Capital: \$25 - \$60 million per mile (double track)
(Exact costs contingent on environmental constraints, number of stations at and above grade, land/Rights of way costs, topography, and other site specific design considerations).

Operating: \$230 per hour per train, which may be one rail car or several linked rail cars.

Typical Cross Section



Typical at-grade cross section requires at least 28 feet of track way. Wider sections are needed at stations and passing track.

Important Notes

Rights of way and land purchase costs are contingent on the location of the corridor, the availability of land and cost to use existing rights-of-way, and whether private land has been reserved or dedicated for a transit alignment and stations.

Land Use and Light Rail Transit (LRT)

LRT typically facilitates transit-oriented development within 1/2 mile of station locations. This technology offers a significant time competitive advantage over buses in mixed traffic and has proven to induce substantial private sector development investment.

Appendix 3 – Bus Transit Route List

Each row in the table is a separate bus transit route or service. The key attribute information for each bus route/service is presented by columns, and includes the information described below. For the most part, the bus transit service is presented in alphabetical order of the route name.

- **Route Name** – This name provides information to help identify the transit system, local route identification information, and the destination points of the route.
- **Company** – This is the name of the transit company that currently provides service or is likely to provide future service.
- **Service Type**
 - Local Bus: standard fixed-route bus service with frequent stops;
 - Express Bus; express bus service that has only a few stops between major residential and employment centers, longer routes and faster operating speeds.
 - Circulator Service – very frequent bus service that operates in close proximity to the employment center that is being served.
 - BRT Guideway – bus rapid transit (BRT) uses buses but all or part of the route is separate guideway or preferred roadway travel lanes.
- **Start and Stop Years** – Indicates the years in which the service will begin and end. In many cases, a service with a stop year that is before 2036 (January 1, 2036 -- which is the last year of the LRTP) will be shown in the next row with a subsequent start year but will have a headway or service pattern that is an improvement over the previous service.
- **Service Pattern** – Indicates the hours that the service is provided, as indicated in the following table:

Service Pattern	Daily Peak Hours	Daily Off-Peak Hours
18-Hour	7	11
Commuter	7	0
Daylight	7	6.5
Evening	0	5
Midday	0	6.5

- **Peak Headway (min)** – This is the minimum service frequency during peak hours, which are commonly 7AM to 9AM and 4PM to 6PM. It is the minimum number of minutes between buses. Peak service is usually more frequent than off-peak service.
- **Off-Peak Headway (min)** – This is the service frequency during off-peak hours, which are commonly outside of the 7AM to 9AM and 4PM to 6PM peak service. It is the minimum number of minutes between buses.

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CAT1 IB:Capital	CAT	Local Bus	2008	2016	18-Hour	15	15
CAT1 IB:Capital	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT1 OB:Capital	CAT	Local Bus	2008	2016	18-Hour	15	15
CAT1 OB:Capital	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT10 IB:Longview	CAT	Local Bus	2008	2016	Daylight	30	30
CAT10 IB:Longview	CAT	Local Bus	2016	2036	Daylight	15	15
CAT10 OB:Longview	CAT	Local Bus	2008	2016	Daylight	30	30
CAT10 OB:Longview	CAT	Local Bus	2016	2036	Daylight	15	15
CAT11 IB:Avent Ferry	CAT	Local Bus	2008	2016	18-Hour	30	30
CAT11 IB:Avent Ferry	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT11 OB:Avent Ferry	CAT	Local Bus	2008	2016	18-Hour	30	30
CAT11 OB:Avent Ferry	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT11C IB:Schaub-Cates	CAT	Local Bus	2008	2010	18-Hour	60	60
CAT11C IB:Schaub-Cates	CAT	Local Bus	2010	2036	18-Hour	30	30
CAT11C OB:Cates-Schaub	CAT	Local Bus	2008	2010	18-Hour	60	60
CAT11C OB:Cates-Schaub	CAT	Local Bus	2010	2036	18-Hour	30	30
CAT12 IB:Method	CAT	Local Bus	2008	2023	18-Hour	30	30
CAT12 IB:Method	CAT	Local Bus	2023	2036	18-Hour	15	15
CAT12 OB:Method	CAT	Local Bus	2008	2023	18-Hour	30	30
CAT12 OB:Method	CAT	Local Bus	2023	2036	18-Hour	15	15
CAT13 IB:Chavis Heights	CAT	Local Bus	2008	2016	Daylight	30	30
CAT13 IB:Chavis Heights	CAT	Local Bus	2016	2036	Daylight	30	30
CAT13 OB:Chavis Heights	CAT	Local Bus	2008	2016	Daylight	30	30
CAT13 OB:Chavis Heights	CAT	Local Bus	2016	2036	Daylight	30	30
CAT15 IB:WakeMed	CAT	Local Bus	2008	2016	18-Hour	15	15
CAT15 IB:WakeMed	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT15 OB:WakeMed	CAT	Local Bus	2008	2016	18-Hour	15	15
CAT15 OB:WakeMed	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT15C IB:Buffaloe-WakeMed	CAT	Local Bus	2008	2016	18-Hour	30	30
CAT15C IB:Buffaloe-WakeMed	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT15C OB:WakeMed-Buffaloe	CAT	Local Bus	2008	2016	18-Hour	30	30
CAT15C OB:WakeMed-Buffaloe	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT16 IB Oberlin	CAT	Local Bus	2008	2016	Daylight	30	30
CAT16 IB Oberlin	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT16 OB Oberlin	CAT	Local Bus	2008	2016	Daylight	30	30
CAT16 OB Oberlin	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT18 IB: Worthdale	CAT	Local Bus	2008	2016	Daylight	30	30
CAT18 IB: Worthdale	CAT	Local Bus	2016	2036	Daylight	15	15
CAT18 OB: Worthdale	CAT	Local Bus	2008	2016	Daylight	30	30
CAT18 OB: Worthdale	CAT	Local Bus	2016	2036	Daylight	15	15
CAT19 IB:Swinb&Kidd-MooreSq	CAT	Local Bus	2008	2016	Daylight	30	30
CAT19 IB:Swinb&Kidd-MooreSq	CAT	Local Bus	2016	2036	Daylight	15	15
CAT19 OB:MooreSq-Swinb&Kidd	CAT	Local Bus	2008	2016	Daylight	30	30
CAT19 OB:MooreSq-Swinb&Kidd	CAT	Local Bus	2016	2036	Daylight	15	15
CAT2 Falls of Neuse - Evening	CAT	Local Bus	2008	2036	Evening	60	60

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CAT2 IB:Bent Tree-MooreSq	CAT	Local Bus	2016	2036	Daylight	30	30
CAT2 OB:MooreSq-Bent Tree	CAT	Local Bus	2008	2016	Daylight	30	30
CAT2 OB:MooreSq-Bent Tree	CAT	Local Bus	2016	2036	Daylight	30	30
CAT21 IB:Caraleigh	CAT	Local Bus	2008	2016	Daylight	30	30
CAT21 IB:Caraleigh	CAT	Local Bus	2016	2036	Daylight	15	15
CAT21 OB:Caraleigh	CAT	Local Bus	2008	2016	Daylight	30	30
CAT21 OB:Caraleigh	CAT	Local Bus	2016	2036	Daylight	15	15
CAT22 IB:State Street	CAT	Local Bus	2008	2016	Daylight	30	30
CAT22 IB:State Street	CAT	Local Bus	2016	2036	Daylight	30	30
CAT22 OB:State Street	CAT	Local Bus	2008	2016	Daylight	30	30
CAT22 OB:State Street	CAT	Local Bus	2016	2036	Daylight	30	30
CAT23C EB:Ctree-MilBrk&Cap	CAT	Local Bus	2008	2016	Daylight	30	30
CAT23C EB:Ctree-MilBrk&Cap	CAT	Local Bus	2016	2036	Daylight	15	15
CAT23C WB:Milbrk&Cap-Ctree	CAT	Local Bus	2008	2016	Daylight	30	30
CAT23C WB:Milbrk&Cap-Ctree	CAT	Local Bus	2016	2036	Daylight	15	15
CAT24C EB:NHills-Cap&Sprgfor	CAT	Local Bus	2008	2016	Daylight	30	30
CAT24C EB:NHills-Cap&Sprgfor	CAT	Local Bus	2016	2036	Daylight	15	15
CAT24C WB:Cap&Sprgfor-NHills	CAT	Local Bus	2008	2016	Daylight	30	30
CAT24C WB:Cap&Sprgfor-NHills	CAT	Local Bus	2016	2036	Daylight	15	15
CAT25C Loop:Triangle-Sumner	CAT	Local Bus	2008	2010	Daylight	60	60
CAT25C Loop:Triangle-Sumner	CAT	Local Bus	2010	2036	Daylight	30	30
CAT26c Early East Connector	CAT	Local Bus	2008	2036	Daylight	60	60
CAT27 Southeast	CAT	Local Bus	2008	2036	Evening	60	60
CAT28 Southwest	CAT	Local Bus	2008	2036	Evening	60	60
CAT29c North Night Connector	CAT	Local Bus	2008	2036	Evening	60	60
CAT3 IB:Glascosk	CAT	Local Bus	2008	2023	Daylight	30	30
CAT3 IB:Glascosk	CAT	Local Bus	2023	2036	Daylight	15	15
CAT3 OB:Glascosk	CAT	Local Bus	2008	2023	Daylight	30	30
CAT3 OB:Glascosk	CAT	Local Bus	2023	2036	Daylight	15	15
CAT30 Northeast	CAT	Local Bus	2008	2036	Evening	60	60
CAT32 Sanderford Road	CAT	Local Bus	2008	2036	Evening	60	60
CAT33c Glenwood-Creedmoor Connector	CAT	Local Bus	2008	2036	Evening	60	60
CAT35 poole Road	CAT	Local Bus	2008	2036	Evening	60	60
CAT36 Garner Station	CAT	Local Bus	2008	2036	Evening	60	60
CAT4 IB:Rex Hospital	CAT	Local Bus	2008	2016	Daylight	30	30
CAT4 IB:Rex Hospital	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT4 OB:Rex Hospital	CAT	Local Bus	2008	2016	Daylight	30	30
CAT4 OB:Rex Hospital	CAT	Local Bus	2016	2036	18-Hour	15	15
CAT4 Rex Evening	CAT	Local Bus	2008	2016	Evening	60	60
CAT5 IB:Biltmore Hills	CAT	Local Bus	2008	2010	Daylight	30	30
CAT5 IB:Biltmore Hills	CAT	Local Bus	2010	2036	Daylight	30	30
CAT5 OB:Biltmore Hills	CAT	Local Bus	2008	2010	Daylight	30	30
CAT5 OB:Biltmore Hills	CAT	Local Bus	2010	2036	Daylight	30	30
CAT6 IB:Crabtree	CAT	Local Bus	2008	2036	Daylight	30	30
CAT6 OB:Crabtree	CAT	Local Bus	2008	2036	Daylight	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CAT7 IB:SuperKMart-MooreSqSt	CAT	Local Bus	2008	2011	Daylight	30	30
CAT7 OB:MooreSqSt-SuperKMart	CAT	Local Bus	2008	2011	Daylight	30	30
CAT7 OB:MooreSqSt-SuperKMart	CAT	Local Bus	2011	2036	Daylight	30	30
CAT70E NB:Crabtree-LtlBrier	CAT	Local Bus	2008	2012	Daylight	60	60
CAT70E NB:Crabtree-LtlBrier	CAT	Local Bus	2012	2036	Daylight	30	30
CAT70E SB:LtlBrier-Crabtree	CAT	Local Bus	2008	2012	Daylight	60	60
CAT70E SB:LtlBrier-Crabtree	CAT	Local Bus	2012	2036	Daylight	30	30
CAT7C EB:RaleighOSC-SgateSC	CAT	Local Bus	2008	2023	Daylight	30	30
CAT7C EB:RaleighOSC-SgateSC	CAT	Local Bus	2023	2036	Daylight	15	15
CAT7C WB:SgateSC-RaleighOSC	CAT	Local Bus	2008	2023	Daylight	30	30
CAT7C WB:SgateSC-RaleighOSC	CAT	Local Bus	2023	2036	Daylight	15	15
CAT8 IB:Northclift	CAT	Local Bus	2008	2016	Daylight	30	30
CAT8 IB:Northclift	CAT	Local Bus	2016	2036	Daylight	15	15
CAT8 OB:Northclift	CAT	Local Bus	2008	2016	Daylight	30	30
CAT8 OB:Northclift	CAT	Local Bus	2016	2036	Daylight	15	15
CAT8C EB:Creedmr-6ForksStaSC	CAT	Local Bus	2008	2016	Daylight	60	60
CAT8C EB:Creedmr-6ForksStaSC	CAT	Local Bus	2016	2036	Daylight	30	30
CAT8C WB:Creedmr-6ForksStaSC	CAT	Local Bus	2008	2016	Daylight	60	60
CAT8C WB:Creedmr-6ForksStaSC	CAT	Local Bus	2016	2036	Daylight	30	30
CATC1 Youngsville Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC10 Garner/White Oak Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC11 Garner West Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC13 Fuquay Varina E Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC14 Fuquay Varina W Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC15 Holly Springs Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC16 Apex West Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC17 Apex East Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC2 Wake Forest Circulator	CAT	Local Bus	2008	2036	Daylight	60	60
CATC20 West Raleigh Circulator	CAT	Local Bus	2011	2036	Daylight	60	60
CATC22 Crabtree Circulator	CAT	Local Bus	2011	2036	Daylight	60	60
CATC23 Atlantic Ave Circulator	CAT	Local Bus	2011	2036	Daylight	60	60
CATC24 Wakefield Circulator	CAT	Local Bus	2010	2036	Daylight	60	60
CATC25 Creedmoor/Butner Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC26 NB: NC50 Bus Route	CAT	Local Bus	2016	2036	Daylight	60	60
CATC26 SB: NC50 Bus Route	CAT	Local Bus	2016	2036	Daylight	60	60
CATC3 Rolesville/Burlington Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC4 Durant/Triangle Town Cir	CAT	Local Bus	2016	2036	Daylight	60	60
CATC5 Zebulon Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC6 Wendell Falls Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC7 Knightdale N Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC8 Knightdale S Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATC9 Clayton Circulator	CAT	Local Bus	2016	2036	Daylight	60	60
CATCM 6FrksE IB:StrkInd-MooreSq	CAT	Express Bus	2016	2036	Commuter	30	30
CATCM 6FrksE OB:MooreSq-StrkInd	CAT	Express Bus	2016	2036	Commuter	30	30
CATCM DTN CTR:MooreSq-MooreSq	CAT	Local Bus	2016	2036	Daylight	30	30
CATCM GlnWdE IB:BrierCr-MooreSq	CAT	Express Bus	2016	2036	Commuter	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CATCM GlnWdE OB:MooreSq-BrierCr	CAT	Express Bus	2016	2036	Commuter	30	30
CATCM NBrnE OB:MooreSq-NHope	CAT	Express Bus	2016	2036	Commuter	30	30
CATCM RBC IB:CrabtreeVM-RBC	CAT	Local Bus	2010	2036	Daylight	30	30
CATCM RBC OB:RBC-CrabtreeVM	CAT	Local Bus	2010	2036	Daylight	30	30
CATCM SERal EB:SunyBrk-RckQry	CAT	Local Bus	2009	2020	Daylight	60	60
CATCM SERal EB:SunyBrk-RckQry	CAT	Local Bus	2020	2036	Daylight	30	30
CATCM SERal WB:RckQry-SunyBrk	CAT	Local Bus	2009	2020	Daylight	60	60
CATCM SERal WB:RckQry-SunyBrk	CAT	Local Bus	2020	2036	Daylight	30	30
CATCM SWkE IB:WakeTech-MooreSq	CAT	Express Bus	2009	2012	Daylight	60	60
CATCM SWkE IB:WakeTech-MooreSq	CAT	Express Bus	2012	2036	Daylight	30	30
CATCM SWkE OB:MooreSq-WakeTech	CAT	Express Bus	2009	2012	Daylight	60	60
CATCM SWkE OB:MooreSq-WakeTech	CAT	Express Bus	2012	2036	Daylight	30	30
CATCM WlfCrk IB:Wolf Cr-MooreSq	CAT	Local Bus	2009	2020	Daylight	60	60
CATCM WlfCrk IB:Wolf Cr-MooreSq	CAT	Local Bus	2020	2036	Daylight	30	30
CATCM WlfCrk OB:MooreSq-Wolf Cr	CAT	Local Bus	2009	2020	Daylight	60	60
CATCM WlfCrk OB:MooreSq-Wolf Cr	CAT	Local Bus	2020	2036	Daylight	30	30
ChapelHill Circulator EB	CHT	Local Bus	2020	2036	Daylight	10	10
ChapelHill Circulator WB	CHT	Local Bus	2020	2036	Daylight	10	10
ChapelHillCirculator NB	CHT	Local Bus	2010	2036	Daylight	10	10
ChapelHillCirculator SB	CHT	Local Bus	2010	2036	Daylight	10	10
CHT A IB:Weiner-MLKBlvd	CHT	Local Bus	2009	2036	Daylight	15	15
CHT A OB:MLKBlvd-Weiner	CHT	Local Bus	2009	2036	Daylight	15	15
CHT Base 1 Carr N IB	CHT	Local Bus	2010	2036	Daylight	15	15
CHT Base 1 Carr N OB	CHT	Local Bus	2010	2036	Daylight	15	15
CHT Base 3 Estes-Carrboro IB	CHT	Local Bus	2015	2036	Daylight	15	15
CHT Base 3 Estes-Carrboro OB	CHT	Local Bus	2015	2036	Daylight	15	15
CHT Base 4 Laurel Hills IB	CHT	Local Bus	2015	2036	Daylight	15	15
CHT Base 4 Laurel Hills OB	CHT	Local Bus	2015	2036	Daylight	15	15
CHT Base 8 UNC Exp IB	CHT	Express Bus	2015	2036	Daylight	10	10
CHT Base 8 UNC Exp OB	CHT	Express Bus	2015	2036	Daylight	10	10
CHT Base 9 Mason Farm Exp IB	CHT	Express Bus	2020	2036	Daylight	15	15
CHT Base 9 Mason Farm Exp OB	CHT	Express Bus	2020	2036	Daylight	15	15
CHT BRT-1 I40-Rsmry-UNC IB	CHT	BRT Guideway	2015	2036	18-Hour	10	10
CHT BRT-1 I40-Rsmry-UNC OB	CHT	BRT Guideway	2015	2036	18-Hour	10	10
CHT BRT-3A I40-US15-UNC IB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-3A I40-US15-UNC OB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-3B I40-Elzbth-UNC IB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-3B I40-Elzbth-UNC OB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-3C I40-Carolina N IB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-3C I40-Carolina N OB	CHT	BRT Guideway	2020	2036	18-Hour	15	15
CHT BRT-5 I40 to UNC IB	CHT	BRT Guideway	2025	2036	18-Hour	15	15
CHT BRT-5 I40 to UNC OB	CHT	BRT Guideway	2025	2036	18-Hour	15	15

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CHT BRT-6 from Carolina N OB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-6 to Carolina N IB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-7 to UNC IB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-7a from Carolina N OB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-7a to Carolina N IB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-8 from UNC OB	CHT	Express Bus	2020	2036	Daylight	15	15
CHT BRT-8 to UNC IB	CHT	Express Bus	2020	2036	Daylight	15	15
CHT BRT-8a from Carolina N OB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT BRT-8a to Carolina N IB	CHT	Express Bus	2025	2036	Daylight	15	15
CHT Carr 1A Feeder	CHT	Local Bus	2015	2036	Daylight	15	15
CHT CL IB: WldnGrnflld-UNCHosp	CHT	Local Bus	2009	2020	Daylight	60	60
CHT CL IB: WldnGrnflld-UNCHosp	CHT	Local Bus	2020	2036	Daylight	15	15
CHT CL OB: UNCHosp-WldnGrnflld	CHT	Local Bus	2009	2020	Daylight	60	60
CHT CL OB: UNCHosp-WldnGrnflld	CHT	Local Bus	2020	2036	Daylight	15	15
CHT CM IB:FamPrac-JonesFerry	CHT	Local Bus	2009	2020	Daylight	30	30
CHT CM IB:FamPrac-JonesFerry	CHT	Local Bus	2020	2036	Daylight	15	15
CHT CM OB:JonesFerry-FamPrac	CHT	Local Bus	2009	2020	Daylight	30	30
CHT CM OB:JonesFerry-FamPrac	CHT	Local Bus	2020	2036	Daylight	15	15
CHT CPX IB:UNC-CarrboroP&R	CHT	Express Bus	2009	2020	Daylight	30	30
CHT CPX IB:UNC-CarrboroP&R	CHT	Express Bus	2020	2036	Daylight	15	15
CHT CPX OB:CarrboroP&R-UNC	CHT	Express Bus	2009	2020	Daylight	30	30
CHT CPX OB:CarrboroP&R-UNC	CHT	Express Bus	2020	2036	Daylight	15	15
CHT CW IB:Ptsboro-JonesFerry	CHT	Local Bus	2009	2020	Daylight	30	30
CHT CW IB:Ptsboro-JonesFerry	CHT	Local Bus	2020	2036	Daylight	15	15
CHT CW OB:JonesFerry-Ptsboro	CHT	Local Bus	2009	2020	Daylight	30	30
CHT CW OB:JonesFerry-Ptsboro	CHT	Local Bus	2020	2036	Daylight	15	15
CHT D IB:Prvdnce-SmithLevel	CHT	Local Bus	2009	2020	Daylight	30	30
CHT D IB:Prvdnce-SmithLevel	CHT	Local Bus	2020	2036	Daylight	15	15
CHT D OB:SmithLevel-Providnce	CHT	Local Bus	2009	2020	Daylight	30	30
CHT D OB:SmithLevel-Providnce	CHT	Local Bus	2020	2036	Daylight	15	15
CHT Eubanks Station 1A Feeder	CHT	Local Bus	2015	2036	Daylight	15	15
CHT Eubanks Station 1B Feeder	CHT	Local Bus	2015	2036	Daylight	15	15
CHT F IB:ColonyWds-McDougle	CHT	Local Bus	2009	2036	Daylight	15	15
CHT F OB:McDougle-ColonyWds	CHT	Local Bus	2009	2036	Daylight	15	15
CHT FCX IB:Pttbor-FridayCntr	CHT	Express Bus	2010	2036	Daylight	15	15
CHT FCX OB:FridayCntr-Pttbor	CHT	Express Bus	2010	2036	Daylight	15	15
CHT G IB:Briarcliff-BookerCrk	CHT	Local Bus	2009	2036	Daylight	15	15
CHT G OB:BookerCrk-Briarcliff	CHT	Local Bus	2009	2036	Daylight	15	15
CHT Gateway Feeder 1	CHT	Local Bus	2025	2036	Daylight	15	15
CHT Gateway Feeder 2	CHT	Local Bus	2025	2036	Daylight	15	15
CHT Gateway Feeder 3	CHT	Local Bus	2025	2036	Daylight	15	15
CHT HS IB:VarsityTh-Hghsch	CHT	Local Bus	2009	2036	Daylight	15	15
CHT HS OB:Hghsch-VarsityTh	CHT	Local Bus	2009	2036	Daylight	15	15
CHT HUX IB:UNCHosp-HedrckBldg	CHT	Express Bus	2009	2036	Daylight	15	15
CHT HUX OB:HedrckBldg-UNCHosp	CHT	Express Bus	2009	2036	Daylight	15	15
CHT HW 1A Feeder	CHT	Local Bus	2015	2036	Daylight	15	15

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CHT J IB:SGrnsboro-RockCrkApt	CHT	Local Bus	2009	2036	Daylight	15	15
CHT JFX IB:Ptsboro-JonesFerry	CHT	Express Bus	2009	2036	Daylight	15	15
CHT JFX OB:JonesFerry-Ptsboro	CHT	Express Bus	2009	2036	Daylight	15	15
CHT M IB:UnivMall-CrestCole	CHT	Local Bus	2009	2036	Daylight	15	15
CHT M OB:CrestCole-UnivMall	CHT	Local Bus	2009	2036	Daylight	15	15
CHT Meadowmont Feeder 2	CHT	Local Bus	2025	2036	Daylight	15	15
CHT Meadowmont Feeder 3	CHT	Local Bus	2025	2036	Daylight	15	15
CHT Meadowmont Feeder IB	CHT	Local Bus	2025	2036	Daylight	15	15
CHT Meadowmont Feeder OB	CHT	Local Bus	2023	2036	Daylight	15	15
CHT MOD 20 Pitt. Exp IB	CHT	Express Bus	2010	2036	Commuter	15	15
CHT MOD 20 Pitt. Exp OB	CHT	Express Bus	2010	2036	Commuter	15	15
CHT MOD 8 IB-1	CHT	Local Bus	2025	2036	Daylight	15	15
CHT MOD 8 OB-1	CHT	Local Bus	2025	2036	Daylight	15	15
CHT MODV IB	CHT	Local Bus	2025	2036	Daylight	30	30
CHT MODV OB	CHT	Local Bus	2025	2036	Daylight	30	30
CHT N IB:EstsParkApt-FamPract	CHT	Local Bus	2009	2036	Daylight	15	15
CHT N OB:FamPract-EstsPrkApt	CHT	Local Bus	2009	2036	Daylight	15	15
CHT NS IB:SVillage-Eubanks	CHT	Local Bus	2009	2010	Daylight	15	15
CHT NS OB:Eubanks-SVillage	CHT	Local Bus	2009	2010	Daylight	15	15
CHT NUX IB:UNCHosp-PR Lot	CHT	Express Bus	2009	2036	Daylight	15	15
CHT NUX OB: PRLot-UNCHosp	CHT	Express Bus	2009	2036	Daylight	15	15
CHT RU LP:counter clock loop	CHT	Local Bus	2009	2036	Daylight	15	15
CHT S IB:UNCHosp-HedrickBldg	CHT	Local Bus	2009	2036	Daylight	15	15
CHT S OB:HedrickBldg-UNCHosp	CHT	Local Bus	2009	2036	Daylight	15	15
CHT T IB:UNCHosp-ECHHghSch	CHT	Local Bus	2009	2036	Daylight	15	15
CHT T OB:ECHHghSch-UNCHosp	CHT	Local Bus	2009	2036	Daylight	15	15
CHT U LP:clockwise loop	CHT	Local Bus	2009	2036	Daylight	15	15
CHT V IB:Meadowmont-SVillage	CHT	Local Bus	2009	2036	Daylight	15	15
CHT V OB:SVillage-Meadowmont	CHT	Local Bus	2009	2036	Daylight	15	15
CTRAN 1 Maynard Loop One CLK	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 2 Maynard Loop Two CTR	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 3 NB:North South	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 3 SB:North South	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 4 EB:East West	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 4 WB:East-West	CTRAN	Local Bus	2008	2036	Daylight	30	30
CTRAN 5 NB: Cary Parkway	CTRAN	Local Bus	2012	2016	Daylight	30	30
CTRAN 5 NB: Cary Parkway	CTRAN	Local Bus	2016	2036	Daylight	15	15
CTRAN 5 SB: Cary Parkway	CTRAN	Local Bus	2012	2016	Daylight	30	30
CTRAN 5 SB: Cary Parkway	CTRAN	Local Bus	2016	2036	Daylight	15	15
CTRAN 6 NB: Cary-Apex	CTRAN	Local Bus	2010	2014	Daylight	30	30
CTRAN 6 NB: Cary-Apex	CTRAN	Local Bus	2014	2036	Daylight	15	15
CTRAN 6 SB: Cary-Apex	CTRAN	Local Bus	2010	2014	Daylight	30	30
CTRAN 6 SB: Cary-Apex	CTRAN	Local Bus	2014	2036	Daylight	15	15
CTRAN 7 NB: Davis Drive	CTRAN	Local Bus	2013	2017	Daylight	30	30
CTRAN 7 NB: Davis Drive	CTRAN	Local Bus	2017	2036	Daylight	15	15

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
CTRAN 7 SB: Davis Drive	CTRAN	Local Bus	2013	2017	Daylight	30	30
CTRAN 8 NB: Northwest	CTRAN	Local Bus	2013	2017	Daylight	30	30
CTRAN 8 NB: Northwest	CTRAN	Local Bus	2017	2036	Daylight	15	15
CTRAN 8 SB: Northwest	CTRAN	Local Bus	2013	2017	Daylight	30	30
CTRAN 8 SB: Northwest	CTRAN	Local Bus	2017	2036	Daylight	15	15
DATA 10-8:NewHopeCmn-DrhmTech	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 10-8:NewHopeCmn-DrhmTech	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 10-8:Woodcroft-DrhmTech	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 10-8:Woodcroft-DrhmTech	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 11-9:Bennett-DRHosp	DATA	Local Bus	2009	2031	Daylight	30	30
DATA 11-9:Bennett-DRHosp	DATA	Local Bus	2031	2036	Daylight	15	15
DATA 12 IB:TTATerm-Downtown	DATA	Local Bus	2009	2014	Commuter	60	60
DATA 12 IB:TTATerm-Downtown	DATA	Local Bus	2014	2036	Commuter	30	30
DATA 12 OB:Downtown-TTATerm	DATA	Local Bus	2009	2014	Commuter	60	60
DATA 12 OB:Downtown-TTATerm	DATA	Local Bus	2014	2036	Commuter	30	30
DATA 12X DTT-EPA IB	DATA	Express Bus	2014	2025	Commuter	30	30
DATA 12X DTT-EPA OB	DATA	Express Bus	2014	2025	Commuter	30	30
DATA 13 IB:Fayette-Birchwood	DATA	Local Bus	2009	2031	Daylight	60	60
DATA 13 IB:Fayette-Birchwood	DATA	Local Bus	2031	2036	Daylight	30	30
DATA 13 OB:Birchwood-Fayette	DATA	Local Bus	2009	2031	Daylight	60	60
DATA 13 OB:Birchwood-Fayette	DATA	Local Bus	2031	2036	Daylight	30	30
DATA 1-3:Hillndal-Guess-MdInd	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 1-3:Hillndal-Guess-MdInd	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 1-3:Hillndal-Point-MdInd	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 1-3:Hillndal-Point-MdInd	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 14 LP:NCCUShuttle	DATA	Local Bus	2009	2036	Daylight	15	15
DATA 15 IB:BrierCreek-Dtn	DATA	Local Bus	2009	2016	Commuter	60	60
DATA 15 IB:BrierCreek-Dtn	DATA	Local Bus	2016	2031	Commuter	30	30
DATA 15 IB:BrierCreek-Dtn	DATA	Local Bus	2031	2036	Commuter	15	15
DATA 15 OB:Dtn-BrierCreek	DATA	Local Bus	2009	2016	Commuter	60	60
DATA 15 OB:Dtn-BrierCreek	DATA	Local Bus	2016	2031	Commuter	30	30
DATA 15 OB:Dtn-BrierCreek	DATA	Local Bus	2031	2036	Commuter	15	15
DATA 15 Willowdale IB	DATA	Local Bus	2020	2036	Daylight	60	60
DATA 15 Willowdale OB	DATA	Local Bus	2020	2036	Daylight	60	60
DATA 16 IB:MineralSprng-Dtn	DATA	Local Bus	2009	2016	Daylight	60	60
DATA 16 IB:MineralSprng-Dtn	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 16 OB:Dtn-MineralSprng	DATA	Local Bus	2009	2016	Daylight	60	60
DATA 16 OB:Dtn-MineralSprng	DATA	Local Bus	2016	2036	Daylight	30	30
DATA 17 Feeder Eno Loop	DATA	Local Bus	2023	2036	18-Hour	60	60
DATA 17 Feeder IB	DATA	Local Bus	2023	2036	Daylight	60	60
DATA 17 Feeder OB	DATA	Local Bus	2023	2036	Daylight	60	60
DATA 17 Horton-Davinci NWB	DATA	Local Bus	2015	2036	Daylight	30	30
DATA 17 Horton-Davinci SEB	DATA	Local Bus	2015	2036	Daylight	30	30
DATA 17 IB:Treyburn-Horton	DATA	Local Bus	2009	2031	Daylight	30	30
DATA 17 IB:Treyburn-Horton	DATA	Local Bus	2031	2036	Daylight	15	15
DATA 17 OB:Horton-Treyburn	DATA	Local Bus	2009	2031	Daylight	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
DATA 17 OB:Horton-Treyburn	DATA	Local Bus	2031	2036	Daylight	15	15
DATA 17 Roxboro-Davinci SB	DATA	Local Bus	2035	2036	Commuter	30	30
DATA 18 Feeder IB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA 18 Feeder OB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA 19 Feeder IB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA 19 Feeder OB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA 20 UniDr-RTP IB	DATA	Local Bus	2016	2020	Daylight	30	30
DATA 20 UniDr-RTP IB	DATA	Local Bus	2020	2036	Daylight	15	15
DATA 20 UniDr-RTP OB	DATA	Local Bus	2016	2020	Daylight	30	30
DATA 20 UniDr-RTP OB	DATA	Local Bus	2020	2036	Daylight	15	15
DATA 2-4:Angier-Horton	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 2-4:Angier-Horton	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 25 DurReg-DukeMed IB	DATA	Local Bus	2020	2036	Daylight	30	30
DATA 25 DurReg-DukeMed OB	DATA	Local Bus	2020	2036	Daylight	30	30
DATA 27 Ngate-RTP W IB	DATA	Local Bus	2014	2036	Daylight	30	30
DATA 27 Ngate-RTP W OB	DATA	Local Bus	2014	2036	Daylight	30	30
DATA 30 Duke Hospital IB	DATA	Local Bus	2014	2036	Daylight	30	30
DATA 30 Duke Hospital OB	DATA	Local Bus	2014	2036	Daylight	30	30
DATA 3-1:MdInd-Guess-HilIndal	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 3-1:MdInd-Guess-HilIndal	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 3-1:MdInd-Point-HilIndal	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 3-1:MdInd-Point-HilIndal	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 4-2:Horton-Angier	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 4-2:Horton-Angier	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 5-6:Emerald-HV-Cameron	DATA	Local Bus	2009	2014	Daylight	30	30
DATA 5-6:Emerald-HV-Cameron	DATA	Local Bus	2014	2036	Daylight	15	15
DATA 5-6:Emrld-Crnw-Cnstitutn	DATA	Local Bus	2009	2014	Daylight	30	30
DATA 5-6:Emrld-Crnw-Cnstitutn	DATA	Local Bus	2014	2036	Daylight	15	15
DATA 6-5:Cameron-HV-Emerald	DATA	Local Bus	2009	2031	Daylight	30	30
DATA 6-5:Cameron-HV-Emerald	DATA	Local Bus	2031	2036	Daylight	15	15
DATA 6-5:Cnstitutn-Crnw-Emrld	DATA	Local Bus	2009	2031	Daylight	30	30
DATA 6-5:Cnstitutn-Crnw-Emrld	DATA	Local Bus	2031	2036	Daylight	15	15
DATA 7 IB:Southpoint-Downtown	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 7 IB:Southpoint-Downtown	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 7 OB:Downtown-Southpoint	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 7 OB:Downtown-Southpoint	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 7SP Southpoint Mall IB	DATA	Local Bus	2020	2036	Commuter	60	60
DATA 7SP Southpoint Mall OB	DATA	Local Bus	2020	2036	Commuter	60	60
DATA 8-10:DrhmTech-NewHopeCmn	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 8-10:DrhmTech-NewHopeCmn	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 8-10:DrhmTech-Woodcroft	DATA	Local Bus	2009	2016	Daylight	30	30
DATA 8-10:DrhmTech-Woodcroft	DATA	Local Bus	2016	2036	Daylight	15	15
DATA 9-11:DRHosp-Bennett	DATA	Local Bus	2009	2031	Daylight	30	30
DATA 9-11:DRHosp-Bennett	DATA	Local Bus	2031	2036	Daylight	15	15
DATA Bethesda NB	DATA	Local Bus	2020	2036	Daylight	30	30
DATA Bethesda SB	DATA	Local Bus	2020	2036	Daylight	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
DATA Dtech-Snow OB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA Dtown Terminal Feeder IB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Dtown Terminal Feeder OB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Dtown Terminal Shuttle IB	DATA	Local Bus	2020	2036	Daylight	15	15
DATA Dtown Terminal Shuttle OB	DATA	Local Bus	2020	2036	Daylight	15	15
DATA Durham XT NWB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Durham XT SEB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Holoway/The Village IB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA Holoway/The Village OB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA Joyner-Club-Duke IB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA Joyner-Club-Duke OB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L1 NDP: Carver to RDU NB	DATA	Local Bus	2025	2036	Daylight	60	60
DATA L1 NDP: Carver to RDU SB	DATA	Local Bus	2025	2036	Daylight	60	60
DATA L5 Mt Moraih-NC 54 EB	DATA	Local Bus	2020	2036	Daylight	60	60
DATA L5 Mt Moraih-NC 54 WB	DATA	Local Bus	2020	2036	Daylight	60	60
DATA L6 Morehead-Cornwallis NB	DATA	Local Bus	2015	2036	Daylight	30	30
DATA L6 Morehead-Cornwallis SB	DATA	Local Bus	2015	2036	Daylight	30	30
DATA L7 Avondale-Chpl Hill St EB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L7 Avondale-Chpl Hill St WB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L8 Hillsbor N-Hillsbor S NB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L8 Hillsbor N-Hillsbor S SB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L9 Renaissance-Hopson EB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA L9 Renaissance-Hopson WB	DATA	Local Bus	2035	2036	Daylight	30	30
DATA Meridian Pkwy Feeder IB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA Meridian Pkwy Feeder OB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA NC98 - US70 - Miami IB	DATA	Local Bus	2013	2036	Daylight	30	30
DATA NC98 - US70 - Miami OB	DATA	Local Bus	2013	2036	Daylight	30	30
DATA Riddle Station Feeder IB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Riddle Station Feeder OB	DATA	Local Bus	2023	2036	Daylight	30	30
DATA S Square Feeder IB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA S Square Feeder OB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA S Square Shuttle IB	DATA	Local Bus	2012	2036	Daylight	60	60
DATA S Square Shuttle OB	DATA	Local Bus	2012	2036	Daylight	60	60
DATA Treyburn NB	DATA	Local Bus	2015	2036	Daylight	60	60
DATA Treyburn SB	DATA	Local Bus	2015	2036	Daylight	60	60
DATA Treyburn Station Feeder	DATA	Local Bus	2023	2036	Daylight	30	30
DATA Woodcroft Feeder IB	DATA	Local Bus	2025	2036	Daylight	30	30
DATA Woodcroft Feeder OB	DATA	Local Bus	2025	2036	Daylight	30	30
DCHC B15a Southpoint to RDU	DATA	Local Bus	2035	2036	Daylight	30	30
DCHC B15b RDU to Southpoint	DATA	Local Bus	2035	2036	Daylight	30	30
DCHC B1a Durham to Roxboro NB	DATA	Express Bus	2035	2036	Daylight	30	30
DCHC B1b Roxboro to Durham SB	DATA	Express Bus	2035	2036	Daylight	30	30
DCHC B9a CH to Old Farrington OB	DATA	Local Bus	2035	2036	Daylight	10	10
DCHC B9b Old Farrington to CH IB	DATA	Local Bus	2035	2036	Daylight	10	10
TT Butner-Durham OB	DATA	Express Bus	2035	2036	Commuter	30	30
DCHC B10a Durham-Capital Blvd	dchc	Express Bus	2035	2036	Daylight	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
DCHC B11a Duke to N Raleigh EB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B11b N Raleigh to Duke WB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B12a Duke to W Wake fwy OB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B12b W Wake fwy to Duke IB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B13a Durham to Apex OB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B13b Apex to Durham IB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B14a W Wake pkwy to US70	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B14b US70 to W Wake pkwy	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B2a Durham-Butner OB	dchc	Express Bus	2025	2036	Daylight	30	30
DCHC B2b Butner-Durham IB	dchc	Express Bus	2025	2036	Daylight	30	30
DCHC B3a Duke-Mebane OB	dchc	Express Bus	2025	2036	Daylight	30	30
DCHC B3b Mebane-Duke IB	dchc	Express Bus	2025	2036	Daylight	30	30
DCHC B5a RDU to Hillsborough OB	dchc	Express Bus	2035	2036	Daylight	30	30
DCHC B5b Hillsborough to RDU IB	dchc	Express Bus	2035	2036	Daylight	30	30
DCHC B6a CH to Alamance OB	dchc	Express Bus	2010	2036	Commuter	30	30
DCHC B6b Alamance to CH IB	dchc	Express Bus	2010	2036	Commuter	30	30
DCHC B8a UNC to Pittsboro SB	dchc	Local Bus	2035	2036	Daylight	30	30
DCHC B8b Pittsboro to UNC NB	dchc	Local Bus	2035	2036	Daylight	30	30
DUKE C1 IB:WCampus-ECampus	Duke	Local Bus	2009	2036	18-Hour	10	10
DUKE C1 OB:ECampus-WCampus	Duke	Local Bus	2009	2036	18-Hour	10	10
DUKE C2 IB:ECampus-WCampus	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE C2 OB:WCampus-ECampus	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE C3 IB:EastCampus-SciDr	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE C3 OB:SciDr-EastCampus	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE C6 IB:Ecampus-Chapel	Duke	Local Bus	2009	2036	Daylight	30	30
DUKE C6 OB:Chapel-Ecampus	Duke	Local Bus	2009	2036	Daylight	30	30
Duke E/Cent./W EB	Duke	Local Bus	2035	2036	Commuter	10	10
Duke E/Cent./W WB	Duke	Local Bus	2035	2036	Commuter	10	10
Duke E/W EB	Duke	Local Bus	2009	2036	Evening	15	15
Duke E/W WB	Duke	Local Bus	2009	2036	Evening	15	15
DUKE H1 IB:Entry11-PG3	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H1 OB:PG3-Entry11	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H2 IB:HospNorth-PG3	Duke	Local Bus	2009	2036	Commuter	10	10
DUKE H2 OB:PG3-HospNorth	Duke	Local Bus	2009	2036	Commuter	10	10
DUKE H3 IB:HillsbghRd-HospN	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H3 OB:HospN-HillsbghRd	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H5 IB:HockPlaza-MillBldg	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H5 OB:MillBldg-HockPlaza	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H6 IB:Ent11-LaSalleLot	Duke	Local Bus	2009	2036	Daylight	10	10
DUKE H6 OB: LaSalleLot-Ent11	Duke	Local Bus	2009	2036	Daylight	10	10
Duke Med 1 EB	Duke	Local Bus	2035	2036	Daylight	60	60
Duke Med 1 WB	Duke	Local Bus	2035	2036	Daylight	60	60
Duke Med 3 NB	Duke	Local Bus	2035	2036	Commuter	10	10
Duke Med 3 SB	Duke	Local Bus	2035	2036	Commuter	10	10
Duke Med 4 EB	Duke	Local Bus	2035	2036	Daylight	30	30
Duke Med 4 WB	Duke	Local Bus	2035	2036	Daylight	30	30

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
DUKE PR1 OB:BassettDr-Ent11	Duke	Local Bus	2009	2036	Daylight	10	10
Duke Science Loop CCW	Duke	Local Bus	2035	2036	Daylight	15	15
Duke Science Loop CW	Duke	Local Bus	2035	2036	Daylight	15	15
Duke Student Park EB	Duke	Local Bus	2009	2036	Midday	15	15
Duke Student Park WB	Duke	Local Bus	2009	2036	Midday	15	15
Duke Villa NB	Duke	Local Bus	2035	2036	Daylight	10	10
Duke Villa SB	Duke	Local Bus	2035	2036	Daylight	10	10
NCCU Circulator	NCCU	Local Bus	2035	2036	Daylight	15	15
NCCU Shuttle NB	NCCU	Local Bus	2035	2036	Daylight	15	15
NCCU Shuttle SB	NCCU	Local Bus	2035	2036	Daylight	15	15
NCSU 1 Avent Ferry	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 11 Village Link	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 2 Reverse Wolfink Shuttle	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 3 Engineering Shuttle	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 4 Westgrove	NCSU	Local Bus	2008	2025	Daylight	15	15
NCSU 4 Westgrove (Rail)	NCSU	Local Bus	2025	2036	Daylight	15	15
NCSU 5 Varsity	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 6 Carter Finley	NCSU	Local Bus	2008	2025	Daylight	15	15
NCSU 6 Carter Finley (Rail)	NCSU	Local Bus	2025	2036	Daylight	15	15
NCSU 7 Wolfink Shuttle	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 7A Mid-Day Shuttle	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 8 Southeast Loop	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 8A Mid-Day Textiles	NCSU	Local Bus	2008	2036	Daylight	15	15
NCSU 9 Greek Court	NCSU	Local Bus	2008	2036	Daylight	15	15
Cary Circulator NB	TBD	Local Bus	2011	2036	Daylight	30	30
Cary Circulator SB	TBD	Local Bus	2011	2036	Daylight	30	30
Raleigh Circulator CCW	TBD	Local Bus	2035	2036	Daylight	10	10
Raleigh Circulator CW	TBD	Local Bus	2035	2036	Daylight	10	10
TMC-RDU EB	TBD	Local Bus	2035	2036	18-Hour	10	10
TMC-RDU WB	TBD	Local Bus	2035	2036	18-Hour	10	10
Durham-NorthDurham NB	TBDe	Express Bus	2025	2036	Commuter	30	30
Durham-NorthDurham SB	TBDe	Express Bus	2025	2036	Commuter	30	30
I540 Northern Arc HOV EB	TBDe	Express Bus	2035	2036	Commuter	30	30
I540 Northern Arc HOV WB	TBDe	Express Bus	2035	2036	Commuter	30	30
I540 Southern Arc EB	TBDe	Express Bus	2035	2036	Commuter	30	30
I540 Southern Arc WB	TBDe	Express Bus	2035	2036	Commuter	30	30
JohnstonCnty-TMC EB	TBDe	Express Bus	2012	2036	Daylight	30	30
JohnstonCnty-TMC WB	TBDe	Express Bus	2012	2036	Daylight	30	30
Raleigh-Zebulon EB	TBDe	Express Bus	2035	2036	Daylight	10	10
Raleigh-Zebulon WB	TBDe	Express Bus	2035	2036	Daylight	10	10
TriangleExpTurnpike NB	TBDe	Express Bus	2035	2036	Daylight	15	15
TriangleExpTurnpike SB	TBDe	Express Bus	2035	2036	Daylight	15	15
Raleigh-FuquayVarina NB	TBDr	Regional Bus	2035	2036	Daylight	10	10
Raleigh-FuquayVarina SB	TBDr	Regional Bus	2035	2036	Daylight	10	10
WakeForest-Franklinton NB	TBDr	Regional Bus	2035	2036	Daylight	10	10

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
TT 311 IB:ApexTownHall-RTP	TTe	Express Bus	2008	2036	Daylight	30	30
TT 311 OB:RTP-ApexTownHall	TTe	Express Bus	2008	2036	Daylight	30	30
TT 500 EB:Chap Hill-Raleigh	TTe	Express Bus	2009	2040	Daylight	15	15
TT 550 WB:Raleigh-Chap Hill	TTe	Express Bus	2009	2040	Daylight	15	15
TT 600 EB:Durham-Raleigh	TTe	Express Bus	2009	2018	Daylight	15	15
TT 650 WB:Raleigh-Durham	TTe	Express Bus	2009	2018	Daylight	15	15
TT Burlington-Duke IB	TTe	Express Bus	2012	2036	Commuter	30	30
TT Burlington-Duke OB	TTe	Express Bus	2012	2036	Commuter	30	30
TT Butner-Durham IB	TTe	Express Bus	2025	2036	Commuter	30	30
TT Clayton-Raleigh IB	TTe	Express Bus	2011	2036	Commuter	15	15
TT Clayton-Raleigh OB	TTe	Express Bus	2011	2036	Commuter	15	15
TT CM Wake Forest EXP IB	TTe	Express Bus	2008	2018	Daylight	30	30
TT CM Wake Forest EXP OB	TTe	Express Bus	2008	2018	Daylight	30	30
TT EasternWake IB	TTe	Express Bus	2010	2036	Daylight	30	30
TT EasternWake OB	TTe	Express Bus	2010	2036	Daylight	30	30
TT FuquayVarina-Raleigh IB	TTe	Express Bus	2013	2036	Daylight	60	60
TT FuquayVarina-Raleigh OB	TTe	Express Bus	2013	2036	Daylight	60	60
TT HollySprings-Raleigh IB	TTe	Express Bus	2013	2036	Commuter	10	10
TT HollySprings-Raleigh OB	TTe	Express Bus	2013	2036	Commuter	10	10
TT HollySprings-RTP IB	TTe	Express Bus	2035	2036	Commuter	10	10
TT HollySprings-RTP OB	TTe	Express Bus	2035	2036	Commuter	10	10
TT PersonCo-Durham IB	TTe	Express Bus	2012	2036	Commuter	30	30
TT PersonCo-Durham OB	TTe	Express Bus	2012	2036	Commuter	30	30
TT Raleigh-RDU IB	TTe	Express Bus	2013	2036	18-Hour	15	15
TT Raleigh-RDU OB	TTe	Express Bus	2013	2036	18-Hour	15	15
TT Rolesville-Raleigh IB	TTe	Express Bus	2035	2036	Commuter	30	30
TT Rolesville-Raleigh OB	TTe	Express Bus	2035	2036	Commuter	30	30
TT TriangleTownCtr-RTP IB	TTe	Express Bus	2011	2036	Daylight	30	30
TT TriangleTownCtr-RTP OB	TTe	Express Bus	2011	2036	Daylight	30	30
TT 102 IB:Garner-Moore Sq	TTI	Local Bus	2008	2036	Commuter	30	30
TT 102 OB:Moore Sq-Garner	TTI	Local Bus	2008	2036	Commuter	30	30
TT 42 SH:Trans Ctr-IBM	TTI	Local Bus	2009	2036	Commuter	10	10
TT 45 SH:Trans Ctr-S RTP	TTI	Local Bus	2009	2036	Commuter	15	15
TT 46 SH:Trans Ctr-E RTP	TTI	Local Bus	2009	2036	Commuter	15	15
TT 48 SH:Trans Ctr-NE RTP	TTI	Local Bus	2009	2036	Commuter	15	15
TT 49 SH:Trans Ctr-S RTP	TTI	Local Bus	2009	2036	Commuter	15	15
TT CM Wake Forest Loop	TTI	Local Bus	2008	2036	Daylight	30	30
TT 105 IB:Moore Sq-RTP	TTr	Regional Bus	2013	2018	18-Hour	10	10
TT 105 OB:RTP-Moore Sq	TTr	Regional Bus	2013	2018	18-Hour	10	10
TT 201 IB:Millbrook-RTP	TTr	Regional Bus	2008	2036	Commuter	30	30
TT 201 OB:RTP-Millbrook	TTr	Regional Bus	2008	2036	Commuter	30	30
TT 301 IB:Moore Sq-RTP	TTr	Regional Bus	2012	2018	18-Hour	15	15
TT 301 OB:RTP-Moore Sq	TTr	Regional Bus	2012	2018	18-Hour	15	15
TT 303 IB:Cary-Raleigh	TTr	Regional Bus	2008	2018	Midday	15	15
TT 303 OB:Raleigh-Cary	TTr	Regional Bus	2008	2018	Midday	15	15

**2035 Long Range Transportation Plan
Bus Route List**

Route Name	Company	Service Type	Start Year	Stop Year	Service Pattern	Peak Headway (min)	Off-Peak Headway (min)
TT 305 OB:Apex-Moore Sq	TTr	Regional Bus	2008	2036	Commuter	30	30
TT 420 IB:Hillsb-Chap Hill	TTr	Regional Bus	2009	2036	Daylight	15	15
TT 420 OB:Hillsb-Chap Hill	TTr	Regional Bus	2009	2036	Daylight	15	15
TT 747 SH :Trans Ctr-RDU OP	TTr	Regional Bus	2008	2036	Daylight	30	30
TT 747 SH:Trans Ctr-RDU	TTr	Regional Bus	2008	2036	Daylight	30	30
TT ChapelHill-Durham-402/403 IB	TTr	Regional Bus	2009	2018	18-Hour	10	10
TT ChapelHill-Durham-402-403 OB	TTr	Regional Bus	2009	2018	18-Hour	10	10
TT ChapelHill-RTP-402-403 IB	TTr	Regional Bus	2009	2036	18-Hour	30	30
TT ChapelHill-RTP-402-403 OB	TTr	Regional Bus	2009	2036	18-Hour	30	30
TT ChapelHill-RTP-412/413 IB	TTr	Regional Bus	2009	2036	18-Hour	30	30
TT ChapelHill-RTP-412/413 OB	TTr	Regional Bus	2009	2036	18-Hour	30	30
TT Crossroads-Faigrounds IB	TTr	Regional Bus	2019	2036	Commuter	30	30
TT Crossroads-Faigrounds OB	TTr	Regional Bus	2019	2036	Commuter	30	30
TT Durham-RTP-412-413 IB	TTr	Regional Bus	2009	2018	18-Hour	15	15
TT Durham-RTP-412-413 OB	TTr	Regional Bus	2009	2018	18-Hour	15	15
TT WakeForest-Durant IB	TTr	Regional Bus	2019	2036	Daylight	15	15
TT WakeForest-Durant OB	TTr	Regional Bus	2019	2036	Daylight	15	15

Appendix 4 – Bicycle and Pedestrian Projects

Background and Total Costs

This appendix presents the bicycle and pedestrian projects for the 2035 LRTP. The table presents projects from the Durham-Chapel Hill-Carrboro MPO in order by municipality and county, followed by projects from the Capital Area MPO.

Key Information

The table provides information about each bicycle and pedestrian project. The project number is for reference purposes and does not indicate priority.

How Costs Are Computed

Staff from the local governments provided the estimated project costs. These estimates are commonly based on standard unit costs for the proposed design, e.g., addition of a four-foot shoulder or separate bicycle lane to the roadway, and the length of the project.

Exempt Projects

All the bicycle and pedestrian projects are deemed exempt from the air quality conformity determination according to Title 40, Code of Federal Regulations (CFR), PART 93.126. The most important implication of this exemption is that the projects may proceed toward implementation in the absence of a conforming transportation plan or Transportation Improvement Program (TIP).

Durham-Chapel Hill-Carrboro MPO Regional Bicycle Routes

A major objective of the 2035 Long-Range Transportation Plan is to identify regional bicycle routes in the Durham-Chapel Hill-Carrboro MPO region. Regional bicycle routes have several characteristics, as follows:

- Provide links between major destinations and between urban centers.
- Facilitate primarily utilitarian bicycle trips, though the routes can also serve recreational cycling.
- Serve as a backbone to a finer grained system of local bicycle routes in each jurisdiction.

The regional bicycle route map identifies a variety of corridors in need of improved bicycle facilities. The map primarily identifies on-road routes, but off-road routes are also identified. The regional routes will be evaluated from time-to-time, including future updates of the long-range transportation plan.

In planning the regional bicycle routes, eleven specific zones of connections were targeted. The following listing shows the identified regional routes within each zone of connection:

Connections between Carrboro and Chapel Hill

- Homestead Road
- Homestead Road / Weaver Dairy Road
- Morgan Creek Trail (off-road) / Columbia Street
- Bolin Creek Trail (off-road)

Connections between Carrboro-Chapel Hill and Hillsborough

- Greensboro Street / Hillsborough Road / Old NC 86
- Columbia Street / NC 86
- Bolin Creek Trail (off-road) / Old NC 86

Connections between Carrboro-Chapel Hill and Chatham County

- Smith Level Road / US 15-501
- US 15-501
- NCDOT Mountains-to-Sea Bicycle Route (see description below)

Connections between Durham and Chatham County

- Roxboro Road / Hope Valley Road / NC 751
- American Tobacco Trail (off-road)

Connections between Durham and Hillsborough

- Morreene Road / Neal Road / Bennett Memorial Road / Old NC 10 / NC 86
- Cornwallis Road / Erwin Road / NC 751 / Old NC 10 / NC 86

Connections between Durham and Carrboro-Chapel Hill

- Cornwallis Road / Erwin Road
- Pickett Road / Erwin Road
- University Drive / Old Durham-Chapel Hill Road
- Old Durham-Chapel Hill Road / Farrington Road / Ephesus Church Road

Connections between Carrboro-Chapel Hill and Research Triangle Park

- NC 54
- NC 54 / Barbee Chapel Road / Farrington Road / Stage Coach Road / NC 751 / Massey Chapel Road / Barbee Road / NC 54
- NC 54 / Barbee Chapel Road / Farrington Road / Stage Coach Road / NC 751 / Fayetteville Road / Scott King Road / Grandale Road / Sedwick Road
- NC 54 / Barbee Chapel Road / Farrington Road / Stage Coach Road / NC 751 / O'Kelly Chapel Road
- NC 54 / Hope Valley Road / Woodcroft Parkway / Carpenter Fletcher Road

Connections between Durham and Research Triangle Park

- Martin Luther King Jr. Parkway / Cornwallis Road
- American Tobacco Trail / Cornwallis Road / Miami Boulevard / Davis Drive
- Cornwallis Road / Alston Avenue
- Northeast Creek Parkway / Briggs Avenue

Connections between Treyburn-North Durham and Durham

- Northern Durham Parkway / Miami Boulevard
- North-South Greenway (off-road) / Milton Road / Tom Wilkinson Road / US 501
- Midland Terrace / Lynn Road / Miami Boulevard

Connections between Treyburn-North Durham and Hillsborough

- Northern Durham Parkway / St. Mary's Road

Connections between Research Triangle Park and Briar Creek area (Wake County)

- Chin Page Road
- T.W. Alexander Drive

Other Regional Connections

- NCDOT Mountains-to-Sea Bicycle Route in Orange and Chatham counties (uses Old Greensboro Highway, Jones Ferry Road, Greensboro Street, Smith Level Road, Culbreth Road, Mount Carmel Church Road, and Farrington Road)

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
Durham Sidewalk Projects							
D-1	Academy1	Duke University	Cornwallis	B	1.00	Durham City	\$223,946
D-2	Academy2	Cornwallis	University	B	0.71	Durham City	\$158,341
D-3	Acadia	Knox	Markham	C	0.19	Durham City	\$43,392
D-4	Albany	Sprunt	Indian	C	0.21	Durham City	\$47,797
D-5	AlstonA1	Trinity	Holloway	B	0.96	Durham City	\$214,906
D-6	AlstonA2	Holloway	NC 147	B	0.94	Durham City	\$209,999
D-7	AlstonA3	Cecil	Riddle	B	1.23	Durham City	\$275,507
D-8	AlstonA4	Riddle	Cornwallis	C	1.82	Durham City	\$408,924
D-9	AlstonA5	Cornwallis	Carpenter Fletcher	B	1.09	Durham City	\$244,111
D-10	AlstonA6	Carpenter Fletcher	Sedwick	A	1.45	Durham City	\$325,098
D-11	AlstonA7	Sedwick	TW Alexander	C	0.96	Durham City	\$215,197
D-12	Ancroft	Delray	Riddle	C	0.16	Durham City	\$35,855
D-13	Ancroft2	Ancroft	ATT	C	0.20	Durham City	\$44,546
D-14	Anderson2	Lewis	Campus	B	0.25	Durham City	\$56,860
D-15	AndersonA1	Lewis	Yearby	B	0.10	Durham City	\$23,202
D-16	AngierPW	Hoover	Midway	B	1.04	Durham City	\$232,343
D-17	Archdale1 (now MLK Jr Pkwy)	Old Chapel Hill	Hope Valley	C	0.77	Durham City	*
D-18	Archdale2	Alpine	Oak Ridge	C	0.32	Durham City	\$71,891
D-19	Avondale	Roxboro	Geer	A	1.06	Durham City	\$238,589
D-20	Barbee	Fayetteville	Herndon	B	2.84	Durham City	\$637,912
D-21	Briggs	Holloway	Main	C	0.54	Durham City	\$120,783
D-22	Broad1	Durham Freeway	F Street	B	0.17	Durham City	\$38,264
D-23	Broad2	F Street	North Pointe	B	0.69	Durham City	\$153,927
D-24	Broad3	Eatondale	Carver	C	0.51	Durham City	\$113,853
D-25	Buchanan1	Old Chapel Hill	Butler	C	0.21	Durham City	\$47,168
D-26	Buchanan2	Yancey	Main	C	0.59	Durham City	\$132,824
D-27	Buchanan3	Trinity	Club	B	0.29	Durham City	\$64,234
D-28	Cameron	Erwin	Duke University	A	0.84	Durham City	\$188,073
D-29	Campus Walk	Morrene	LaSalle	A	0.34	Durham City	\$76,989
D-30	Canal	Roxboro	Gearwood	C	0.37	Durham City	\$83,620
D-31	Carpenter Fletcher	E Woodcroft Pkwy	Alston	B	0.78	Durham City	\$174,177
D-32	Casa	Valley	Horton	C	0.27	Durham City	\$59,843
D-33	Chapel Hill1	Kent	Carroll	C	0.10	Durham City	\$21,735
D-34	Chapel Hill2	Maplewood	Lakewood	C	0.74	Durham City	\$167,054
D-35	Chapel Hill3	Prince	Huron	C	0.19	Durham City	\$43,138

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
D-36	Chapel Hill4	Huron	Anderson	C	0.07	Durham City	\$16,113
D-37	Chapel Hill5	Vesson	University	B	1.06	Durham City	\$237,388
D-38	Cheek	Hoover	Junction	B	1.03	Durham City	\$232,061
D-39	CheekPW2	Geer	Hardee	A	0.48	Durham City	\$108,636
D-40	Club1	Ruffin	Ambridge	A	1.19	Durham City	\$267,582
D-41	Club2	Ambridge	Dearborn	B	0.84	Durham City	\$188,958
D-42	Cobb	Carroll	Duke	B	0.38	Durham City	\$84,349
D-43	Cole Mill	Sparger	Hillsborough	C	2.65	Durham City	\$595,468
D-44	Cook - Juliette	Fayetteville	Fayetteville	B	2.51	Durham City	\$563,737
D-45	Cornwallis1	Erwin	Chapel Hill	B	2.52	Durham City	\$566,138
D-46	Cornwallis3	Fayetteville	TW Alexander	B	2.58	Durham City	\$577,830
D-47	CornwallisA1	15-501	Roxboro	A	1.17	Durham City	\$262,852
D-48	CornwallisA2	Roxboro	Fayetteville	C	0.66	Durham City	\$147,067
D-49	Corporation1	Duke	Rigsbee	C	0.36	Durham City	\$80,894
D-50	Corporation2	Rigsbee	Mangum	C	0.27	Durham City	\$61,030
D-51	Dacian	Buchanan	Watts	C	0.06	Durham City	\$13,181
D-52	DearbornA1	Old Oxford	Ruth	A	0.75	Durham City	\$168,187
D-53	DearbornA2	Ruth	Club	B	0.85	Durham City	\$189,990
D-54	Dixon	University	Archdale	C	0.67	Durham City	\$151,155
D-55	Duke Homestead	Carver	Guess	C	0.86	Durham City	\$192,920
D-56	Duke2	Leon	Club	B	0.60	Durham City	\$134,178
D-57	Duke3	Club	Minerva	C	0.86	Durham City	\$192,698
D-58	Duke4	Peabody	Memorial	B	0.05	Durham City	\$10,782
D-59	Duke6	Cobb	Lakewood	B	0.16	Durham City	\$36,359
D-60	DukeA1	Roxboro	Carver	B	1.09	Durham City	\$244,724
D-61	DukeA2	Carver	Murray	B	0.79	Durham City	\$176,305
D-62	Durham - Chapel HillA1	I-40	15-501	B	2.62	Durham City	\$588,455
D-63	Durham - Chapel HillA2	15-501	Cornwallis	B	1.51	Durham City	\$338,069
D-64	Durham - Chapel HillA3	Cornwallis	University	B	0.78	Durham City	\$175,815
D-65	Englewood	Watts	Ruffin	C	0.44	Durham City	\$98,555
D-66	Erwin1B	Kerley	Mt. Sinai	B	0.40	Durham City	\$89,069
D-67	Erwin2	Cameron	LaSalle	B	0.81	Durham City	\$182,210
D-68	Erwin3	Flowers	Pettigrew	B	0.63	Durham City	\$142,100
D-69	Everett	Arbor	Edgevale	C	0.17	Durham City	\$38,010
D-70	FayettevilleA1	Massey Chapel	Crooked Creek	B	1.13	Durham City	\$254,262
D-71	FayettevilleA2	Woodcroft	MLK	A	1.64	Durham City	\$368,239

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Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
D-72	FayettevilleA3	MLK	Buxton	B	0.73	Durham City	\$163,473
D-73	FayettevilleA4	Buxton	Pilot	B	1.13	Durham City	\$253,258
D-74	FayettevilleA5	Nelson	Pekoe	B	0.15	Durham City	\$33,835
D-75	Fern	Calvin	Driver	C	0.33	Durham City	\$73,219
D-76	Forestview	Forest Hills	Lakewood	C	0.25	Durham City	\$56,785
D-77	Formosa	Pekoe	Concord	C	0.16	Durham City	\$36,373
D-78	Foster	Hunt	Monmouth	C	0.08	Durham City	\$17,599
D-79	Freeman	Clayton	Valmet	B	1.18	Durham City	\$265,364
D-80	GarrettA1	Hope Valley	Swarthmore	A	1.02	Durham City	\$229,071
D-81	GarrettA2	Swarthmore	Old Chapel Hill	B	1.05	Durham City	\$235,263
D-82	GarrettA3	Old Chapel Hill	15-501	B	1.02	Durham City	\$228,437
D-83	GarrettA4	15-501	Pickett	B	1.00	Durham City	\$223,986
D-84	Geer1	Washington	Foster	C	0.09	Durham City	\$21,199
D-85	Geer3	Elizabeth	Miami	B	0.70	Durham City	\$157,969
D-86	Geer4	Miami	Club	B	2.42	Durham City	\$543,367
D-87	Georgia	Hillsborough	Club	C	0.18	Durham City	\$39,791
D-88	Gibson	Lynn	Mineral Springs	C	0.84	Durham City	\$187,697
D-89	Glendale1	Leon	Lavender	C	0.45	Durham City	\$100,952
D-90	Glendale2	I-85	Corporation	C	1.04	Durham City	\$232,944
D-91	Grandale	Barbee	Scott King	C	2.06	Durham City	\$461,529
D-92	Green1	Oakland	Carolina	C	0.20	Durham City	\$44,559
D-93	Green2	Carolina	Ninth	C	0.21	Durham City	\$47,491
D-94	Green3	Ninth	Broad	C	0.14	Durham City	\$30,477
D-95	Green4	Watts	Glendale	C	0.84	Durham City	\$189,273
D-96	Gregson1	Duke	Club	C	0.27	Durham City	\$60,256
D-97	Gregson2	Club	Markham	B	0.48	Durham City	\$107,972
D-98	Guess1	Bramble	Redmond	C	0.78	Durham City	\$175,109
D-99	GuessA1	Hillcrest	Carver	B	1.14	Durham City	\$255,445
D-100	GuessA2	Carver	Horton	B	1.36	Durham City	\$304,481
D-101	Hammond	Farthing	Roxboro	C	0.16	Durham City	\$36,609
D-102	HardeePW	Holloway	Cheek	B	0.96	Durham City	\$215,460
D-103	Hart	Maple	Harvard	C	0.52	Durham City	\$117,000
D-104	Herndon	Barbee	Ainsley	C	0.46	Durham City	\$104,081
D-105	Hillandale1	Rose of Sharon	Peppertree	B	0.83	Durham City	\$187,118
D-106	HillandaleA1	Peppertree	Carver	A	1.21	Durham City	\$271,278
D-107	HillandaleA2	Carver	I-85	A	0.65	Durham City	\$145,362

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Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
D-108	Hillsborough1	Sparger	LaSalle	B	2.43	Durham City	\$546,325
D-109	Hillsborough2	LaSalle	Ninth	C	1.50	Durham City	\$337,158
D-110	HollowayA1	Guthrie	Miami	B	0.36	Durham City	\$81,042
D-111	HollowayA2	Miami	Junction	B	0.65	Durham City	\$145,253
D-112	HollowayA3	Junction	Chandler	B	1.05	Durham City	\$236,541
D-113	Holt School	Valley	Duke	C	0.35	Durham City	\$79,216
D-114	Hope ValleyA1	HWY 54	Swarthmore	A	1.16	Durham City	\$260,595
D-115	Hope ValleyA2	Swarthmore	Surrey	C	1.09	Durham City	\$245,162
D-116	Hope ValleyA3	Surrey	Archdale	B	0.90	Durham City	\$202,007
D-117	Hope ValleyA4	Archdale	15-501	A	1.13	Durham City	\$254,662
D-118	HortonA1	Hillandale	Stadium	B	1.06	Durham City	\$237,297
D-119	HortonA2	Stadium	Roxboro	B	0.88	Durham City	\$197,729
D-120	HWY 54 PW2	Alston	Miami	B	2.57	Durham City	\$577,269
D-121	HWY 54 PW3	Highgate	Fayetteville	B	0.63	Durham City	\$142,024
D-122	HWY54A1	Fayetteville	Barbee	B	1.04	Durham City	\$233,422
D-123	HWY54A2	Barbee	NC55	B	1.25	Durham City	\$280,713
D-124	HWY54A3	NC 55	Alston	B	0.40	Durham City	\$88,737
D-125	Hyde Park	Fern	Drew	C	0.38	Durham City	\$85,522
D-126	Indian	Hillandale	Albany	C	0.44	Durham City	\$97,781
D-127	James	Lakewood	University	C	0.90	Durham City	\$201,108
D-128	Jester	Alston	end	C	0.23	Durham City	\$51,084
D-129	Juniper	Hanover	Miami	B	0.77	Durham City	\$173,276
D-130	Kenan	Duke Homestead	Carver	C	0.38	Durham City	\$85,406
D-131	Kent1	Morehead	Lakewood	C	0.38	Durham City	\$85,697
D-132	Kent2	Lakewood	University	B	0.68	Durham City	\$153,548
D-133	Knox1	Watts	Vista	C	1.29	Durham City	\$289,276
D-134	Lakewood1	Chapel Hill	University	B	1.03	Durham City	\$231,479
D-135	Lakewood2	University	Blackwell	B	0.14	Durham City	\$31,111
D-136	LasalleA1	Kangaroo	Erwin	A	0.44	Durham City	\$99,242
D-137	LasalleA2	Sprunt	Kangaroo	B	0.69	Durham City	\$154,324
D-138	Latta	Guess	Roxboro	B	1.20	Durham City	\$269,762
D-139	Lebanon	Guess	Guess	B	0.57	Durham City	\$128,123
D-140	Leon	Duke	Glendale	B	0.43	Durham City	\$96,508
D-141	Liberty1	Dillard	Alston	B	0.50	Durham City	\$112,279
D-142	Liberty2	Park	Miami	B	0.59	Durham City	\$133,422
D-143	Luther	Rose of Sharon	Rose of Sharon	C	0.93	Durham City	\$209,692

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
D-144	Lynn	Gibson	Miami	C	0.50	Durham City	\$112,359
D-145	Main	Briggs	Gary	B	0.22	Durham City	\$49,073
D-146	Maple1	Liberty	Taylor	C	0.25	Durham City	\$56,942
D-147	Maple2	Taylor	Angier	C	0.40	Durham City	\$89,126
D-148	Markham1	Ninth	Washington	B	1.25	Durham City	\$281,535
D-149	Markham2	Washington	Avondale	A	1.11	Durham City	\$249,794
D-150	Martin Luther King	Yorktown	HWY 55	C	0.23	Durham City	\$52,673
D-151	Maryland	Guess	Club	C	0.60	Durham City	\$135,122
D-152	Masondale	Roxboro	Formosa	C	0.20	Durham City	\$44,219
D-153	Mathison	Ridgeway	End	C	0.23	Durham City	\$51,647
D-154	Merrimac	Morehead	House	C	0.06	Durham City	\$12,568
D-155	Miami	Angier	Stirrup Creek	B	1.99	Durham City	\$446,662
D-156	MidlandPW	Cheek	Geer	B	0.69	Durham City	\$155,000
D-157	Milton	Tom Wilkinson	Roxboro	B	0.68	Durham City	\$153,161
D-158	Morehead1	Anderson	Shepherd	C	1.11	Durham City	\$249,463
D-159	Morehead3	Duke	Roxboro	B	0.70	Durham City	\$156,817
D-160	Morreene1	Neal	Campus Walk	B	0.97	Durham City	\$218,743
D-161	Morreene2	Campus Walk	Erwin	B	0.55	Durham City	\$122,743
D-162	Murray	Broad	Roxboro	B	1.32	Durham City	\$297,120
D-163	Newby	Horton	Holt School	C	0.31	Durham City	\$70,111
D-164	Ninth	Club	Pettigrew	C	0.03	Durham City	\$5,674
D-165	North Bend	Carpenter Fletcher	Meridian	C	0.10	Durham City	\$22,671
D-166	North Pointe	Woodmont	Broad	B	0.85	Durham City	\$191,064
D-167	Oakland	Sprunt	Green	C	0.65	Durham City	\$146,955
D-168	Old Chapel Hill A1	Pope	Garrett	B	1.66	Durham City	\$372,817
D-169	Old Chapel Hill A2	University	Archdale	C	1.28	Durham City	\$288,218
D-170	Old Chapel Hill A3	Archdale	University	C	0.63	Durham City	\$140,910
D-171	Old Oxford	Roxboro	Dearborn	B	0.52	Durham City	\$117,388
D-172	Pettigrew	Fayetteville	Briggs	B	1.39	Durham City	\$310,902
D-173	Pinecrest	Academy	Marion	C	0.44	Durham City	\$99,594
D-174	Randolph	Solterra Way	Pickett	B	0.58	Durham City	\$130,225
D-175	RaynorPW	Miami	Hardee	B	0.34	Durham City	\$77,344
D-176	RiddleA1	Fayetteville	HWY 55	B	0.84	Durham City	\$187,869
D-177	RiddleA2	HWY 55	Ellis	B	1.08	Durham City	\$242,047
D-178	Ridgeway	Mathison	Lakeland	C	0.26	Durham City	\$57,702
D-179	Rose of Sharon	Cole Mill	Guess	C	2.53	Durham City	\$567,872

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
D-180	Roxboro2	Pacific	Murray	A	1.40	Durham City	\$315,281
D-181	Roxboro3	Davidson	Knox	B	0.39	Durham City	\$88,132
D-182	Roxboro5	Holloway	Liberty	B	0.05	Durham City	\$11,157
D-183	Roxboro6	Enterprise	Cornwallis	A	1.66	Durham City	\$371,781
D-184	Roxboro7	Cornwallis	Oak Ridge	C	0.52	Durham City	\$116,455
D-185	Roxboro8	Juliette	Hope Valley	C	1.64	Durham City	\$368,553
D-186	RoxboroA1	Pacific	Monk	B	0.91	Durham City	\$204,989
D-187	RoxboroA2	Monk	Infinity	B	1.33	Durham City	\$297,342
D-188	RoxboroA3	Infinity	Tom Wilkinson	B	1.23	Durham City	\$274,977
D-189	Seaton	Revere	Wenonah	C	0.41	Durham City	\$92,964
D-190	Sedwick	Grandale	Alston	B	1.76	Durham City	\$394,742
D-191	Shannon	Durham-Chapel Hill	Old Chapel Hill	B	1.04	Durham City	\$232,581
D-192	Shoreham	University	Stuart	C	0.13	Durham City	\$28,242
D-193	Solitude	Whisperwood	Sedwick	C	0.25	Durham City	\$56,581
D-194	Sparger	Cole Mill	Stafford	C	1.96	Durham City	\$439,969
D-195	Swarthmore	end	Hope Valley	C	1.18	Durham City	\$264,026
D-196	Swift	Duke University	Durham Freeway	B	0.51	Durham City	\$113,756
D-197	Taylor1	Elizabeth	Alston	B	0.39	Durham City	\$86,646
D-198	Taylor3	Guthrie	Gary	B	0.31	Durham City	\$69,368
D-199	Tom Wilkinson	Milton	Roxboro	C	0.23	Durham City	\$51,821
D-200	Trinity2	Rosetta	Edgar	B	0.50	Durham City	\$111,881
D-201	Umstead1	Scout	Merrick	B	0.40	Durham City	\$88,687
D-202	Umstead2	Riverdale	Guess	C	1.31	Durham City	\$294,160
D-203	University1	Old Chapel Hill	Ivy Creek	B	0.68	Durham City	\$152,521
D-204	University2	Martin Luther King	Old Chapel Hill	B	1.01	Durham City	\$226,761
D-205	University3	Old Chapel Hill	Hope Valley	A	0.77	Durham City	\$173,870
D-206	University4	Hope Valley	Forest Hills	B	1.23	Durham City	\$274,998
D-207	University5	Forest Hills	Lakewood	B	0.64	Durham City	\$143,420
D-208	Urban	Buchanan	Washington	C	0.58	Durham City	\$130,908
D-209	Valley	Casa	Holt School	C	0.36	Durham City	\$80,115
D-210	Vickers	Proctor	University	C	0.45	Durham City	\$100,198
D-211	Wabash	end	Plum	C	0.47	Durham City	\$105,760
D-212	Ward	Chapel Hill	Forest Hills	C	0.86	Durham City	\$191,883
D-213	Washington	Glendale	Urban	B	1.01	Durham City	\$226,317
D-214	Watts	Green	Englewood	C	0.38	Durham City	\$84,998
Durham Totals					170		\$37,887,301

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
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Chapel Hill Sidewalk Projects							
CH-1	Barbee Chapel Rd (west)	NC 54	Downing Creek Pkwy.		0.72	Chapel Hill	\$161,500
CH-2	Barbee Chapel Rd (west) # 2	Finley Forest Dr.	Downing Creek Pkwy		0.53	Chapel Hill	\$119,000
CH-3	Barbee Chapel Rd (west) #1	Finley forest	NC 54		0.34	Chapel Hill	\$42,500
CH-4	Bennett Road (south)	15-501 S	fire Station #5 entrance		0.04	Chapel Hill	\$8,500
CH-5	Booker Creek Rd	Entire length	Entire length		0.34	Chapel Hill	\$76,500
CH-6	Brookview Dr.	Entire length	Entire length		0.47	Chapel Hill	\$106,250
CH-7	Burning Tree Drive (west)	NC 54	Pinehurst Dr		0.86	Chapel Hill	\$192,313
CH-8	Cameron Ave (south)	SE corner at Merritt Mill Rd	SE corner at Merritt Mill Rd		0.05	Chapel Hill	\$10,625
CH-9	Cameron Ave(north)	NE corner at Merritt Mill Rd	NE corner at Merritt Mill Rd		0.05	Chapel Hill	\$10,625
CH-10	Caswell Road (north)	Entire length	Entire length		0.62	Chapel Hill	\$138,975
CH-11	Cedar Hills Dr.	Weaver Dairy Rd.	Partin St.		0.57	Chapel Hill	\$127,500
CH-12	Church St (east)	W.Rosemary St	Caldwell St		0.32	Chapel Hill	\$72,250
CH-13	Churchill Dr.	Longleaf Dr.	LeClair St.		0.19	Chapel Hill	\$42,500
CH-14	Churchill Dr.	Entire length	Entire length		0.95	Chapel Hill	\$212,500
CH-15	Cleland Drive (south)	Entire length	Entire length		0.76	Chapel Hill	\$170,000
CH-16	Craig St (south)	Gomains Ave	Bynum St		0.13	Chapel Hill	\$28,475
CH-17	Culbreth Rd (north)	Adam Way	Smith Level Rd.		0.38	Chapel Hill	\$85,000
CH-18	Culbreth Rd (south)	Btw Cobble Ridge and Rossum	Btw Cobble Ridge and Rossum		0.09	Chapel Hill	\$21,250
CH-19	Cynthia Dr	Dixie Dr	Seminole Dr		0.42	Chapel Hill	\$93,500
CH-20	Cypress Rd/Spruce St/Eden La	Entire length	Entire length		0.63	Chapel Hill	\$140,250
CH-21	Dixie Dr	Stateside Dr	Cynthia Dr		0.38	Chapel Hill	\$85,000
CH-22	Dixie La	Entire length	Entire length		0.11	Chapel Hill	\$25,500
CH-23	Dobbins Dr. (north)	Dobbins Dr.	Dobbins Dr.		0.23	Chapel Hill	\$51,000
CH-24	Eastwood Rd	north side at Shady Lawn Dr.	north side at Shady Lawn Dr.		0.02	Chapel Hill	\$4,250
CH-25	Elizabeth Street (north)	Penny Ln	East Franklin St		0.08	Chapel Hill	\$17,255
CH-26	Emory Dr	Entire length	Entire length		1.33	Chapel Hill	\$297,500
CH-27	Ephesus Ch Rd #1 (south)	Eden Dr	15-501 Bypass		0.57	Chapel Hill	\$127,500
CH-28	Ephesus Ch Rd #2 (north)	Colony Woods Dr	Pope Rd		0.30	Chapel Hill	\$66,938
CH-29	Ephesus Ch Rd #2 (north)	Colony Woods Dr	Pope Rd		0.30	Chapel Hill	\$66,938
CH-30	Estes Dr. Ext.	Seawell School Rd	west town limits		0.51	Chapel Hill	\$114,750
CH-31	Estes Drive #1 (north)	MLK Jr. Blvd.	Estes Elementary School		0.76	Chapel Hill	\$170,000
CH-32	Estes Drive (south)	Caswell	Franklin St		0.61	Chapel Hill	\$136,000
CH-33	Estes Drive Ext #3 (south)	Seawell School Rd	MLK Jr. Blvd.		0.78	Chapel Hill	\$174,250

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Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
CH-34	Europa Dr. (west)	Europa Dr.	Europa Dr.		0.09	Chapel Hill	\$21,250
CH-35	Ferrell Rd	Entire length	Entire length		0.44	Chapel Hill	\$97,750
CH-36	Finley Golf Course Rd (west)	NC 54	Old Mason Farm Rd		0.65	Chapel Hill	\$146,625
CH-37	Flemington Rd	Hamilton Rd	Hayes Rd		0.11	Chapel Hill	\$25,500
CH-38	Fordham Blvd #1 (north)	Manning Dr	Carmichael St		0.25	Chapel Hill	\$55,250
CH-39	Fordham Blvd #2 (west)	Ephesus Church Rd	Elliott Rd		0.21	Chapel Hill	\$46,325
CH-40	Fordham Blvd (north)	Elliot Rd	Estes Drive		0.23	Chapel Hill	\$51,000
CH-41	Forest Hills Rd	Lake Ellen Dr	Seminole Dr		0.15	Chapel Hill	\$34,000
CH-42	Fountain Ridge Rd.	Entire length	Entire length		0.91	Chapel Hill	\$204,000
CH-43	Francis St	Entire length	Entire length		0.28	Chapel Hill	\$63,750
CH-44	Gimghoul Rd	Entire length north side	Entire length north side		0.28	Chapel Hill	\$63,750
CH-45	Gimghoul Rd	Entire length south side	Entire length south side		0.23	Chapel Hill	\$51,000
CH-46	Hamilton Rd (east)	Cleland Dr	Flemington Rd.		0.15	Chapel Hill	\$34,000
CH-47	Hillsborough St. (east)	Rosemary Street	Mill Race Dr.		0.21	Chapel Hill	\$46,750
CH-48	Homestead Rd	Homestead Rd	Homestead Rd		0.03	Chapel Hill	\$6,375
CH-49	Homestead Rd #1(north)	Homestead Rd #1(north)	Homestead Rd #1(north)		0.30	Chapel Hill	\$68,000
CH-50	Homestead Rd #2 (south)	Homestead Rd #2 (south)	Homestead Rd #2 (south)		0.30	Chapel Hill	\$68,000
CH-51	Homestead Rd #3 (north)	Homestead Rd #3 (north)	Homestead Rd #3 (north)		0.34	Chapel Hill	\$76,500
CH-52	Homestead Rd #4 (south)	Homestead Rd #4 (south)	Homestead Rd #4 (south)		0.30	Chapel Hill	\$68,000
CH-53	Honeysuckle Rd	Honeysuckle Rd	Honeysuckle Rd		0.49	Chapel Hill	\$110,500
CH-54	Kenmore Rd	Kenmore Rd	Kenmore Rd		0.11	Chapel Hill	\$25,500
CH-55	Lake Ellen Dr. East	Lake Ellen Dr. East	Lake Ellen Dr. East		0.04	Chapel Hill	\$8,500
CH-56	Lakeview Dr. East	Lakeview Dr. East	Lakeview Dr. East		0.25	Chapel Hill	\$55,250
CH-57	Landerwood La	Landerwood La	Landerwood La		0.53	Chapel Hill	\$119,000
CH-58	LeClair St.	LeClair St.	LeClair St.		0.38	Chapel Hill	\$85,000
CH-59	Longleaf Dr. Phase 1	Longleaf Dr. Phase 1	Longleaf Dr. Phase 1		0.25	Chapel Hill	\$55,250
CH-60	Longleaf Dr. Phase 2	Longleaf Dr. Phase 2	Longleaf Dr. Phase 2		0.32	Chapel Hill	\$72,250
CH-61	Mallette Street (west)	Mallette Street (west)	Mallette Street (west)		0.18	Chapel Hill	\$40,375
CH-62	Manly St.	Manly St.	Manly St.		0.08	Chapel Hill	\$17,000
CH-63	Manning Dr. (north)	Manning Dr. (north)	Manning Dr. (north)		0.55	Chapel Hill	\$123,250
CH-64	McCauley St. (north)	McCauley St. (north)	McCauley St. (north)		0.06	Chapel Hill	\$12,750
CH-65	McMasters St (south)	McMasters St (south)	McMasters St (south)		0.10	Chapel Hill	\$22,525
CH-66	MLK Jr. Blvd. (west)	Estes Dr	Critz Dr.		0.68	Chapel Hill	\$153,000
CH-67	MLK Jr. Blvd. (west)	Weaver Dairy Rd.	Northwood Dr..		0.06	Chapel Hill	\$12,750
CH-68	MLK Jr. Blvd. (east)	Timber Hollow Ct	Homestead Rd		0.35	Chapel Hill	\$78,625
CH-69	NC 54	East of Barbee Chapel Rd	Town Limits		0.38	Chapel Hill	\$85,000

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
CH-70	NC 54(south)	Missing Section west of Finley Golf Course Rd	Missing Section west of Finley Golf Course Rd		0.04	Chapel Hill	\$8,500
CH-71	North Street (north)	MLK Jr. Blvd.	Henderson St		0.13	Chapel Hill	\$29,750
CH-72	Old Drhm-Chpl Hill Rd (s)	Durham Co line	Blue Cross		0.40	Chapel Hill	\$89,250
CH-73	Old Mason Farm Rd (north)	Finley Golf Course	US 15-501		0.73	Chapel Hill	\$163,625
CH-74	Old Oxford Rd	Erwin Rd	Bolin Creek Rd		0.15	Chapel Hill	\$34,000
CH-75	Piney Mtn Rd (north)	Forest Creek Dr.	Priestly Cricle Dr.			Chapel Hill	\$0
CH-76	Plant Road (south)	Park/Rec facility	Franklin St		0.10	Chapel Hill	\$22,100
CH-77	Pope Road (west)	Ephesus Church Rd	Old Durham Rd		1.02	Chapel Hill	\$229,500
CH-78	Rigsbee Rd.	Piney Mtn Rd	Brookview Dr.		0.17	Chapel Hill	\$38,250
CH-79	Rogers Rd (east)	Homestead Rd	Sylvan Wy.		0.09	Chapel Hill	\$21,250
CH-80	Rolling Road (south)	South Lakeshore Dr	Ridgecrest Dr		0.37	Chapel Hill	\$82,025
CH-81	Roosevelt Drive (east)	Entire length	Entire length		0.47	Chapel Hill	\$105,400
CH-82	Rosemary St (north)	west of Church St	west of Church St		0.03	Chapel Hill	\$7,650
CH-83	Rosemary St (north)	east of Church St	east of Church St		0.05	Chapel Hill	\$10,625
CH-84	Rosemary Street #2 (north)	157 E. Rosemary St	Henderson St		0.04	Chapel Hill	\$8,500
CH-85	Rosemary Street #3 (north)	Pickard St	Boundary St		0.15	Chapel Hill	\$34,000
CH-86	Rosemary Street #4 (north)	east of Mitchell La.	east of Mitchell La.		0.02	Chapel Hill	\$4,250
CH-87	Sage Rd	west side south of Coleridge Dr.	west side south of Coleridge Dr.		0.08	Chapel Hill	\$17,000
CH-88	Seawell School Rd #1 (west)	Seawell Elementary	Hanover Pl		0.83	Chapel Hill	\$187,000
CH-89	Seawell School Rd #2 (west)	Homestead Rd	High School Road		0.25	Chapel Hill	\$55,250
CH-90	Seminole Dr	Entire length	Entire length		0.21	Chapel Hill	\$46,750
CH-91	Shady Lawn Road (north)	Eastwood Rd	Lakeshore Dr		0.97	Chapel Hill	\$216,750
CH-92	Stateside Dr	MLK Jr. Blvd.	Dixie Dr.		0.11	Chapel Hill	\$25,500
CH-93	Stephens St (west)	Martin Luther King, Jr. Blvd	N.Columbia St		N/A	Chapel Hill	\$0
CH-94	Sunrise Rd (east)	Sweeten Cir. Dr.	Sweeten Cir. Dr.		0.32	Chapel Hill	\$72,250
CH-95	Thornwood Rd	Entire length	Entire length		0.38	Chapel Hill	\$85,000
CH-96	University Drive (north)	Pittsboro St	Ransom St		0.08	Chapel Hill	\$18,913
CH-97	University Mall entr's	S. Estes Dr. (2 locations west side)	S. Estes Dr. (2 locations west side)		0.06	Chapel Hill	\$12,750
CH-98	University Mall north entr.	Willow Dr.	Willow Dr.		0.15	Chapel Hill	\$34,000
CH-99	US 15-501 South (east)	Mount Carmel Church Rd	S. Columbia St		0.21	Chapel Hill	\$46,750
CH-100	Weaver Dairy Rd (east)	Erwin Rd	Arcadia Place		0.53	Chapel Hill	\$119,000
CH-101	Weaver Dairy Rd (west)	Erwin Rd	Arcadia Place		0.53	Chapel Hill	\$119,000
CH-102	West University Dr (south)	Ransom St	Westwood Dr		0.28	Chapel Hill	\$62,815
CH-103	Willow Dr.	west side south of Conner Dr	west side south of Conner Dr		0.06	Chapel Hill	\$12,750
CH-104	Willow Dr.	Longleaf Dr.	Emory Dr.		0.34	Chapel Hill	\$42,500

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
Chapel Hill Totals					34		\$7,563,895

Carrboro Sidewalk Projects							
C-1	Culbreth	Smith Level Rd	town limits		0.20	Carrboro	\$ 104,300
C-2	Davie	Jones Ferry Rd	Main St		0.49	Carrboro	\$ 258,000
C-3	Estes Dr. Ext	N. Greensboro	town limits		0.91	Carrboro	\$ 480,000
C-4	S. Greensboro	Old Pittsboro	NC 54		0.43	Carrboro	\$ 228,900
C-5	Old Fayetteville	NC54	Carrboro Plaza P&R		0.36	Carrboro	\$ 189,700
C-6	Parker	N. Greensboro	Lloyd		0.15	Carrboro	\$ 80,000
C-7	Pathway	Bolin Forest	Seawell School Rd		0.42	Carrboro	\$ 220,000
C-8	Seawell Rd. Ext.	Seawell	Homestead		0.57	Carrboro	\$ 300,000
C-9	Shelton	Oak	Elm		0.13	Carrboro	\$ 67,000
C-10	Simpson	Main	Hillsborough		0.40	Carrboro	\$ 210,000
C-11	Smith Level Rd	NC54 bridge 88	Woodcrest		0.82	Carrboro	\$ 432,100
C-12	Strowd Ln	Old Fayetteville	Anderson Park		0.18	Carrboro	\$ 95,000
C-13	Tripp Farm Rd	Hillsborough	Tripp Farm Rd		0.30	Carrboro	\$ 160,000
C-14	Tripp Farm Rd	Tripp Farm Rd	Seawell School Rd		0.55	Carrboro	\$ 290,000
C-15	Homestead Rd	Old NC 86	Claremont		1.76	Carrboro	\$ 930,200
C-16	Rogers Road	Homestead	town limits		1.09	Carrboro	\$ 575,700
C-17	Old NC 86	Hillsborough	Eubanks		5.86	Carrboro	\$ 3,096,200
C-18	Pine	Hillsborough	N. Greensboro		0.49	Carrboro	\$ 259,200
C-19	Elm	Weaver	Shelton		0.19	Carrboro	\$ 102,600
C-20	Ashe	Weaver	Shelton		0.14	Carrboro	\$ 75,100
C-21	Bim	Jones Ferry Rd	Fidelity		0.21	Carrboro	\$ 111,400
C-22	Old Fayetteville	NC54	McDougle		0.50	Carrboro	\$ 266,300
C-23	Carol	Old Fayetteville	Lorraine		0.60	Carrboro	\$ 315,800
C-24	Jones Ferry	Main	Alabama		0.59	Carrboro	\$ 310,500
C-25	Lindsay	Weaver	Shelton		0.19	Carrboro	\$ 102,800
C-26	Main	Fidelity	Poplar		0.06	Carrboro	\$ 30,000
C-27	Oak St	Hillsborough	Greensboro		0.32	Carrboro	\$ 166,600
C-28	Rainbow	Lisa	Hillsborough		0.35	Carrboro	\$ 183,000
C-29	Fowler	Lloyd	Broad		0.07	Carrboro	\$ 34,900
C-30	NC 54	Main	Old Fayetteville		0.32	Carrboro	\$ 166,900
C-31	Carr	Greensboro	Maple		0.08	Carrboro	\$ 41,300
C-32	Carr	Greensboro	end		0.14	Carrboro	\$ 72,800

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
C-33	Center	Weaver	Short		0.06	Carrboro	\$ 30,000
C-34	Gary	Poplar	Keith		0.25	Carrboro	\$ 131,300
C-35	High	Main	Hillsborough		0.23	Carrboro	\$ 123,800
C-36	Hill	Lloyd	Broad		0.07	Carrboro	\$ 34,600
C-37	Laurel	Jones Ferry	end		0.19	Carrboro	\$ 98,400
C-38	Laurel	Town Parking Lot	Jones Ferry		0.11	Carrboro	\$ 57,300
C-39	Lorraine	Hillsborough	James		0.36	Carrboro	\$ 190,800
C-40	Maple	Carr	end		0.18	Carrboro	\$ 96,200
C-41	Milton	Cheek	Greensboro		0.16	Carrboro	\$ 85,700
C-42	Oleander	NC 54	Gary		0.22	Carrboro	\$ 118,600
C-43	Roberson	Greensboro	Sweet Bay		0.11	Carrboro	\$ 56,600
C-44	Short	Center	Greensboro		0.05	Carrboro	\$ 25,000
C-45	Autumn	Barrington Hills	Stratford		0.15	Carrboro	\$ 81,700
C-46	Bolin Creek	Wild Oak	end		0.49	Carrboro	\$ 257,100
C-47	Eugene	Wesley	end		0.10	Carrboro	\$ 53,300
C-48	Maple	Carr	Roberson		0.04	Carrboro	\$ 20,000
C-49	Phipps	Lorraine	Simpson		0.15	Carrboro	\$ 81,300
C-50	Spring Valley	Morningside	Pathway		0.29	Carrboro	\$ 153,100
C-51	Merritt Mill	Cameron	Brewer		0.19	Carrboro	\$ 101,200
C-52	Barnes	Jones Ferry	King		0.26	Carrboro	\$ 135,000
C-53	Bel Arbor Path	Bel Arbor	Simpson		0.10	Carrboro	\$ 67,100
C-54	King	Allen	Barnes		0.13	Carrboro	\$ 68,600
C-55	Prince	King	end		0.20	Carrboro	\$ 105,000
C-56	Wild Oak	Bolin Creek	Pathway		0.07	Carrboro	\$ 37,600
C-57	Queen	Barnes	Prince		0.06	Carrboro	\$ 32,400
C-58	Barrington Hills	Hillsborough	Autumn		0.23	Carrboro	\$ 121,200
Carrboro Totals					23		\$ 12,319,200

Hillsborough Sidewalk Projects							
H-1	US 70 Bypass	I-85 Collector	St. Mary's Rd.		11.00	Hillsborough	\$ 5,808,000
H-2	Elizabeth Brady Road Extension	US 70A	US 70 Bypass/St. Mary's Rd.		1.50	Hillsborough	\$ 792,000
H-3	S. Churton St.	Lafayette Dr.	Margaret Ln.		1.90	Hillsborough	\$ 1,003,200
H-4	Nash Street Sidewalk	US 70	Eno St.		1.80	Hillsborough	\$ 679,233
H-5	Riverwalk (Future Phases)	S. Cameron St.	Allison St.		1.60	Hillsborough	\$ 844,800
H-6	Cates Creek Greenway	Old NC 86	US70A/NC86 South Intersection		2.00	Hillsborough	\$ 1,060,000

2035 Long Range Transportation Plan Durham-Chapel Hill-Carrboro MPO Pedestrian Projects

No.	Project Name	From	To	Rank	Length (Miles)	Municipality	Cost
	Hillsborough Totals				20		\$ 10,187,233

DCHC MPO Total							\$ 67,957,629
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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
DURHAM CITY AND COUNTY					
1	Academy Rd	4' Bicycle Lane	1.19	Durham City-County	595,000
2	Academy Rd	4' Bicycle Lane	0.51	Durham City-County	*
3	Adcock Rd	4' Paved Shoulder	0.92	Durham City-County	460,000
4	Airport Rd	4' Bicycle Lane	0.2	Durham City-County	100,000
5	Albany St	Sharrows	0.21	Durham City-County	546
6	Alston Ave	4' Bicycle Lane	10.8	Durham City-County	*
7	Amber Pl	Sharrows	0.07	Durham City-County	182
8	American Dr	Sharrows	1.86	Durham City-County	4,836
9	American Tobacco Trail	Multi-Use Path	4	Durham City-County	4,753,000
10	Anderson St	4' Bicycle Lane	1.76	Durham City-County	4,576
11	Andrews Chapel Rd	4' Paved Shoulder	1.23	Durham City-County	615,000
12	Angier Ave	4' Bicycle Lane	4.71	Durham City-County	2,355,000
13	Archdale Dr	4' Bicycle Lane	0.52	Durham City-County	260,000
14	Avondale Dr	4' Bicycle Lane	1.06	Durham City-County	2,756
15	Bacon Rd	4' Paved Shoulder	1.8	Durham City-County	900,000
16	Bacon St	4' Bicycle Lane	1.13	Durham City-County	2,938
17	Bahama Rd	4' Paved Shoulder	9.35	Durham City-County	4,675,000
18	Ball Rd	4' Paved Shoulder	2.38	Durham City-County	1,190,000
19	Baptist Rd	4' Paved Shoulder	4.07	Durham City-County	2,035,000
20	Barbee Chapel Rd	4' Bicycle Lane	1.75	Durham City-County	875,000
21	Barbee Rd	4' Bicycle Lane	2.84	Durham City-County	1,420,000
22	Bennett Memorial Rd	4' Bicycle Lane	0.67	Durham City-County	335,000
23	Berini Dr	Sharrows	1.14	Durham City-County	2,964
24	Bill Poole Rd	4' Paved Shoulder	3.19	Durham City-County	1,595,000
25	Bivins Rd	4' Paved Shoulder	3.64	Durham City-County	1,820,000
26	Blackwell St	Sharrows	0.56	Durham City-County	1,456
27	Bowen Rd	4' Paved Shoulder	1.05	Durham City-County	525,000
28	Boyce Mill Rd	4' Paved Shoulder	0.83	Durham City-County	415,000
29	Briggs Ave	4' Bicycle Lane	1.52	Durham City-County	*
30	Broad St	4' Bicycle Lane	2.37	Durham City-County	6,162
31	Broad St	Sharrows	0.33	Durham City-County	858

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
32	Buchanan Blvd	4' Bicycle Lane	1.48	Durham City-County	3,848
33	Burton Rd	4' Paved Shoulder	1.59	Durham City-County	795,000
34	Camden Ave	4' Bicycle Lane	1.99	Durham City-County	995,000
35	Cameron Blvd	4' Bicycle Lane	1.08	Durham City-County	2,808
36	Cammie St	4' Bicycle Lane	0.48	Durham City-County	1,248
37	Campus Dr	4' Bicycle Lane	0.25	Durham City-County	*
38	Campus Dr	4' Bicycle Lane	1.17	Durham City-County	*
39	Campus Walk Ave	4' Bicycle Lane	0.34	Durham City-County	170,000
40	Capps St	4' Bicycle Lane	0.32	Durham City-County	832
41	Carolina Cir	Sharrows	0.07	Durham City-County	182
42	Carpenter Fletcher Rd	4' Bicycle Lane	0.78	Durham City-County	390,000
43	Carpenter Pond Rd	4' Paved Shoulder	3.82	Durham City-County	1,910,000
44	Carpenter Rd	4' Paved Shoulder	1.12	Durham City-County	560,000
45	Carver Rd	4' Paved Shoulder	0.78	Durham City-County	390,000
46	Carver St	4' Bicycle Lane	0.73	Durham City-County	*
47	Carver St	4' Bicycle Lane	3.58	Durham City-County	9,308
48	Cassam Rd	4' Paved Shoulder	3.75	Durham City-County	1,875,000
49	Cecil St	4' Bicycle Lane	0.36	Durham City-County	936
50	Chandler Rd	4' Paved Shoulder	0.96	Durham City-County	480,000
51	Chapel Dr	4' Bicycle Lane	0.32	Durham City-County	*
52	Chapel Hill Rd	4' Bicycle Lane	2.35	Durham City-County	6,110
53	Chapel Hill St	4' Bicycle Lane	0.89	Durham City-County	2,314
54	Chapel Hill St	Sharrows	0.4	Durham City-County	1,040
55	Cheek Rd.	4' Bicycle Lane	8.5	Durham City-County	4,250,000
56	Chin Page Rd.	4' Bicycle Lane	1.5	Durham City-County	750,000
57	Church St	Sharrows	0.13	Durham City-County	338
58	Circuit Dr	4' Bicycle Lane	0.5	Durham City-County	*
59	Clayton Rd	4' Paved Shoulder	1.84	Durham City-County	920,000
60	Clermont Rd	4' Bicycle Lane	0.76	Durham City-County	1,976
61	Club Blvd.	4' Bicycle Lane	3	Durham City-County	7,800
62	Club Blvd.	4' Bicycle Lane	2.33	Durham City-County	1,165,000
63	Cole Mill Rd	4' Bicycle Lane	1.4	Durham City-County	3,640

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
64	Cole Mill Rd	4' Bicycle Lane	2.33	Durham City-County	1,165,000
65	Coley Rd	4' Paved Shoulder	2.66	Durham City-County	1,330,000
66	Colonial St	Sharrows	0.15	Durham City-County	390
67	Compton Pl	Sharrows	0.11	Durham City-County	286
68	Constitution Dr	Sharrows	0.58	Durham City-County	1,508
69	Cook Rd	4' Bicycle Lane	1.69	Durham City-County	845,000
70	Cooksbury Dr	4' Paved Shoulder	0.59	Durham City-County	1,534
71	Corcoran St	Sharrows	0.18	Durham City-County	468
72	Cornwallis Rd	4' Bicycle Lane	4.5	Durham City-County	*
73	Cornwallis Rd	4' Paved Shoulder	3.12	Durham City-County	1,560,000
74	Cornwallis Rd	4' Bicycle Lane	4.35	Durham City-County	11,310
75	Corporation St	4' Bicycle Lane	0.82	Durham City-County	2,132
76	Cothran Rd	4' Paved Shoulder	0.91	Durham City-County	455,000
77	Craig Rd	4' Paved Shoulder	2.06	Durham City-County	1,030,000
78	Cranford Rd	Sharrows	0.44	Durham City-County	1,144
79	Creech Rd	4' Paved Shoulder	0.95	Durham City-County	475,000
80	Danube Ln	4' Bicycle Lane	1.56	Durham City-County	780,000
81	Davis Dr.	4' Bicycle Lane	2.8	Durham City-County	*
82	Dearborn Dr.	4' Bicycle Lane	1.6	Durham City-County	800,000
83	Denfield St	4' Bicycle Lane	0.69	Durham City-County	345,000
84	Dillard St	Sharrows	0.66	Durham City-County	1,716
85	Dixon Rd	4' Bicycle Lane	0.67	Durham City-County	335,000
86	Doc Nichols Rd	4' Paved Shoulder	1.9	Durham City-County	950,000
87	Drew St	4' Bicycle Lane	0.48	Durham City-County	240,000
88	Driver St	4' Bicycle Lane	0.19	Durham City-County	95,000
89	Driver St	Sharrows	1.15	Durham City-County	2,990
90	Duke Homestead Rd	4' Bicycle Lane	1.64	Durham City-County	820,000
91	Duke St	4' Bicycle Lane	4.87	Durham City-County	12,662
92	Duke University Rd	4' Bicycle Lane	1.13	Durham City-County	*
93	Dunnegan Rd	4' Paved Shoulder	0.42	Durham City-County	1,092
94	Dunwoody Rd	4' Paved Shoulder	1.83	Durham City-County	915,000
95	Durham Trails	Multi-Use Path	30	Durham City-County	17,723,839

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
96	Durham-Chapel Hill Blvd	4' Bicycle Lane	0.78	Durham City-County	*
97	Durham-Chapel Hill Blvd	Sidepath	5.1	Durham City-County	*
98	East End Ave	4' Bicycle Lane	0.5	Durham City-County	*
99	Ebenezer Church Rd	4' Paved Shoulder	0.8	Durham City-County	400,000
100	Ed Cook Rd	4' Bicycle Lane	0.9	Durham City-County	450,000
101	Elizabeth St	Sharrows	1.08	Durham City-County	*
102	Ellis Chapel Rd	4' Paved Shoulder	3.13	Durham City-County	1,565,000
103	Ellis Rd	4' Bicycle Lane	4.06	Durham City-County	2,030,000
104	Emperor Boulevard (SR 2103)	4' Bicycle Lane	1.1	Durham City-County	2,860
105	Enterprise St	Sharrows	0.4	Durham City-County	1,040
106	Ephesus Church Rd	4' Bicycle Lane	0.2	Durham City-County	100,000
107	Erwin Rd. (SR 1306)	4' Bicycle Lane	2.3	Durham City-County	1,150,000
108	Erwin Rd. (SR 1320)	4' Bicycle Lane	1.5	Durham City-County	750,000
109	Falkirk Dr	Sharrows	0.11	Durham City-County	286
110	Farrington Mill Rd	4' Paved Shoulder	2	Durham City-County	1,000,000
111	Farrington Rd	4' Bicycle Lane	4.2	Durham City-County	*
112	Farrington Rd	4' Bicycle Lane	0.4	Durham City-County	200,000
113	Fayetteville St	Sharrows / Road Diet	3.1	Durham City-County	8,060
114	Fayetteville St	4' Bicycle Lane	2.4	Durham City-County	*
115	Fayetteville St	4' Bicycle Lane	1.9	Durham City-County	*
116	Fenwick Pkwy	4' Bicycle Lane	0.49	Durham City-County	1,274
117	Ferrand Rd	Sharrows	0.16	Durham City-County	416
118	Ferrell Rd	4' Paved Shoulder	1.42	Durham City-County	710,000
119	Fifteenth St	4' Bicycle Lane	0.25	Durham City-County	650
120	Fletchers Chapel Rd	4' Paved Shoulder	1.61	Durham City-County	805,000
121	Flowers Dr	4' Bicycle Lane	0.73	Durham City-County	*
122	Forest Hills Blvd	Sharrows	0.55	Durham City-County	1,430
123	Foster St	4' Bicycle Lane	0.58	Durham City-County	1,508
124	Foster St	Sharrows	0.08	Durham City-County	208
125	Fountain Ridge Rd	Sharrows	0.7	Durham City-County	1,820
126	Freeman Rd	4' Paved Shoulder	0.92	Durham City-County	460,000
127	Front St	4' Bicycle Lane	0.62	Durham City-County	1,612

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
128	Fulton St.	4' Bicycle Lane	0.4	Durham City-County	1,040
129	Garrett Rd.	4' Bicycle Lane	4.1	Durham City-County	*
130	Geer St	4' Bicycle Lane	4.25	Durham City-County	11,050
131	Geer St	4' Paved Shoulder	3.38	Durham City-County	1,690,000
132	Gibson Rd	4' Paved Shoulder	0.84	Durham City-County	420,000
133	Glendale Ave	Sharrows	0.66	Durham City-County	1,716
134	Glenn Rd	4' Paved Shoulder	3.67	Durham City-County	1,835,000
135	Glenn School Rd	4' Paved Shoulder	0.83	Durham City-County	415,000
136	Glover Rd	4' Bicycle Lane	1.24	Durham City-County	*
137	Goodwin Rd	4' Paved Shoulder	2.28	Durham City-County	1,140,000
138	Grandale Dr	4' Bicycle Lane	2.81	Durham City-County	1,405,000
139	Gray Ave	4' Bicycle Lane	0.41	Durham City-County	1,066
140	Great Jones St (Loop)	4' Bicycle Lane	0.13	Durham City-County	338
141	Greenhaven Dr	4' Paved Shoulder	0.03	Durham City-County	15,000
142	Gregson St	4' Bicycle Lane	1.8	Durham City-County	4,680
143	Guess Rd	4' Bicycle Lane	7.43	Durham City-County	19,318
144	Guess Rd	4' Paved Shoulder	6.22	Durham City-County	3,110,000
145	Gurley St	Sharrows	0.14	Durham City-County	364
146	Hale St	Sharrows	0.03	Durham City-County	78
147	Hall Rd	4' Paved Shoulder	1.47	Durham City-County	735,000
148	Hamilton Way	4' Bicycle Lane	0.13	Durham City-County	65,000
149	Hamlin Rd	4' Paved Shoulder	3.41	Durham City-County	1,705,000
150	Hampton Rd	4' Paved Shoulder	4.45	Durham City-County	2,225,000
151	Hanover St	4' Bicycle Lane	0.03	Durham City-County	15,000
152	Hardee St	4' Bicycle Lane	1.41	Durham City-County	705,000
153	Heather Glen Rd	Sharrows	0.25	Durham City-County	650
154	Hebron Rd	4' Paved Shoulder	1.57	Durham City-County	785,000
155	Hereford Rd	4' Paved Shoulder	0.63	Durham City-County	315,000
156	Herndon Rd	4' Bicycle Lane	2.57	Durham City-County	1,285,000
157	Hillandale Rd	4' Bicycle Lane	2	Durham City-County	*
158	Hillandale Rd	4' Bicycle Lane	1	Durham City-County	500,000
159	Hillsborough Rd	4' Bicycle Lane	4.32	Durham City-County	11,232

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
160	Hillsborough Rd	4' Paved Shoulder	0.95	Durham City-County	475,000
161	Holloway St	4' Bicycle Lane	3.86	Durham City-County	10,036
162	Hope Valley Rd	4' Bicycle Lane	3.61	Durham City-County	1,805,000
163	Hopkins	4' Paved Shoulder	3.17	Durham City-County	1,585,000
164	Hopson Rd	4' Bicycle Lane	2.29	Durham City-County	*
165	Horton Rd	4' Bicycle Lane	2.04	Durham City-County	*
166	Humphrey St	Sharrows	0.05	Durham City-County	130
167	Hurley Rd	4' Paved Shoulder	0.24	Durham City-County	624
168	Hyde Park Ave	Sharrows	1.02	Durham City-County	2,652
169	Indian Trl	Sharrows	0.44	Durham City-County	1,144
170	Infinity Rd	4' Paved Shoulder	2.76	Durham City-County	1,380,000
171	Isham Chambers Rd	4' Paved Shoulder	1.42	Durham City-County	710,000
172	Jackie Robinson Dr	4' Bicycle Lane	0.08	Durham City-County	208
173	James St	Sharrows	0.9	Durham City-County	2,340
174	Jeffries Rd	4' Paved Shoulder	1.22	Durham City-County	610,000
175	Jock Rd	4' Paved Shoulder	1.81	Durham City-County	*
176	Joe Ellis Rd	4' Paved Shoulder	0.81	Durham City-County	405,000
177	John Jones Rd	4' Paved Shoulder	2.16	Durham City-County	1,080,000
178	Johnson Mill Rd	4' Paved Shoulder	3.14	Durham City-County	1,570,000
179	Juliette Dr	4' Bicycle Lane	0.9	Durham City-County	2,340
180	Junction Rd	4' Paved Shoulder	2.92	Durham City-County	1,460,000
181	Juniper St	4' Bicycle Lane	0.7	Durham City-County	350,000
182	Kelvin Dr	4' Paved Shoulder	0.47	Durham City-County	235,000
183	Kemp Rd	4' Paved Shoulder	3.11	Durham City-County	1,555,000
184	Kenan Rd	Sharrows	0.38	Durham City-County	988
185	Kenmore Rd	4' Bicycle Lane	0.18	Durham City-County	90,000
186	Kent St	Sharrows	1.43	Durham City-County	3,718
187	Kerley Rd	4' Paved Shoulder	2.45	Durham City-County	1,225,000
188	Kirkwood Dr	4' Bicycle Lane	0.7	Durham City-County	350,000
189	Kit Creek Rd	4' Bicycle Lane	0.43	Durham City-County	*
190	Knox St	Sharrows	2.19	Durham City-County	5,694
191	Lakeland St	Sharrows	0.51	Durham City-County	1,326

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
192	Lakewood Ave	4' Bicycle Lane	1.66	Durham City-County	4,316
193	Lasalle St	4' Bicycle Lane	1.35	Durham City-County	675,000
194	Latta Rd	4' Bicycle Lane	1.2	Durham City-County	*
195	Lawson St	4' Bicycle Lane	1.76	Durham City-County	4,576
196	League Way	Sharrows	0.07	Durham City-County	182
197	Leesville Rd	4' Paved Shoulder	4.04	Durham City-County	*
198	Legion Rd	4' Bicycle Lane	0.13	Durham City-County	65,000
199	Leon St.	4' Bicycle Lane	0.6	Durham City-County	*
200	Liberty St	4' Bicycle Lane	2.01	Durham City-County	1,005,000
201	Lumley Rd	4' Bicycle Lane	2.55	Durham City-County	1,275,000
202	Lynn Rd	4' Paved Shoulder	1.8	Durham City-County	*
203	Madden Ave	4' Paved Shoulder	0.27	Durham City-County	135,000
204	Main St	4' Bicycle Lane	4.26	Durham City-County	11,076
205	Main St	Sharrows	0.47	Durham City-County	1,222
206	Mangum St	4' Bicycle Lane	1.81	Durham City-County	4,706
207	Mangum-Roxboro Connector	4' Bicycle Lane	0.11	Durham City-County	286
208	Market St	Sharrows	0.04	Durham City-County	104
209	Markham Ave	Sharrows	2	Durham City-County	5,200
210	Martin Luther King Jr Pkwy	4' Bicycle Lane	4.91	Durham City-County	*
211	Maryland Ave	Sharrows	0.6	Durham City-County	1,560
212	Mason Rd	4' Paved Shoulder	2.46	Durham City-County	1,230,000
213	Massey Chapel Rd	4' Bicycle Lane	1.84	Durham City-County	920,000
214	Medford Rd	4' Bicycle Lane	1.02	Durham City-County	2,652
215	Miami Blvd	4' Bicycle Lane	8.92	Durham City-County	*
216	Midland Terrace	4' Bicycle Lane	1.8	Durham City-County	*
217	Mile Branch Rd	4' Paved Shoulder	0.28	Durham City-County	140,000
218	Milton Rd	4' Paved Shoulder	2.48	Durham City-County	1,240,000
219	Mineral Springs Rd	4' Paved Shoulder	4.48	Durham City-County	2,240,000
220	Moore's Mill Rd	4' Paved Shoulder	3.54	Durham City-County	1,770,000
221	Morehead Ave	4' Bicycle Lane	1.52	Durham City-County	3,952
222	Morgan St	Sharrows	0.47	Durham City-County	1,222
223	Morgan St (Loop)	4' Bicycle Lane	0.44	Durham City-County	1,144

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
224	Moriah Rd	4' Paved Shoulder	1.33	Durham City-County	665,000
225	Morning Glory Ave	Sharrows	0.05	Durham City-County	130
226	Morreene Rd	4' Bicycle Lane	1.52	Durham City-County	760,000
227	Morris St	4' Bicycle Lane	0.35	Durham City-County	910
228	Morris St	Sharrows	0.08	Durham City-County	208
229	Mt Herman Rd	4' Paved Shoulder	1.01	Durham City-County	505,000
230	Mt Hermon Church Rd	4' Paved Shoulder	1.76	Durham City-County	880,000
231	Mt Moriah Rd	4' Bicycle Lane	1.84	Durham City-County	920,000
232	Mt Sinai Rd	4' Paved Shoulder	0.73	Durham City-County	365,000
233	NC 54	4' Bicycle Lane	10.6	Durham City-County	*
234	NC 55	4' Bicycle Lane	3.4	Durham City-County	8,840
235	NC 751	4' Bicycle Lane	3.1	Durham City-County	*
236	NC 751	4' Bicycle Lane	0.7	Durham City-County	350,000
237	NC 98 - Wake Forest Hwy	4' Bicycle Lane	2.89	Durham City-County	*
238	NC 98 - Wake Forest Hwy	4' Paved Shoulder	4.94	Durham City-County	*
239	Neal Rd	4' Bicycle Lane	1.24	Durham City-County	620,000
240	Nichols Farm Dr	Sharrows	0.32	Durham City-County	832
241	Ninth St	Sharrows	0.76	Durham City-County	1,976
242	Northeast Creek Pkwy	4' Bicycle Lane	1.3	Durham City-County	*
243	Northern Durham Pkwy	4' Bicycle Lane	12.1	Durham City-County	*
244	Northlake Dr	Sharrows	0.41	Durham City-County	1,066
245	O'Kelly Chapel Rd	4' Paved Shoulder	1.02	Durham City-County	510,000
246	Oakland Ave	Sharrows	0.65	Durham City-County	1,690
247	Old Creedmoor Rd	4' Paved Shoulder	0.11	Durham City-County	55,000
248	Old Durham/Chapel Hill Rd.	4' Bicycle Lane	3.4	Durham City-County	*
249	Old NC 10	4' Paved Shoulder	1.47	Durham City-County	735,000
250	Old Oxford Hwy	4' Paved Shoulder	2.57	Durham City-County	*
251	Old Oxford Hwy	4' Paved Shoulder	6.78	Durham City-County	3,390,000
252	Olive Branch Rd	4' Paved Shoulder	3.84	Durham City-County	*
253	Olympic Ave.	4' Bicycle Lane	0.3	Durham City-County	780
254	Orange Factory Rd	4' Paved Shoulder	2.85	Durham City-County	1,425,000
255	Page Rd	4' Bicycle Lane	4.94	Durham City-County	*

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
256	Parrish St	Sharrows	0.28	Durham City-County	728
257	Pat Tilley Rd	4' Paved Shoulder	1.05	Durham City-County	525,000
258	Patrick Rd	4' Paved Shoulder	1	Durham City-County	500,000
259	Patterson Rd	4' Paved Shoulder	3.53	Durham City-County	1,765,000
260	Pervis Rd	4' Paved Shoulder	0.46	Durham City-County	1,196
261	Pettigrew St	4' Bicycle Lane	2.87	Durham City-County	7,462
262	Pickett Rd	4' Bicycle Lane	3.76	Durham City-County	1,880,000
263	Pleasant Dr	4' Paved Shoulder	1.33	Durham City-County	665,000
264	Plum St	Sharrows	0.18	Durham City-County	468
265	Pope Rd	4' Bicycle Lane	0.88	Durham City-County	440,000
266	Preston Andrews Rd	4' Paved Shoulder	0.86	Durham City-County	430,000
267	Preston Ave	4' Bicycle Lane	0.14	Durham City-County	70,000
268	Quail Roost Farm Rd	4' Paved Shoulder	1.28	Durham City-County	640,000
269	Quail Roost Rd	4' Paved Shoulder	2.47	Durham City-County	1,235,000
270	Quincemoore Rd	Sharrows	0.38	Durham City-County	988
271	Ramseur St (Loop)	4' Bicycle Lane	0.58	Durham City-County	1,508
272	Range Rd	4' Paved Shoulder	6.1	Durham City-County	3,050,000
273	Red Mill Rd	4' Paved Shoulder	3.88	Durham City-County	1,940,000
274	Red Mountain Rd	4' Paved Shoulder	2.6	Durham City-County	1,300,000
275	Redpine Rd	4' Paved Shoulder	0.24	Durham City-County	120,000
276	Redwood Rd	4' Paved Shoulder	5.2	Durham City-County	2,600,000
277	Renaissance Pkwy	Existing Sidepath	1.22	Durham City-County	*
278	Research Dr	4' Bicycle Lane	0.21	Durham City-County	*
279	Revere Rd	4' Bicycle Lane	1.38	Durham City-County	*
280	Riddle Rd	4' Bicycle Lane	1.91	Durham City-County	4,966
281	Rigsbee Ave	4' Bicycle Lane	0.39	Durham City-County	1,014
282	Rigsbee Ave	Sharrows	0.08	Durham City-County	208
283	Rivermont Rd	4' Paved Shoulder	1.17	Durham City-County	*
284	Rocky Springs Rd	Sharrows	0.35	Durham City-County	910
285	Rogers Rd	4' Paved Shoulder	1.02	Durham City-County	510,000
286	Rose of Sharon Rd	4' Bicycle Lane	2.53	Durham City-County	1,265,000
287	Ross Rd	4' Paved Shoulder	1.03	Durham City-County	515,000

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
288	Rougemont Rd	4' Paved Shoulder	2.66	Durham City-County	1,330,000
289	Rowena Ave	4' Bicycle Lane	0.33	Durham City-County	*
290	Roxboro St	4' Bicycle Lane	1.29	Durham City-County	*
291	Roxboro St	4' Bicycle Lane	2.65	Durham City-County	*
292	Roxboro St	4' Bicycle Lane	13.96	Durham City-County	36,296
293	Russell Rd	4' Paved Shoulder	3.81	Durham City-County	1,905,000
294	Safeway St	4' Bicycle Lane	0.07	Durham City-County	182
295	Saint Marys Rd	4' Paved Shoulder	2.36	Durham City-County	1,180,000
296	Scarlett Dr	4' Bicycle Lane	0.2	Durham City-County	100,000
297	Science Dr	4' Bicycle Lane	0.66	Durham City-County	*
298	Scott King Rd	4' Bicycle Lane	1.95	Durham City-County	975,000
299	Sedwick Rd	4' Bicycle Lane	1.5	Durham City-County	750,000
300	Shady Grove Rd	4' Paved Shoulder	1.1	Durham City-County	550,000
301	Shannon Rd	4' Bicycle Lane	0.6	Durham City-County	300,000
302	Sherron Rd	4' Paved Shoulder	3.25	Durham City-County	*
303	Slater Rd	4' Bicycle Lane	0.66	Durham City-County	330,000
304	Snow Hill Rd	4' Paved Shoulder	4.55	Durham City-County	*
305	So Hi Dr	4' Bicycle Lane	0.72	Durham City-County	360,000
306	South Lowell Rd	4' Paved Shoulder	4.95	Durham City-County	2,475,000
307	South St	4' Bicycle Lane	0.84	Durham City-County	2,184
308	Southview Rd	4' Paved Shoulder	2.41	Durham City-County	1,205,000
309	Southwest Durham Dr	4' Bicycle Lane	0.12	Durham City-County	*
310	Sowell St	Sharrows	0.07	Durham City-County	182
311	Sparger Rd	4' Bicycle Lane	1.78	Durham City-County	890,000
312	Sprunt Ave	Sharrows	1.06	Durham City-County	2,756
313	St. Mary's Rd.	4' Bicycle Lane	4.5	Durham City-County	2,250,000
314	Stadium Dr	4' Bicycle Lane	2.71	Durham City-County	7,046
315	Stagecoach Rd	4' Bicycle Lane	1.62	Durham City-County	810,000
316	Stagville Rd	4' Paved Shoulder	3.78	Durham City-County	1,890,000
317	Stallings Rd	4' Paved Shoulder	1.86	Durham City-County	930,000
318	State Forest Rd	4' Paved Shoulder	2.23	Durham City-County	*
319	Summit St	4' Bicycle Lane	0.4	Durham City-County	1,040

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
320	Swift Ave	4' Bicycle Lane	0.51	Durham City-County	1,326
321	Swing Rd	4' Paved Shoulder	0.15	Durham City-County	75,000
322	T W Alexander Dr	4' Bicycle Lane	3.9	Durham City-County	1,950,000
323	T W Alexander Dr	4' Bicycle Lane	1.1	Durham City-County	*
324	T W Alexander Dr	4' Bicycle Lane	3.1	Durham City-County	1,550,000
325	Tavistock Dr	Sharrows	0.21	Durham City-County	546
326	Taylor St	4' Bicycle Lane	1.43	Durham City-County	3,718
327	Teknika Pkwy	4' Paved Shoulder	0.68	Durham City-County	340,000
328	Third Fork Creek Greenway	Multi-Use Path	3.3	Durham City-County	*
329	Tom Clark Rd	4' Paved Shoulder	0.73	Durham City-County	365,000
330	Tom Wilkinson Rd	4' Paved Shoulder	0.23	Durham City-County	115,000
331	Towerview Rd	4' Bicycle Lane	1.01	Durham City-County	*
332	Trent Dr	Sharrows	0.21	Durham City-County	546
333	Tri Center Boulevard	4' Bicycle Lane	0.6	Durham City-County	1,560
334	Trinity Ave	4' Bicycle Lane	1.15	Durham City-County	2,990
335	Trinity Ave	Sharrows	0.38	Durham City-County	988
336	Umstead Rd	4' Paved Shoulder	3.41	Durham City-County	1,705,000
337	University Dr	4' Bicycle Lane	1.5	Durham City-County	3,900
338	University Dr	4' Bicycle Lane	0.5	Durham City-County	250,000
339	University Dr	4' Bicycle Lane	2.5	Durham City-County	6,500
340	US 15/501	4' Bicycle Lane	4.9	Durham City-County	*
341	US 70	4' Bicycle Lane	1.2	Durham City-County	600,000
342	Valley Springs Rd	4' Paved Shoulder	0.44	Durham City-County	1,144
343	Vickers Ave	4' Bicycle Lane	0.83	Durham City-County	2,158
344	Virgil Rd	4' Paved Shoulder	2.36	Durham City-County	1,180,000
345	Ward St	Sharrows	0.77	Durham City-County	2,002
346	Washington St	4' Bicycle Lane	1.43	Durham City-County	3,718
347	Watkins Rd	4' Bicycle Lane	0.87	Durham City-County	*
348	Wiley Mangum Rd	4' Paved Shoulder	1.37	Durham City-County	685,000
349	Wilkins Rd	4' Paved Shoulder	2.98	Durham City-County	1,490,000
350	Willard St	4' Bicycle Lane	0.37	Durham City-County	962
351	Woodcroft Pkwy	4' Bicycle Lane	1.8	Durham City-County	900,000

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
352	Woodcroft Pkwy	4' Bicycle Lane	2	Durham City-County	5,200
	Durham City/County Totals		658		\$ 183,442,643
CHAPEL HILL					
1	Bolin Creek Bikeway	Bike lanes	1.1	CH	*
2	Booker Creek Rd	Bike lanes	0.4	CH	\$200,000
3	Boundary St.	Bike lanes	0.4	CH	\$200,000
4	Burning Tree Dr./Pinehurst Dr.	Bike lanes	2	CH	\$5,200
5	Cameron Ave.	Bike lanes	0.5	CH	\$250,000
6	Caswell Rd./Curtis Rd./N. Lakeshore Dr./Honeysuckle Rd./Sedgefield Dr.	Bike lanes	2.5	CH	\$1,250,000
7	Culbreth Rd.	Bike lanes	1.1	CH	\$550,000
8	Elliott Rd.	Bike lanes	0.7	CH	\$350,000
9	Ephesus Church Rd.	Bike lanes	0.4	CH	\$200,000
10	Erwin Rd.	Bike lanes	0.9	CH	\$450,000
11	Estes Dr./Estes Dr. Extension	Bike lanes	3.7	CH	*
12	Eubanks Rd.	Bike lanes	1.4	CH	\$700,000
13	Finley GC/Mason Farm Rds.	Bike lanes	1.4	CH	\$700,000
14	Fordham Blvd./Chapel Hill Blvd.	Bike lanes	5.1	CH	\$2,550,000
15	Franklin St. (E. Franklin St.)	Bike lanes	2.9	CH	\$1,450,000
16	Homestead Rd.	Bike lanes	1.3	CH	*
17	Manning Dr.	Bike lanes	1.2	CH	\$600,000
18	Mason Farm Rd.	Bike lanes	1.2	CH	\$600,000
19	Merritt Mill Rd./ S. Greensboro St.	Bike lanes	0.8	CH	\$400,000
20	Mt. Carmel Church Rd.	Bike lanes	0.9	CH	\$450,000
21	NC 86/Airport Rd.	Bike lanes	4.3	CH	\$2,150,000
22	Old Durham Rd.	Bike lanes	0.6	CH	*

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
23	Old Oxford Rd.	Bike lanes	0.4	CH	\$200,000
24	Piney Mtn. Rd./Emily Rd./Partin St./Kingston Dr./Cedar Hills Cr.	Bike lanes	2.2	CH	\$1,100,000
25	Pittsboro St.	Bike lanes	0.4	CH	\$200,000
26	Rogers Rd.	Bike lanes	1.2	CH	\$600,000
27	Rosemary St.	Bike lanes	1.4	CH	\$3,640
28	Seawell School Rd.	Bike lanes	1.5	CH	\$750,000
29	South Columbia St.	Bike lanes	0.2	CH	\$100,000
30	Raleigh Rd. (NC 54)	Bike lanes	1.9	CH	\$950,000
31	Smith Middle School Greenway	Multi-Use Path	0.5	CH	\$300,000
32	South Rd.	Bike lanes	0.6	CH	\$300,000
33	Sunrise Rd.	Bike lanes	1.3	CH	\$650,000
34	Umstead Dr.	Bike lanes	1	CH	\$500,000
35	US 15-501 Corridor	Bike lanes	0.3	CH	*
36	US 15-501 South	Bike lanes	0.5	CH	*
37	Weaver Dairy Rd.	Bike lanes	0.4	CH	*
38	Weaver Dairy Rd. Ext.	Bike lanes	1.3	CH	*
	Chapel Hill Totals		50		\$18,708,840
HILLSBOROUGH					
1	Hillsborough Marked Bike Route (Calvin St./Oconeechee St./Margaret Ln./Cameron St./E. Corbin St.)	Signage	1.7	Hillsborough	\$2,000
2	Cates Creek Greenway	Multi-Use Path	2	Hillsborough	\$1,200,000
3	Eno Mt. Rd./Allison St.	4' shoulders	0.8	Hillsborough	\$400,000
4	NC 751/US 70/Old NC 10	4' shoulders	6.6	Hillsborough	*
5	NC 86	4' shoulders	7.1	Hillsborough	*

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2035 Long Range Transportation Plan Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
6	NC 86 N	4' shoulders	3.3	Hillsborough	*
7	Oakdale Dr.	4' shoulders	1.1	Hillsborough	\$550,000
8	Orange Grove Rd.	4' shoulders	3.2	Hillsborough	\$1,600,000
9	Riverwalk (future phases)	Multi-Use Path	1.6	Hillsborough	\$960,000
10	South Churton Street/Old NC 86	4' shoulders	1.9	Hillsborough	*
11	St. Mary's Rd.	4' shoulders	1.2	Hillsborough	\$600,000
12	US 70	4' shoulders	1.45	Hillsborough	\$725,000
13	US 70 Business (partially on new alignment)	shared	2	Hillsborough	\$5,200
	Hillsborough Totals		30		\$6,042,200
ORANGE COUNTY					
1	Ben Johnston Rd./US 70/I-85 Connector/West Ten Rd.	4' shoulders	7.2	Orange Co.	\$3,600,000
2	Buckhorn Rd./Orange Grove Rd./Dairyland Rd.	4' shoulders	13.5	Orange Co.	\$6,750,000
3	Cornwallis Rd./Mt. Herman Ch. Rd.	4' shoulders	3.4	Orange Co.	\$1,700,000
4	Dimmocks Mill Rd./Orange Grove Rd./Dodsons Crossroads/Butler Rd./White Cross Rd.	4' shoulders	14.7	Orange Co.	\$7,350,000
5	Eubanks Rd.	4' shoulders	0.9	Orange Co.	\$450,000
6	Faucette Mill Rd./Frank Perry Rd./Coleman Loop	4' shoulders	3.8	Orange Co.	\$1,900,000
7	Highland Farm Rd./Efland-Cedar Grove Rd.	4' shoulders	4.7	Orange Co.	\$2,350,000
8	Jones Ferry Rd.	4' shoulders	4.1	Orange Co.	\$2,050,000
9	Lawrence Rd.	4' shoulders	2.8	Orange Co.	\$1,400,000

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
10	Lebanon Rd./Brookhollow Rd./Forrest Ave./Mt. Willing Rd.	4' shoulders	6.5	Orange Co.	\$3,250,000
11	Mt. Carmel Church Rd.	4' shoulders	1.8	Orange Co.	\$900,000
12	Mt. Sinai Rd.	4' shoulders	4.9	Orange Co.	\$2,450,000
13	NC 751/US 70/Old NC 10	4' shoulders	6.6	Orange Co.	\$3,300,000
14	NC 86	4' shoulders	7.1	Orange Co.	\$3,550,000
15	NC 86/Walnut Grv. Ch. Rd.	4' shoulders	7.97	Orange Co.	\$3,985,000
16	New Hope Church Rd.	4' shoulders	4.1	Orange Co.	\$2,050,000
17	Old Greensboro Rd.	4' shoulders	9.6	Orange Co.	\$4,800,000
18	Old NC 86	4' shoulders	4.9	Orange Co.	\$2,450,000
19	Old NC 86	4' shoulders	0.8	Orange Co.	*
20	Pleasant Green Rd./Schley Rd.	4' shoulders	15.6	Orange Co.	\$7,800,000
21	Sawmill Rd./Carr Store Rd.	4' shoulders	8.5	Orange Co.	\$4,250,000
22	St. Mary's Rd./New Sharon Church Rd.	4' shoulders	8.6	Orange Co.	\$4,300,000
23	US 70 Bypass	4' shoulders	6.5	Orange Co.	\$3,250,000
24	Whitfield Rd.	4' shoulders	3.4	Orange Co.	\$1,700,000
	Orange County Totals		152		\$75,585,000
CARRBORO					
1	Barrington Hills	Sharrow	0.1	Carrboro	\$260
2	Bolin Creek Dr.	Sharrow	0.5	Carrboro	\$1,300
3	Bolin Creek Greenway Trail	Multi-Use Path	2.3	Carrboro	\$1,380,000
4	Bolin Creek Greenway Trail	Multi-Use Path	1	Carrboro	*
5	Bolin Creek Greenway Trail	Multi-Use Path	0.2	Carrboro	\$120,000
6	Bolin Creek Greenway Trail	Multi-Use Path	1.8	Carrboro	\$1,080,000
7	Bolin Forest	Sharrow	0.3	Carrboro	\$780
8	BPW Club Rd / Tar Hill Dr./Rock Haven Connector	Bike Lanes	0.2	Carrboro	*
9	Brewer Ln.	Sharrow	0.2	Carrboro	\$520

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
10	Camilla	Sharrow	0.6	Carrboro	\$1,560
11	Carol	Sharrow	0.6	Carrboro	\$1,560
12	Carr St.	Sharrow	0.2	Carrboro	\$520
13	Cobblestone	Sharrow	0.4	Carrboro	\$1,040
14	Colfax	Sharrow	0.5	Carrboro	\$1,300
15	Dairyland Road	Bike Lanes	0.6	Carrboro	\$300,000
16	Damascus Church Rd.	4' shoulders	0.6	Carrboro	\$300,000
17	Davie Rd.	Bike Lanes	0.6	Carrboro	\$300,000
18	Elm St.	Sharrow	0.2	Carrboro	\$520
19	Estes Dr.	Bike Lanes	0.4	Carrboro	*
20	Estes spur trail	Multi-Use Path	0.2	Carrboro	\$120,000
21	Eubanks Rd.	Bike Lanes	0.4	Carrboro	\$200,000
22	Farm House/Tramore Connector	Bike Lanes	0.1	Carrboro	*
23	Greensboro St.	Sharrow	0.3	Carrboro	\$780
24	Horne	Sharrow	0.2	Carrboro	\$520
25	Homestead Rd.	Bike Lanes	1.7	Carrboro	*
26	James St.	Sharrow	0.6	Carrboro	\$1,560
27	Jones Creek Trail	Multi-Use Path	0.9	Carrboro	\$540,000
28	Jones Ferry Road	Bike Lanes	0.7	Carrboro	\$350,000
29	N. Lake Hogan Farm Extension	Bike Lanes	1	Carrboro	*
30	S. Lake Hogan Farm Road	Bike Lanes	0.3	Carrboro	*
31	Lorraine St.	Sharrow	0.35	Carrboro	\$910
32	E. Main St.	Bike Lanes	0.3	Carrboro	\$150,000
33	W. Main St.	Bike Lanes	0.3	Carrboro	\$150,000
34	Morgan Creek Greenway Trail	Multi-Use Path	1.7	Carrboro	\$1,020,000
35	Old Fayetteville Rd.	Bike Lanes	0.15	Carrboro	\$75,000
36	Old Fayetteville Rd.	Bike Lanes	0.25	Carrboro	\$125,000
37	Old Fayetteville Road	Bike Lanes	1.6	Carrboro	\$800,000
38	Old Greensboro Road	4' shoulders	0.4	Carrboro	\$200,000
39	Old NC 86	Bike Lanes	2.3	Carrboro	\$1,150,000

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2035 Long Range Transportation Plan

Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
40	Old Pittsboro Rd.	Sharrow	0.4	Carrboro	\$1,040
41	Pathway Drive	Bike Lanes	1.2	Carrboro	*
42	Pathway Drive	Multi-Use Path	0.2	Carrboro	\$120,000
43	Pine St.	Sharrow	0.3	Carrboro	\$780
44	Pleasant St.	Sharrow	0.2	Carrboro	\$520
45	Purple Leaf	Sharrow	0.08	Carrboro	\$208
46	Quail Roost Drive	Sharrow	0.3	Carrboro	\$780
47	Rand	Sharrow	0.07	Carrboro	\$182
48	Red Sunset	Sharrow	0.07	Carrboro	\$182
49	Roberson Place Bikepath	Multi-Use Path	0.4	Carrboro	*
50	Roberson St.	Sharrow	0.2	Carrboro	\$520
51	Rock Garden	Sharrow	0.3	Carrboro	\$780
52	Seawell School Connector	Bike Lanes	1.7	Carrboro	*
53	Seawell School Road	Bike Lanes	0.6	Carrboro	\$300,000
54	Shelton St.	Sharrow	0.4	Carrboro	\$1,040
55	Smith Level Rd	4' shoulders	2.2	Carrboro	*
56	Smith Level Road	Bike Lanes	0.7	Carrboro	*
57	Strowd Lane	Sharrow	0.3	Carrboro	\$780
58	Sweet Bay Pl.	Sharrow	0.3	Carrboro	\$780
59	Talley Ho	Sharrow	1.3	Carrboro	\$3,380
60	Tripp Farm Road	Multi-Use Path	0.5	Carrboro	\$300,000
61	Tripp Farm Road	Bike Lanes	0.3	Carrboro	*
62	Weaver st.	Bike Lanes	0.1	Carrboro	\$50,000
63	Williams St.	Sharrow	0.15	Carrboro	\$390
Carrboro Totals			37		\$9,154,492
CHATHAM COUNTY					
1	American Tobacco Trail	Bike Path	5.2	County	*
2	Mt. Carmel Church Road	Bike lanes	1.2	County	\$600,000
3	NC 751	Bike lanes	3.2	County	\$1,600,000

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2035 Long Range Transportation Plan Durham-Chapel Hill-Carrboro MPO Bicycle Projects

ID	Facility Description	Facility Type	Length	Jurisdiction	Total Cost
4	Farrington Point / Pld Farrington / Farrington Mill Rd	Bike lanes	3.66	County	\$1,830,000
5	O'Kelly Chapel Road	Bike Lanes	2.9	County	\$1,450,000
6	US 15-501 South	Bike lanes	3.2	County	\$1,600,000
	Chatham County Totals		19		\$7,080,000
	TOTAL BICYCLE FACILITIES		795		\$300,013,175

* = Cost is assumed in the related highway project

2035 Long Range Transportation Plan

Capital Area MPO Bicycle/Pedestrian Projects

ID	Facility Name	Segment From	Segment To	Total Costs
1	Avent Ferry Road	NC 55 Bypass	Cass Holt	\$3,491,584
2	Avent Ferry Road	Cass Holt	New Hill Holleman Road	\$1,875,000
3	Averette Road	US 401 (North)	NC 98	\$1,305,000
4	Baileywick Road	Ray Road	Six Forks Road	\$1,625,000
5	Bethlehem Road	Smithfield Road	Grasshopper Road	\$1,720,000
6	Brassfield Road	Durant Road	Raven Ridge Road	\$5,642
7	Brogden Road	Hester Rd	NC 56	\$1,700,000
8	Bruce Garner Road	Wake Co. line	Brassfield Road	\$2,960,000
9	Cedar Creek Road	From Tarboro Road	Hicks Road (North)	\$3,265,000
10	Chalybeate Springs	US-401	NC 55	\$2,030,000
11	Church Street	Morrisville Carpenter Rd	NC 54	\$1,745,000
12	Church Street	NC 50	Brassfield Road	\$480,000
13	East Main Street	NC 96	Cedar Creek Road	\$300,000
14	Ebenezer Church Rd	Duraleigh Road	Westgate Road	\$15,626
15	Forestville Road	Buffalo Road	Mitchell Mill Road	\$1,430,000
16	Fox Road	Old Wake Forest Road	US 401	\$1,954,528
17	Friendship Road	Old US 1	New Hill Road	\$1,155,000
18	Globe Road	Briar Creek Pkwy	Page Road	\$365,000
19	Green Level Church Road	Green Level - to-Durham Rd	Jenks Road	\$1,725,000
20	Green Level-to-Durham Rd	Carpenter Fire Station Rd	Green Level Church Road	\$710,000
21	Hawley School Road	Brassfield Road	NC 56	\$485,000
22	Hester Rd	NC-56	Sanders Road	\$2,090,000
23	Hester Rd	Sanders Rd	New Ext Hester Road	\$1,400,000
24	Hicks Road	Cedar Creek Road	South Main Street	\$290,000
25	Hillsboro Street	US 15	South Elm Street	\$385,000
26	Hilltop-Needmore Road	Sunset Lake Road	Lake Wheeler Road	\$1,465,000
27	Holly Springs New Hill Road	Old Holly Springs Apex	New Hill Holleman	\$2,520,000
28	Holly Springs Road	Cary Parkway	Penny Road	\$2,106,336
29	Holly Springs Road	Penny Road	Ten Ten Road	\$1,157,536
30	Horseshoe Road	Lawrence Road	NC 96	\$1,130,000
31	Jenkins Road	Thompson Mill Road	Capital Blvd	\$820,000
32	Joe Peed Road	East Lyon Station Road	US 15	\$645,000
33	Jones Dairy Road	NC 98 (Wake Forest Bypass)	Averette Road	\$1,370,000

2035 Long Range Transportation Plan Capital Area MPO Bicycle/Pedestrian Projects

ID	Facility Name	Segment From	Segment To	Total Costs
34	Kelly Road	Jenks Road	Old US 1	\$2,600,000
35	Lake Wheeler Road	US 401	Hilltop-Needmore Road	\$285,000
36	Lake Wheeler Road	Hilltop-Needmore Road	SR 1010	\$1,715,000
37	Lake Wheeler Road	SR 1010	Simpkins Road	\$1,195,000
38	Lake Wheeler Road	Simpkins Road	Tryon Road	\$1,500,000
39	Lane Store Road	Cedar Creek Road	NC 56	\$1,135,000
40	Lawrence Road	Wake Co. line	Brassfield Road	\$2,345,000
41	Ligon Mill Road	US 401	Burlington Mills Rd.	\$1,285,000
42	Lumley Road	US 70	Briar Creek Pkwy	\$800,000
43	Mack Todd Road	Wendell Boulevard	Gannon Avenue	\$905,000
44	Macon Road	Norwood Road	Ray Road	\$4,420
45	N White Street	Gilchrist Farm Road	Wake Co. line	\$325,000
46	NC 39	Baptist Church Road	Bunn Elem School Road	\$190,000
47	NC 42	NC 401	Old Stage Road	\$2,050,000
48	NC 42	Old Stage Road	NC 50	\$2,710,000
49	NC 50	NC 42	Timber Drive	\$3,435,000
50	NC 50	NC 210	NC 42	\$2,820,000
51	NC 96	US 64	Tom Williams	\$8,135,000
52	NC 96	From Granville County	NC 96 Bypass (Youngsville)	\$3,735,000
53	NC 98	Averette Road	NC 96	\$530,000
54	NC-210	Stockton	NC 50	\$5,195,000
55	NC-56	I-85	US-15	\$1,280,000
56	NC-56	NC 50	Hayes Rd	\$1,300,000
57	NC-56	Hayes Rd	Franklin County	\$2,025,000
58	NC-96	Franklin CO.	NC 56	\$2,550,000
59	New Bern Avenue	Raleigh Blvd.	Sunnybrook Road	\$1,584,496
60	New Hill Holleman Road	US 1	Sherron Harris Road	\$1,825,000
61	New Hill Holleman Road	Old US 1	Avent Ferry Road	\$2,400,000
62	New Hill Olive Chapel Road	Chatham County line	Old US 1	\$2,285,000
63	North Nassau Street	Anderson Park Drive	NC 96	\$205,000
64	Northside Loop (Harris Road)	US 1A	Oak Grove Church	\$1,204,976
65	Northside Loop (Harris Road)	Oak Grove Church	NC 98 (Wake Forest Bypass)	\$977,264

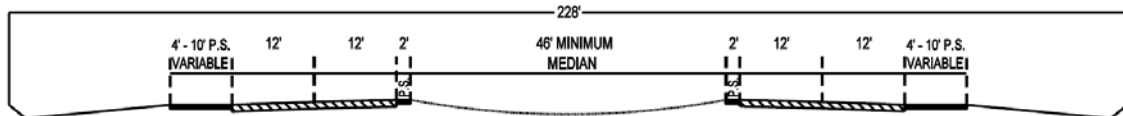
2035 Long Range Transportation Plan Capital Area MPO Bicycle/Pedestrian Projects

ID	Facility Name	Segment From	Segment To	Total Costs
66	Northside Road	US 15	Munns	\$555,000
67	Old Buffalo Road	Buffalo Road	Capital Blvd	\$470,000
68	Old Stage Road	US 401	Ten Ten Road	\$2,100,000
69	Old Stage Road	Ten Ten Road	NC 42	\$2,380,000
70	Old US 1	NC 751	Humie Olive Road	\$1,190,000
71	Old US 1	Humie Olive Road	Apex Peakway	\$1,265,000
72	Old Weaver Road	Durham Co	New Light Road	\$4,390,000
73	Old Weaver Trail	From NC 50 (Wake Co)	Northside Rd Ext.	\$825,000
74	Poole Road	I-540	Martin Pond Road	\$2,800,000
75	Poole Road	Martin Pond Road	Wendell Blvd.	\$1,745,000
76	Rock Quarry Road	Battle Bridge Road	East Garner Road	\$1,650,000
77	Sanders Rd	US 15	Belltown Road	\$1,540,000
78	Shotwell Rd.	US 70	East of NC 42	\$2,846,400
79	Shotwell Rd.	Old Baucom Road	East Garner Road	\$1,090,000
80	Smith Road	I-85	US 15	\$780,000
81	South Cross Street	NC 96	Gilchrist Farm Road	\$515,000
82	South Main Street	Hicks Road	NC 56	\$265,000
83	Ten Ten Road	Holly Springs Rd	Bells Lake Road	\$975,000
84	Ten Ten Road	Holly Springs Rd	US 1	\$1,700,000
85	Ten Ten Road	Old Stage Road	NC 50	\$1,715,000
86	Ten-Ten Rd.	Bells Lake Rd.	Old Stage Road	\$2,550,000
87	US-15	I-85	Gate #2 Rd	\$1,210,000
88	US-15	US 15 Relocation	US 15 Relocation	\$105,000
89	US-15	Gate #2	Relocated US 15	\$970,000
90	US-15	US 15	Moss Road	\$740,000
91	US-15	Moss Rd	Smith Road	\$3,240,000
92	W.B. Clark Road	East Lyon Station Road	US 15	\$605,000
93	Wendell Boulevard	Poole Road	Mack Todd Road	\$1,150,000
94	White Oak Road	US 70	NC 42 (Johnston Co.)	\$1,125,000
95	Will Suitt Road	Gate #2 Road	East Lyon Station Road	\$740,000
96	Yates Mill Pond Road	Tryon Road	Penny Road	\$1,585,000
		TOTAL CAMPO BICYCLE AND PEDESTRIAN FACILITIES		\$151,068,808

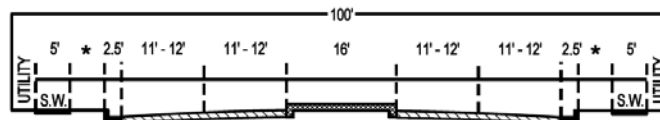
Appendix 5 – Cross Sections and Safety Countermeasure Guidelines

DCHC MPO policy is to promote the cross-section designs and safety counter measures presented in this appendix with the objective to create roadways that are multi-modal, sensitive to the local context (e.g., land use, non-automotive trips), and safe. These designs and counter measures are guidelines. The final cross-section and design of a road depends on many operational, planimetric, contour and land use factors, and thus design decision must be made on a case-by-case basis.

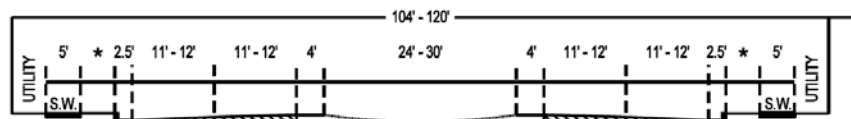
TYPICAL ROADWAY CROSS-SECTIONS



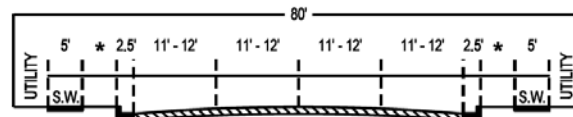
FOUR LANES DIVIDED WITH MEDIAN - FREEWAY



FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER



FOUR LANES DIVIDED - BOULEVARD WITH GRASS MEDIAN

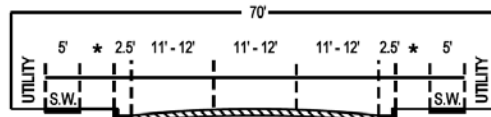


FOUR LANES - CURB & GUTTER

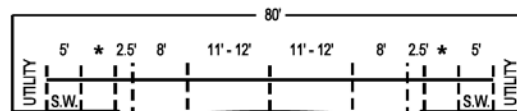
* - VARIABLE WIDTH
S.W. - SIDEWALK
P.S. - PAVED SHOULDER

NOT TO SCALE

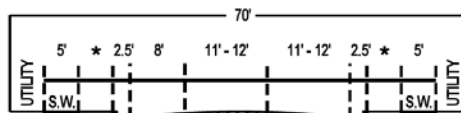
TYPICAL ROADWAY CROSS-SECTIONS



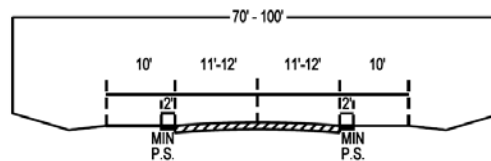
THREE LANES - CURB & GUTTER



TWO LANES - CURB & GUTTER
PARKING ON EACH SIDE



TWO LANES - CURB & GUTTER
PARKING ON ONE SIDE

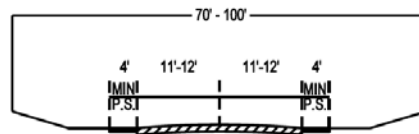


TWO LANES - PAVED SHOULDER

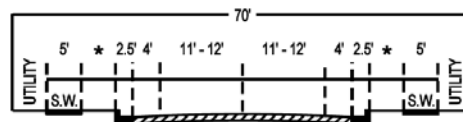
* - VARIABLE WIDTH
S.W. - SIDEWALK
P.S. - PAVED SHOULDER

NOT TO SCALE

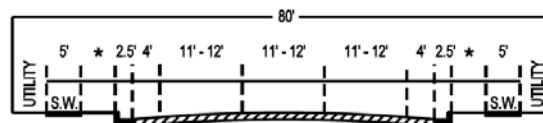
TYPICAL ROADWAY CROSS-SECTIONS FOR ACCOMMODATING BICYCLES



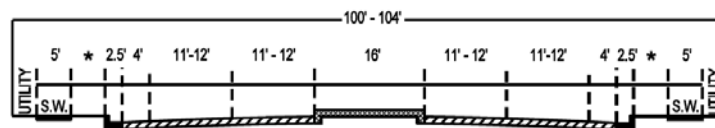
TWO LANES - SHOULDER SECTION



TWO LANES - CURB & GUTTER
WITH BIKE LANES



THREE LANES - CURB & GUTTER
WITH BIKE LANES



FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER
WITH BIKE LANES

* - VARIABLE WIDTH
S.W. - SIDEWALK
P.S. - PAVED SHOULDER

NOT TO SCALE

SAFETY COUNTERMEASURES

The FHWA Safety Program has developed nine safety countermeasures that show great potential to reduce highway fatalities and injuries to pedestrians. As both the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO develop plans to address capacity and safety challenges, they are to consider the benefits and use of these proven roadway safety tools and techniques.

1. **Road Safety Audits** – A road safety audit (RSA) is a formal safety performance examination of an existing or future road or intersection. Audit teams are independent and multidisciplinary. The team reports on potential road safety issues and identifies opportunities to improve safety for all road users. Both MPOs receive Traffic Engineering Accident Analysis data (TEAAS) data from NCDOT's Transportation Mobility & Safety Division. The aforementioned division uses the data for Road Safety Audits for state maintained roads. Both MPOs will work with NCDOT's Transportation Mobility & Safety Division to utilize this data to identify roadways that might benefit from a safety audits.
2. **Rumble Strips and Rumble Stripes** – Rumble strips are raised or grooved patterns on the roadway that provide both an audible warning (rumbling sound) and a physical vibration to alert drivers that they are leaving the driving lane. They may be installed on the roadway shoulder or on the centerline of undivided highways. Rumble stripes are rumble strips that are placed at the centerline or edge-line. Local governments within both MPOs, as well as NCDOT have studied the benefits of rumble strips and will continue to examine the benefits of rumble strips to improve the general public's safety.
3. **Median Barriers** –Median barriers are longitudinal barriers used to separate opposing traffic on a divided highway. They are designed to redirect vehicles striking either side of the barrier. Median barriers can significantly reduce the number of cross-median crashes and the overall severity of median-related crashes. Both MPOs will encourage its local governments to address the use of median barriers in new road design, as well as improving traffic flow and safety on existing highway facilities. The NCDOT recently undertook an effort to improve maintenance of its median barriers.
4. **Safety Edge** –The Safety Edge asphalt paving technique minimizes vertical drop-off safety hazards. A Safety Edge shape is created by fitting resurfacing equipment with a device that extrudes and compacts the shape of the pavement edge at a specific angle as the paver passes. This mitigates shoulder pavement edge drop-offs immediately during the construction process and over the life of the pavement. Because the technique involves only a slight modification of paving equipment, it has a minimal impact on project cost. NCDOT has indicated that they are in the process of trying this technique on a few projects across the state and then monitor it to see if it has positive results. The Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO will encourage NCDOT to inform them of the outcome and examine where the technique can best utilized along the roadway network.
5. **Roundabouts** –A roundabout is a circular intersection where entering traffic yields to vehicles on the circulatory roadway. Roundabouts are designed to channel traffic at the entrance and provide collision deflection around a center island. Modern roundabouts are geometrically designed to reduce speeds and deflect collision forces, which substantially improves safety, while providing excellent operational performance at the intersection. There are local governments in both MPOs that have ordinance provisions for roundabouts; and both MPOs will encourage their use as needed for transportation system measures.

6. **Left- and Right-Turn Lane at Stop-Controlled Intersections** – Left-turn lanes are auxiliary lanes for storage or speed change of left-turning vehicles. Left-turn lanes reduce the likelihood of intersection crashes. They also make turning easier for drivers and improve the intersection’s operational efficiency. Right-turn lanes provide a separation at intersection approaches between right-turning traffic and adjacent through-traffic. This reduces conflicts and improves intersection safety. Both MPOs will support safety countermeasures at stop-controlled intersections where needed to ensure safety for the travelling public.
7. **Yellow Change Intervals** – Yellow signal lights that are not timed appropriately are a safety hazard. Yellow change intervals that are not consistent with normal operating speeds create a “dilemma zone” in which drivers can neither stop safely, nor reach the intersection before the signal turns red. Both MPOs will support efforts by NCDOT and local transportation/engineering department to improve signal timing for appropriate yellow change intervals.
8. **Medians and Pedestrian Refuge Areas in Urban and Suburban Areas** – Medians reduce traffic conflicts and increase safety by providing a buffer area between opposing lanes of traffic. Medians can be open (pavement markings only), or channelized (raised medians or islands) to separate various road users. Pedestrian Refuge Areas—also known as crossing islands, center islands, refuge islands, pedestrian islands, or median slow points—are raised islands placed in the street to separate crossing pedestrians from vehicles. Both the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO will support the efforts to apply medians and pedestrian refuge areas where needed to support safety and reduce conflict between motor vehicles and pedestrians.
9. **Walkways** – Appropriately designed walkways increase safety for all road users. Both MPOs have active stakeholder and advisory groups that encourage the planning of pedestrian accommodations as a component of the regional transportation network. Types of walkways include:
 - *Pedestrian Walkway (Walkway)* – A continuous way designated for pedestrians and separated from motor vehicle traffic by a space or barrier.
 - *Shared Use Path* – A bikeway or pedestrian walkway physically separated from motor vehicle traffic by an open space or barrier, either within a highway right-of-way, or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Shared use paths also are referred to as “trails” or “multiple-use trails.”
 - *Sidewalks* – Walkways that are paved and separated from the street, generally by curb and gutter.
 - *Roadway Shoulder* – In rural or suburban areas where sidewalks and pathways are not feasible, gravel or paved highway shoulders provide a safer area for pedestrians to walk next to the roadway.

The Durham-Chapel Hill-Carrboro MPO and Capital Area MPO will continue to support the development of this needed infrastructure, and will encourage local governments to incorporate pedestrian accommodations as a part of their overall plan development.

Appendix 7 – Public Comments

This appendix presents public comments that the CAMPO and the DCHC MPO received through the public involvement process for the draft 2035 LRTP, which occurred from March 2009 through early May 2009. In addition, there is a summary of public comments received by the DCHC MPO throughout the 2035 development process that occurred over the last two and one-half years, and a compilation of public comments received by CAMPO through the public workshop process.

CAMPO Public Comments

Compilation – From CAMPO Workshops

- “Is there an opportunity for light rail being located in Clayton? If so, would it be by 2035? If not, when?” “I feel the 4% inflation rate to be conservative. How was this arrived at or determined?” -- A citizen from Clayton, NC.
- “LRTP shows improvements to Pritchard Road in Johnston County in 2035. Without similar improvements to Smithfield Road in Wake County from the county line to US64 there is no real benefit to improving Pritchard Road. A better use of the funds would be to improve NC42 from US70 business to US70 (Clayton by-pass). This would tie in with the NC42 improvements in the LRTP from US70 (Clayton by-pass) to I40.” -- Robert Ahlert, Town of Clayton, NC.
- “Presentation appreciated. Suggest rail to be Selma and Raleigh-Durham Airport” -- Jim Lee, Town of Clayton.
- “Bus route from Wake Forest to Youngsville. Northern White Street to Youngsville, then US 1-A to Franklinton. Return by US 1 (divided highway)” “Need LRT to Raleigh-Durham Airport” -- Alex Corpening, Town of Youngsville, NC.
- “Enjoy the future of the metro link through Durant Road. But will love the opportunity to capitalize on the residents of Rolesville, Youngsville, and Franklinton by creating bus transit for the metro; with stop on Capital Boulevard for each city. Two (routes) in the morning and two (routes) at night. This will definitely serve the number of people of future clients for the metro link. I find it absurd not having the light rail transit to Raleigh-Durham Airport. This airport is in full expansion of international service.” -- Town of Youngsville resident.
- I recommend accelerating rail and mass transit to facilitate projected growth along the US 1 corridor. -- Town of Youngsville resident.

Comment on Draft 2035 LRTP

Comment #1

Please review the summary of "A Light Rail System for All" in the accompanying email. The system is both plausible and can be made ready for implementation right now. The proposed dual mode system, as outlined in the article, is only the beginning of a fully developed transportation system. The main focus of this plan is to offer a method that socializes the idea, tests the market and provides data needed to further develop the product.

If, by establishing this system, we provide the same or a similar service as current car travel, commuters are more likely to subscribe. Slight changes to personal lifestyles are tolerated and the system proposed is a way of demonstrating alternative travel to some customers and gauging market results. It is anticipated that once the system is up and running, market forces would take over and drive further system development.

Note that commute times will be longer at first but the trade off is that commuters can use their rail time for entertainment or personal enhancement. It should also be understood that there would be little or no economic or environmental advantages in the early stages. But, know that if we can build a popular system it will have implications far beyond the Triangle.

I believe this dual mode system meets many, if not all, of the regional transit requirements stated in "Revised Goals Regional Transit Vision Plan" dated February 8, 2008. Let us start this process of building the system now that can deliver people and their cars near their destination.

Thank you for your time. Please call me for additional information on this project.

Chuck Piratzky, PE, PLS

DCHC Public Comments

As discussed in section 5.2 (Stakeholder and Public Involvement Processes), detailed public comments were compiled at several key points during the last two and one-half years while the 2035 LRTP was being developed and the Transportation Advisory Committee (TAC – MPOs' policy board) received these detailed comments. The format of this report will not accommodate a complete presentation of these comments, which would exceed two hundred pages. The two summary sections below highlight the most significant and common comments received throughout the various development steps of the 2035 LRTP.

Summary -- Main Points

- MPO-wide support for bicycle facilities.
- MPO-wide support for bus service improvements – in particular reduced headways and express routes.
- MPO-wide support for the light rail transit option.
- MPO-wide support for building multi-modal facilities.
- Carrboro and Orange County support extending light rail to Carrboro.
- Carrboro and Orange County support commuter rail in addition to the light rail.
- Chapel Hill and many citizens expressed opposition to the I-40 Farrington Road interchange. One citizen was in favor of the interchange.
- Chapel Hill and citizens expressed opposition to the Mason Farm Road realignment.
- Citizens supported improving transportation options for the elderly and disabled.
- Citizens preferred connecting Southwest Durham Drive to George King Road before Southwest Durham Drive is connected to Meadowmont Lane.
- Chatham County residents expressed support for transit connections to Chapel Hill and RTP and for road widening to address growth.

Summary -- Additional Points

- Carrboro does not support any road widening except for transit and bicycle accommodations.
- Orange County supports including private transportation providers more in the process.
- Orange County supports concentrating congestion relief efforts at "hotspots" not general road widening.
- Chapel Hill opposes widening Fordham Boulevard and US 15-501.
- The Regional Transportation Alliance supports addressing congestion on I-40 and the Special Transit Advisory Commission's transit recommendations.
- Citizens expressed concern over publicity of the public hearing.
- A business-owner expressed opposition to limiting access at NC 54 and Farrington Road.
- A citizen expressed a concern that the socio-economic projections in the Fayetteville Street corridor were too low and that as a result the plan would not accommodate the growth in this corridor.

- A citizen expressed concern over the intersection of Roxboro Road / Latta Road / Infinity Road.
- A citizen wants a new interchange at Sparger Road and I-85.
- A citizen wants Northern Durham Parkway to be built as 4-lanes.
- A citizen expressed support for wide outside lanes and accommodations for cyclists on public transit.
- A citizen expressed support for improving bus service in the short-term to build ridership for rail when it is eventually built.
- Citizens expressed support for local revenue sources including the sales tax, vehicle fees, vehicle miles traveled taxes, and tax increment financing in a special tax district near rail lines.

Comments on Draft 2035 LRTP

Comment #1

While the LRTP appears to be a generally well considered document, I am utterly baffled by Durham's entries in the Bus Transit section. Herein, if I read it correctly, planners apparently believe that even in 2035, 30 minute head times for bus routes is remotely acceptable. I strongly believe that it is not; it is, I would say, embarrassing for a city which currently clamors for taxation rights to build a regional rail system (which I strongly support) to turn around and treat its bus system with such neglect.

Peak head times on any standard route should never be higher than 15 minutes, and should be as low as 10 minutes for the most used routes. Regular service routes should also never drop to head times higher than 30 minutes ideally, but 40 minutes should be an absolute maximum (I understand the need for higher times on circulators and express routes).

Durham's land use plans and UDO all call for higher residential density in various areas, and a move away from auto-centric transportation. That anyone believes that we can attain this with the pathetic investments in bus transit over the next 25 years demonstrates a breathtaking lack of foresight.

Michael Bacon

Comment #2

I applaud the efforts to integrate cycling into the transportation plan rather than keeping it as recreational only. It will go a long way to alleviating traffic growth in the area. How soon is it possible for these projects to happen and how will funding be achieved? Is this perhaps another project like the Durham Bicycle Plan which we spent money on for no real forward progress, or will sufficient funds be available? I personally commute on Morreene Rd and would love to see this as a priority. Getting to American Village is made difficult because of this, and the project is supposed to have been funded for a long time now with an original completion date of 2007. Also the section of Academy Rd before University Dr - I feel like I'm running the gauntlet when I cycle down here with many fast close passes from cars. Erwin Rd between Durham and Chapel Hill is also dangerous for cyclists and needs a high priority. I'm sure it would be a very used cycle lane, as would the section of 751. Per the plan: Morreene Road / Neal Road / Bennett Memorial Road / Old NC 10 / / Old NC 10 / NC 86. This is exactly what is needed, and soon. Many thanks, and I remain hopeful that with our climate and active population we can make cycling a viable transportation alternative.

Regards, Paul Smith

Response

Paul: Thanks again for your support of improving Durham's bicycling infrastructure. Please know that we have funding for the Morreene Road project that you and I have discussed in the past and are working with the City's Engineering Dept to bring that project to reality.

Dale McKeel, AICP

Comment #3

Roads should have 12 inches of paved shoulder, outside the white line.

I am a committed recreational cyclist and commuter. I realize that city streets have their own issues, with curbs and allowing for parking. But roads such as Cornwallis, that lead out of town, would be well served by 12 inches of paved shoulder.

The connector roads between towns (particularly between Durham and Chapel Hill) will see increased use even with improvements on the limited access roads. These connector roads (e.g. Erwin Road, Old Chapel Hill Road) would look, feel, and be much safer with 12 and preferably 24 inches of paved shoulder.

Why?

1. Room for cyclists to ride and for cars to pass.
2. Room for motorists. There are many times that I see a motorist run off the road to the right side of the white line. I observe this from my bike. They usually run off the road by the width of a tire. The drop off at the edge of the pavement is sometimes severe, often causing the car to go further off the road.
3. Appearance. A paved shoulder, outside the white line, gives a much cleaner appearance, and an appearance of spaciousness. This would contribute to a feeling of security for all vehicles, motorized or not. People feel less crowded when there is a paved shoulder. 24 inches would be super, but 12 inches would be a huge improvement.

That's my two cents. -- Thomas

Response

Mr. Pafford: The 2035 Long Range Transportation Plan calls for wide paved shoulders on most higher volume rural roads in the MPO area. We work with the NCDOT to try to get shoulder widenings during road widening and repaving projects. In addition, the MPO has funded a project to provide bicycle lanes on Old Durham-Chapel Hill Road between Garrett Road in Durham and 15-501 in Chapel Hill; this project is currently under design.

Andy Henry

Comment #4

The light attention paid to light rail in this report is very disappointing. All I see is an example and definition of one technology that could be used. There is no attempt to analyze the potential placement of light rail or any proposals to deal with the complex funding issues. By 2035, the Triangle will be long overdue for a public rail system, and with multiple municipalities involved the strategic planning needs serious attention as soon as possible.

Troy Revell

Appendix 8 – Environmental Justice Project Tables

Each roadway project in the Capital Area and Durham-Chapel Hill-Carrboro MPOs was analyzed based on the population characteristics of the block group (or block groups) that the project was primarily located in. The tables in this appendix provide the detailed results of this analysis comparing roadway projects and Minority and low-income census block groups. The Environmental Justice report and analysis are presented in section 9.2 of this report.

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	Project Limits	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
1	Alexander Dr (T.W. Alexander)	Cornwallis Rd to NC 147	Durham	0.50	\$8,900,000	At or below county average	At or below county average
5	Alston Ave Ext	Holloway St to Old Oxford/Roxboro	Durham	3.49	\$40,379,218	More than 50% above county average	More than 50% above county average
8.11	Briggs Ave Ext	So-Hi Dr to Riddle Rd	Durham	1.08	\$11,492,938	At or below county average	At or below county average
9	Carver Street Ext	Armfield St to Old Oxford Rd	Durham	0.73	\$7,660,000	More than 50% above county average	More than 50% above county average
10.11	Chin Page Ext	Page Rd to Wake County Line	Durham	0.20	\$2,128,322	At or below county average	At or below county average
12	Cornwallis Rd	MLK to Alexander Dr	Durham	0.79	\$8,210,476	At or below county average	At or below county average
13.11	Cornwallis Rd Ext	Miami Blvd to Chin Page Rd	Durham	0.55	\$5,852,885	At or below county average	At or below county average
15	East End Connector (EEC)	NC 147 to US 70 E; US 70:EEC to NC 98	Durham	2.50	\$155,401,000	25% - 50% above county average	10% - 25% above county average
16	Elizabeth Brady Rd Ext	US 70 Business to St Mary's Rd	Orange	1.30	\$33,594,000	At or below county average	At or below county average
16.1	Eno Mountain Rd/Mayo Rd	Orange Grove Rd intersection realignment	Orange	0.00	\$5,000,000	More than 50% above county average	At or below county average
17	Estes Dr	Greensboro Rd to NC 86	Orange	1.70	\$6,600,000	10% - 25% above county average	10% - 25% above county average
22.1	Fayetteville Rd	Renaissance Pkwy to NC 751	Durham	1.90	\$20,826,715	At or below county average	At or below county average
23	Fayetteville Rd	Woodcroft Pkwy to Cornwallis Rd	Durham	2.31	\$23,134,000	More than 50% above county average	25% - 50% above county average
24.11	Garrett Rd	NC 751 to US 15-501	Durham	3.09	\$16,753,108	Up to 10% above county average	25% - 50% above county average
26.11	Globe Rd Ext (Brier Creek Parkway)	Miami Blvd. To Wake County Line	Durham	2.18	\$23,198,709	At or below county average	At or below county average
27	Glover Rd	Glover Rd/NC 147 interchange; 147 to Angier	Durham	0.64	\$33,231,525	At or below county average	At or below county average
28.11	Glover Rd	Angier to US 70	Durham	0.59	\$6,278,550	At or below county average	At or below county average
30	Hillandale Rd	I-85 to Carver St	Durham	0.62	\$10,943,000	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	Project Limits	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
31	Hillandale Rd	Carver to Horton Rd	Durham	1.38	\$14,342,351	10% - 25% above county average	At or below county average
32	Hillandale Rd Ext	Horton Rd to Guess Rd	Durham	0.55	\$9,094,040	At or below county average	At or below county average
33	Old Fayetteville Rd.	Strowd Lane to Old Fayetteville/NC 54 (bike, ped. & transit accommodations)	Orange	0.85	\$1,800,000	10% - 25% above county average	At or below county average
35	Homestead Rd	High School Rd to NC 86	Orange	1.58	\$10,300,000	10% - 25% above county average	10% - 25% above county average
36	Homestead Rd	Old NC 86 to High School Rd	Orange	1.74	\$8,825,634	10% - 25% above county average	At or below county average
39	Horton Rd	Duke St to Hillandale Rd	Durham	1.94	\$22,322,436	10% - 25% above county average	At or below county average
40	(Horace Williams Network) Carolina North	Carolina North Campus (this is not an extension of Weaver Dairy Rd)	Orange	1.14	\$12,131,435	At or below county average	10% - 25% above county average
43	I-40 (general purpose widening)	US 15-501 to NC 86	Orange	4.08	\$43,790,031	More than 50% above county average	10% - 25% above county average
44	I-40 (general purpose widening)	NC 86 to I-85	Orange	7.32	\$77,277,997	10% - 25% above county average	At or below county average
45	I-40 HOV	Wake County Line to US 15-501	Durham/ Orange	12.62	\$578,756,215	At or below county average	At or below county average
46	I-540	Ramp improvement: I-540 W to I-40 W	Durham	0.86	\$4,930,000	At or below county average	At or below county average
48	I-85	I-40 to the Durham Co line	Orange	8.35	\$210,782,000	At or below county average	At or below county average
49	I-85	US 70 to Redwood Rd	Durham	5.25	\$132,527,605	At or below county average	At or below county average
51	Lake Hogan Farms Rd Ext	Lake Hogan Farms Rd to Eubanks Road	Orange	0.96	\$10,419,610	At or below county average	At or below county average
52	Latta Rd	Guess Rd to Roxboro Rd	Durham	1.20	\$5,409,315	At or below county average	At or below county average
53.11	Leesville Rd Ext	Leesville Rd to US 70/Page Rd	Durham	0.81	\$9,587,110	At or below county average	At or below county average
57	Lynn Rd Ext	NC 98/Glover Rd Ext to Existing Lynn Rd	Durham	0.86	\$9,346,199	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	Project Limits	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
60	Midland Terrace	NC 98 to Geer St	Durham	2.44	\$17,207,959	More than 50% above county average	At or below county average
61	Midland Terrace	Dearborn to Old Oxford Rd/Hamlin Junction	Durham	0.98	\$17,862,527	More than 50% above county average	10% - 25% above county average
63	MLK Pkwy (NC 55 interchange)	NC 55 to Cornwallis Rd connector	Durham	0.28	\$29,850,000	10% - 25% above county average	At or below county average
64.13	NC 147 General purpose widening	East End Conn to I-40	Durham	4.78	\$52,645,086	At or below county average	At or below county average
66	NC 147 South Ext (Triangle Pkwy - toll)	I-40 to Wake County Line	Durham	2.40	\$156,700,000	At or below county average	At or below county average
69	NC 54	I-40 Interchange to NC 55	Durham	5.24	\$36,357,032	At or below county average	At or below county average
70	NC 54	I-40 to Barbee Chapel Rd	Durham	1.65	\$34,540,862	At or below county average	At or below county average
75	NC 55 (Alston Ave.)	NC 147 to NC 98	Durham	0.90	\$23,320,000	More than 50% above county average	More than 50% above county average
77.1	NC 751	S Roxboro St to NC 54	Durham	0.70	\$10,245,211	At or below county average	At or below county average
77.2	NC 751	NC 54 to Renaissance Pkwy	Durham	1.23	\$12,783,400	At or below county average	At or below county average
77.3	NC 751	Renaissance Pkwy to Fayetteville/Scott King Rd	Durham	1.94	\$20,162,436	At or below county average	At or below county average
80	NC 86	Old NC 10 to US 70 Business	Orange	0.90	\$11,513,707	At or below county average	At or below county average
81	NC 86	US 70 Bypass to NC 57	Orange	0.34	\$3,533,623	More than 50% above county average	At or below county average
81.1	NC 98 (Holloway St)	Wake County Line to Mineral Springs	Durham	6.46	\$68,218,832	10% - 25% above county average	At or below county average
83	Northern Durham Pkwy	US 70 E to I-85 North	Durham	8.07	\$133,434,364	10% - 25% above county average	At or below county average
84	Northern Durham Pkwy	I-85 North to Old Oxford Hwy	Durham	3.80	\$64,991,547	More than 50% above county average	More than 50% above county average
85	Northern Durham Pkwy	Old Oxford Hwy to Roxboro Rd	Durham	2.64	\$28,093,849	At or below county average	At or below county average
86	Old NC 86	I-40 to Lafayette Dr.	Orange	0.80	\$6,176,000	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	Project Limits	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
87	Old NC 86	Lafayette Dr to US 70 Business	Orange	1.63	\$13,124,000	More than 50% above county average	At or below county average
88	Old Oxford Rd	Roxboro Rd to Snow Hill Rd	Durham	2.57	\$27,790,031	More than 50% above county average	More than 50% above county average
89	Olive Branch Rd Ext	NC 98 to Wake County Line	Durham	1.48	\$16,869,085	At or below county average	At or below county average
89.3	Orange Grove Connector	Orange Grove Rd to US 70	Orange	0.40	\$5,336,644	At or below county average	At or below county average
90	Page Rd	I-40 to Page Rd Ext	Durham	3.88	\$40,324,871	At or below county average	At or below county average
91	Riddle Rd Extension	Ellis Rd to NC 147	Durham	0.49	\$5,214,389	At or below county average	At or below county average
92	Roxboro Road (501N)	Duke Street to Goodwin Rd	Durham	2.65	\$40,962,074	More than 50% above county average	At or below county average
94	Roxboro St	Cornwallis Rd to MLK Pkwy	Durham	1.29	\$4,240,000	More than 50% above county average	At or below county average
95.11	Scott King Rd	Grandale Dr to Hopson Rd	Durham	1.15	\$13,317,851	At or below county average	At or below county average
96	Seawell School Connector	Lake Hogan Farms Rd to Seawell School Rd	Orange	1.61	\$17,132,991	10% - 25% above county average	At or below county average
96.1	Sherron Rd	US 70 to NC 98	Durham	3.25	\$33,777,276	At or below county average	At or below county average
97	Smith Level Rd	Rock Haven Rd to NC 54 bypass	Orange	0.75	\$5,400,000	At or below county average	More than 50% above county average
98	South Columbia St	NC 54 to Manning Dr. (upgrade to include bicycle lanes)	Orange	0.86	\$3,650,000	10% - 25% above county average	More than 50% above county average
102	SW Durham Dr	Meadowmont Dr to I-40	Durham	1.79	\$21,208,481	At or below county average	At or below county average
104	SW Durham Dr.	Watkins Rd (Old Chapel Hill Rd to US 15-501)	Durham	0.70	\$10,245,211	At or below county average	At or below county average
106	SW Durham Dr.	US 15-501 to Mt. Moriah Rd	Durham	0.35	\$9,054,232	At or below county average	At or below county average
113	US 15-501 (freeway conversion)	Bypass to I-40	Durham	1.88	\$106,381,000	10% - 25% above county average	25% - 50% above county average
114	US 15-501 Bypass	Pickett Rd to Morreene Rd	Durham	2.64	\$35,386,491	25% - 50% above county average	More than 50% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	Project Limits	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
116	US 70 (freeway conversion)	Lynn Rd to Wake Co line	Durham	4.08	\$128,210,945	At or below county average	At or below county average
119	Weaver Dairy Rd	NC 86 to Erwin Rd	Orange	2.65	\$11,070,000	10% - 25% above county average	At or below county average
123.1	Woodcroft Pkwy Ext	Garrett Rd to Hope Valley Rd	Durham	0.25	\$2,660,402	At or below county average	At or below county average

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A10	Old Wake Forest Rd	Litchford Rd	Capital Blvd	Wake	1.2	\$ 17,563,219	More than 50% above county average	25% - 50% above county average
A101	US 70	Lumley/We stgate Rd	Duraleigh/ Millbrook Rd	Wake	3.3	\$ 38,450,000	At or below county average	At or below county average
A104	Morrisville Parkway	Green Level To Durham	NC 55	Wake	1.83	\$ 19,157,799	At or below county average	At or below county average
A111	Reedy Creek Rd	N.E. Maynard Rd	Harrison Avenue	Wake	1.17	\$ 8,933,877	25% - 50% above county average	At or below county average
A112a	Smithfield Rd	US 64 Bypass	Major Slade Rd	Wake	2.6	\$ 19,853,059	More than 50% above county average	At or below county average
A112b	Smithfield Rd	Major Slade Rd	Johnston Co. line	Wake	1.4	\$ 10,690,109	At or below county average	At or below county average
A114	Ten Ten Rd	Holly Springs Rd	US 1	Wake	3.4	\$ 25,961,693	At or below county average	At or below county average
A117	New Hope Rd	Old Poole Rd	Rock Quarry Rd	Wake	1.8	\$ 13,744,426	More than 50% above county average	At or below county average
A118b	NC 55	Jicarilla Rd	Rawls Ch Rd	Wake	1.6	\$ 12,217,267	At or below county average	Up to 10% above county average
A119	McCrimmon Parkway	Airport Blvd	NC 54	Wake	0.6	\$ 22,000,000	At or below county average	At or below county average
A120	Tryon Rd Ext	Garner Rd	Rock Quarry Rd	Wake	2.9	\$ 21,050,000	More than 50% above county average	More than 50% above county average
A125a	Forestville Rd	Horton Rd	Buffaloe Rd	Wake	3.4	\$ 25,961,693	25% - 50% above county average	10% - 25% above county average
A125a2	Forestville Rd	Buffaloe Rd	Rogers Rd	Wake	7.5	\$ 57,268,440	25% - 50% above county average	25% - 50% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A125b	Heritage Lake Rd	Rogers Rd	End of Existing Heritage Lake Rd	Wake	0.93	\$ 7,101,287	At or below county average	Up to 10% above county average
A126a	Ligon Mill Rd	Burlington Mills Rd	US 1A	Wake	2.32	\$ 9,208,815	At or below county average	Up to 10% above county average
A127a	Ligon Mill Rd Connector	US 1A	NC 98 Bypass	Wake	0.96	\$ 7,330,360	At or below county average	At or below county average
A127b	Ligon Mill Rd Connector	NC 98 Bypass	NC 98	Wake	1.18	\$ 9,010,235	At or below county average	At or below county average
A127c	Ligon Mill Rd Connector	NC 98	Stadium Dr	Wake	0.78	\$ 5,955,918	At or below county average	10% - 25% above county average
A12a	Falls of Neuse Rd	Raven Ridge Rd	Fonville Rd	Wake	1.3	\$ 18,000,000	Up to 10% above county average	At or below county average
A130a	Mitchell Mill Rd (West)	US 401	Louisbury Rd	Wake	1.13	\$ 8,628,445	25% - 50% above county average	25% - 50% above county average
A130c	US 401/Mitchell Mill Rd Interchange			Wake		\$ 25,500,000	25% - 50% above county average	25% - 50% above county average
A131	NC 96	US 64	NC 98	Wake	16.27	\$ 64,580,784	More than 50% above county average	More than 50% above county average
A134	Litchford Rd	Old Wake Forest Rd	Falls of Neuse Rd	Wake	2.99	\$ 11,868,257	At or below county average	At or below county average
A135a	Lead Mine Rd	Town & Country Rd	Millbrook Rd	Wake	0.54	\$ 2,143,431	Up to 10% above county average	10% - 25% above county average
A138a	Timber Dr/Jones Sausage Connector	US 70	Timber Dr Ext	Wake	0.65	\$ 6,804,683	25% - 50% above county average	At or below county average
A138b	Timber Dr/Jones Sausage Connector	Jones Sausage Rd	US 70	Wake	0.28	\$ 2,931,248	More than 50% above county average	25% - 50% above county average
A138c	Timber Dr/Jones Sausage Connector	White Oak Rd	I-40 (South)	Wake	5.02	\$ 38,331,676	More than 50% above county average	25% - 50% above county average

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ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A139	Timber Dr / US 70 Interchange			Wake	1.92	\$ 25,500,000	More than 50% above county average	More than 50% above county average
A13b	New Falls of Neuse Blvd	Falls of Neuse Rd	Waterlow Park Lane	Wake	0.83	\$ 8,689,056	Up to 10% above county average	At or below county average
A13c	Falls of Neuse Blvd	I-540	New Falls of Neuse Blvd	Wake	3.6	\$ 23,220,000	Up to 10% above county average	At or below county average
A14	Ray Rd	Leesville Rd	Strickland Rd	Wake	3.21	\$ 12,741,507	At or below county average	At or below county average
A140a	Vandora Springs Rd & Ext	Timber Dr	Old Stage Rd	Wake	1.02	\$ 7,788,508	10% - 25% above county average	At or below county average
A142a	Timber Dr East	Waterfield Rd	White Oak Rd	Wake	1.17	\$ 7,600,000	Up to 10% above county average	10% - 25% above county average
A142b	Timber Dr East	White Oak Rd	New Rand Rd	Wake	1.27	\$ 19,333,000	25% - 50% above county average	At or below county average
A143a	White Oak Rd	US 70	I-540	Wake	4.3	\$ 32,833,906	10% - 25% above county average	More than 50% above county average
A143b	White Oak Rd	I-540	NC 42 (Johnston Co.)	Wake	3.1	\$ 23,670,955	Up to 10% above county average	10% - 25% above county average
A148a	Eagle Rock Rd	US 64 Bypass	Martin Pond Rd	Wake	1.4	\$ 6,097,044	Up to 10% above county average	More than 50% above county average
A149a	Poole Rd	I-540	Martin Pond Rd	Wake	5.6	\$ 42,760,435	More than 50% above county average	More than 50% above county average
A15	Blue Ridge Rd	Duraleigh Rd	Glen Eden Dr	Wake	0.95	\$ 3,770,851	At or below county average	Up to 10% above county average
A150	NC 98	Durham County Line	NC 98 Bypass	Wake	8.86	\$ 67,653,117	At or below county average	At or below county average
A151	Aviation Parkway Ext	Brier Creek Parkway	US 70	Wake	1.79	\$ 83,434,206	At or below county average	At or below county average
A155a	T.W. Alexander Dr Ext	US 70	Brier Creek Pkwy	Wake	0.66	\$ 6,909,370	At or below county average	At or below county average
A155b	T.W. Alexander Dr	Aviation Parkway	US 70	Wake	1.02	\$ 22,698,508	At or below county average	At or below county average
A155c	T.W. Alexander Dr Ext	Brier Creek Parkway	Leesville Rd	Wake	1.8	\$ 44,343,736	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A157a	Eastern Parkway	Angier Rd	NC 55	Wake	3.9	\$ 97,399,049	At or below county average	Up to 10% above county average
A157b	Eastern Parkway	NC 55	US 401	Wake	1.79	\$ 91,828,095	At or below county average	Up to 10% above county average
A16	Rock Quarry Rd	Old Birch Rd	Sunnybrook Rd	Wake	0.83	\$ 7,188,634	More than 50% above county average	More than 50% above county average
A160a	Ralph Stephens Rd (Part NL)	Avent Ferry	NC 55	Wake	1.07	\$ 7,846,257	10% - 25% above county average	Up to 10% above county average
A160b	Ralph Stephens Rd (Part NL)	Piney Grove Wilbon	NC 55	Wake	1	\$ 7,332,950	10% - 25% above county average	Up to 10% above county average
A160c	Ralph Stephens Rd Interchange			Wake	0	\$ 25,500,000	10% - 25% above county average	Up to 10% above county average
A162	Buffaloe Rd	Southall Rd	I-540	Wake	2.39	\$ 18,325,901	More than 50% above county average	At or below county average
A163a	Holly Springs Rd	Sunset Lake Rd	Old Holly Springs Apex	Wake	3.58	\$ 27,336,135	10% - 25% above county average	Up to 10% above county average
A164a	Green Level-to-Durham	O'Kelly Chapel Rd	Carpenter Fire Station Rd	Wake	1.28	\$ 9,773,814	At or below county average	At or below county average
A166	Center St/1010	US 1	Apex Peakway	Wake	1.04	\$ 23,558,728	At or below county average	At or below county average
A169a	Wendell Falls Parkway	US 64 Bypass	Martin Pond Rd	Wake	1.69	\$ 45,352,175	More than 50% above county average	More than 50% above county average
A16b	Rock Quarry Rd	Sunnybrook Rd	New Hope Rd	Wake	1.09	\$ 8,323,013	More than 50% above county average	25% - 50% above county average
A171	Green Level West Rd	NC 55	I-540	Wake	0.9	\$ 19,622,213	At or below county average	At or below county average
A172	Kelly Rd	Jenks Rd	Old US 1	Wake	5.23	\$ 39,935,192	At or below county average	At or below county average
A174a	Martin Pond Rd	Poole Rd	Knightdale -Eagle Rock Rd	Wake	2.21	\$ 16,875,100	Up to 10% above county average	More than 50% above county average
A174b	Martin Pond Rd	Knightdale-Eagle Rock Rd	Wendell Blvd	Wake	0.84	\$ 8,793,744	Up to 10% above county average	More than 50% above county average
A178a	Olive Chapel Rd	Kelly Rd	NC 55	Wake	1.93	\$ 14,737,079	At or below county average	At or below county average

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ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A178b	Olive Chapel Rd	Richardson Rd	Kelly Rd	Wake	1.81	\$ 7,184,463	At or below county average	At or below county average
A178c	Olive Chapel Rd	New Hill Olive Chapel Rd	Richardson Rd	Wake	1.31	\$ 5,199,805	At or below county average	At or below county average
A179a	Richardson Rd	US 64 (West)	Olive Chapel Rd	Wake	1.42	\$ 40,365,614	At or below county average	At or below county average
A179b	Richardson Rd	Olive Chapel Rd	Humie Olive Rd		1.86	\$ 14,202,573	At or below county average	At or below county average
A181a	Old US 1	NC 751	Humie Olive Rd	Wake	2.38	\$ 9,446,974	At or below county average	At or below county average
A181b	Old US 1	Humie Olive Rd	Apex Peakway	Wake	2.53	\$ 19,318,554	Up to 10% above county average	At or below county average
A193b	Sunset Lake Rd	Hilltop-Needmore Rd	Optimist Farm Rd	Wake	2.55	\$ 19,471,270	At or below county average	At or below county average
A197a	Main Campus Dr Connector	Main Campus Dr	Main Campus Dr	Wake	0.68	\$ -	25% - 50% above county average	More than 50% above county average
A197b	Cent Campus Connector & Interchange	Main Campus Dr Connector	I-40	Wake	0.38	\$ 15,819,061	25% - 50% above county average	More than 50% above county average
A199	Pullen Rd	Western Blvd	Centennial Pkwy	Wake	0.4	\$ 4,013,180	More than 50% above county average	More than 50% above county average
A1a	Perry Creek Rd Ext	Fox Rd	I-540	Wake	0.97	\$ 7,406,718	More than 50% above county average	At or below county average
A1b	Perry Creek Rd Ext	I-540	Buffaloe Rd	Wake	0.7	\$ 9,488,120	More than 50% above county average	At or below county average
A20	Hillsborough St Safety & Enhancement	Gorman St	Gardner St	Wake	0.84	\$ 11,000,000	More than 50% above county average	More than 50% above county average
A201a	Rock Quarry Rd	New Hope Rd	Battle Bridge Rd	Wake	1.4	\$ 10,690,109	More than 50% above county average	More than 50% above county average
A201b	Rock Quarry Rd	Battle Bridge Rd	East Garner Rd	Wake	3.3	\$ 25,198,114	At or below county average	More than 50% above county average
A205	Six Forks Ext	Atlantic Avenue	Capital Blvd	Wake	0.56	\$ 5,862,496	10% - 25% above county average	At or below county average

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ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A207a	Judd Parkway NE	Existing Judd Parkway	NC 55 (BRd St)	Wake	1.7	\$ 12,980,846	At or below county average	At or below county average
A207a1	Judd Parkway NE (part NL)	Existing Judd Parkway	NC 55 (BRd St)	Wake	1.7	\$ 12,466,016	At or below county average	At or below county average
A207b1	Judd Parkway SW (part NL)	NC 42	Existing Judd Parkway	Wake	0.8	\$ 5,912,191	At or below county average	25% - 50% above county average
A207c1	Judd Parkway W (part NL)	Wilbon Rd	NC 42	wake	1.2	\$ 10,913,710	More than 50% above county average	More than 50% above county average
A21	Lake Boone Trail Ext	Blue Ridge Rd	Edwards Mill Ext	Wake	0.28	\$ 2,931,248	At or below county average	At or below county average
A214	Garner Rd	Tryon Rd	Rock Quarry Rd	Wake	7.16	\$ 28,420,308	More than 50% above county average	25% - 50% above county average
A217a	Sunset Lake Rd	Main St	Optimist Farm Rd	Wake	3.4	\$ 25,961,693	At or below county average	At or below county average
A217b	Sunset Lake Rd Ext	Old Holly Springs Apex	Main St	Wake	1.7	\$ 17,796,862	Up to 10% above county average	At or below county average
A218a	Old Holly Springs Apex Rd	Holly Springs Rd	Jessie Dr	Wake	2.52	\$ 19,242,196	Up to 10% above county average	At or below county average
A218b	Jessie Dr (part NL)	Ten Ten Rd	Old Holly Springs Rd	Wake	3.5	\$ 26,725,272	Up to 10% above county average	At or below county average
A218c	Old Holly Springs Apex Rd	Tingen Rd	Jessie Dr	Wake	1.06	\$ 4,207,476	Up to 10% above county average	At or below county average
A219a	McCrimmon Parkway Ext	NC 54	Louis Stevens Rd	Wake	1.74	\$ 3,600,000	At or below county average	At or below county average
A219b	McCrimmon Parkway Ext	Louis Stevens Rd	NC 55	Wake	0.94	\$ 9,840,618	At or below county average	At or below county average
A220a	Morrisville Carpenter Rd	Townhall Dr	Davis Dr	Wake	1.4	\$ 3,000,000	At or below county average	At or below county average
A220b	Morrisville Carpenter Rd	Davis Dr	Louis Stephens Dr	Wake	0.7	\$ 5,345,054	At or below county average	At or below county average
A221	NC 54	N.W. Maynard Rd	Wilson St	Wake	0.93	\$ 7,101,287	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A222a	NC 54	Cary Parkway	Weston Parkway	Wake	0.9	\$ 10,375,819	At or below county average	At or below county average
A222b	NC 54	Weston Parkway	Perimeter Park Dr	Wake	2.4	\$ 24,943,219	At or below county average	At or below county average
A222c	NC 54	Perimeter Park Dr	Northern Twn Limits	Wake	1.8	\$ 28,196,122	At or below county average	At or below county average
A223c	Kit Creek Rd	Kit Creek Rd	Kit Creek Rd	Wake	0.3	\$ 2,000,000	At or below county average	At or below county average
A228a	NC 50	Timber Dr	I-540	Wake	4.6	\$ 35,124,643	Up to 10% above county average	10% - 25% above county average
A228b	NC 50	I-540	NC 42	Wake	2.16	\$ 16,493,311	At or below county average	At or below county average
A230	S.E. Maynard Rd	Cary Towne Blvd	Walnut St	Wake	0.26	\$ 1,985,306	At or below county average	At or below county average
A231	Trinity Rd	Edwards Mill Rd Ext	Trenton Rd	Wake	1.1	\$ 8,399,371	At or below county average	More than 50% above county average
A234	Western Blvd	Gorman St	Avent Ferry Rd	Wake	1.21	\$ 17,709,579	More than 50% above county average	More than 50% above county average
A235b	US 1A	Rogers Rd	Forbes Rd	Wake	1.55	\$ 1,700,000	At or below county average	Up to 10% above county average
A236	NC 54	NE Maynard Rd	NW Maynard Rd	Wake	2.06	\$ 15,729,732	25% - 50% above county average	At or below county average
A237a	Old Apex Rd	West Chatham St	Cary Parkway	Wake	1.55	\$ 11,835,478	At or below county average	More than 50% above county average
A237b	Old Apex Rd	Cary Parkway	Laura Duncan Rd	Wake	0.39	\$ 2,977,959	At or below county average	At or below county average
A24	Edwards Mill Rd Ext - part II	Trinity Rd	Chapel Hill Rd	Wake	0.67	\$ 7,014,057	At or below county average	More than 50% above county average
A240a	North Harrison Avenue	Reedy Creek Rd	Weston Parkway	Wake	0.81	\$ 11,855,173	At or below county average	At or below county average
A240b	North Harrison Avenue	Weston Parkway	I-40	Wake	0.48	\$ 19,775,288	At or below county average	At or below county average
A240c	North Harrison Avenue	Dry Rd	Kildaire Farm Rd	Wake	0.32	\$ 5,034,630	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A26	McCrimmon Parkway	Airport Blvd	Aviation Parkway	Wake	0.4	\$ 4,900,000	At or below county average	At or below county average
A27a	Louis Stephens Dr Ext (part NL)	Wake County Line	Kit Creek Rd	Wake	1.23	\$ 9,392,024	At or below county average	At or below county average
A27b	Louis Stephens Dr Ext (part NL)	Kit Creek Rd	O'Kelly Chapel Rd	Wake	1.13	\$ 8,628,445	At or below county average	At or below county average
A27c	Louis Stephens Dr Ext (part NL)	O'Kelly Chapel Rd	McCrimmon Pkwy	Wake	1.57	\$ 11,988,193	At or below county average	At or below county average
A27d	Louis Stephens Dr Ext (part NL)	McCrimmon Pkwy	Morrisville Carpenter Rd	Wake	0.35	\$ -	At or below county average	At or below county average
A28b	Davis Dr	Farm Pond Rd	US 64	Wake	1.1	\$ 8,399,371	At or below county average	At or below county average
A2a	Southall Rd	Skycrest Dr	Buffaloe Rd	Wake	1.54	\$ 15,000,000	At or below county average	At or below county average
A2b	Southall Rd	Southall Rd (Existing)	Hedingham Blvd	Wake	0.28	\$ 2,931,248	At or below county average	At or below county average
A3	Spring Forest Rd Ext	US 401	Buffaloe Rd	Wake	1.16	\$ 12,143,741	More than 50% above county average	At or below county average
A30	Morrisville Parkway (part NL)	Davis Dr	NC 55	Wake	1.37	\$ 10,461,035	At or below county average	At or below county average
A302a	Guy Rd	NC 55 (south of Angier)	NC 210	Wake	2.1	\$ 16,035,163	At or below county average	At or below county average
A302b	Northeastern Angier Bypass	NC 210	NC 55 (north of Angier)	Wake	3	\$ 22,907,376	At or below county average	Up to 10% above county average
A302c	Rawls Ch Rd	NC 55 (north of Angier)	US 401	Wake	4.09	\$ 31,230,389	At or below county average	Up to 10% above county average
A302d	Southern FV Bypass	Angier Rd	Piney Grove Wilbon	Wake	2.4	\$ 50,624,982	At or below county average	25% - 50% above county average
A302e	Northeastern Angier Bypass	Benson Road	NC 55 (north of Angier)	Wake	1.12	\$ 1,120,000	At or below county average	Up to 10% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A303	Northern Fuquay-Varina Bypass	Sunset Lake	Avent Ferry Road	Wake	3.07	\$ 23,441,881	10% - 25% above county average	Up to 10% above county average
A32	Walker St	Chatham St	Chapel Hill Rd	Wake	0.25	\$ 2,913,238	25% - 50% above county average	More than 50% above county average
A33	Kildaire Farm Rd	Walnut St	Dowell St	Wake	0.28	\$ 4,098,084	At or below county average	At or below county average
A34	Cary Parkway	Evans Rd	Harrison Avenue	Wake	1.74	\$ 13,286,278	At or below county average	At or below county average
A36b	Chatham St	Reedy Creek Rd	N.E. Maynard Rd	Wake	0.27	\$ 3,951,724	Up to 10% above county average	At or below county average
A36c	Chatham St	N.E. Maynard Rd	I-40 bridge	Wake	0.93	\$ 13,611,495	More than 50% above county average	25% - 50% above county average
A37	Walnut St	Maynard Rd	Macedonia Rd	Wake	1.29	\$ 18,880,461	At or below county average	At or below county average
A38	Tryon Rd	US 64	Kildaire Farm Rd	Wake	0.8	\$ 11,708,813	At or below county average	At or below county average
A38o	US 64	US 1	Laura Duncan Rd	Wake	2.49	\$ 11,000,000	At or below county average	At or below county average
A39	Alston Avenue	Kit Creek Rd	NC 55	Wake	2.12	\$ 16,187,879	At or below county average	At or below county average
A40	Kildaire Farm Rd	Swift Creek	Ten Ten Rd	Wake	2	\$ -	At or below county average	At or below county average
A404	South Franklin St (part NL)	NC 98 (Wake Forest Bypass)	Rogers Rd	Wake	1.1	\$ 11,432,309	At or below county average	Up to 10% above county average
A406a	Shotwell Rd	East Garner Rd	US 70	Wake	0.86	\$ 6,566,781	At or below county average	At or below county average
A407a	NC 42	NC 401	Old Stage Rd	Wake	4.1	\$ 31,306,747	At or below county average	Up to 10% above county average
A407b	NC 42	Old Stage Rd	NC 50	Wake	5.42	\$ 41,385,993	At or below county average	10% - 25% above county average
A407c	NC 42	NC 50	I 40	Wake	2.28	\$ 31,239,606	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A41	Kildaire Farm Rd	Ten Ten Rd	Kildaire Farm Connector	Wake	2.03	\$ 15,500,658	At or below county average	At or below county average
A410	Lake Pine Dr/Old Raleigh Rd	Cary Parkway	Apex Peakway	Wake	1.7	\$ 12,980,846	At or below county average	At or below county average
A412	US 70 - Upgrade to Freeway	Aviation Pkwy Ext (Durham Co line)	Lumley/W estgate Rd	Wake	2.69	\$ 53,457,192	At or below county average	At or below county average
A413	NC 54 (Chapel Hill Rd)	Corporate Center Dr	Hillsborou gh St	Wake	1.33	\$ 13,822,701	At or below county average	More than 50% above county average
A417	Spring Forest Rd	Fox Rd	US 401	Wake	0.67	\$ 2,659,442	More than 50% above county average	10% - 25% above county average
A426	NC 55 (Main St)	Holly Springs Rd	Bobbitt Rd	Wake	2.96	\$ 22,601,944	Up to 10% above county average	At or below county average
A427a	Avent Ferry Rd	NC 55 Bypass	Cass Holt	Wake	3.68	\$ 28,099,715	10% - 25% above county average	Up to 10% above county average
A428	Green Oaks Parkway	SR 1152 (New Hill Rd)	NC 55 Bypass	Wake	1.4	\$ -	At or below county average	At or below county average
A43	Lake Wheeler Rd	Tryon Rd	I-40	Wake	1.3	\$ 9,926,530	More than 50% above county average	More than 50% above county average
A431	Wake Forest Rd	Six Forks Rd	I 440	Wake	0.5	\$ -	More than 50% above county average	At or below county average
A432	Skycrest Dr	Brentwood Rd	Trawick Rd	Wake	0.95	\$ 7,254,002	More than 50% above county average	Up to 10% above county average
A434	Sunnybrook Rd	Rock Quarry Rd	Poole Rd	Wake	1.81	\$ 7,184,463	More than 50% above county average	More than 50% above county average
A438	Blue Ridge Rd	Glen Eden	Crabtree Valley Avenue	Wake	1.01	\$ 4,009,010	At or below county average	Up to 10% above county average
A439	Buck Jones Rd	Farmgate Rd	Western Blvd	Wake	1.13	\$ 5,025,328	More than 50% above county average	More than 50% above county average
A440a	Carpenter Fire Station Rd	NC 55	County Line Rd	Wake	0.47	\$ 3,588,822	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A440b	Carpenter Fire Station Ext	NC 55	Morrisville Carpenter Rd	Wake	0.3	\$ 3,140,623	At or below county average	At or below county average
A443b	Jenks Rd	Wimberly Rd	US 64	Wake	0.51	\$ 3,894,254	At or below county average	At or below county average
A444	NC 50	I 540	NC 98	Wake	5.06	\$ 38,637,108	At or below county average	At or below county average
A445	NC 50	NC 98	Wake Co Line	Wake	6.12	\$ 46,731,047	At or below county average	At or below county average
A448	Six Forks Rd	Rowan St	Sandy Forks Rd	Wake	1.46	\$ 11,148,256	10% - 25% above county average	Up to 10% above county average
A449	Perry Rd Ext	Apex Peakway	Jessie Dr	Wake	1.1	\$ 11,515,617	Up to 10% above county average	At or below county average
A450	RTP Access Routes	Internal RTP access points	External access points	Wake	0.84	\$ 8,730,127	At or below county average	At or below county average
A457	Westgate Rd	Leesville Rd	US 70	Wake	1.4	\$ 29,100,422	At or below county average	At or below county average
A46a	Tryon Rd	Lake Wheeler Rd	Norfolk Southern Rail	Wake	1.3	\$ 9,926,530	More than 50% above county average	More than 50% above county average
A46b	Tryon Rd	Norfolk Southern Rail	Existing Tryon Rd Alignment	Wake	0.5	\$ -	More than 50% above county average	More than 50% above county average
A46c	Tryon Rd	New Tryon Rd Alignment	S. Wilmington St	Wake	0.4	\$ 3,054,317	More than 50% above county average	More than 50% above county average
A47	Sunnybrook Rd	Poole Rd	New Bern Avenue	Wake	1.29	\$ 9,850,172	More than 50% above county average	More than 50% above county average
A480	US 401(South)	US 70	NC 55 (FV)	Wake	10.85	\$ 96,678,343	25% - 50% above county average	More than 50% above county average
A482	Wade Avenue	Ridge Rd	Faircloth St	Wake	0.36	\$ 1,000,000	At or below county average	More than 50% above county average
A486	Blue Ridge-Hillsborough Grade Separation	Blue Ridge Rd	TTA Rail Line at Hillsborough	Wake	1	\$ 25,500,000	At or below county average	More than 50% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A49a	Poole Rd	Maybrook Dr	Barwell Rd	Wake	1	\$ 7,635,792	More than 50% above county average	At or below county average
A49b	Poole Rd	Barwell Rd	I-540	Wake	1.57	\$ 11,988,193	More than 50% above county average	10% - 25% above county average
A4c	Rogers Lane	Daleview Dr	Southall Rd	Wake	1.06	\$ 4,747,476	More than 50% above county average	At or below county average
A51	Smithfield Rd	Forestville Rd	Bethlehem Rd	Wake	1.57	\$ 7,446,000	25% - 50% above county average	10% - 25% above county average
A511	Piney Grove Wilbon Rd	Brayton Park Rd	Southern FV Bypass	Wake	5.11	\$ 43,218,583	More than 50% above county average	More than 50% above county average
A52	Smithfield Rd	Bethlehem Rd	US 64 Bypass	Wake	1.796023	\$ 13,744,426	More than 50% above county average	10% - 25% above county average
A521	O'Kelley Chapel Rd	Louis Stephens Dr	NC 55	Wake	0.62	\$ 6,385,933	At or below county average	At or below county average
A522	New Alston Connector	NC 55	Green Level -to-Durham	Wake	1.09	\$ 7,992,916	At or below county average	At or below county average
A526	Sloan Rd Ext	Sloan Rd	Trinity Rd	Wake	0.4	\$ 2,933,180	More than 50% above county average	25% - 50% above county average
A53	Davis Dr	Morrisville-Carp	Durham County Line	Wake	1.1	\$ -	At or below county average	At or below county average
A530	Evans Rd	Aviation Parkway	Weston Parkway	Wake	0.5	\$ 3,817,896	At or below county average	At or below county average
A54	Pleasant Valley Rd	Duraleigh Rd	Glenwood Avenue	Wake	0.34	\$ 2,596,169	10% - 25% above county average	10% - 25% above county average
A55	Perry Creek Rd	US 1	US 401	Wake	1.61	\$ 12,293,625	More than 50% above county average	More than 50% above county average
A56a	NC 98 Bypass	US 1	NC 98	Wake	1.44	\$ 15,074,989	At or below county average	Up to 10% above county average
A56c	NC 98	NC 98 Bypass	US 401	Wake	5.29	\$ 40,393,340	At or below county average	Up to 10% above county average
A57	Sandy Forks Rd	Falls of Neuse	Six Forks Rd	Wake	1.31	\$ 5,199,805	25% - 50% above county average	10% - 25% above county average
A59b	Sumner Blvd Ext	Old Wake Forest Rd	Capital Blvd	Wake	0.38	\$ 9,830,309	More than 50% above county average	25% - 50% above county average
A63	Cary Parkway Ext	Harrison Avenue	Trinity Rd	Wake	2.05	\$ 15,032,548	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A640	Aviation Parkway Interchange	National Guard Dr	I-40	Wake	0.42	\$ 12,750,000	At or below county average	At or below county average
A641	Airport Blvd Interchange			Wake	0.82	\$ 12,750,000	At or below county average	At or below county average
A64a	Aviation Parkway	I-40	Dominion Dr		0.93	\$ 9,137,500	At or below county average	At or below county average
A64b	Aviation Parkway	Evans Rd	NC 54	Wake	0.92	\$ 3,400,000	At or below county average	At or below county average
A66a	O'Kelley Chapel Rd	Alston Avenue	NC 55	Wake	1.21	\$ 9,239,308	At or below county average	At or below county average
A68a	Green Pace Rd	NC 96	Water Plant Rd	Wake	0.82	\$ 6,261,349	10% - 25% above county average	25% - 50% above county average
A68b	Water Plant Rd - Part new location	Green Pace Rd	W Gannon Avenue	Wake	0.93	\$ 7,101,287	10% - 25% above county average	25% - 50% above county average
A71	Holly Springs Rd	Ten Ten Rd	Kildaire Farm Rd Connector	Wake	0.84	\$ 9,684,098	At or below county average	At or below county average
A72	Holly Springs Rd	Tryon Rd	SE Cary Parkway	Wake	0.61	\$ 4,657,833	At or below county average	At or below county average
A73a	Jones Franklin Rd	Tryon Rd	Dillard Dr	Wake	0.67	\$ 5,115,981	At or below county average	At or below county average
A73b	Jones Franklin Rd	Dillard Dr	I-440	Wake	0.34	\$ 3,676,169	More than 50% above county average	More than 50% above county average
A73c	Jones Franklin Rd	I-440	Western Blvd	Wake	1.01	\$ 4,009,010	More than 50% above county average	More than 50% above county average
A74c	Piney Plains Rd	Dillard Dr	Walnut St	Wake	0.43	\$ 6,293,487	At or below county average	At or below county average
A75a	County Line Rd	North of O'Kelly Chapel	Yates Store Rd	Wake	1.09	\$ -	At or below county average	At or below county average
A75b	County Line Rd	Yates Store Rd	Green Level Church	Wake	1.09	\$ 7,992,916	At or below county average	At or below county average
A75c	County Line Rd	Green Level West	Beckwith Farm Rd	Wake	1.96	\$ 14,372,583	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A80b	New Hope Rd	US 64 Bypass	New Bern Ave	Wake	1.19	\$ 13,447,680	More than 50% above county average	At or below county average
A82	Trinity Rd Ext	Chatham St	Cary Towne Blvd	Wake	0.69	\$ 7,223,432	More than 50% above county average	25% - 50% above county average
A85b	Leesville Rd	Westgate Rd	Lynn Rd	Wake	2.31	\$ 17,638,680	At or below county average	At or below county average
A86a	Leesville Rd	I-540 Interchange	New Leesville Blvd	Wake	1.17	\$ 8,933,877	At or below county average	At or below county average
A86b	Leesville Rd	New Leesville Blvd	TW Alexander Dr Ext	Wake	0.97	\$ 7,406,718	At or below county average	At or below county average
A87	New Leesville Blvd Ext	Terminus	Carpenter Pond Rd	Wake	0.47	\$ 4,920,309	At or below county average	At or below county average
A88	New Rand Rd	NC 50	Old Garner Rd	Wake	1.63	\$ 6,469,986	More than 50% above county average	More than 50% above county average
A89a	US 401 Widening	Ligon Mill Rd / Mitchell Mill Rd	Forestville Rd	Wake	1.23	\$ 12,001,000	25% - 50% above county average	25% - 50% above county average
A9	Strickland Rd	Leesville Rd	Creedmoor Rd	Wake	2.73	\$ 20,845,712	At or below county average	At or below county average
A90a	US 401 Widening	Forestville Rd	US 401 Rolesville Bypass	Wake	1	\$ 8,944,000	25% - 50% above county average	25% - 50% above county average
A90b	US 401 Rolesville Bypass	US 401	US 401	Wake	4.5	\$ 47,109,341	25% - 50% above county average	25% - 50% above county average
A90c	US 401 Widening	US 401 Rolesville Bypass	Franklin County	Wake	1.56	\$ 11,911,836	At or below county average	At or below county average
A90d	US 401 Widening	Franklin County	NC 39 (Louisburg)	Franklin	10.5	\$ 22,485,000	At or below county average	At or below county average
A91	Jones Sausage Rd	Rock Quarry Rd	I-40	Wake	1.5	\$ 11,453,688	More than 50% above county average	25% - 50% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
A96b	NC 55	Apex Peakway (south)	Olive Chapel Rd	Wake	1.67	\$ 19,472,000	Up to 10% above county average	At or below county average
A97b	Airport Blvd	I-40	NC 54	Wake	0.71	\$ -	At or below county average	At or below county average
F10	I-440 Widening	US 1/64	Wade Avenue	Wake	3.5	\$ 77,015,000	More than 50% above county average	More than 50% above county average
F110	US 1	US 64	NC 540	Wake	5.3	\$ 54,779,698	Up to 10% above county average	At or below county average
F11-1a	US 1 North - Upgrade to Freeway	I-540	Thornton Road	Wake	1.62	\$ 82,247,019	More than 50% above county average	More than 50% above county average
F11-1b	US 1 North - Upgrade to Freeway	Thornton Rd	Burlington Mills Rd	Wake	1.55	\$ 60,559,466	Up to 10% above county average	Up to 10% above county average
F12	NC 540 Tri-Ex Turnpike - A2 (was NC 147 Triangle Pkwy)	Durham Co. Line	NC 540 Tri-Ex - A1	Wake	3.5	\$ 174,703,000	At or below county average	At or below county average
F16	I-40	US 1-64	Wade Avenue	Wake	3.89	\$ 38,486,000	More than 50% above county average	More than 50% above county average
F3	NC 540 Tri-Ex Turnpike - C3 (was I-540 SE Wake Frwy)	I-40 (South)	US 64 East Bypass	Wake	10.8	\$ 255,272,000	Up to 10% above county average	More than 50% above county average
F40	I-40 HOV/HOT Project	Durham County Line	Wade Avenue	Wake	9.2	\$ 240,000,000	At or below county average	At or below county average
F42	I-540 Tri-Ex (Northern) Turnpike Conversion	I-40	US-64 Bypass	Wake	25.82	\$ 366,111,882	More than 50% above county average	More than 50% above county average
F43	I-40	US 1/64	Lake Wheeler Rd	Wake	4.43	\$ 84,037,559	25% - 50% above county average	More than 50% above county average
F44a	I-40 (East)	I-440	US 70 Business (Garner)	Wake	4.4	\$ 71,979,235	More than 50% above county average	More than 50% above county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
F44b	I-40 (East)	US 70 Business (Garner)	NC 42	Wake	6.3	\$ 158,070,734	Up to 10% above county average	10% - 25% above county average
F44c	I-40 (East)	NC 42	NC 210	Wake	6.78	\$ 100,436,670	At or below county average	At or below county average
F44d	I-40 (East)	NC 210	CAMPO MAB	Wake	6.78	\$ 102,056,670	At or below county average	At or below county average
F4b	NC 540 Tri-Ex Turnpike - B1 (was I-540 W. Wake Frwy)	NC 55 (Morrisville /Cary)	US 1	Wake	10.1	\$ 600,359,000	Up to 10% above county average	At or below county average
F4c	NC 540 Tri-Ex Turnpike - B2 (was I-540 W. Wake Frwy)	US 1	NC 55 Bypass	Wake	2.3	\$ 150,000,000	Up to 10% above county average	At or below county average
F5	NC 540 Tri-Ex Turnpike - C1 (was I-540 S. Wake Frwy)	NC 55 Bypass	US 401 (South)	Wake	7.8	\$ 213,000,000	Up to 10% above county average	At or below county average
F6	NC 540 Tri-Ex Turnpike - C2 (was I-540 S. Wake Frwy)	US 401 (South)	I-40 (South)	Wake	8.7	\$ 177,000,000	Up to 10% above county average	10% - 25% above county average
F7	US 64 East	US 64 Bypass (Wendell)	US 64/US 264 (Zebulon)	Wake	7.35	\$ 182,865,857	More than 50% above county average	25% - 50% above county average
Grnv108	Intrsectn Rlgnmnt @ US 15, NC 56, NC50			Granville	1	\$ 1,908,948	At or below county average	10% - 25% above county average
Grnv18	NC 50	Wake Co.	Creedmoor Loop	Granville	3.8	\$ 29,016,010	25% - 50% above county average	10% - 25% above county average
Grnv32	Brassfield Rd	Creedmoor Loop	Hayes Rd	Granville	1.8	\$ 13,744,426	25% - 50% above county average	Up to 10% above county average
Grnv33	Brassfield Rd	Hayes Rd	NC 96	Granville	4.07	\$ 31,077,673	At or below county average	At or below county average
Grnv35	Woodland Church Rd	Wake Co. line	Bruce Garner Rd	Granville	4.41	\$ 17,504,687	At or below county average	At or below county average

**2035 Long Range Transportation Plan
Environmental Justice Project Tables**

ID	Project	From	To	County	Length (miles)	Total Cost (2008 dollars)	Percent Minority Population	Percent of Households Below Poverty
Grnv47	Creedmoor Loop A	NC 56	US 15	Granville	1.59	\$ 16,645,300	At or below county average	10% - 25% above county average
Grnv48	Creedmoor Loop B	US-15	Relocated US 15	Granville	0.66	\$ 5,039,623	At or below county average	10% - 25% above county average
Grnv49	Creedmoor Loop C	Relocated US 15	Brassfield Rd	Granville	1.89	\$ 19,785,923	25% - 50% above county average	10% - 25% above county average
Grnv81a	Old Weaver Trail	From NC 50 (Wake Co)	Northside Rd Ext	Granville	1.65	\$ 12,599,057	At or below county average	10% - 25% above county average
Grnv93	Cash Rd / Gate 2 Rd	Old Weaver Trail	I-85	Granville	3.94	\$ 30,085,020	At or below county average	10% - 25% above county average
Grnv94	I-85 / Brogden Interchange			Granville	3.94	\$ 25,500,000	Up to 10% above county average	At or below county average
Hrnt5	US 401	Fuquay-Varina	Lillington UPD	Harnett	7.5	\$ 57,268,440	At or below county average	25% - 50% above county average
Jhns1a	NC 42 East Widening	US 70	Sr 1902	Johnston	1.23	\$ 9,392,024	More than 50% above county average	Up to 10% above county average
Jhns1b	NC 42 East Widening	SR 1902	Buffaloe Rd	Johnston	4.44	\$ 30,725,000	More than 50% above county average	Up to 10% above county average
Jhns2a	NC 42 West	US 70 Business	US 70 Bypass	Johnston	3.01	\$ 36,813,734	25% - 50% above county average	At or below county average
Jhns2b	NC 42 West Widening	US 70 Bypass	I-40	Johnston	3.37	\$ 56,895,867	At or below county average	At or below county average
Jhns6	Pritchard Rd/Smithfield Rd Widening	Covered Bridge Rd	Wake County line	Johnston	2.4	\$ 18,325,901	At or below county average	At or below county average

Appendix 9 -- Acronyms

BG MPO:	Burlington-Graham Metropolitan Planning Organization
CAAA:	Clean Air Act Amendments of 1990 (United States)
CAMPO:	Capital Area Metropolitan Planning Organization
CATS:	Capital Area Transit System
CFR:	Code of Federal Regulations
CHT:	Chapel Hill Transit
CMAQ:	Congestion Mitigation/Air Quality
CO:	Carbon Monoxide
CTP:	Comprehensive Transportation Plan
CTRAN:	Cary Transit System
DATA:	Durham Area Transit Authority
DAQ:	Division of Air Quality (North Carolina)
DCHC MPO:	Durham-Chapel Hill –Carrboro Metropolitan Planning Organization
DENR:	Department of Environment and Natural Resources (North Carolina)
DMV:	Division of Motor Vehicles
DOT:	Department of Transportation (North Carolina)
EPA:	Environmental Protection Agency (United States)
FHWA:	Federal Highway Administration
FTA:	Federal Transit Administration
HBO:	Home Based Other (trip purpose)
HBS:	Home Based Shopping (trip purpose)
HBW:	Home Based Work (trip purpose)
HOT:	High Occupancy Toll
HOV:	High Occupancy Vehicle
HPMS:	Highway Performance Management System
I/M:	Inspection/Maintenance
ISTEA:	Intermodal Surface Transportation Efficiency Act
ITRE:	Institute for Transportation Research and Education
ITS:	Intelligent Transportation Systems
KT RPO:	Kerr-Tar Rural Transportation Planning Organization
LRTP:	Long Range Transportation Plan
MPO:	Metropolitan Planning Organization
MTIP:	Metropolitan Transportation Improvement Program
NAAQS:	National Ambient Air Quality Standards
NCDOT:	North Carolina Department of Transportation
NHB:	Non Home Based (trip purpose)
NO _x :	Nitrogen Oxides
RPO:	Rural Transportation Planning Organization
RTAC:	Rural Transportation Advisory Committee
RTCC:	Rural Technical Coordinating Committee
RVP:	Reid Vapor Pressure
SAFETEA-LU:	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SIP:	State Implementation Plan (for air quality)
STAC:	Special Transit Advisory Commission
STP-DA	Surface Transportation Program-Direct Allocation
TAC:	Transportation Advisory Committee
TAZ:	Traffic Analysis Zone
TARPO:	Triangle Area Rural Transportation Planning Organization
TCC:	Technical Coordination Committee

TCM:	Transportation Control Measure
TDM:	Transportation Demand Management
TRM:	Triangle Regional Model
TEA-21:	Transportation Efficiency Act for the 21 st Century
TIP:	Transportation Improvement Program
TRM:	Triangle Regional Model
UCPRPO:	Upper Coastal Plain Rural Transportation Planning Organization
UPWP:	Urban Planning Work Program
USEPA:	United States Environmental Protection Agency
V/C:	Volume to Capacity Ratio (measure of congestion on a road segment)
VKT:	Vehicle Kilometers of Travel
VMT:	Vehicle Miles of Travel
VOC:	Volatile Organic Compounds

Appendix 10 -- Greenhouse Gas Emissions

The City of Raleigh, City of Durham, Town of Chapel Hill, Town of Carrboro, Town of Hillsborough, Town of Cary, Durham County, and Orange County are members of the organization ICLEI Local Governments for Sustainability. As members, these jurisdictions have committed to reducing greenhouse gas emissions from their local government operations and in their communities. Many of the Triangle area ICLEI members are in the process of creating a local greenhouse gas emissions inventory and adopting an emissions reduction target. The effort to reduce greenhouse gas emissions is currently a local effort. It is not required in the air quality conformity process. The modeling and analysis is completed separately from the air quality conformity analysis.

In September 2007, the City of Durham and Durham County completed an emissions inventory and adopted greenhouse gas emission reduction targets. One of Durham's targets is to reduce emissions by thirty percent from 2005 levels by 2035 from the community at-large. This emission target includes emissions from the transportation sector as well as the residential, commercial, industrial, and solid waste sectors.

The DCHC MPO used the traffic modeling results and ICLEI's Cities for Climate Protection software to create a comparison of greenhouse gas emissions from the transportation sector for the 2005 baseline year and the 2035 planning year for Durham County. The results are shown in the table below.

	Daily VMT	Greenhouse Gases (equivalent CO ₂)	Percent Change from 2005
2005 Baseline	10,673,559	2,624,880	(not applicable)
2035 E+C	17,397,077	3,595,980	+37.0%
2035 Projection	17,603,017	3,921,560	+49.4%

The analysis shows that the 2035 Long Range Transportation Plan does not meet Durham's thirty percent target for the reduction of greenhouse gas emissions from the 2005 baseline. Achieving the 2035 greenhouse gas target would require a reduction in vehicle-miles-travelled from the 2005 baseline and/or less polluting vehicles. The modeling results show that vehicle-miles-travelled will increase by 65% from 2005 to 2035. In addition, the modeling uses the current fuel efficiency standards in the estimation of future greenhouse gas emissions. These standards currently are not designed to address the effects of climate change and reduced greenhouse gas emissions. However, it is likely that fuel efficiency standards will soon be changed to address the growing concern of climate change. In 2007, the United States Supreme Court ruled that the U.S. Environmental Protection Agency must regulate new vehicle emission standards to control greenhouse gas emissions that contribute to climate change (*Commonwealth of Massachusetts et al. v. Environmental Protection Agency et al.*). New vehicle emission standards would greatly help Durham meet its targets.

As the other local governments complete their greenhouse gas emission inventories and set their reduction targets, the DCHC MPO and the Capital Area MPO will further evaluate the impact of their LRTPs on greenhouse gas emissions. In addition, if new federal or state regulations on greenhouse gas emission take effect, the two MPOs will ensure that the two LRTPs are in compliance.